

APPENDIX E

Traffic Study

CENTER AVENUE SKATE PARK

Traffic Analysis

December 2011



DRAFT

City Of Huntington Beach
CENTER AVENUE SKATE PARK

Prepared by:

Austin-Foust Associates, Inc.
2223 Wellington Avenue, Suite 300
Santa Ana, California 92701-3161
(714) 667-0496

December 23, 2011

CONTENTS

	Page
1.0 INTRODUCTION	
Background and Scope.....	1-1
Performance Criteria	1-4
Study Area.....	1-8
References	1-8
2.0 TRANSPORTATION SETTING	
Existing Conditions	2-1
Future Conditions.....	2-9
3.0 PROJECT DESCRIPTION	
Project Description.....	3-1
Trip Generation	3-1
General Plan Comparison	3-4
Trip Distribution	3-4
4.0 IMPACT ANALYSIS	
Existing Plus Project Conditions.....	4-1
Short-Range Analysis	4-4
Long-Range Analysis.....	4-4
Freeway Ramp Volumes	4-9
5.0 OTHER ITEMS	
Parking Management Plan	5-1
Project Access	5-2
Alternative Modes of Travel	5-3
APPENDICES:	
A: Peak Hour Volume Diagrams	
B: Intersection Capacity Utilization Worksheets	
C: HCM Worksheets	
D: Derivation of Trip Rates for Skate Park	
E: Project Share Contribution Worksheets	

LIST OF FIGURES AND TABLES

	Page
FIGURES	
1-1 Project Location.....	1-2
1-2 Intersections in Study Area.....	1-9
2-1 Existing Midblock Lanes.....	2-2
2-2 Existing ADT Volumes	2-3
2-3 Existing AM Peak Hour Volumes	2-4
2-4 Existing PM Peak Hour Volumes.....	2-5
2-5 Intersection Location Map.....	2-7
2-6 Master Plan of Arterial Highways	2-10
3-1 Project Site Map	3-2
3-2 Trip Distribution	3-5
3-3 ADT Volumes – Project Only	3-6
4-1 Existing Plus Project ADT Volumes	4-2
4-2 2016 ADT Volumes – With Project	4-5
4-3 2030 ADT Volumes – Current General Plan.....	4-7
4-4 2030 ADT Volume – With Proposed Project.....	4-8
5-1 Proposed Shuttle Route For Skate Park.....	5-3
5-2 Project Access Volumes	5-4
5-3 Existing Bikeways	5-7
5-4 Bus Routes.....	5-8
TABLES	
1-1 Performance Criteria – Intersections	1-5
1-2 Level of Service Descriptions – Signalized Intersections.....	1-6
1-3 Freeway Ramp Performance Criteria	1-7
2-1 Existing Intersection Level of Service Summary	2-6
2-2 Existing Freeway Ramp V/C Summary.....	2-8
3-1 Center Avenue Skate Park Trip Generation	3-3
4-1 Existing-Plus-Project ICU Summary.....	4-3
4-2 2016 ICU Summary	4-6
4-3 2030 ICU Summary	4-10
4-4 Future Freeway Ramp V/C Summary	4-11
5-1 Center Avenue Skate Park Trip Generation	5-6

Chapter 1.0

INTRODUCTION

This report summarizes the results of a traffic study for the proposed Center Avenue Skate Park Project in the City of Huntington Beach. The study provides the technical information for the environmental impact report (EIR) being prepared for this project.

BACKGROUND AND SCOPE

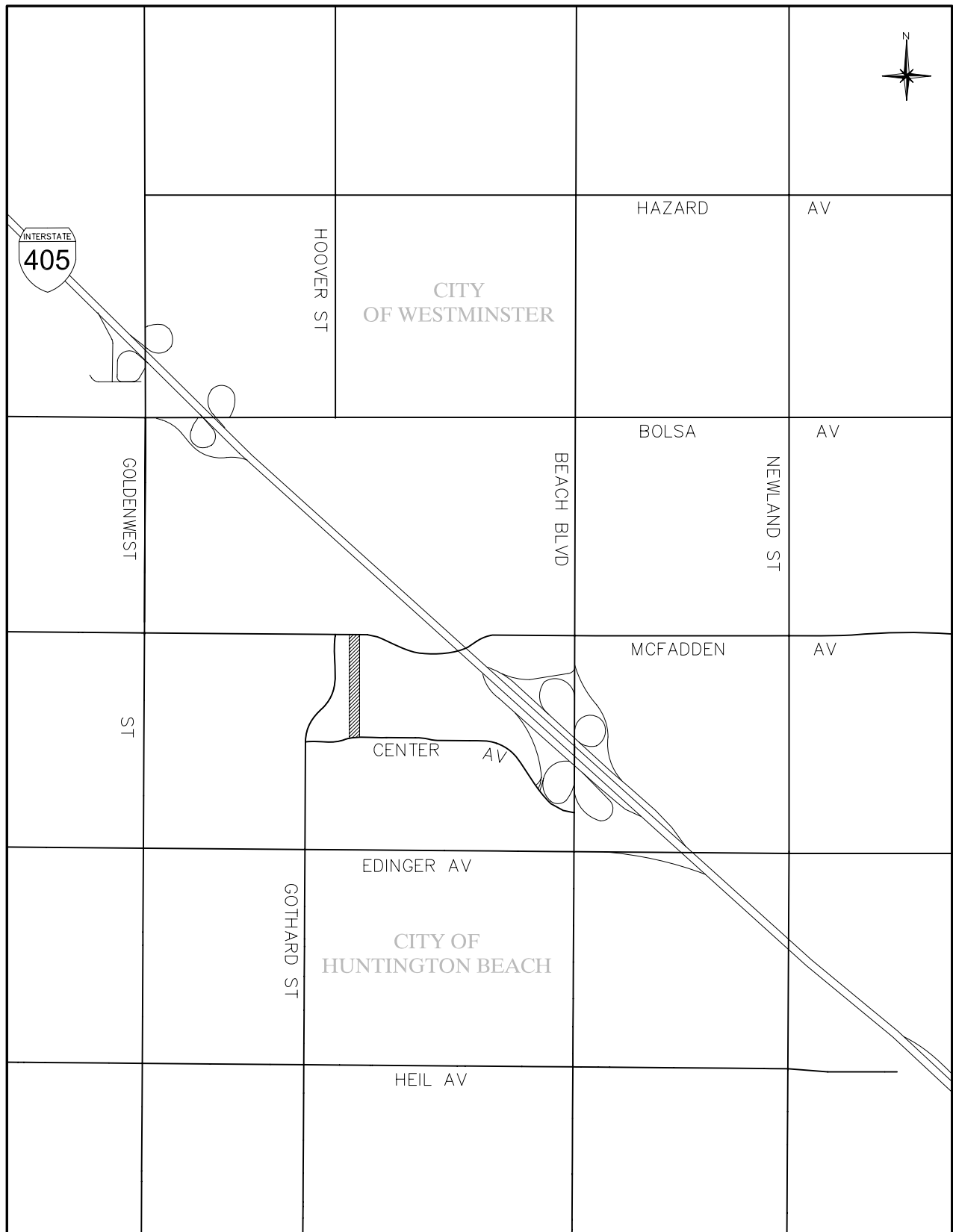
The proposed project will occupy a 2.718-acre site located on Center Avenue, approximately 500 feet east of Gothard Street. Figure 1-1 illustrates the project location, and the site is currently vacant. Access will be from Center Avenue, just east of the intersection of Gothard Street and Center Avenue.

The proposed project comprises 45,500 square feet of skate park activities, including 13,000 square feet of skate bowl area, 14,000 square feet of skate park plaza area, a 3,500 square foot skate shop/concession/restroom building, and 15,000 square feet of turf/walking area. The skate park will be open to the public and operate seven days a week. Times of operation will be weekdays from 10:00 AM to 10:00 PM and weekends from 10:00 AM to 10:00 PM.

The traffic study provides a near term (existing year) analysis, and short-range and long-range impact analyses of the proposed project. The near term analysis examines the existing-plus-project impacts and is compared against existing conditions to satisfy the California Environmental Quality Act (CEQA) requirements. The short-range analysis addresses conditions shortly after project completion and identifies project impacts related to additional traffic on the surrounding area street system in this timeframe. The long-range analyzes the project in a General Plan context.

Traffic analysis data sets presented in this traffic study are thereby as follows:

1. Existing Conditions
2. Existing plus project
3. Short-range no-project



Legend	
	Project Site

Figure 1-1
PROJECT LOCATION

4. Short-range with-project
5. Long-range with-project
6. Long-range with current General Plan uses on the site

For the short-range impact analysis, the additional trips that will be generated by the proposed uses are added to the no-project background traffic conditions to show the impacts of the proposed project. The background (no-project) conditions are established by interpolating between existing and long-range traffic volumes. This accounts for ambient growth, including development anticipated to occur in the surrounding area in this short-range time frame. The short-range analysis time frame is referred to as 2016, which is after anticipated project occupancy (expected in 2012). It thereby fully accounts for project buildout and also addresses Growth Management Plan (GMP) and Congestion Management Program (CMP) needs for a short-range (five to seven years) time frame.

The long-range analysis compares the current General Plan land uses with those proposed by the project. A year 2030 time frame is used for this analysis. The year 2030 forecasts are produced using the Huntington Beach Traffic Model (HBTM). This is a certified subarea model derived from the Orange County Transportation Analysis Model (OCTAM), following the consistency guidelines established by the Orange County Transportation Authority (OCTA).

Performance criteria appropriate for the jurisdictions involved (City of Westminster, Caltrans and the City of Huntington Beach) are applied to the traffic volume data. These performance criteria use peak hour intersection volumes to measure level of service (LOS) and to define levels of significance for EIR purposes (see later section of this chapter).

To establish the trip generation estimates for the project, a special analysis has been carried out to identify applicable trip rates for the proposed skate park. Local skate parks within Orange County were surveyed, and a trip rate derived from the count data.

Consistent with the requirements of an EIR, only committed roadway improvements have been assumed, even for the long-range analysis using General Plan buildout land uses. A discussion of the assumptions in the committed network is provided in Chapter 2.0.

PERFORMANCE CRITERIA

The performance criteria used for evaluating traffic volumes and capacities on the study area street system are based on peak hour volumes. Using peak hour intersection turn movement volumes and the intersection lane geometry, intersection capacity utilization (ICU) values are calculated for each of the AM and PM peak hours. The ICU values represent volume/capacity (V/C) ratios for these time periods, and thereby provide a suitable measure of system performance. For Caltrans intersections, the delay-based methodology, as contained in the Highway Capacity Manual (HCM), is also used (i.e., both ICU values and average delay are calculated for these intersections).

Table 1-1 summarizes the criteria used for the intersection LOS calculations and the relationship between ICU, average vehicle delay, and LOS. The significance criteria for intersections based on ICU contribution is also listed in the table. This is used for both City and Caltrans intersections (the delay calculations are used only to verify the LOS results as calculated from the ICU values).

Table 1-2 describes traffic flow quality for different V/C and vehicle delay ranges. Traffic levels of service are designated “A” through “F”, with LOS “A” representing free flow conditions and LOS “F” representing severe traffic congestion. As listed in the previously referenced performance criteria table, LOS “D” (ICU not to exceed .90) is the performance standard that has been adopted by the Cities of Huntington Beach and Westminster, whereas LOS “E” (ICU not to exceed 1.00) is the performance standard for Orange County CMP (CMP) intersections. One CMP intersection is located in the study area:

Beach Boulevard at Edinger Avenue

Although LOS “E” is acceptable for CMP purposes at this location, the City performance standard of LOS “D” is typically used in traffic analysis applications.

Freeway interchange ramps are also included in the analysis and Table 1-3 summarizes the criteria used for freeway ramps. The analysis is based on peak hour V/C ratios, with capacity being a function of the particular operating characteristics of each ramp.

Table 1-1

PERFORMANCE CRITERIA - INTERSECTIONS

The following are the performance criteria used for comparing volumes and capacities on the study area intersection:

I. PEAK HOUR INTERSECTION VOLUMES

Intersection capacity utilization (ICU) values calculated as follows:

Saturation Flow Rate: 1,700 vehicles per hour (VPH).

Clearance Interval: .05 ICU

Performance Standard

- Arterial intersections to achieve level of service (LOS) D or better (ICU not to exceed .90)
- Orange County Congestion Management Program (CMP) designated intersections to achieve LOS E or better (ICU not to exceed 1.00)

LOS ranges for ICU values are as follows:

ICU	LOS
0.00 – 0.60	A
0.61 – 0.70	B
0.71 – 0.80	C
0.81 – 0.90	D
0.91 – 1.00	E
Above 1.00	F

Significance Criteria

Project causes a significant impact if it contributes .01 or more to an ICU when the performance standard is exceeded.

II. CALTRANS INTERSECTIONS AND UNSIGNALIZED ACCESS INTERSECTIONS

Intersection LOS based on average vehicle delay in seconds as calculated using Highway Capacity Manual (HCM) procedures. Performance standard as above, and LOS values for average vehicle delay are as follows:

Level of Service	Signalized	Unsignalized
A	0 – 10.00	0 – 10.00
B	10.01 – 20.00	10.01 – 15.00
C	20.01 – 35.00	15.01 – 25.00
D	35.01 – 55.00	25.01 – 35.00
E	55.01 – 80.00	35.01 – 50.00
F	80.01 and up	50.01 and up

Table 1-2

LEVEL OF SERVICE DESCRIPTIONS – SIGNALIZED INTERSECTIONS

Levels of service (LOS) for signalized intersections are defined in terms of control delay as follows:

LOS	Description	Delay Per Vehicle (secs)
A	LOS A describes operations with low control delay, up to 10 seconds per vehicle. This LOS occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.	< 10
B	LOS B describes operations with control delay greater than 10 and up to 20 seconds per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than the LOS A, causing higher levels of delay.	10 – 20
C	LOS C describes operations with control delay greater than 20 and up to 35 seconds per vehicle. These higher delays may result from only fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles, and overflows occur. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.	20 – 35
D	LOS D describes operations with control delay greater than 35 and up to 55 seconds per vehicle. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, and high V/C ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	35 – 55
E	LOS E describes operations with control delay greater than 55 and up to 80 seconds per vehicle. These high delay values generally indicate poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent.	55 – 80
F	LOS F describes operations with control delay in excess of 80 seconds per vehicle. This level, considered unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of lane groups. It may also occur at high V/C ratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.	> 80

Source: Highway Capacity Manual 2000, Transportation Research Board, National Research Council

Table 1-3

FREEWAY RAMP PERFORMANCE CRITERIA

V/C Calculation Methodology

Level of service to be based on peak hour volume/capacity (V/C) ratios calculated using the following ramp capacities:

Metered On-Ramps

A maximum capacity of 900 vehicles per hour (vph) for a one-lane metered on-ramp with only one mixed-flow lane at the meter.

A maximum capacity of 1,080 (20 percent greater than 900) vph for a one-lane metered on-ramp with one mixed-flow lane at the meter plus one HOV preferential lane at the meter.

A maximum capacity of 1,500 vph for a one-lane metered on-ramp with two mixed-flow lanes at the meter.

A maximum capacity of 1,800 vph for a two-lane metered on-ramp with two mixed-flow lanes at the meter.

Non-Metered On-Ramps and Off-Ramps

A maximum capacity of 1,500 vph for a one-lane ramp.

A maximum capacity of 2,250 (50 percent greater than 1,500) vph for a two-lane on-ramp that tapers to one merge lane at or beyond the freeway mainline gore point and for a two-lane off-ramp with only one auxiliary lane.

A maximum capacity of 3,000 vph for a two-lane on-ramp that does not taper to one merge lane and for a two-lane off-ramp with two auxiliary lanes.

Performance Standard

Level of Service "E" (peak hour V/C less than or equal to 1.00).

Significance Criteria

Project causes a significant impact if it contributes .01 or more to a ramp V/C ratio when the performance standard is exceeded.

STUDY AREA

A study area has been defined according to the potential impacts of the proposed project. For peak hour intersection analyses, the one percent significance threshold generally translates to around 20 peak hour vehicles or more entering an intersection (since most intersections in the area have more than 2,000 vehicles per hour entering the intersection). Hence, this criterion has been used in selecting intersections for the impact analysis. Performance criteria appropriate for the jurisdictions involved (Cities of Huntington Beach and Westminster, and Caltrans) are applied to the traffic volume data.

The intersections studied here are shown in Figure 1-2. One is in the City of Westminster and the remainder are in the City of Huntington Beach.

REFERENCES

1. "Highway Capacity Manual 2000," Transportation Research Board, National Research Council, 2000.
2. "Huntington Beach Traffic Model (HBTM) Description and Validation," Austin-Foust Associates, April 2008.

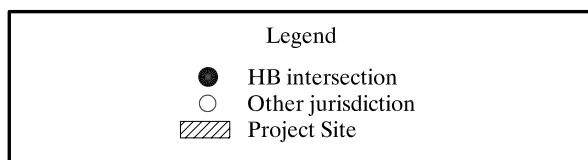
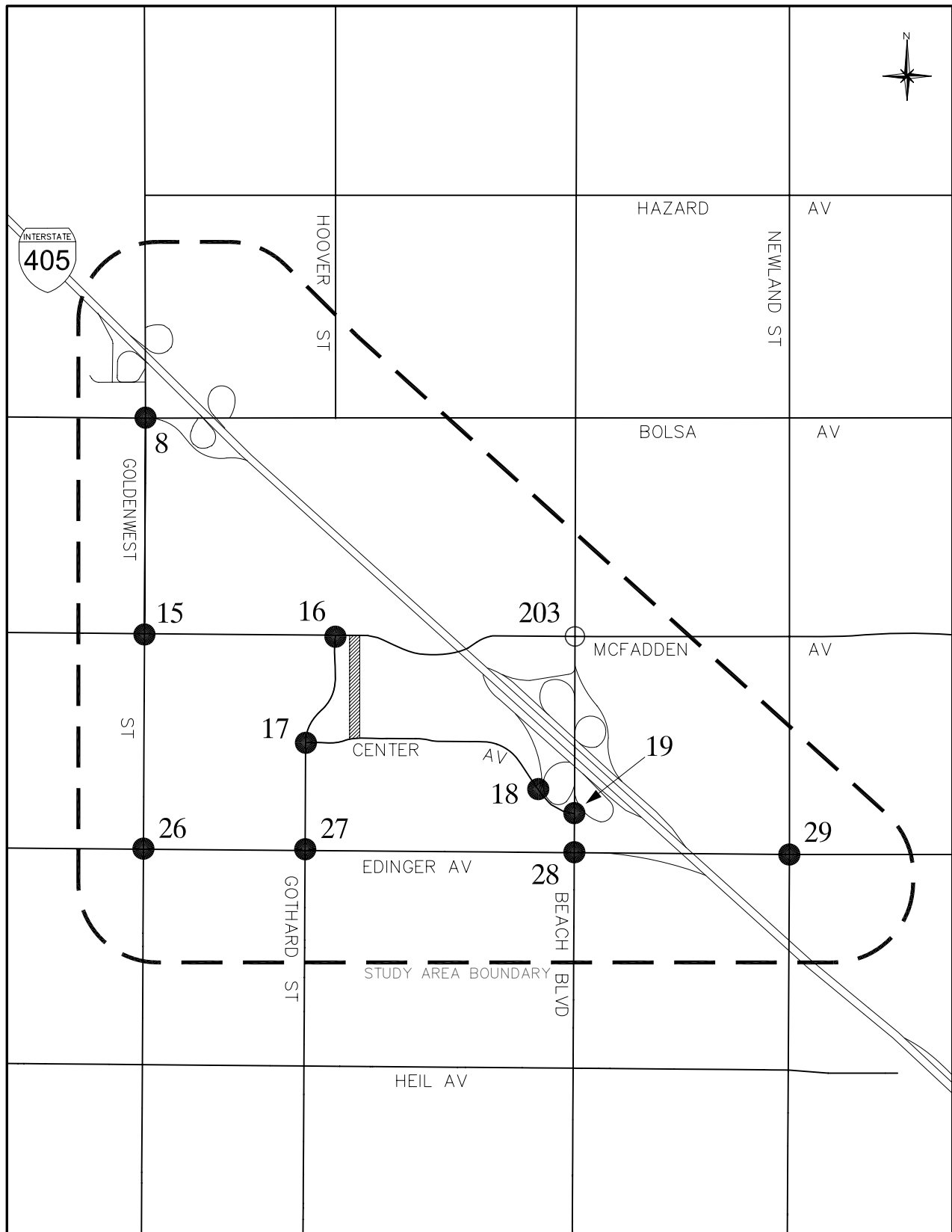


Figure 1-2

INTERSECTIONS IN STUDY AREA

Chapter 2.0

TRANSPORTATION SETTING

This chapter describes the transportation setting for the proposed project. Existing conditions for the study area circulation system are first summarized, followed by the future background setting against which project impacts are evaluated.

EXISTING CONDITIONS

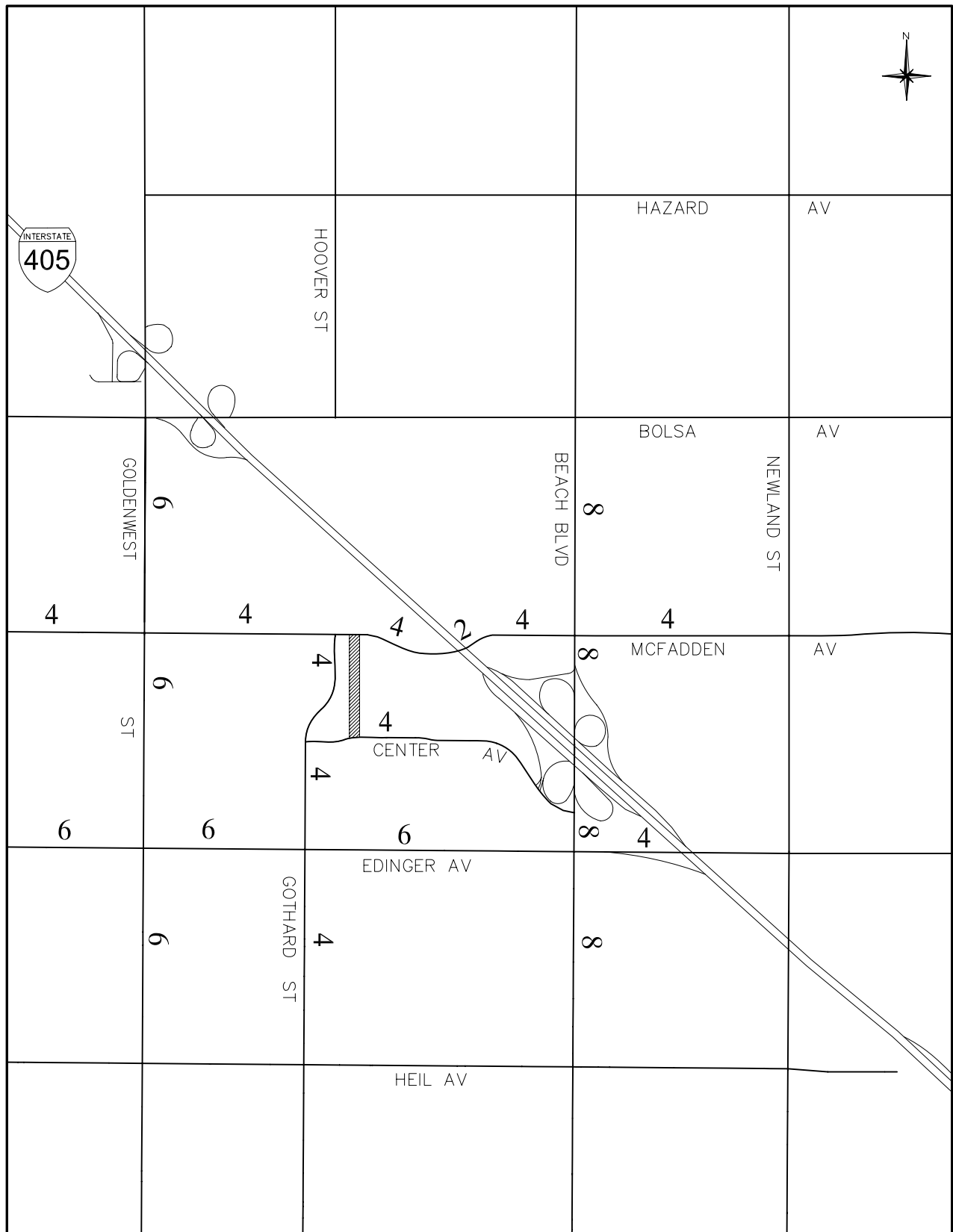
The study area circulation system is shown in Figure 2-1 along with existing midblock lanes and intersection controls. The existing (2009) average daily traffic (ADT) volumes in the study area are presented in Figure 2-2. Arterial roadways in the vicinity of the project include Gothard Street with 15,000 ADT, Center Avenue with 10,000 ADT, and Edinger Avenue with 30,000 ADT.

As described in the performance criteria section in Chapter 1.0, the intersection levels of service (LOS) are measured by peak hour intersection capacity utilization (ICU) values. For Caltrans intersections (along Beach Boulevard) average vehicle delay calculations are also made using the Highway Capacity Manual (HCM) methodology.

Existing peak hour intersection volumes are illustrated in Figures 2-3 and 2-4 for the AM and PM peak hours, respectively. The corresponding levels of service are summarized in Table 2-1 (an intersection location diagram is provided in Figure 2-5). The calculations for the ICU values in this table can be found in Appendix A and the HCM calculations are in Appendix B.

The existing conditions summary shows all intersections to be operating at LOS “D” or better during the AM and PM peak hours.

Existing conditions on the freeway ramps that would be affected by the proposed project are summarized in Table 2-2. The I-405 northbound loop ramp from Beach Boulevard exceeds the V/C threshold of 1.0 in both the AM and PM peak hours.



Legend

 Project Site

Figure 2-1

EXISTING MIDBLOCK LANES

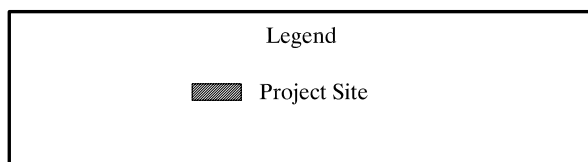
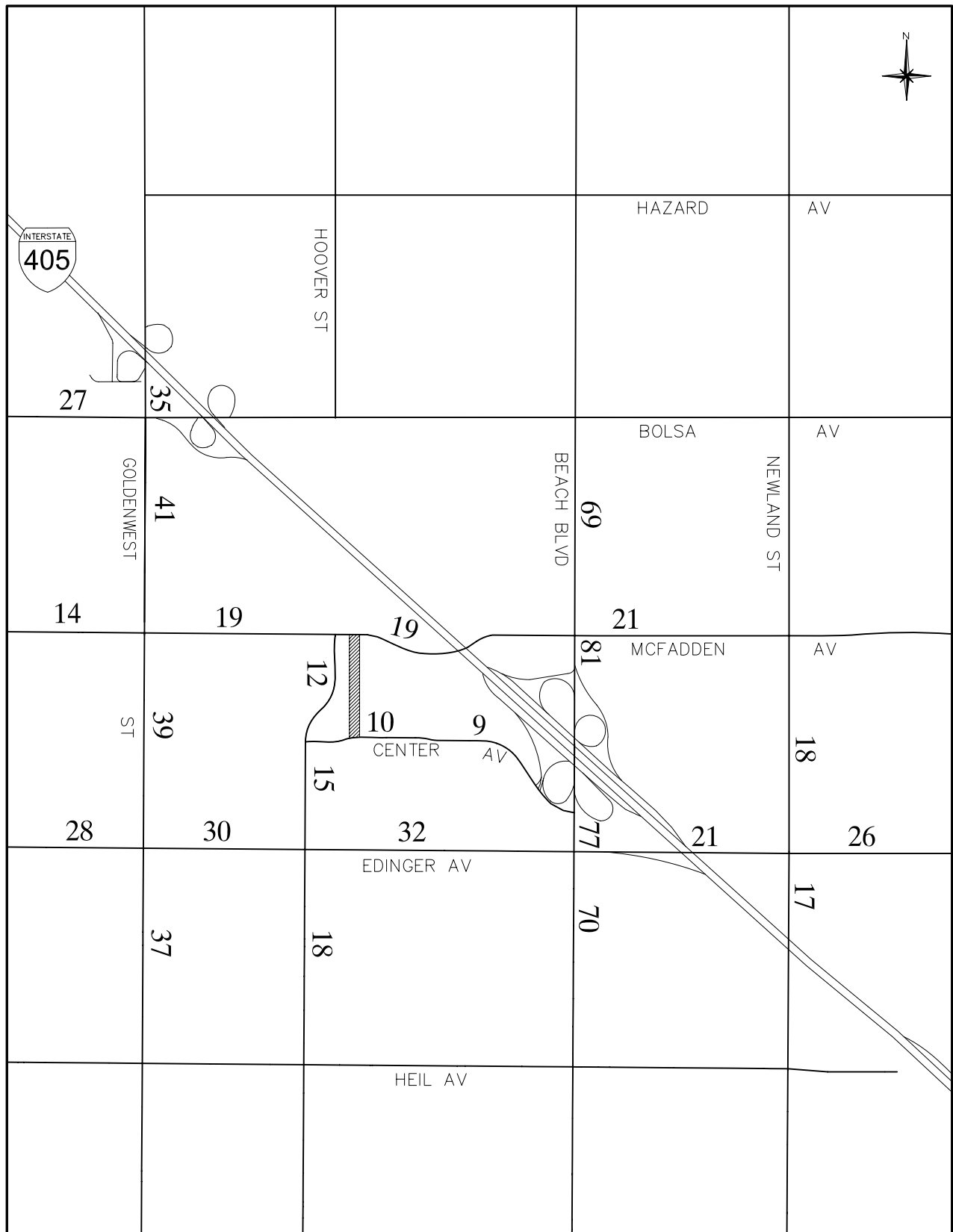


Figure 2-2

EXISTING ADT VOLUMES (000s)

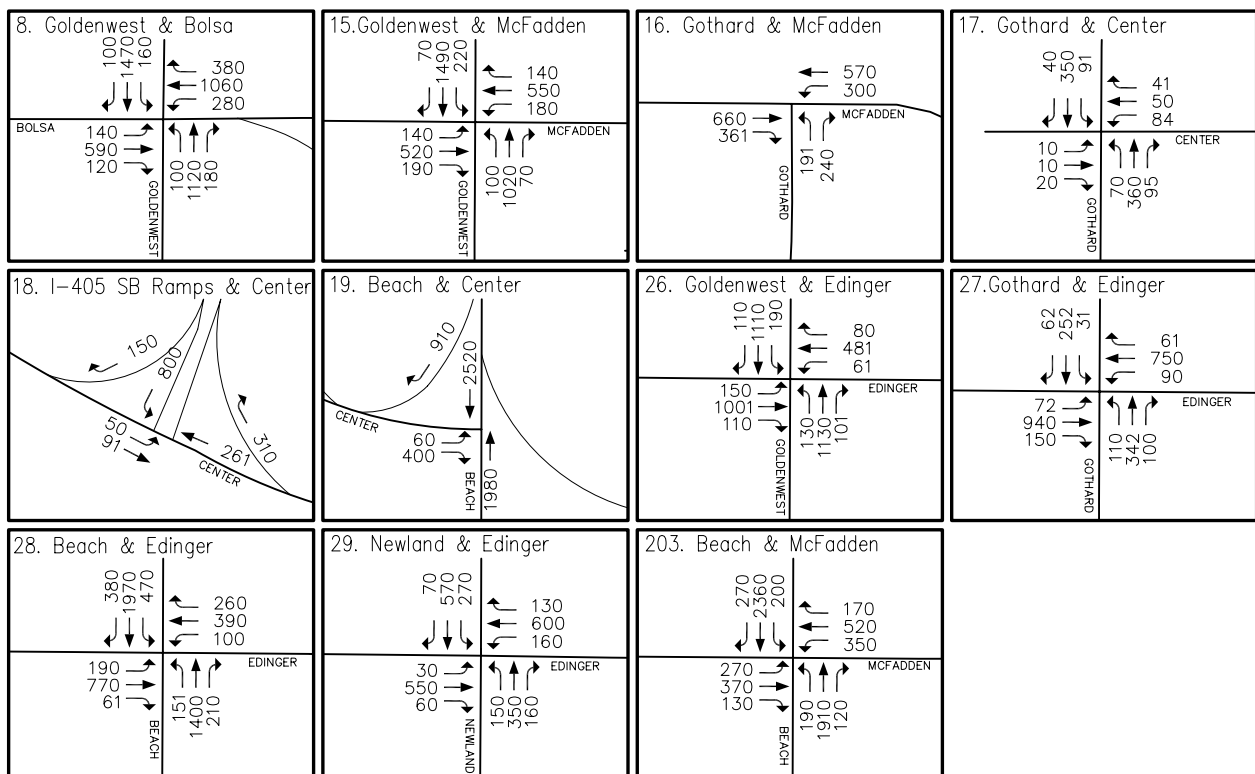
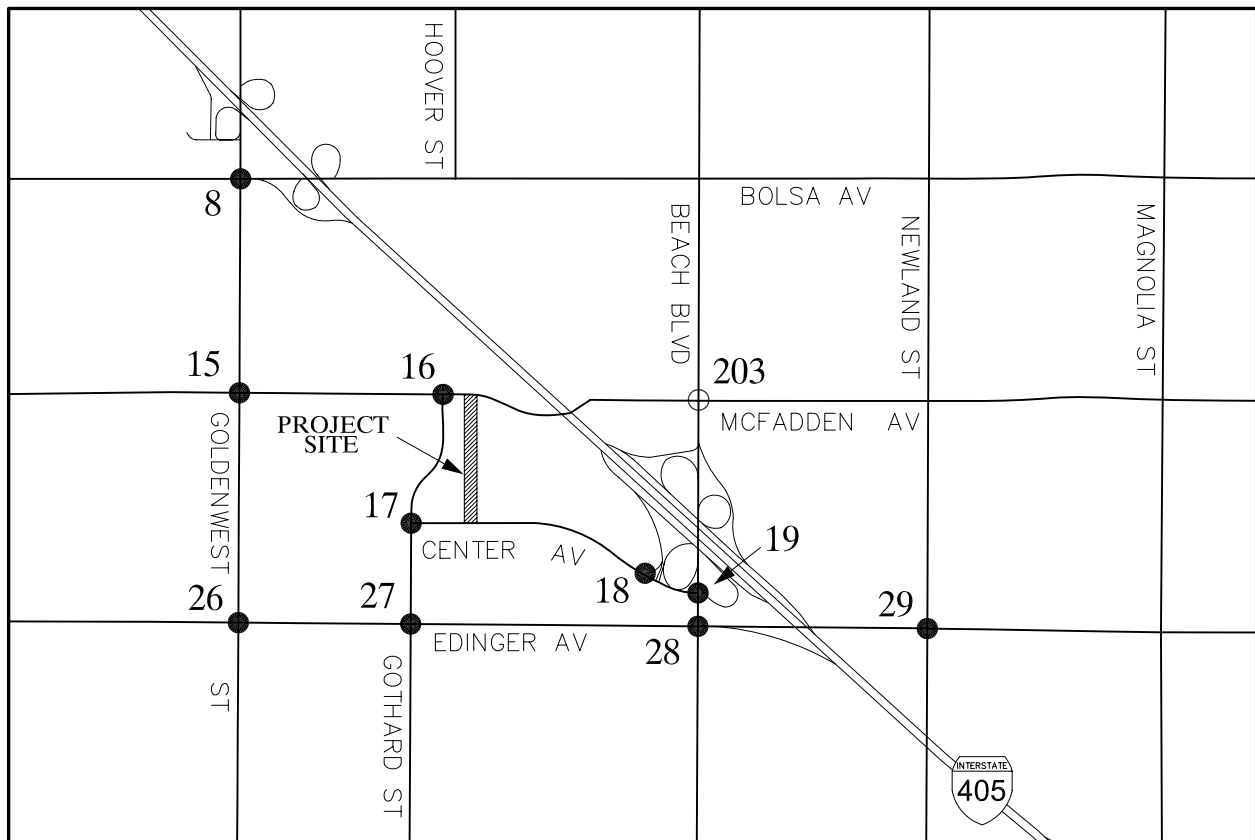


Figure 2-3

EXISTING AM PEAK HOUR VOLUMES

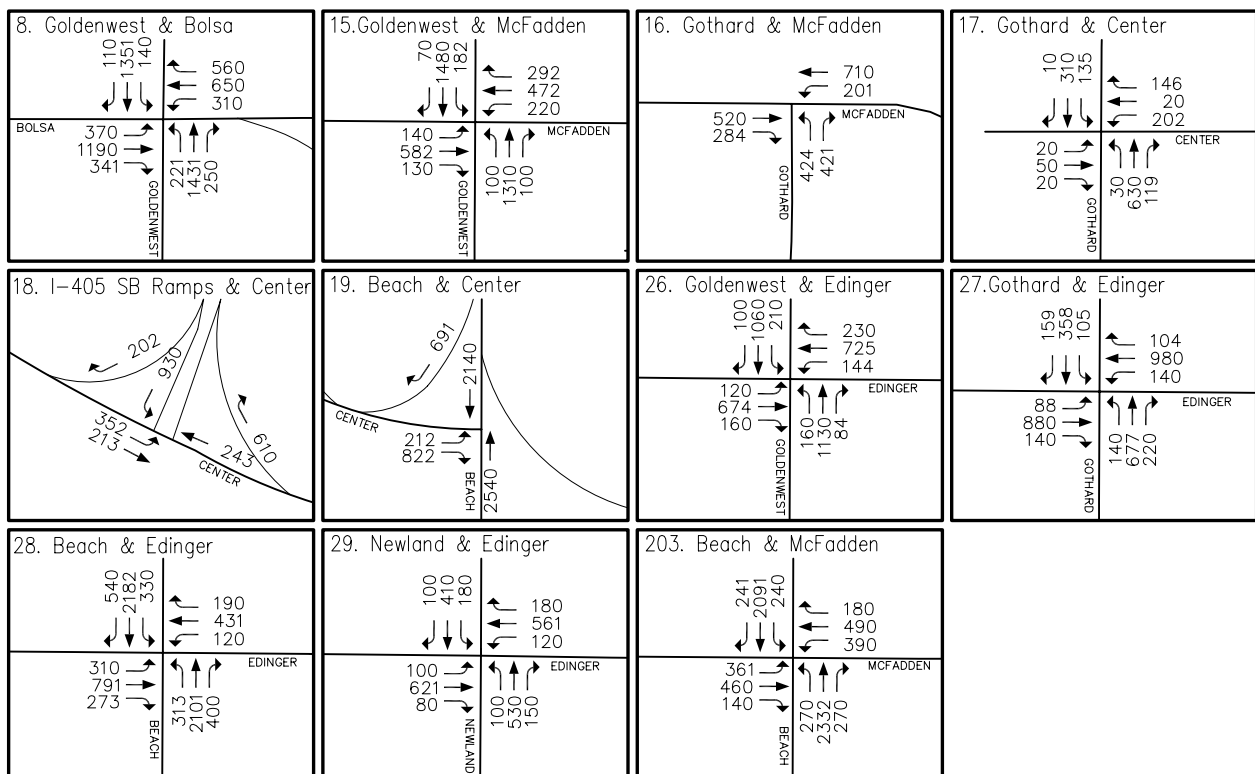
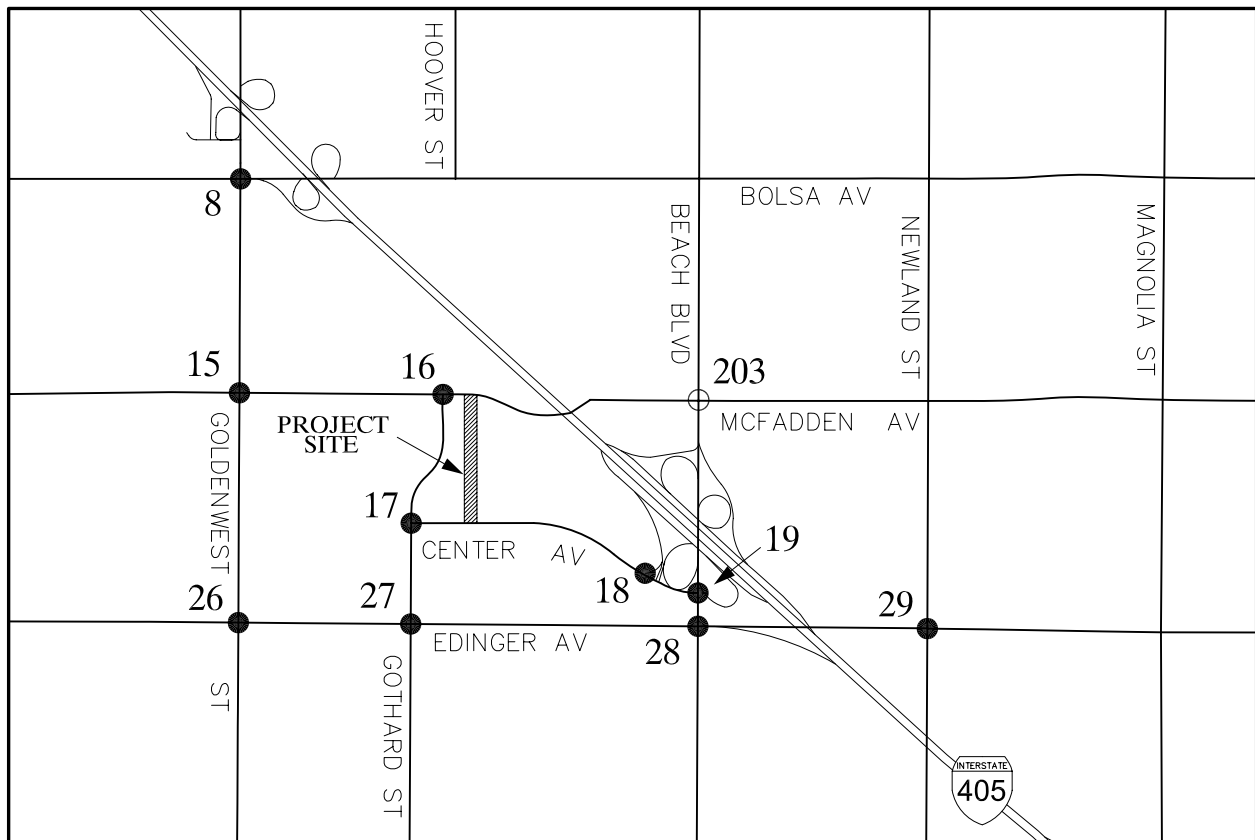


Figure 2-4

EXISTING PM PEAK HOUR VOLUMES

Table 2-1

EXISTING INTERSECTION LEVEL OF SERVICE SUMMARY

Intersection Capacity Utilization (ICU)				
Location*	AM Peak Hour		PM Peak Hour	
	ICU	LOS	ICU	LOS
8. Goldenwest St & Bolsa Ave	.64	B	.86	D
15. Goldenwest St & McFadden Ave	.68	B	.72	C
16. Gothard St & McFadden Ave	.48	A	.51	A
17. Gothard St & Center Ave	.28	A	.47	A
18. I-405 SB Ramps & Center Ave	.40	A	.75	C
19. Beach Blvd & Center Ave.	.54	B	.63	B
26. Goldenwest St & Edinger Ave	.62	B	.60	A
27. Gothard St & Edinger Ave	.41	A	.57	A
28. Beach Blvd & Edinger Ave	.64	C	.78	C
29. Newland St & Edinger Ave	.61	C	.61	B
203. Beach Blvd & McFadden Ave	.78	C	.81	D
Highway Capacity Manual (HCM) Delay (Caltrans Intersections)				
Location*	AM Peak Hour		PM Peak Hour	
	Delay	LOS	Delay	LOS
18. I-405 SB Ramps & Center Ave	27.0	C	41.4	D
19. Beach Blvd & Center Ave	8.4	A	7.8	A
28. Beach Blvd & Edinger Ave	28.2	C	33.2	C
203. Beach Blvd & McFadden Ave	34.6	C	40.4	D
* See intersection locations in Figure 2-5				

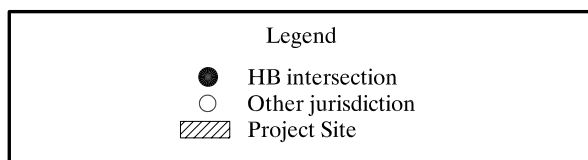
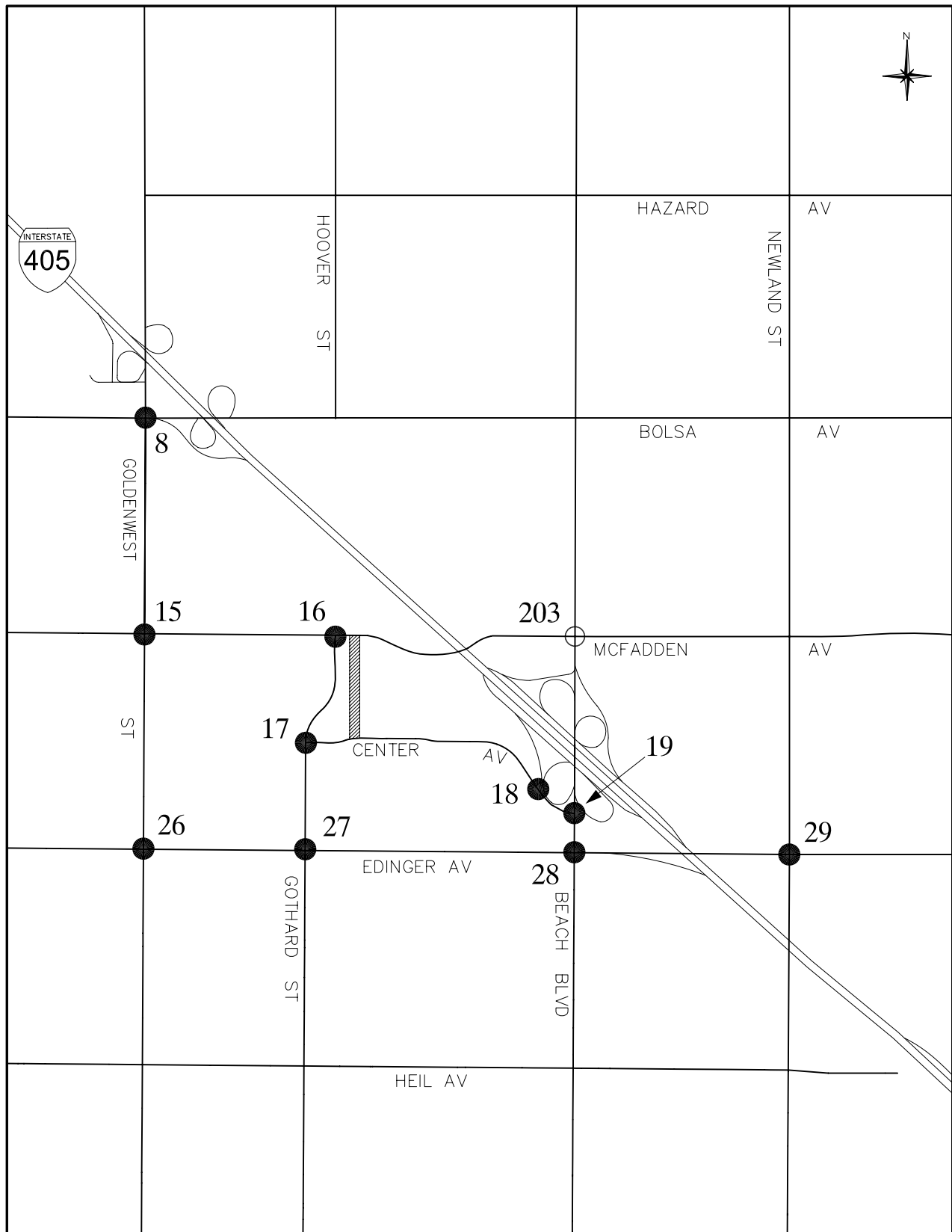


Figure 2-5
INTERSECTION LOCATION MAP

Table 2-2 EXISTING FREEWAY RAMP V/C SUMMARY						
Location	AM Peak Hour			PM Peak Hour		
	Capacity	Volume	V/C	Capacity	Volume	V/C
I-405/Beach Blvd NB loop on-ramp (from NB Beach Blvd)	900	1,240	1.38	900	1,510	1.68
I-405/Beach Blvd NB loop off-ramp (to SB Beach Blvd)	1,500	690	.46	1,500	880	.59
I-405/Beach Blvd SB on-ramp at Center Ave	1,800	360	.20	1,800	960	.53
I-405/Beach Blvd SB off-ramp at Center Ave	1,500	950	.63	1,500	1,130	.75
I-405/Edinger Ave SB direct on-ramp	1,080	570	.53	1,080	570	.53

Sources: 1: Caltrans California Freeway Performance Measurement System (PEMS) Sept. – Nov. 2008
2: I-405 PSR/PDS 2005 Freeway Ramp Volumes

FUTURE CONDITIONS

The study area circulation system as defined by the Orange County Master Plan of Arterial Highways (MPAH) can be seen in Figure 2-6. Study area roadway segments not currently built to their full MPAH standard are as follows:

Roadway	Segment	MPAH	Existing
McFadden Ave	Goldenwest St to Beach Blvd	4-lane secondary arterial	2-lane roadway over I-405
Gothard St	Hoover St to McFadden Ave	4-lane secondary arterial	Not built

Neither of the first two have current funding commitments for constructing to MPAH standards (widening in the case of McFadden Avenue and construction in the case of Gothard Street). Widening of the McFadden Avenue overcrossing of I-405 is included in the current improvement project for the I-405 Corridor. Since this is still in the review stage with construction not fully funded at this time, the bridge improvement was not included as a committed project.

For traffic analysis purposes, only currently committed roadway improvements have been assumed in the impact analysis. For the study area, these are as follows:

Location	Improvement	Time Frame
I-405 Freeway	Add one lane in each direction from I-605 to SR-73	Long-Range
Heil Ave	Widen to four lanes from Gothard St to Beach Blvd	Short-Range
Beach Blvd/Heil Ave	Convert westbound right turn lane to westbound through lane	Short-Range
Beach Blvd/Edinger Ave	Add second westbound left turn lane	Short-Range

The intersection improvements (last two items in this table) are assumed in both the short-range and long-range analyses.

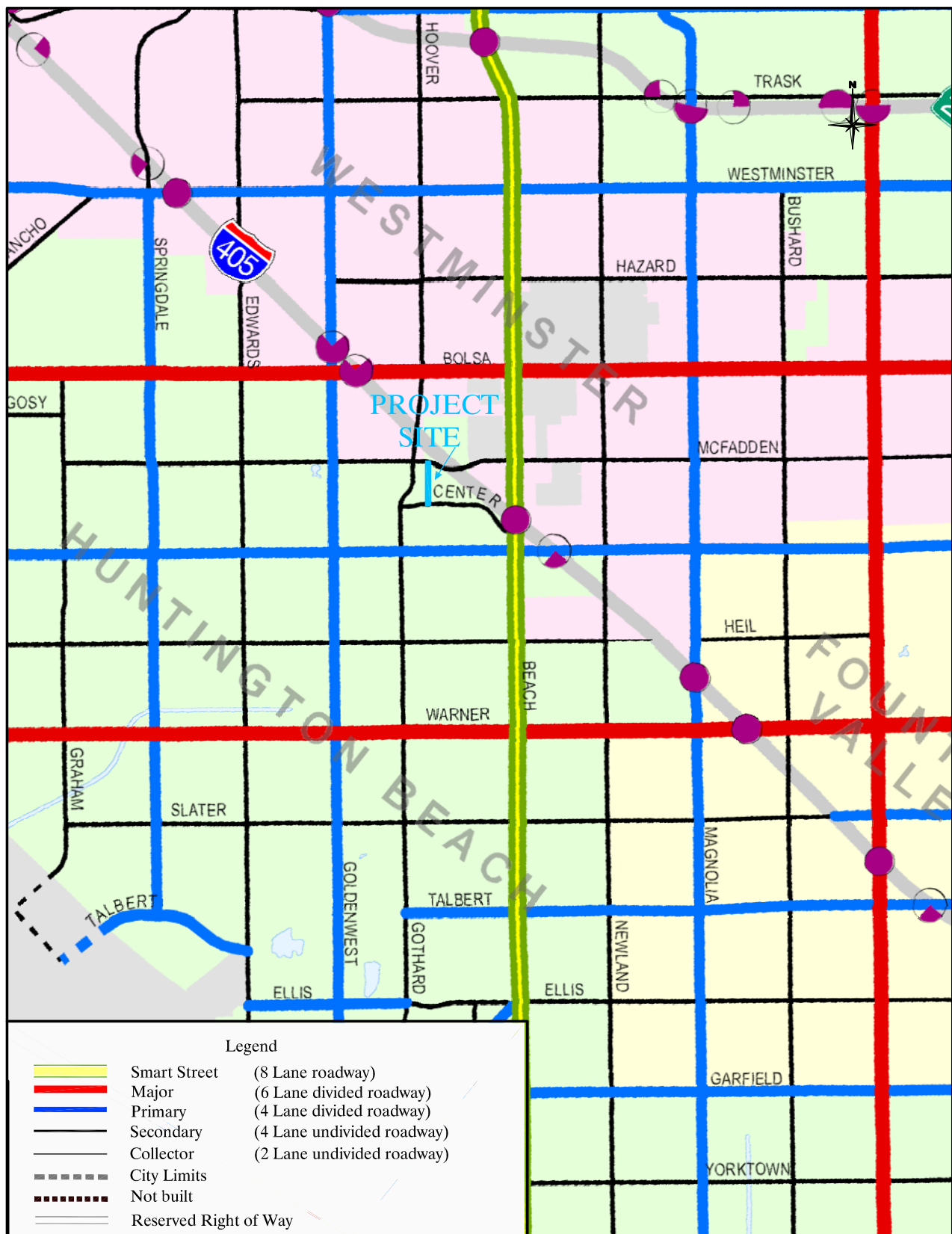


Figure 2-6

MASTER PLAN OF ARTERIAL HIGHWAYS

FUTURE GROWTH

Future growth in the City of Huntington Beach is portrayed in the Orange County Projections (OCP) 2006 and also in the Citywide land use database recently prepared by the City. The latter is the basis for long-range traffic forecasting and the Citywide growth statistics are as follows:

Category	2007	2030	Increase
Population	216,471	233,457	8%
Housing	76,890	83,396	8%
Employment	81,694	94,127	15%

These forecasts are similar to those in OCP-2006, and as can be seen they show an eight percent increase in population and housing and a 15 percent increase in employment by 2030 in Huntington Beach.

Long-range (2030) volumes used in this analysis are derived using the Huntington Beach Traffic Model (HBTM) as discussed in Chapter 1.0. The HBTM uses the land use projections listed above to forecast future traffic volumes on the Citywide arterial street system.

For the short-range analysis, background (no-project) traffic volumes were derived by interpolating between existing and 2030 volumes. As noted earlier in this chapter, they generally represent a 2016 time frame and account for ambient growth and related projects during this time period. The 2016 analysis also provides the five to seven year time frame required for Growth Management Plan (GMP) and Congestion Management Program (CMP) purposes.

Chapter 3.0

PROJECT DESCRIPTION

This chapter describes the proposed project in terms of its traffic-related characteristics. The project trip generation, trip distribution and resulting project-generated traffic volumes on the study area circulation system are presented.

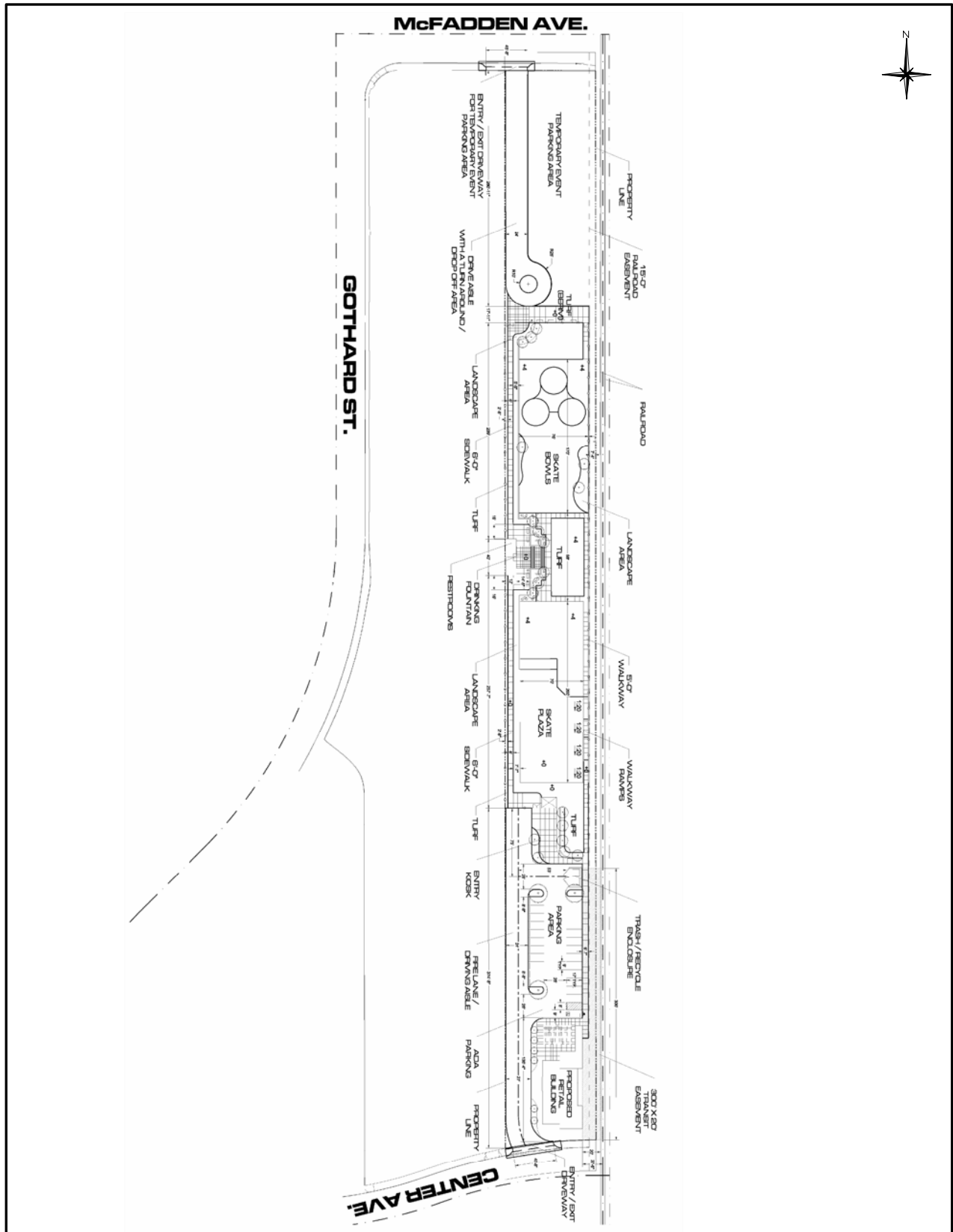
PROJECT DESCRIPTION

The Center Avenue Skate Park is proposed to be located on a 2.7-acre parcel on Center Avenue, approximately 500 feet east of Gothard Street (see project site with access locations in Figure 3-1). The project site is bounded by McFadden Avenue to the north, a Pacific Electric Railroad track to the east, Center Avenue to the south, and a Southern California Edison electrical transmission line easement to the west. The project site is currently vacant land owned by the City of Huntington Beach.

The proposed project is 45,500 square feet of skate park uses comprising 27,000 square feet of skate park and skate bowl areas, 15,000 square foot turf/walking area, and a 3,500 square foot skate shop/concession/restroom building. The main parking lot will front Center Avenue and a secondary parking area will be accessed via McFadden Avenue for special events only.

TRIP GENERATION

Table 3-1 summarizes the trip generation for the proposed project. As shown, the proposed project will generate 416 daily weekday trips at buildout, with 13 trips in the AM peak hour and 62 trips in the PM peak hour. Trip generation rates for the project land uses were derived from surveys of local skate parks located within Orange County that have similar characteristics to the proposed project (see discussion in Appendix D).



Source: DIGALERT

Figure 3-1

PROJECT SITE MAP

Table 3-1

CENTER AVENUE SKATE PARK TRIP GENERATION

Project Description	Amount	AM Peak Hour			PM Peak Hour			ADT
		In	Out	Total	In	Out	Total	
PROPOSED PROJECT								
Skate Park ¹	45.5 TSF	7	6	13	29	33	62	416
Total		7	6	13	29	33	62	416
CURRENT GENERAL PLAN								
Residential Units ²	175 DU	17	72	89	70	39	109	1,176
Total		17	72	89	70	39	109	1,176
Proposed Project Difference from General Plan (%)				-85%			-43%	-65%

Trip Rates								
		AM Peak Hour			PM Peak Hour			
Land Use	Unit	In	Out	Total	In	Out	Total	ADT
Skate Park ¹	TSF	.16	.14	.30	.63	.73	1.36	9.14
Apartments ²	DU	.10	.41	.51	.40	.22	.62	6.72
Notes: ¹ Derived from trip survey data for similar skate parks. ² Trips based on ITE (8th Ed.) Apartment (220) rates.								

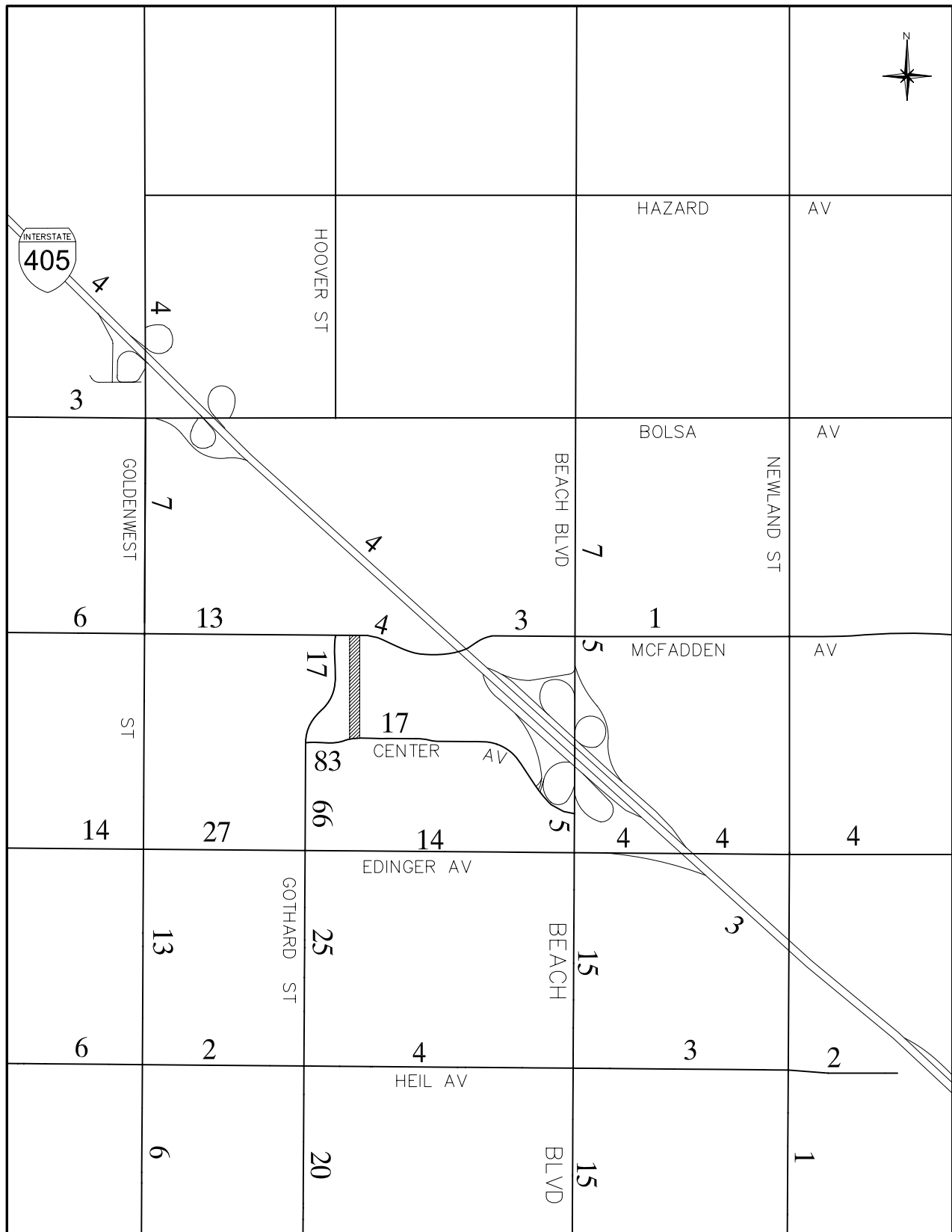
GENERAL PLAN COMPARISON

The project site has a General Plan designation of Mixed-Use Specific Plan Overlay – Design Overlay). The General Plan Housing Element specifies that the site shall be designated as “Residential Only” in the Beach and Edinger Corridors Specific Plan and that the Agency intends to develop a minimum of 175 affordable units on the site. The project applicant proposes a General Plan Amendment (GPA) to allow the development of the skate park by lifting the “Residential Only” requirement. The trip generation for the 175 residential units under the General Plan is also summarized in previously referenced Table 3-1. As shown, the General Plan will generate 1,176 daily weekday trips at buildout, with 89 trips in the AM peak hour and 109 trips in the PM peak hour. The proposed project is a 65 percent reduction in daily trips when compared to the current General Plan. The AM and PM peak hours show similar reductions.

TRIP DISTRIBUTION

The geographic distribution of trips in the study area to and from the project was estimated using regional distribution patterns derived from the Huntington Beach Traffic Model (HBTM) and then adjusted to reflect a higher distribution from the local area. These adjustments reflect the special characteristics of the skate park users. The resulting project trip distribution pattern is illustrated in Figure 3-2. It is based on the distribution of daily trips generated by the project as assigned to the study area street system. Peak hour project trips differ slightly with respect to their distribution patterns, as do the inbound versus outbound distribution of those peak hour project trips. These differences are reflected in the actual project volumes used in the impact analysis.

Figure 3-3 shows the ADT project trips for the proposed project. These ADT project trips and the project peak hour intersection volumes given in Appendix A are used in the short-range and long-range analyses to estimate project impacts.



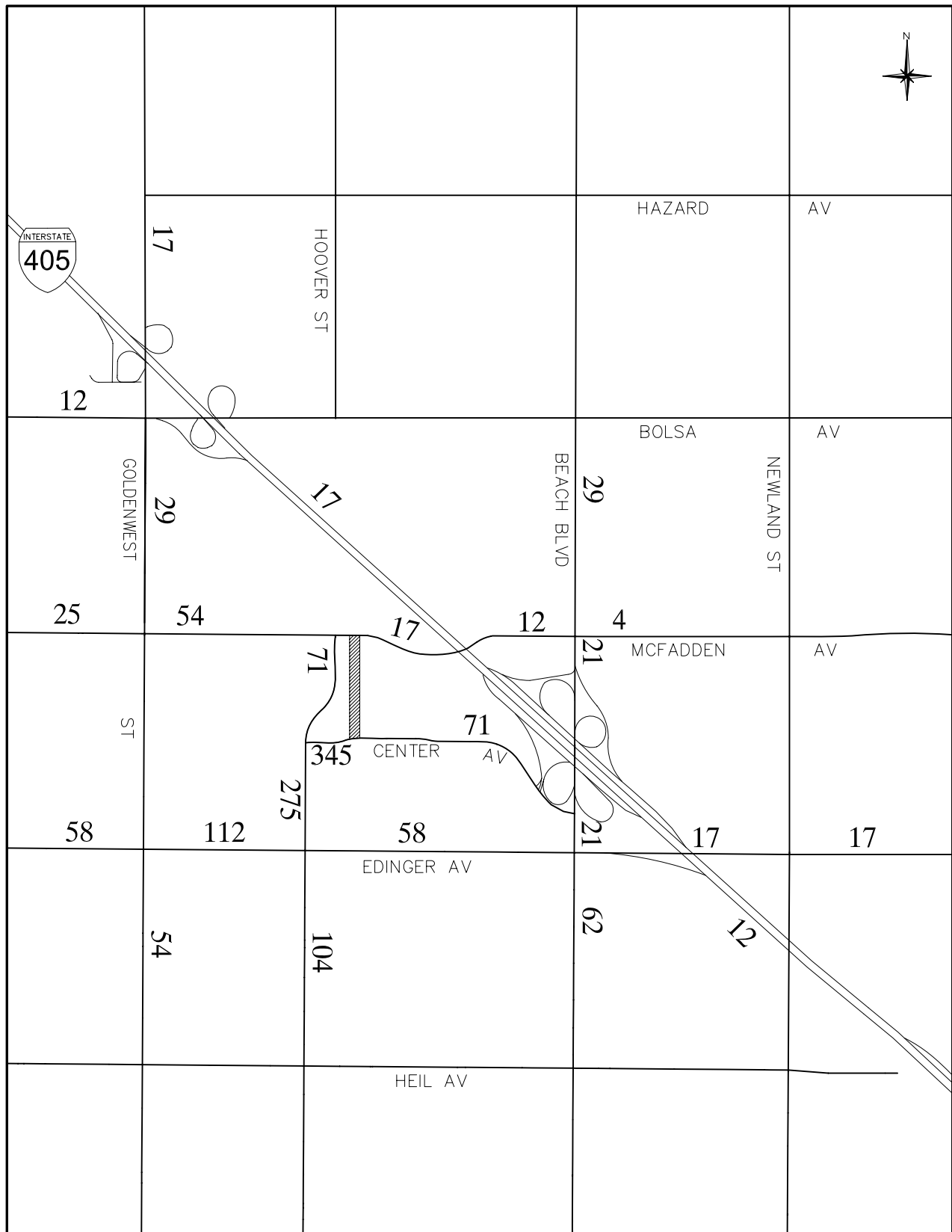
Legend

Project Site

XX Percent of project trip distribution

Figure 3-2

TRIP DISTRIBUTION



Legend

 Project Site

Figure 3-3

ADT VOLUMES
- PROJECT ONLY

Chapter 4.0

IMPACT ANALYSIS

This chapter discusses the traffic impacts of the project. The results are presented for three scenarios: existing plus project, short-range, and long-range analyses using the methodologies and performance criteria described in Chapter 1.0.

EXISTING PLUS PROJECT CONDITIONS

The purpose of the existing plus project analysis is to comply with the California Environmental Quality Act (CEQA), which requires that the baseline for assessing environmental impacts is the existing conditions at the time the notice of preparation (NOP) is prepared. The information presented in this section shows the traffic volumes obtained by adding traffic from the proposed project to existing traffic data. The analysis is hypothetical because the actual buildout timeframe of the project is year 2012 or later.

The average daily traffic (ADT) forecasts were prepared for a scenario in which traffic generated by the project is added to the existing traffic conditions based on the project trip distribution defined in Chapter 3.0. Figure 4-1 shows the ADT volumes for existing plus project conditions.

The corresponding AM and PM peak hour intersection volumes for existing-plus-project can be found in Appendix A. To derive the with-project volumes, the project-only peak hour intersection volumes (also shown in Appendix A) were added to the existing (no-project) conditions volumes. The corresponding intersection capacity utilization (ICU) values were then calculated and used to identify project impacts. For Caltrans intersections, separate calculations were made using the Highway Capacity Manual (HCM) delay methodology, and the HCM worksheets can be found in Appendix C.

A summary of existing and existing-plus-project intersection performance is based on existing lane configurations. Table 4-1 lists the ICU values, the average vehicle delay for Caltrans intersections, and the level of service (LOS) for the study area intersections. As can be seen here, all intersections meet the performance criteria and there are no significant project impacts.

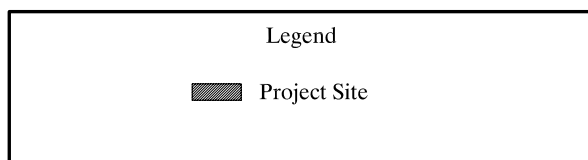
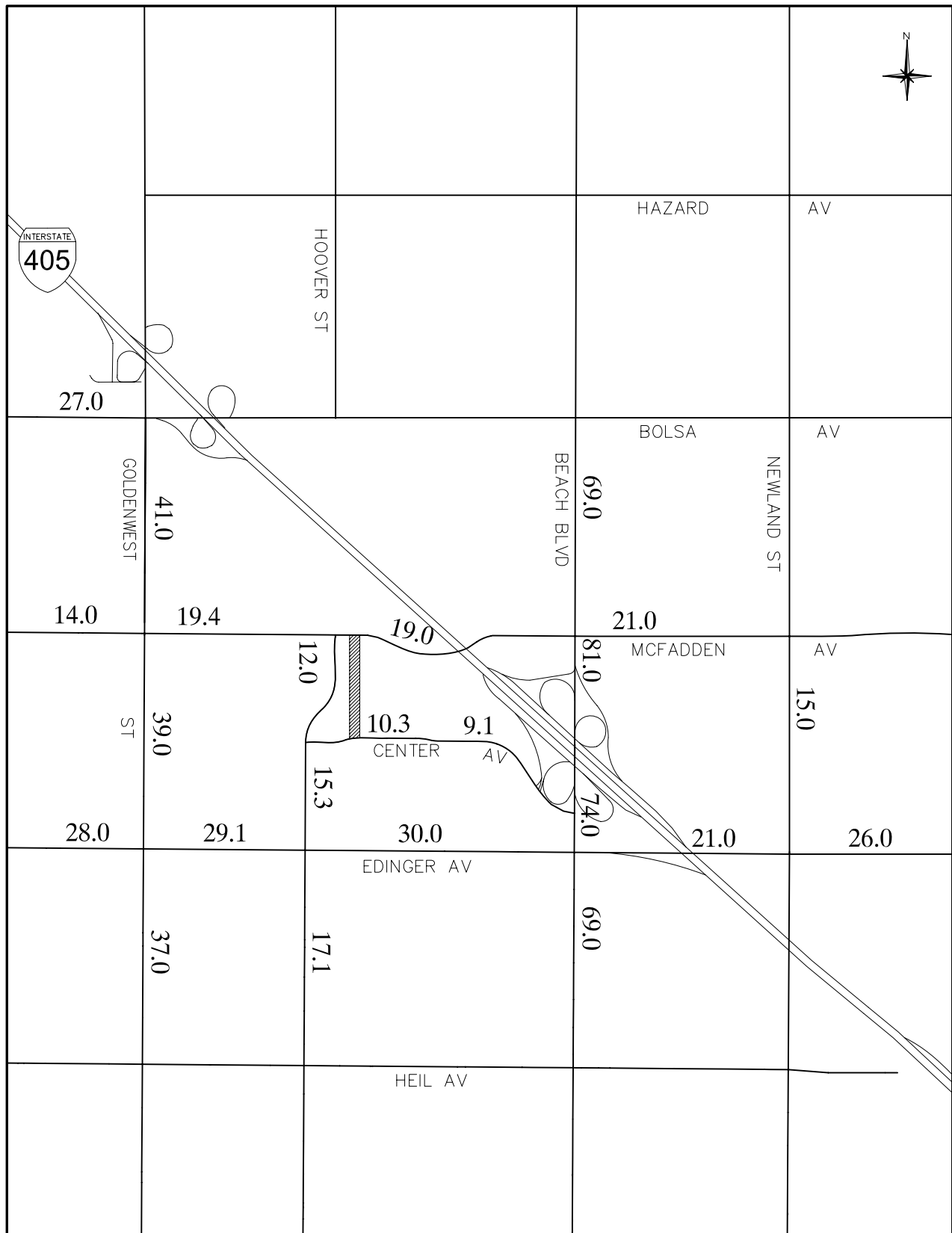


Figure 4-1

EXISTING PLUS PROJECT ADT VOLUMES (000s)

Table 4-1

EXISTING-PLUS-PROJECT ICU SUMMARY

Intersection	No-Project				With Project			
	AM		PM		AM		PM	
	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
8. Goldenwest St & Bolsa Ave	.64	B	.86	D	.64	B	.86	D
15. Goldenwest St & McFadden Ave	.68	B	.72	C	.68	B	.72	C
16. Gothard St & McFadden Ave	.48	A	.51	A	.48	A	.51	A
17. Gothard St & Center Ave	.28	A	.47	A	.28	A	.48	A
18. I-405 SB Ramps & Center Ave	.40	A	.75	C	.40	A	.75	C
19. Beach Blvd & Center Ave.	.54	B	.63	B	.54	B	.63	B
26. Goldenwest St & Edinger Ave	.62	B	.60	A	.62	B	.60	A
27. Gothard St & Edinger Ave	.41	A	.57	A	.41	A	.57	A
28. Beach Blvd & Edinger Ave	.64	C	.78	D	.64	C	.78	D
29. Newland St & Edinger Ave	.61	C	.61	B	.61	C	.61	B
203. Beach Blvd & McFadden Ave	.78	C	.81	D	.78	C	.81	D
Highway Capacity Manual (HCM) Delay (Caltrans Intersections)								
Location	AM		PM		AM		PM	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
18. I-405 SB Ramps & Center Ave	27.0	C	41.4	D	27.0	C	41.4	D
19. Beach Blvd & Center Ave	8.4	A	7.8	A	8.4	A	7.8	A
28. Beach Blvd & Edinger Ave	28.2	C	33.2	C	28.3	C	33.2	C
203. Beach Blvd & McFadden Ave	34.6	C	40.4	D	34.6	C	40.4	D

Note: Shading with bold font denotes intersection that exceeds the performance standard.

SHORT-RANGE ANALYSIS

The short-range analysis compares no development on the project site to buildout of the project for a 2016 time frame. As noted in Chapter 2.0, 2016 no-project volumes were estimated by interpolating between existing and 2030, and then project traffic was added to these background volumes. Average daily traffic (ADT) volumes for 2016 are illustrated in Figure 4-2.

Table 4-2 lists the ICU values, the average vehicle delay for Caltrans intersections, and LOS for the study area intersections. As can be seen here, all intersections with one exception meet the performance criteria and the project does not have a significant impact at this deficient location.

LONG-RANGE ANALYSIS

As discussed in the methodology section, the long-range analysis compares the current General Plan to the proposed project. The 2030 ADT volumes for the current General Plan can be seen in Figure 4-3 and intersection volumes for current General Plan conditions can be found in Appendix A. These form the baseline against which the proposed project is compared. Figure 4-4 shows the actual 2030 ADT volumes with the proposed project.

With-project 2030 AM and PM peak hour intersection volumes were derived by first subtracting out the trips associated with the 175 residential units (allowed under the current General Plan) to give no-project volumes. The project volumes were then added to the 2030 no-project volumes. Appendix A illustrates the peak hour diagrams for the current General Plan, 2030 no-project and 2030 with-project scenarios.

A summary of the 2030 ICU values, average vehicle delay for Caltrans intersections, and LOS can be found in Table 4-3 (see Appendix B for actual ICU calculations). As shown, all but three intersections meet the performance criteria, and the project does not have a significant impact at these deficient locations. The three intersections show a cumulative deficiency (i.e., location is deficient both without- and with-proposed project).

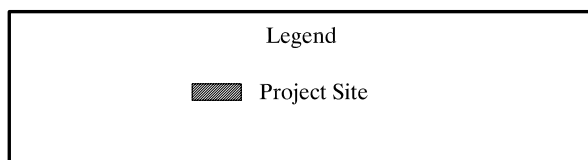
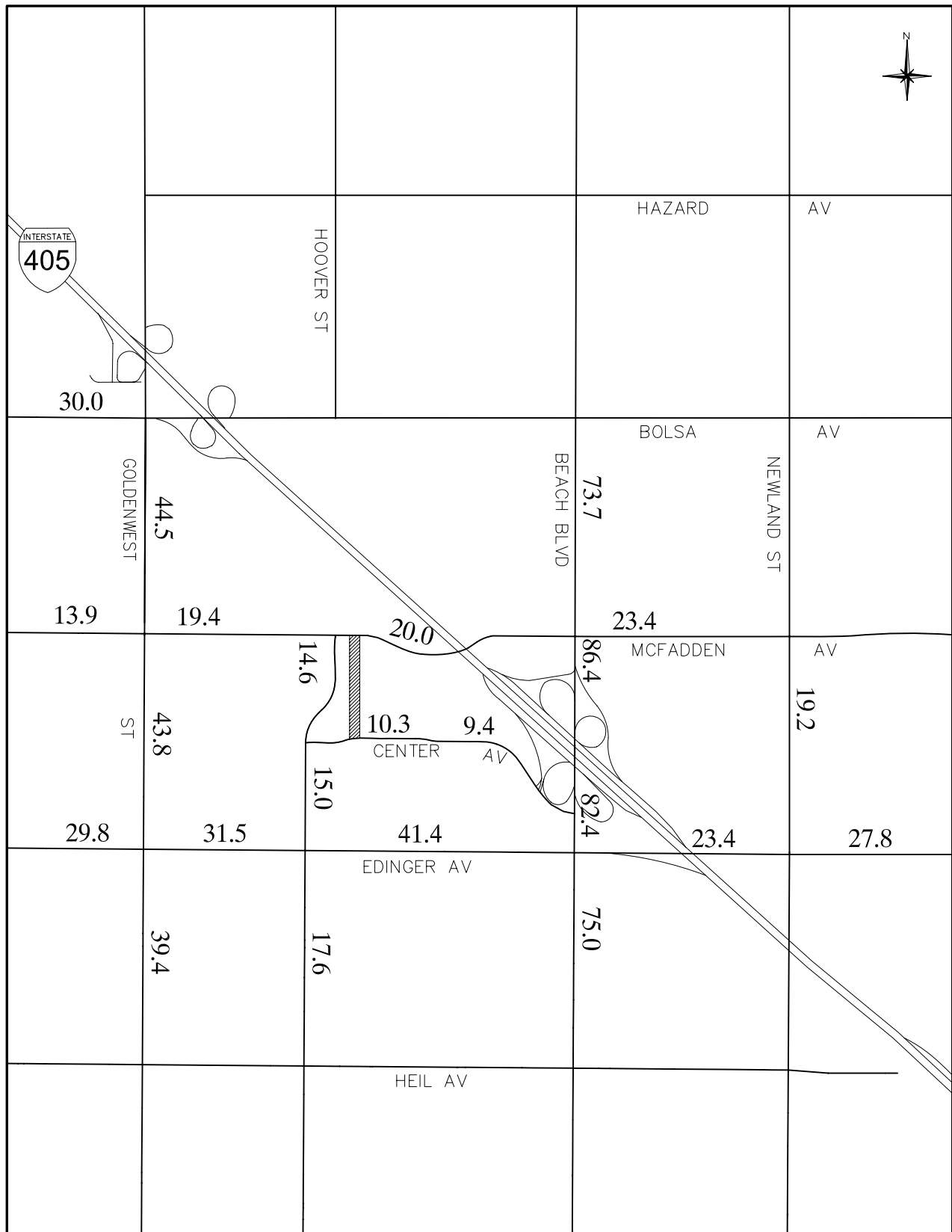


Figure 4-2

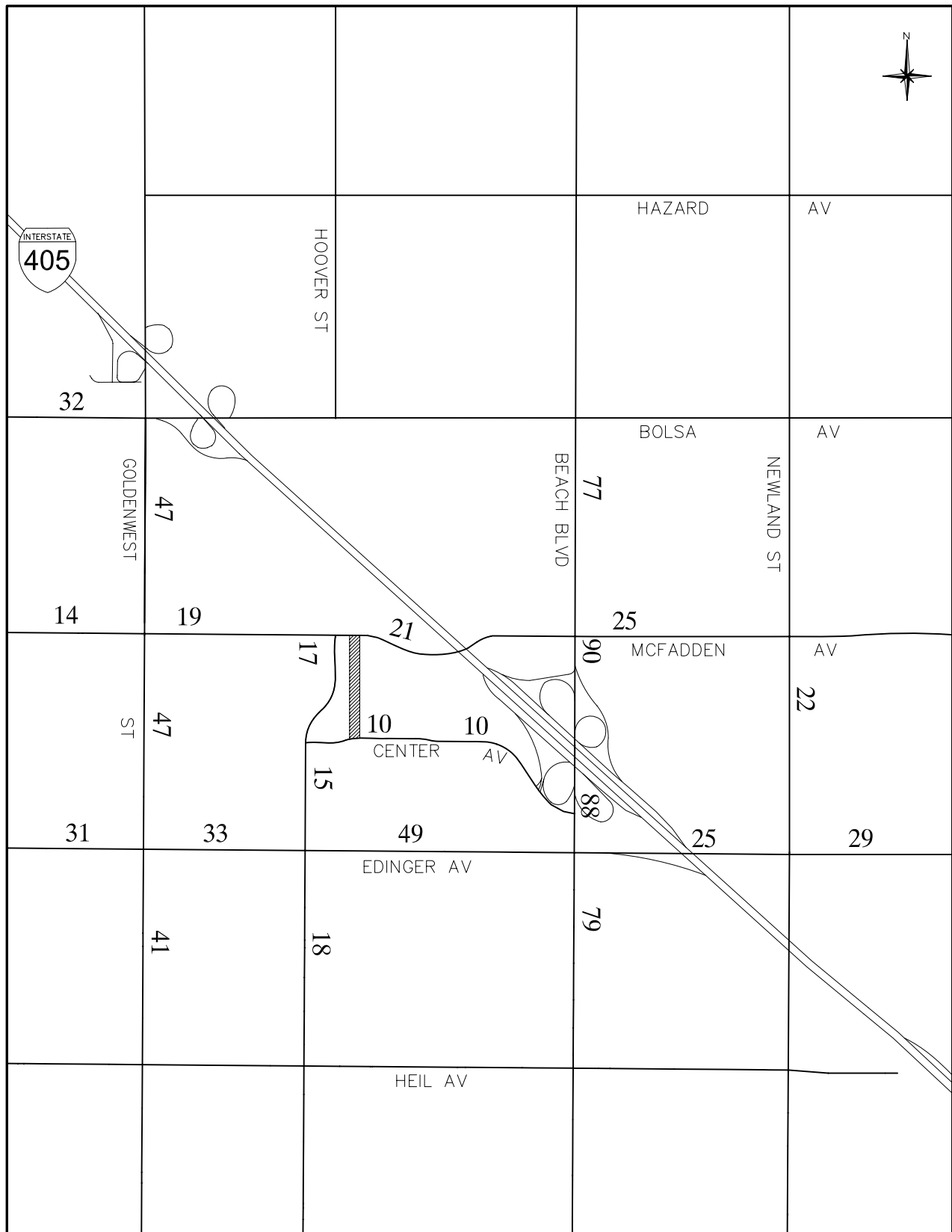
2016 ADT VOLUMES (000s)
- WITH PROJECT

Table 4-2

2016 ICU SUMMARY

Intersection	No-Project				With Project			
	AM		PM		AM		PM	
	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
8. Goldenwest St & Bolsa Ave	.82	D	.97	E	.82	D	.97	E
15. Goldenwest St & McFadden Ave	.71	C	.75	C	.71	C	.75	C
16. Gothard St & McFadden Ave	.57	A	.60	A	.57	A	.60	A
17. Gothard St & Center Ave	.32	A	.52	A	.32	A	.53	A
18. I-405 SB Ramps & Center Ave	.47	A	.81	D	.47	A	.81	D
19. Beach Blvd & Center Ave.	.64	B	.71	C	.64	B	.71	C
26. Goldenwest St & Edinger Ave	.62	B	.68	B	.62	B	.68	B
27. Gothard St & Edinger Ave	.49	A	.58	A	.49	A	.61	B
28. Beach Blvd & Edinger Ave	.80	C	.90	D	.80	C	.90	D
29. Newland St & Edinger Ave	.76	C	.73	C	.76	C	.73	C
203. Beach Blvd & McFadden Ave	.81	D	.86	D	.81	D	.86	D
Highway Capacity Manual (HCM) Delay (Caltrans Intersections)								
Location*	AM		PM		AM		PM	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
18. I-405 SB Ramps & Center Ave	28.2	C	46.3	D	28.2	C	46.3	D
19. Beach Blvd & Center Ave	8.3	A	9.1	A	8.3	A	9.1	A
28. Beach Blvd & Edinger Ave	32.1	C	43.3	D	32.2	C	43.4	D
203. Beach Blvd & McFadden Ave	35.3	D	44.8	D	35.3	D	44.8	D

Note: Shading with bold font denotes intersection that exceeds the performance standard.



Legend

 Project Site

Figure 4-3

2030 ADT VOLUMES (000s)
- CURRENT GENERAL PLAN

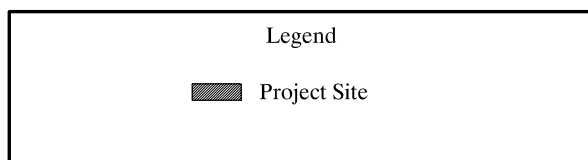
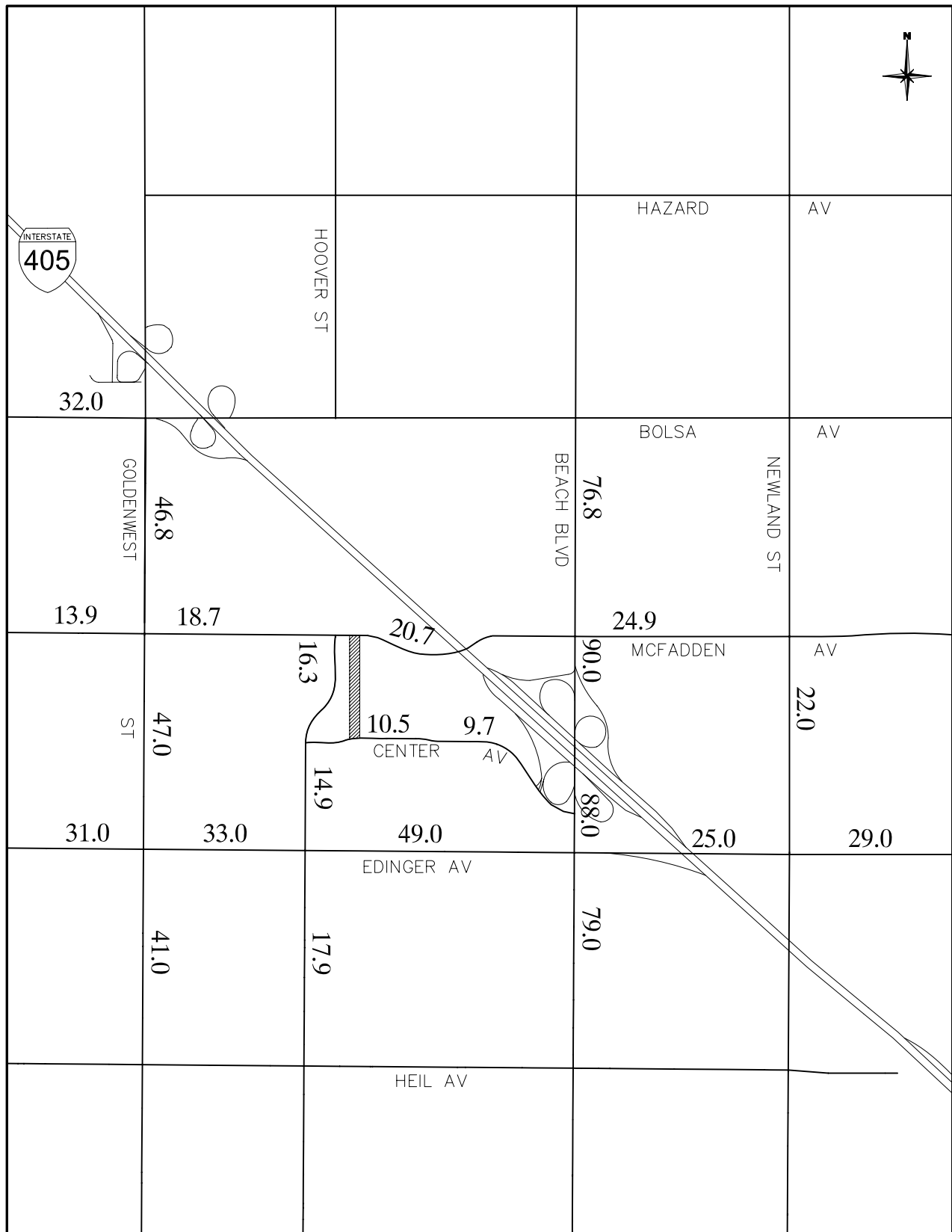


Figure 4-4

2030 ADT VOLUMES (000s)
- WITH PROPOSED PROJECT

For the intersections at LOS “E” or worse, a determination was made as to whether the project contribution to the ICU amounted to one percent or more. This was carried out by summing the project traffic ICU contribution to each critical movement in the ICU calculation. It should be noted that this is different than the project versus General Plan traffic volumes used in the ICU comparisons since it uses actual project volumes rather than difference volumes (i.e., General Plan versus proposed project). It is intended to show how development of this site will contribute to long-range deficiencies at the identified locations.

The project contribution results for the proposed project are as follows:

Location	AM/PM	PROJECT ICU
8. Goldenwest & Bolsa	AM	.000
	PM	.000
28. Beach & Edinger	PM	.000
203. Beach & McFadden	PM	.001

Hence, the project does not have a significant contribution to the three long-range deficiencies.

FREEWAY RAMP VOLUMES

A summary of the 2016 and 2030 peak hour volumes and volume/capacity (V/C) ratios for freeway ramps that would be affected by the proposed project can be found in Table 4-4. Included in the table are the project contributions to the ramp V/C ratios.

As can be seen, the project does not have a significant impact to the freeway ramps under either scenario (2016 or long-range).

Table 4-3

2030 ICU SUMMARY

Intersection	General Plan				Proposed Project			
	AM		PM		AM		PM	
	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
8. Goldenwest St & Bolsa Ave	.93	E	1.04	F	.92	E	1.04	F
15. Goldenwest St & McFadden Ave	.73	C	.81	D	.73	C	.81	D
16. Gothard St & McFadden Ave	.65	B	.67	B	.64	B	.66	B
17. Gothard St & Center Ave	.37	A	.59	A	.37	A	.58	A
18. I-405 SB Ramps & Center Ave	.55	A	.86	D	.54	A	.86	D
19. Beach Blvd & Center Ave.	.71	C	.76	C	.71	C	.76	C
26. Goldenwest St & Edinger Ave	.66	B	.72	C	.66	B	.72	C
27. Gothard St & Edinger Ave	.57	A	.65	B	.57	A	.65	B
28. Beach Blvd & Edinger Ave	.90	D	.98	E	.90	D	.98	E
29. Newland St & Edinger Ave	.87	D	.81	D	.87	D	.81	D
203. Beach Blvd & McFadden Ave	.86	D	.92	E	.85	D	.92	E
Highway Capacity Manual (HCM) Delay (Caltrans Intersections)								
Location*	AM		PM		AM		PM	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
18. I-405 SB Ramps & Center Ave	28.6	C	44.9	D	28.6	C	44.9	D
19. Beach Blvd & Center Ave	11.2	B	10.0	B	11.2	B	10.1	B
28. Beach Blvd & Edinger Ave	37.5	D	58.6	E	37.5	D	58.7	E
203. Beach Blvd & McFadden Ave	38.2	D	52.4	D	38.2	D	52.5	D

Note: Shading with bold font denotes intersection that exceeds the performance standard.

Table 4-4									
FUTURE FREEWAY RAMP V/C SUMMARY									
Location	Capacity	AM Peak Hour				PM Peak Hour			
		Total Volume	Total V/C	Project Volume	Project V/C *	Total Volume	Total V/C	Project Volume	Project V/C *
YEAR 2016									
I-405/Beach Blvd NB loop on-ramp (from NB Beach Blvd)	900	1,450	1.61	0	.00	1,510	1.68	1	.00
I-405/Beach Blvd NB loop off-ramp (to SB Beach Blvd)	1,500	770	.51	0	.00	960	.64	1	.00
I-405/Beach Blvd SB on-ramp at Center Ave	1,800	520	.29	0	.00	1,100	.61	1	.00
I-405/Beach Blvd SB off-ramp at Center Ave	1,500	960	.64	0	.00	1,180	.79	1	.00
I-405/Edinger Ave SB direct on-ramp	1,080	660	.61	0	.00	640	.59	0	.00
YEAR 2030									
I-405/Beach Blvd NB loop on-ramp (from NB Beach Blvd)	900	1,470	1.63	0	.00	1,520	1.69	1	.00
I-405/Beach Blvd NB loop off-ramp (to SB Beach Blvd)	1,500	820	.55	0	.00	1,010	.67	1	.00
I-405/Beach Blvd SB on-ramp at Center Ave	1,800	610	.34	0	.00	1,120	.62	1	.00
I-405/Beach Blvd SB off-ramp at Center Ave	1,500	970	.65	0	.00	1,270	.85	1	.00
I-405/Edinger Ave SB direct on-ramp	1,080	700	.65	0	.00	680	.63	0	.00
* Project contribution to the total V/C ratio.									

Chapter 5.0

OTHER ITEMS

This chapter discusses related traffic items such as special events, project access, and weekend/summer trip generation.

PARKING MANAGEMENT PLAN

The proposed project would include both a paved main parking lot with a minimum of 24 regular stalls and two handicapped accessible stalls, as well as a temporary gravel parking lot that can accommodate approximately 40 normal passenger vehicles. Based on the nature of the skate park/retail store and associated users/patrons, it is expected that the majority of park visitors would be youth utilizing non-vehicular transportation or dropped off by others. As such, the parking supply provided in the main parking lot is anticipated to adequately meet normal day-to-day demands.

However, the facility would host several special events per year, comprising up to approximately 15 event days, which would substantially increase park visitation and associated traffic and parking. A significant number of guests for these events are expected to be local youth arriving at the park by foot or other non-vehicular forms of transportation. Guests arriving by vehicle would be directed to the surface parking lots at the Huntington Beach Sports Complex, located approximately 2.8 miles south of the project site, which has a total of 850 parking stalls. Guests would access this parking area via the Sports Complex's eastern entrance off Gothard Street at Talbert Avenue, and then would be transported to and from the skate park via shuttle buses. Signage and/or parking attendants would be present to direct visitor vehicular traffic to the off-site parking area and direct pedestrians to the skate park area during such major events. Park visitors would enter the park via the Center Avenue entrance and vendors would enter the site through the McFadden Avenue entrance and park their vehicles in the north temporary gravel parking lot.

Prior to scheduling events, the project applicant would coordinate with the City of Huntington Beach Community Services Department to allocate the appropriate parking stall resources at the Huntington Beach Sports Complex. To ensure adequacy of parking, the project applicant would schedule major events on days where no events are planned at the Sports Complex. Guests parking at the Sports

Complex would be shuttled to the skate park via shuttle buses. Shuttle drivers would follow a specified shuttle route (i.e., Gothard Street between Center Avenue and Talbert Avenue) as illustrated in Figure 5-1.

Special events have the potential to create parking impacts for adjacent neighbors. Potential mitigation measures to address the overflow parking for special events will be provided to reduce the impact for neighboring uses. These measures can include, but are not limited to:

- Access management for the staging area – where the project will provide personnel to guide/direct visitors
- Management techniques for use of the overflow parking – including the use of valet parking in a portion of the remote lot (Huntington Beach Sports Complex)
- Permit parking for residential neighborhoods adjacent to the project site
- Effective signage which will direct visitors to the remote lot and will discourage visitors from parking in adjacent residential neighborhoods and the Bella Terra commercial area.

PROJECT ACCESS

A preliminary site layout was presented in Chapter 3.0. This shows two project access points. The access fronting Center Avenue will serve as the main entrance into the skate park, with parking lots and drop-off. The access from McFadden Avenue will serve as temporary access for vendor parking during special events (about 15 events per year).

Figure 5-2 shows the short-range and long-range (2030) peak hour volumes for the main access fronting Center Avenue. Level of service is calculated using the Highway Capacity Manual (HCM) methodology for the unsignalized intersection. The results are summarized in the table below and actual calculations can be found in the last section of Appendix B.

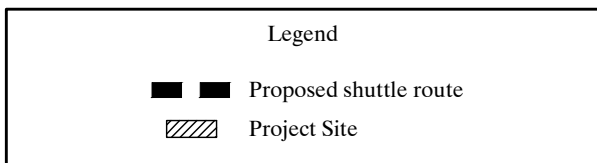
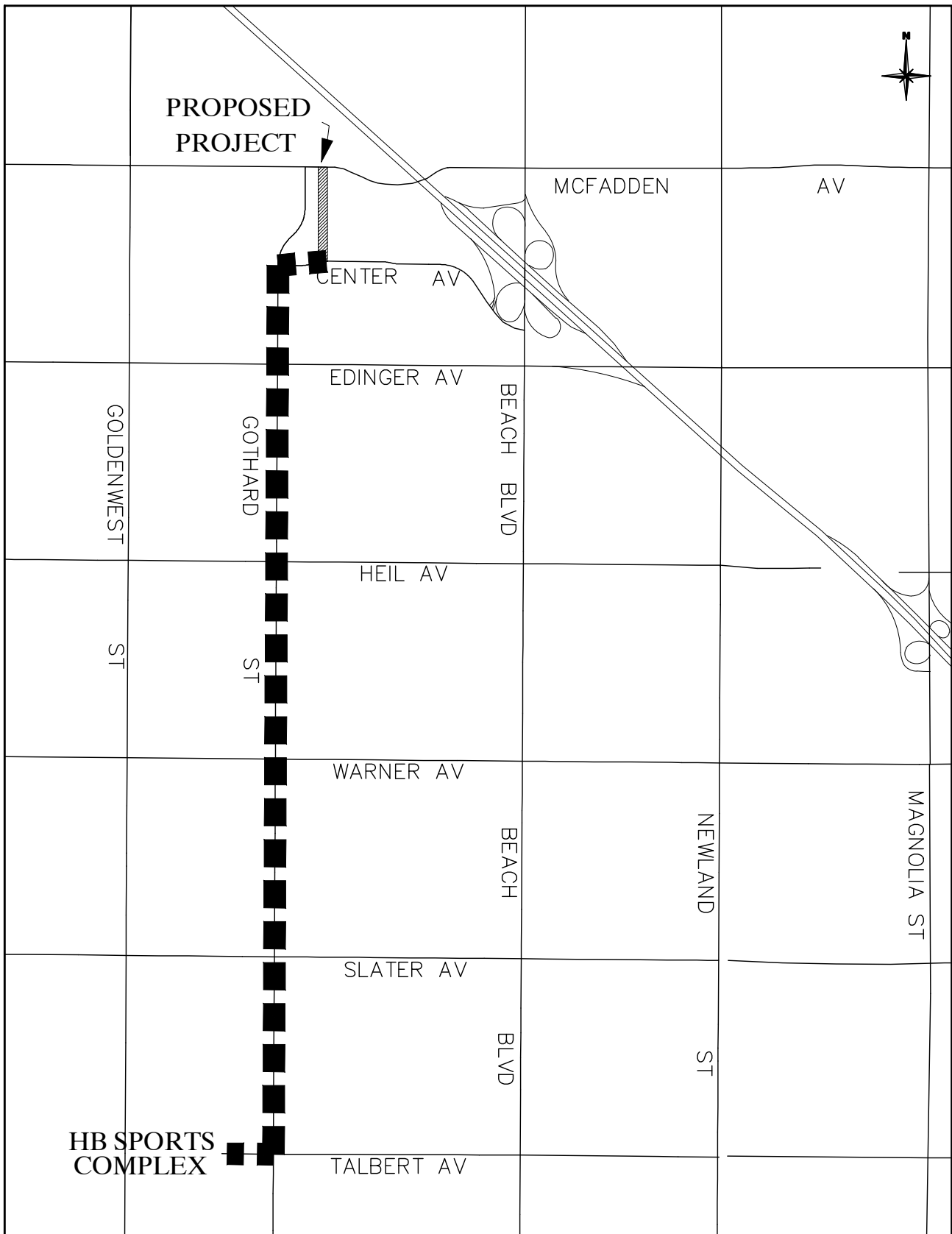


Figure 5-1

PROPOSED SHUTTLE ROUTE FOR SKATE PARK

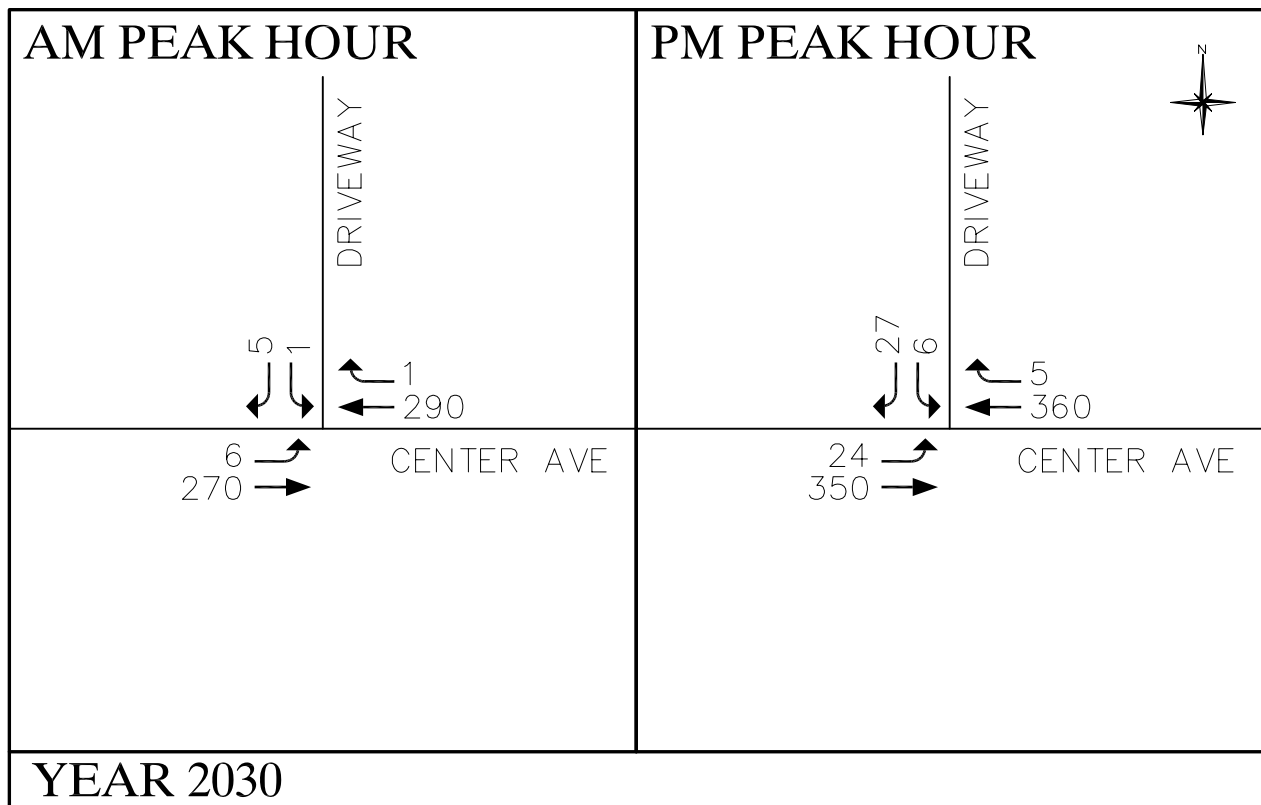
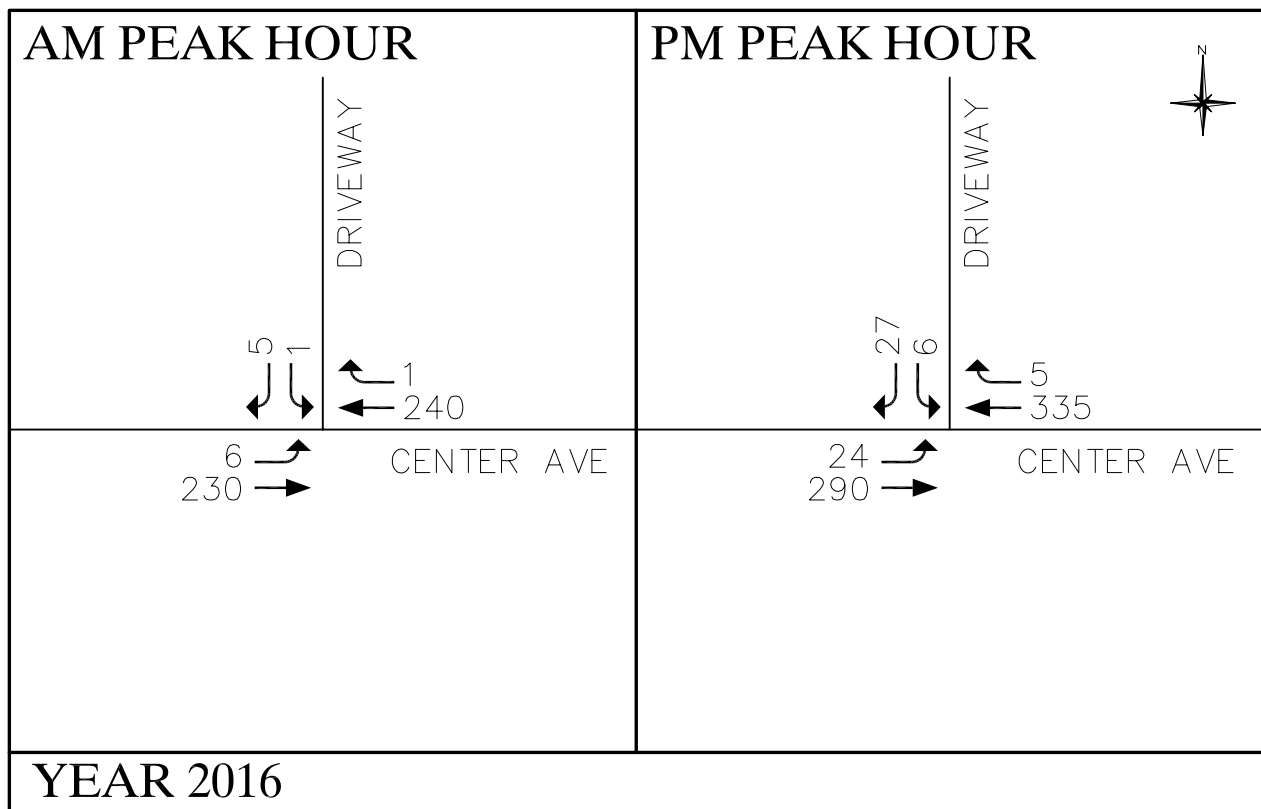


Figure 5-2

PROJECT ACCESS VOLUMES

PROJECT DRIVEWAY LEVELS OF SERVICE								
	Year 2016				Year 2030			
Unsignalized Driveway								
Location	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Center Ave	9.2	A	9.7	A	9.3	A	9.8	A

As can be seen, the project access intersection is shown to operate at an acceptable level of service.

WEEKEND AND SUMMER TRIP GENERATION

The future trip generation presented in Chapter 3.0 represents average weekday non-summer conditions. As discussed previously, the trip generation rates were based on survey data of similar skate parks in Orange County. Since weekend and summer usage can result in higher visitor/traffic volumes, counts were taken during the weekend and summer for similar skate parks in Orange County (see Appendix D) and trip rates were derived for weekend and summer usage.

Table 5-1 summarizes the trip generation estimates for weekend and summer. As shown, the weekend trip generation shows increases over the corresponding weekday trip generation for midday (12:00 – 1:00 PM), PM peak hour (4:00 – 6:00 PM) and daily trip generation. For summer, the daily trip generation is higher than the weekday daily trip generation; however the peak hour traffic is lower since the traffic is spread out over a longer period during the day. Peak hours for weekday summer are the same for traditional weekday (7:00 – 9:00 AM and 4:00 – 6:00 PM).

ALTERNATIVE MODES OF TRAVEL

Due to the unique nature of the proposed skate park, a percentage of the patrons are estimated to travel to/from the site using alternative modes of travel (i.e., biking, walking and skateboarding). The patrons will primarily be local youth from the nearby residential areas and the adjacent Golden West College. These alternative modes of travel are provided to the project site via public sidewalks and existing roadways. Class II bike lanes exist on most streets immediately surrounding the project, as illustrated in Figure 5-3. Access to and from the actual site would occur via Center Avenue, where

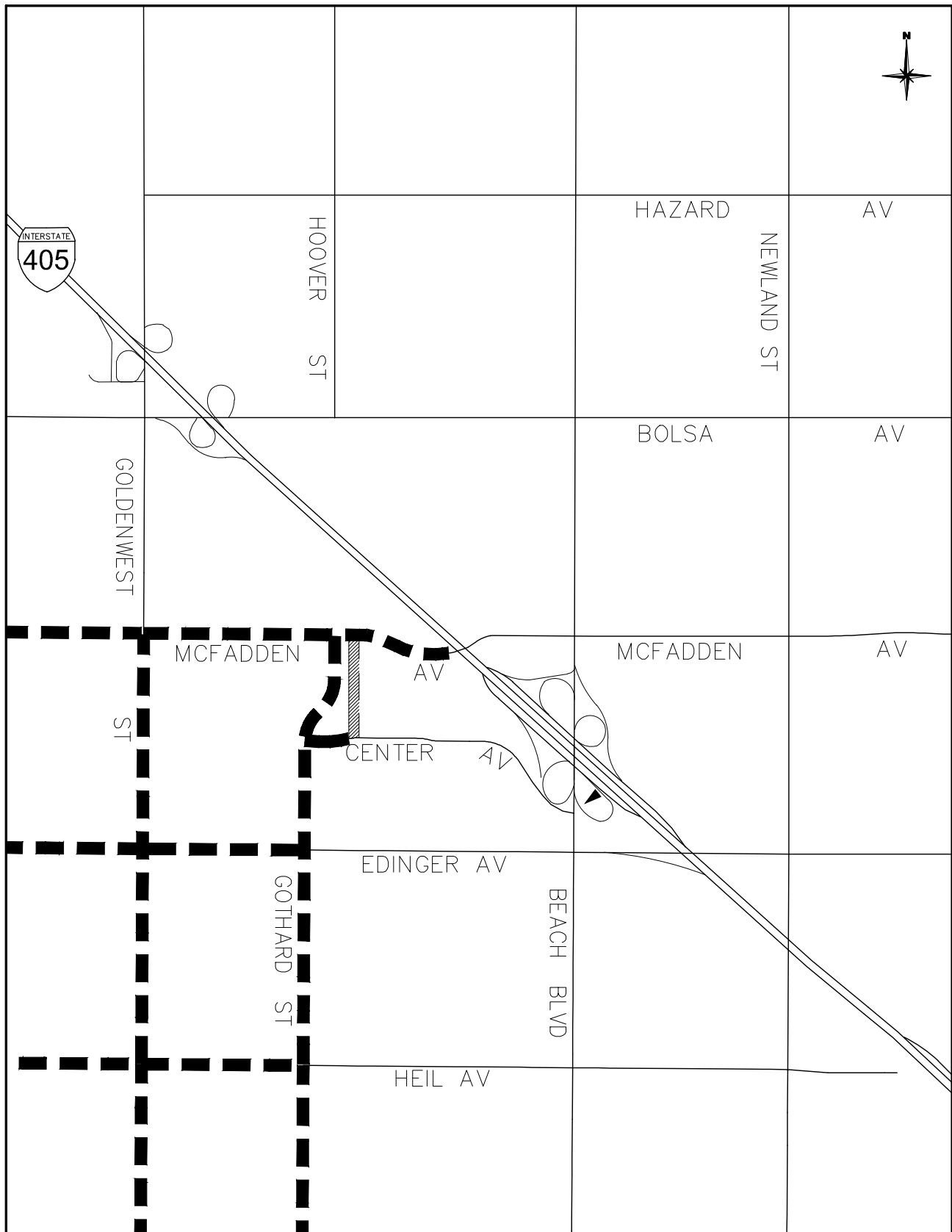
Table 5-1

CENTER AVENUE SKATE PARK TRIP GENERATION

Land Use	Amount	AM Peak Hour*			PM Peak Hour			ADT
		In	Out	Total	In	Out	Total	
WEEKDAY								
Skate Park ¹	45.5 TSF	7	6	13	29	33	62	416
Total		7	6	13	29	33	62	416
WEEKEND								
Skate Park ²	45.5 TSF	44	40	85	33	32	64	756
Total		45	40	85	33	32	64	756
Difference from Weekday (%)				553%			3%	82%
SUMMER WEEKDAY								
Skate Park ¹	45.5 TSF	4	8	12	14	17	31	535
Total		4	8	12	14	17	31	535
Difference from Weekday (%)				-8%			-50%	29%
TRIP RATES								
Weekday ¹	TSF	.16	.14	.30	.63	.73	1.36	9.14
Weekend ²	TSF	.98	.89	1.86	.72	.69	1.41	16.61
Summer Weekday ³	TSF	.09	.18	.27	.30	.37	.67	11.75

* Midday peak hour for weekend trip generation

Notes: ¹ and ² Derived from trip survey data for similar skate parks (survey data collected in April and June 2011).



- Legend
- Class II Bike Path
 - ▨ Project Site
 - Share-the-road

Figure 5-3

EXISTING BIKEWAYS

designated bike lanes are not provided but bicycles and motor vehicles will be asked to share the road. Public sidewalks also provide a safe means of alternative access to the site for pedestrians and skateboard riders. The sidewalks immediately surrounding the project site all provide continuous access, with pedestrian friendly sidewalks located on the north side of Center Avenue. The intersection of Center Avenue and Gothard Street is signalized and provides marked crosswalks on all four legs, providing a safe route for patrons from the west and south.

The project site is served by two OCTA bus routes. Hence, public transit also provides an alternative mode of travel for the skate park patrons. Figure 5-4 illustrates the existing bus routes that would also serve the skate park.

SPECIAL EVENT TRIP GENERATION AND DISTRIBUTION

A special analysis was made of the traffic impacts for major special events, which are expected to draw up to 2,500 spectators per event day. These visitors will arrive in 910 cars (based on an estimated 2.75 vehicle occupancy), which results in 1,820 total daily trips. This is a 140 percent increase over the typical weekend daily trips. This 140 percent increase was then applied to the mid-day weekend peak hour trip generation to derive the special event mid-day trip generation. Table 5-2 summarizes the mid-day trip generation for the special events.

During these special events, visitors would be directed to park their vehicles at the Huntington Beach Sports Complex located at 18100 Goldenwest Street. The trip distribution for such special events is assumed to be different for typical weekday/weekend distribution due to the regional attraction of these events and because visitors will be directed to the remote parking lot at the Sports Complex. Figure 5-5 illustrates the trip distribution for the special events traffic. The trip distribution assumes that five percent of the trips to/from project site will be drop-offs and that 95 percent of the trips will use the remote parking lot. The 910 vehicles are not expected to cause an overflow at this location due to variable arrivals and departures, and hence the maximum parking demand is somewhat less than the 910 vehicle arrivals.

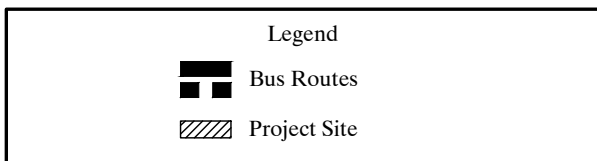
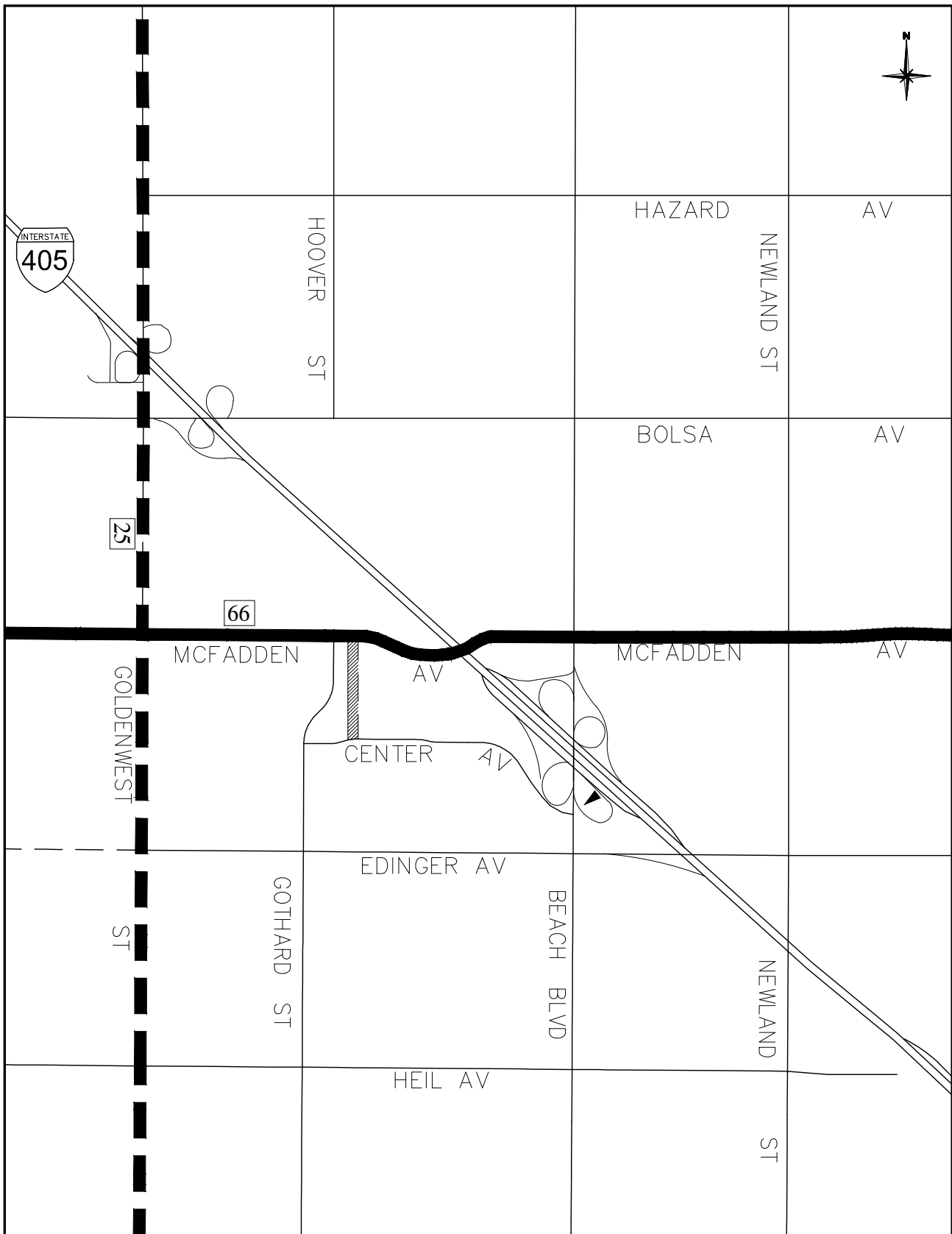


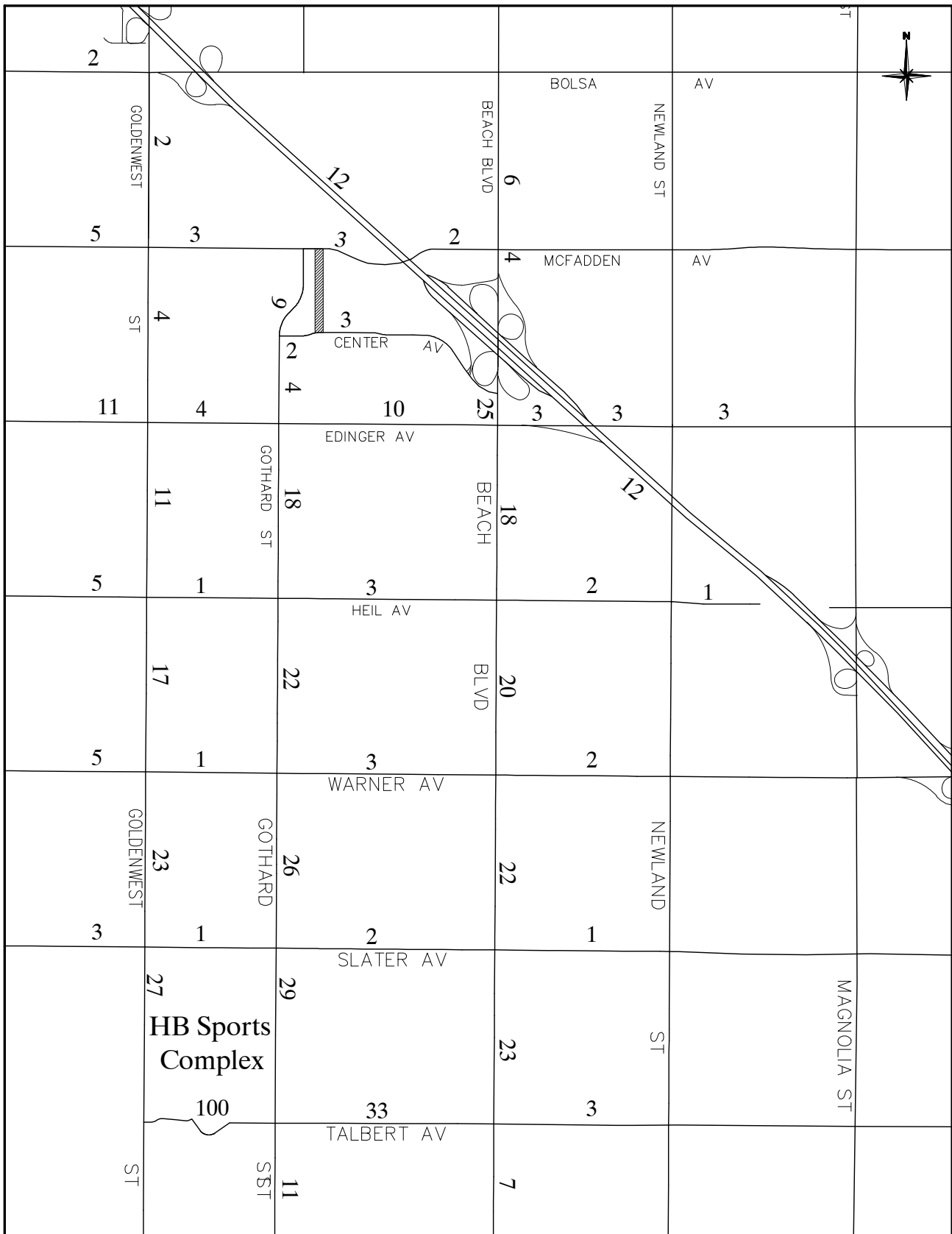
Figure 5-4

BUS ROUTES

Table 5-2

TRIP GENERATION FOR SPECIAL EVENTS

Land Use	Amount	Mid-day Peak Hour				ADT
		In	Out	Total		
WEEKEND SPECIAL EVENT						
Skate Park	45.5 TSF	107	97	204		1,820
Increase over Weekend non-special event				140%	140%	
Land Use	Amount	Mid-day Peak Hour				ADT
		In	Out	Total		
WEEKEND NON-SPECIAL EVENT						
Skate Park	45.5 TSF	45	40	85		756
*Peak hour of mid-day is 12-1pm						



Legend

Project Site

XX

Percent of project trip distribution

Figure 5-5

SPECIAL EVENT TRIP DISTRIBUTION

City of Huntington Beach
Center Avenue Skate Park

5-11

Austin-Foust Associates, Inc.
503008rptFigure5-5.dwg

SPECIAL EVENT TRAFFIC ANALYSIS

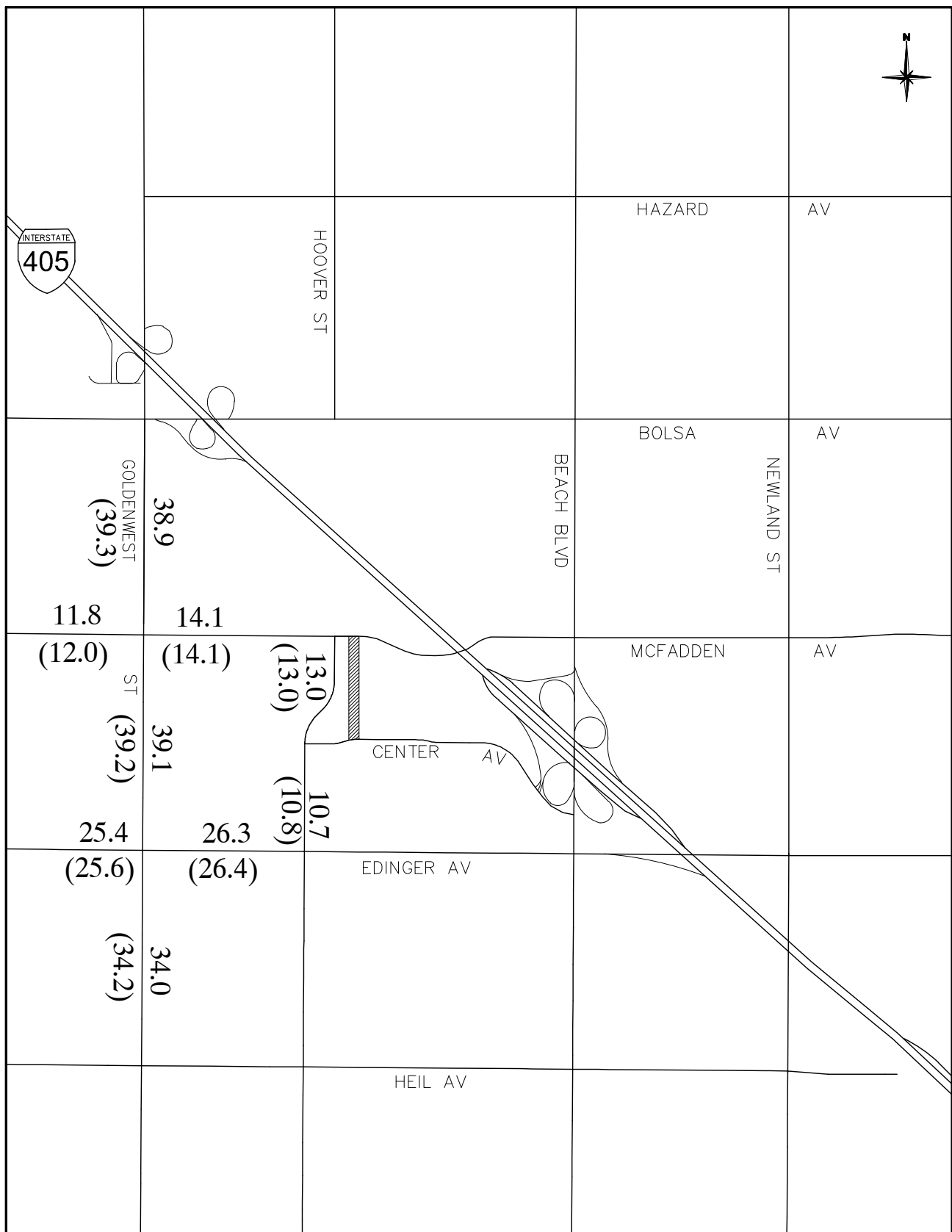
The 2030 no-project daily volumes were derived by applying a factor of .85 to the weekday ADT to estimate weekend ADT volumes. The special event project volumes were then added to the 2030 no-project weekend volumes by assigning the special event trips according to the trip distribution defined earlier. Figure 5-6 illustrates the ADT volumes for without- and with-special event project. As can be seen, the difference in the ADT volumes is 1,000 vehicles per day on all roadway segments.

A weekend survey of four intersections was performed in November 2011 to assist in the forecast of the 2030 no-project peak hour volumes. The four intersections were chosen because of the confluence of weekend activity that occurs near the proposed project: Goldenwest swap meet, Westminster mall activity and Bella Terra mall activity. Factors were derived for each turning movement based on the relationship between the existing weekday/weekend count data. These same factors were then applied to the 2030 no-project weekday peak hour volumes to derive the 2030 no-project weekend volumes (Appendix D summarizes the individual factors). The special event traffic was then added to the no-project data to derive the 2030 with-special event scenario.

A summary of the 2030 ICU values and LOS can be found in Table 5-3 (see Appendix B for actual ICU calculations). As shown, all intersections are forecast to operate at level of service D or better.

QUALITATIVE ANALYSIS OF SHUTTLE ROUTE

A qualitative analysis was performed to identify the potential impact of the proposed shuttle route. The arrival and departures of shuttled passengers with their staggered arrival pattern will result in the shuttle buses serving up to 620 passengers per hour during the peak period. As discussed previously, 95 percent of the passengers will need to be shuttled to/from the project site and five percent were assumed to be drop-off and pick-ups at the project site. The travel time between the project site and remote parking lot is estimated at five minutes. Allowing an additional five minutes to move through the staging areas, the total travel time is estimated at 10 to 12 minutes. This is the maximum recommended travel time needed to ensure optimal use of the shuttle.



Project Site

xx
Without Special Event ADT Volume

yy
With Special Event ADT Volume

Figure 5-6

2030 WEEKEND ADT VOLUMES (000s)
- WITH SPECIAL EVENT TRAFFIC

Table 5-3

2030 WITH SPECIAL EVENT ICU SUMMARY

Intersection	No-Project		With Project	
	Mid-day Peak Hour		Mid-day Peak Hour	
	ICU	LOS	ICU	LOS
15. Goldenwest St & McFadden Ave	.80	C	.81	D
16. Gothard St & McFadden Ave	.54	A	.54	A
26. Goldenwest St & Edinger Ave	.83	D	.83	D
27. Gothard St & Edinger Ave	.70	B	.70	B

It is estimated that up to 10 shuttle buses with 40-seat capacity (allowing for 20 standing passengers) will be needed during the special event. Each shuttle would complete 2.5 circuits during the mid-day peak hour. This results in a total of 100 trips per day (50 northbound and 50 southbound), which would have a less than significant impact on the ICU values for intersections located along the shuttle route.

Appendix A

PEAK HOUR VOLUME DIAGRAMS

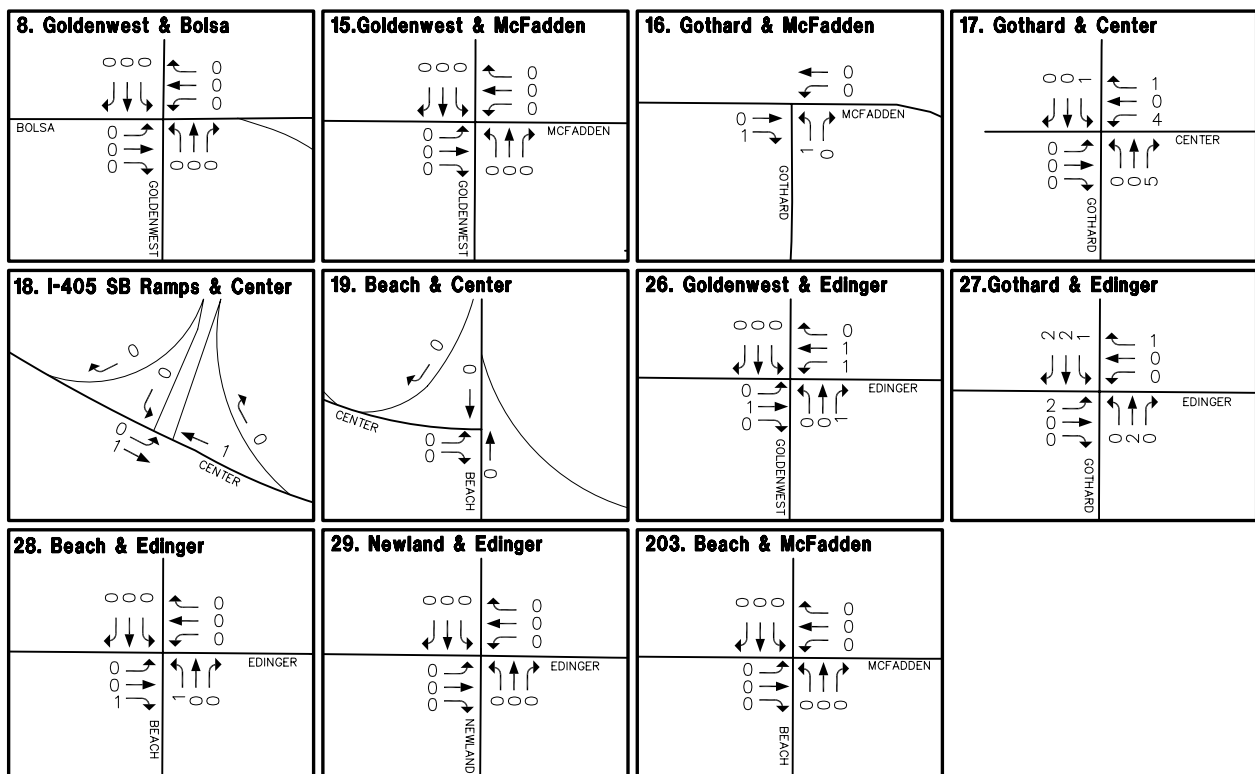
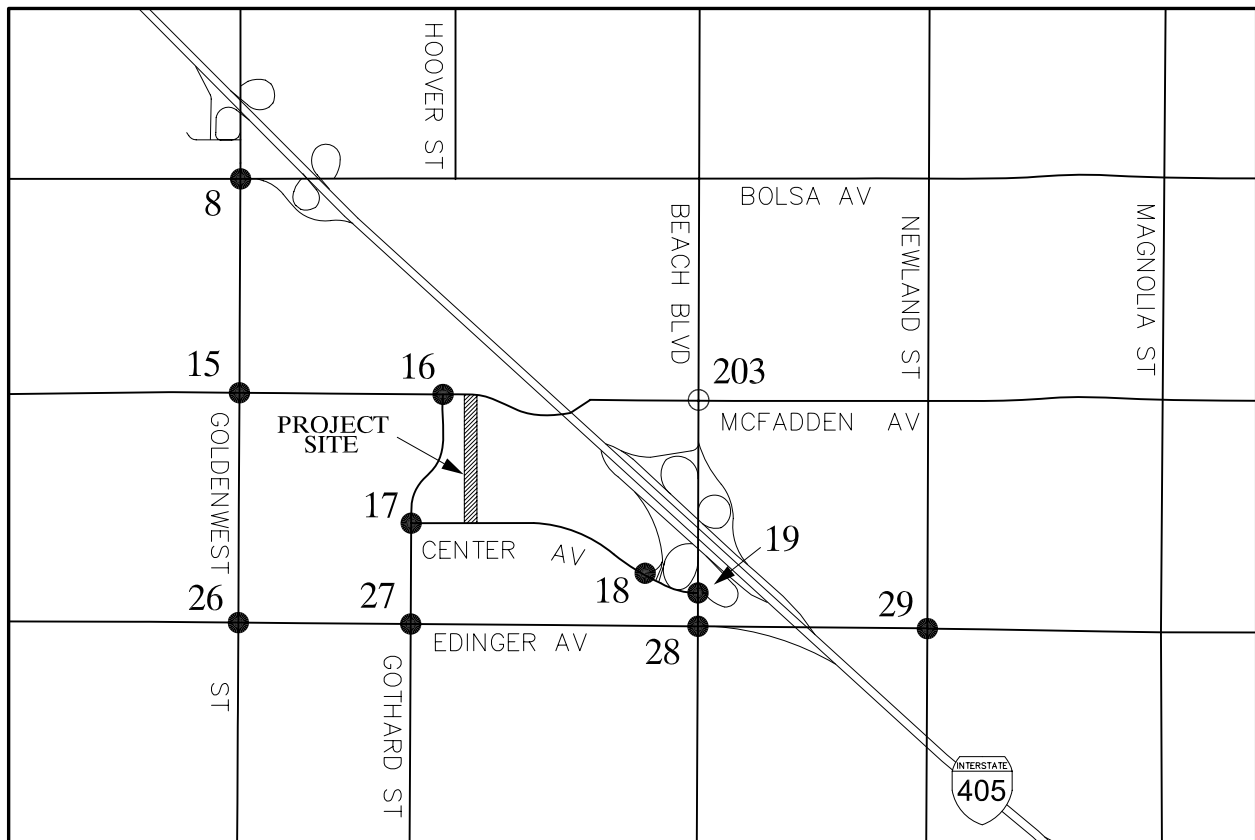


Figure A-1

AM PEAK HOUR VOLUMES
- PROJECT ONLY

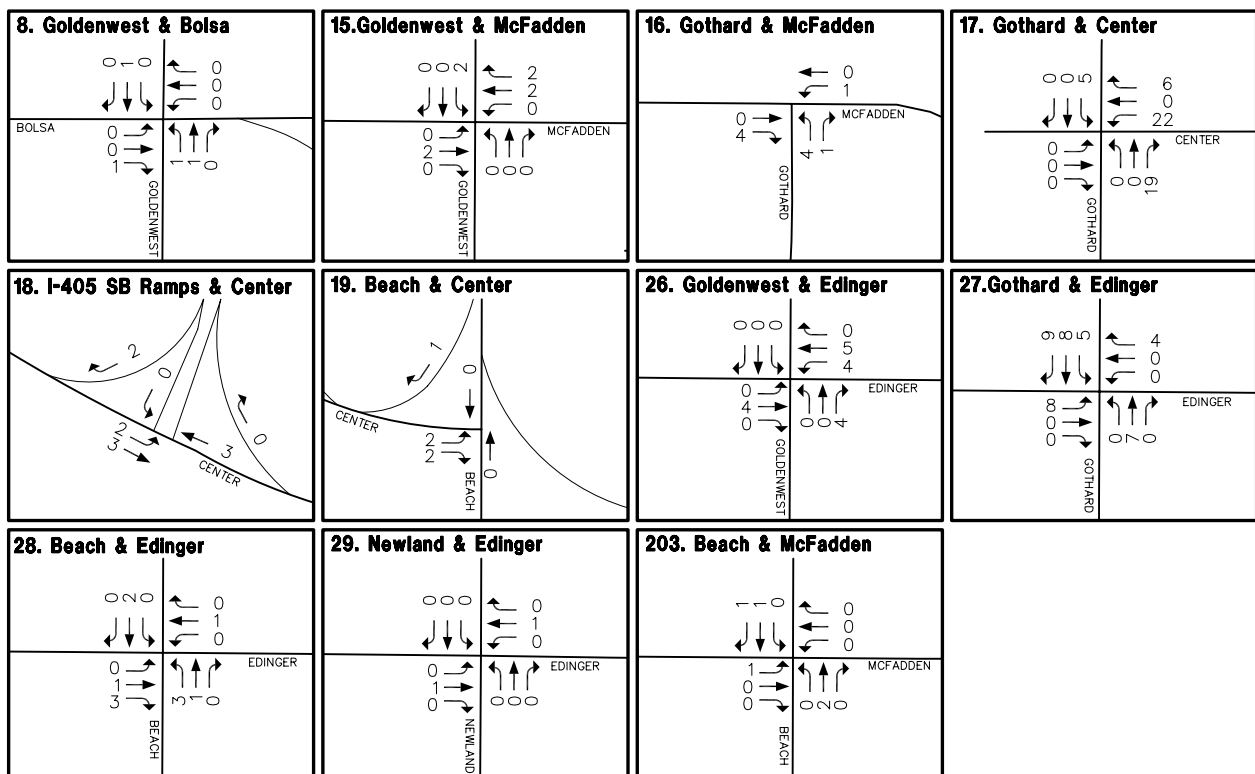
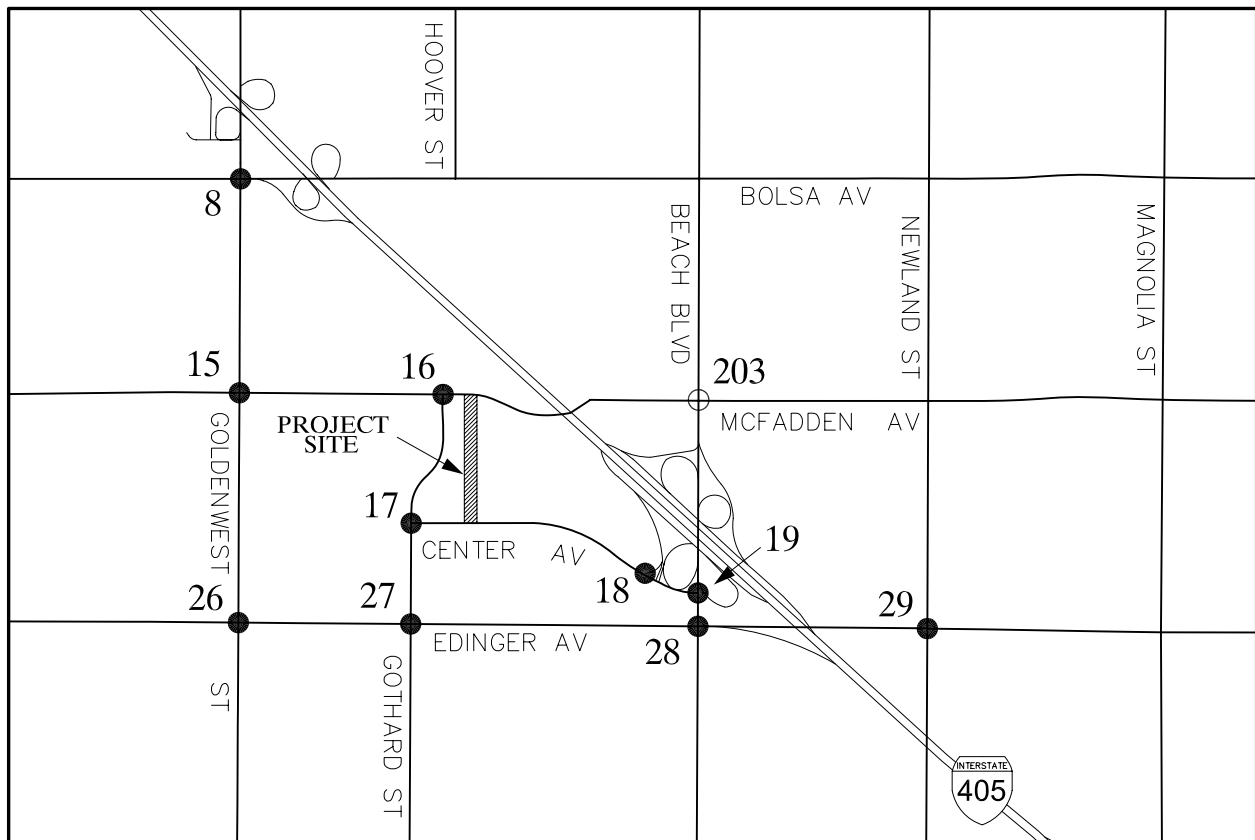


Figure A-2

PM PEAK HOUR VOLUMES
- PROJECT ONLY

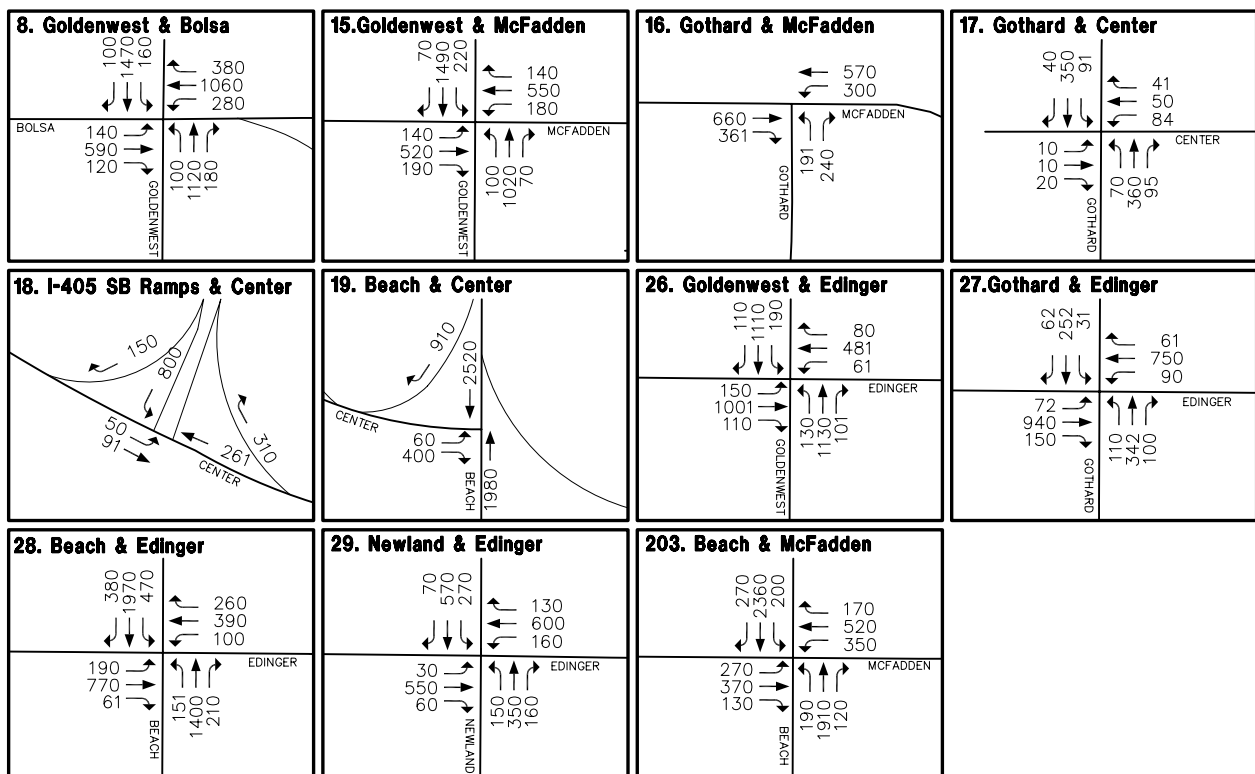
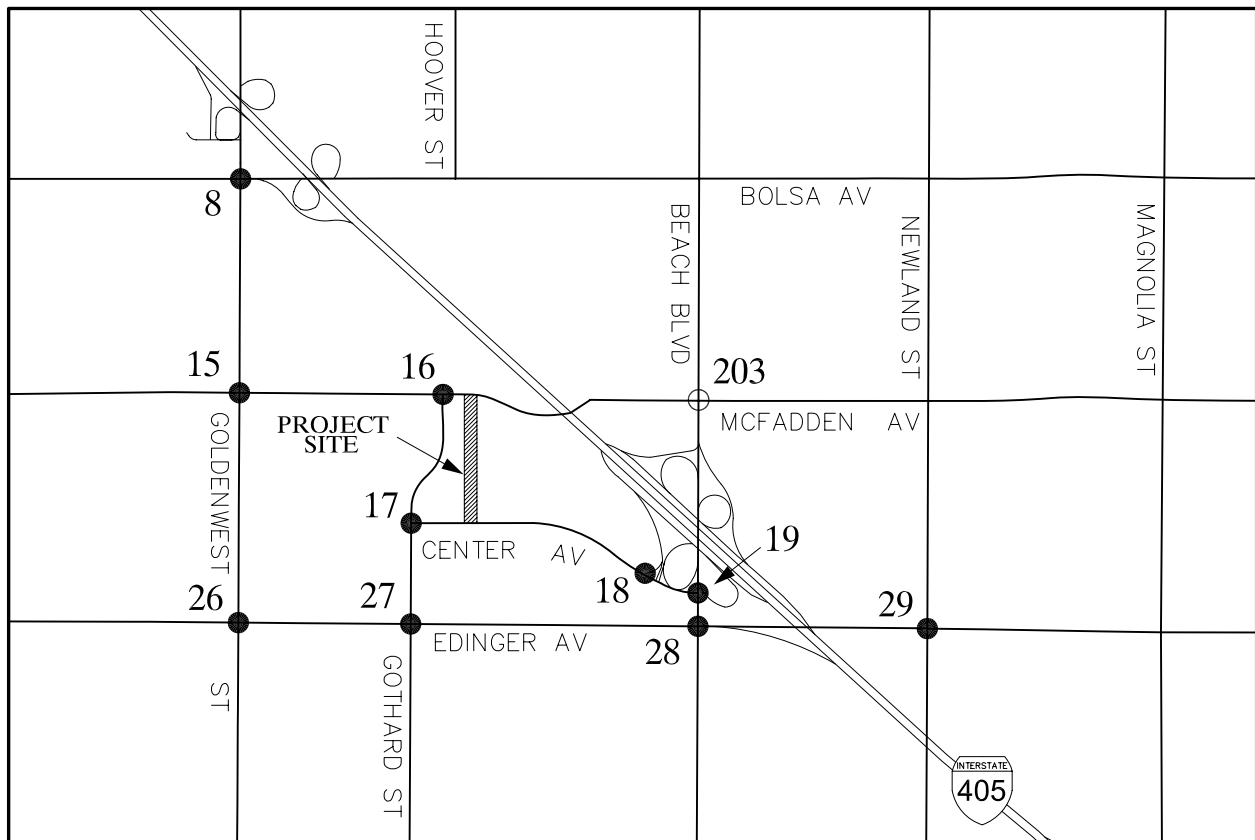


Figure A-3

AM PEAK HOUR VOLUMES
- EXISTING PLUS PROJECT

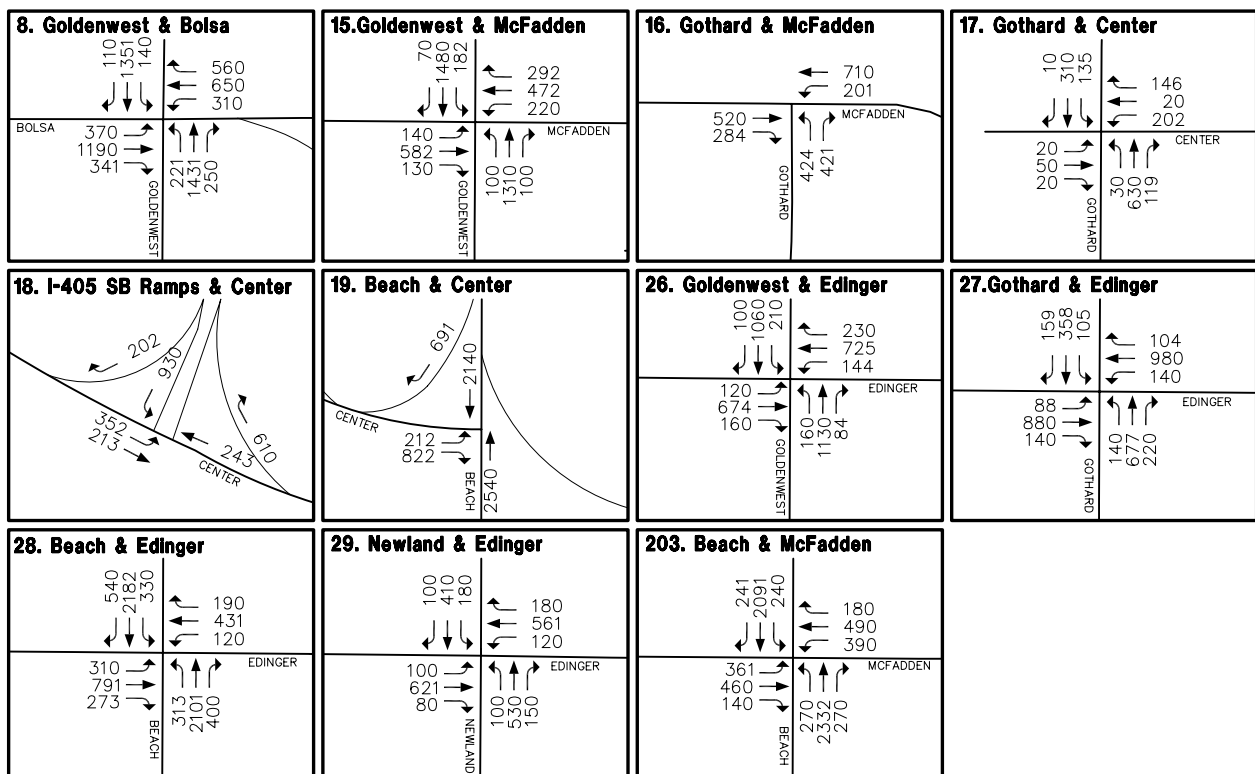
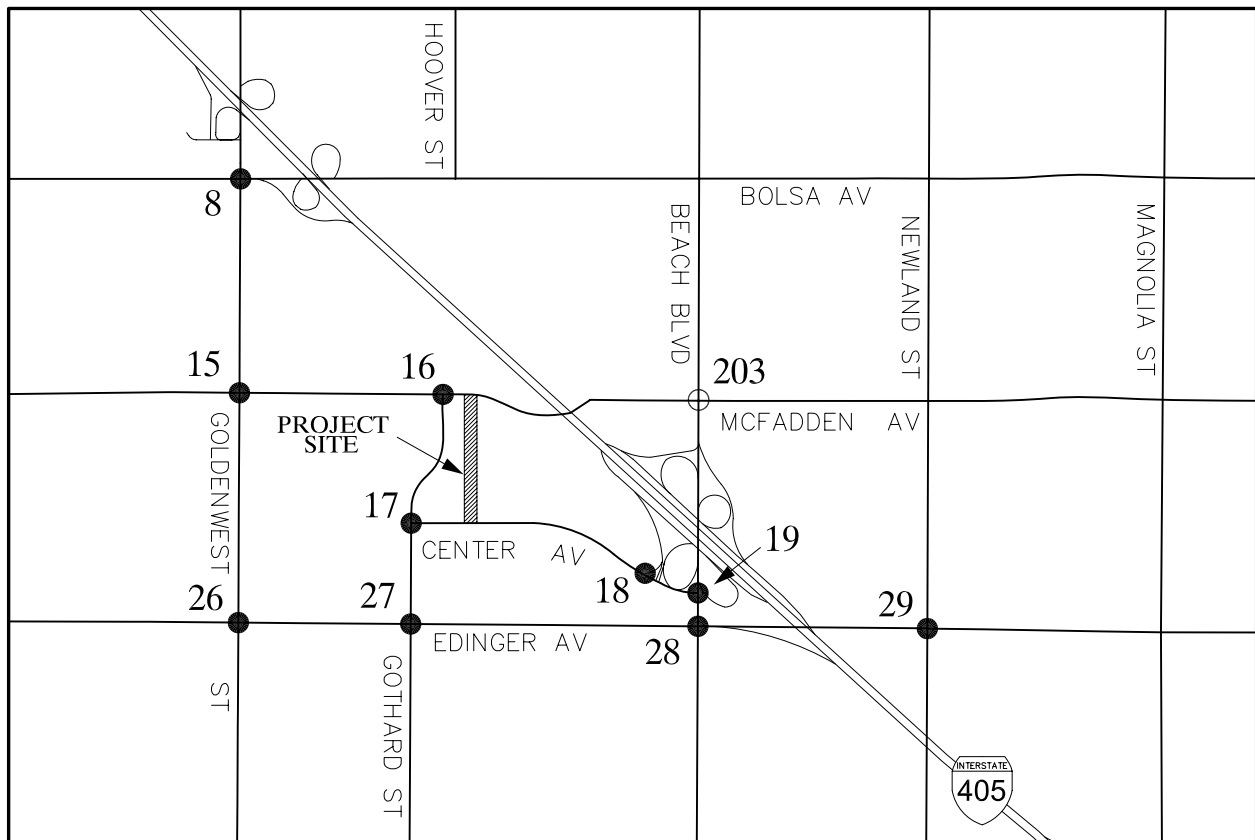


Figure A-4

PM PEAK HOUR VOLUMES
- EXISTING PLUS PROJECT

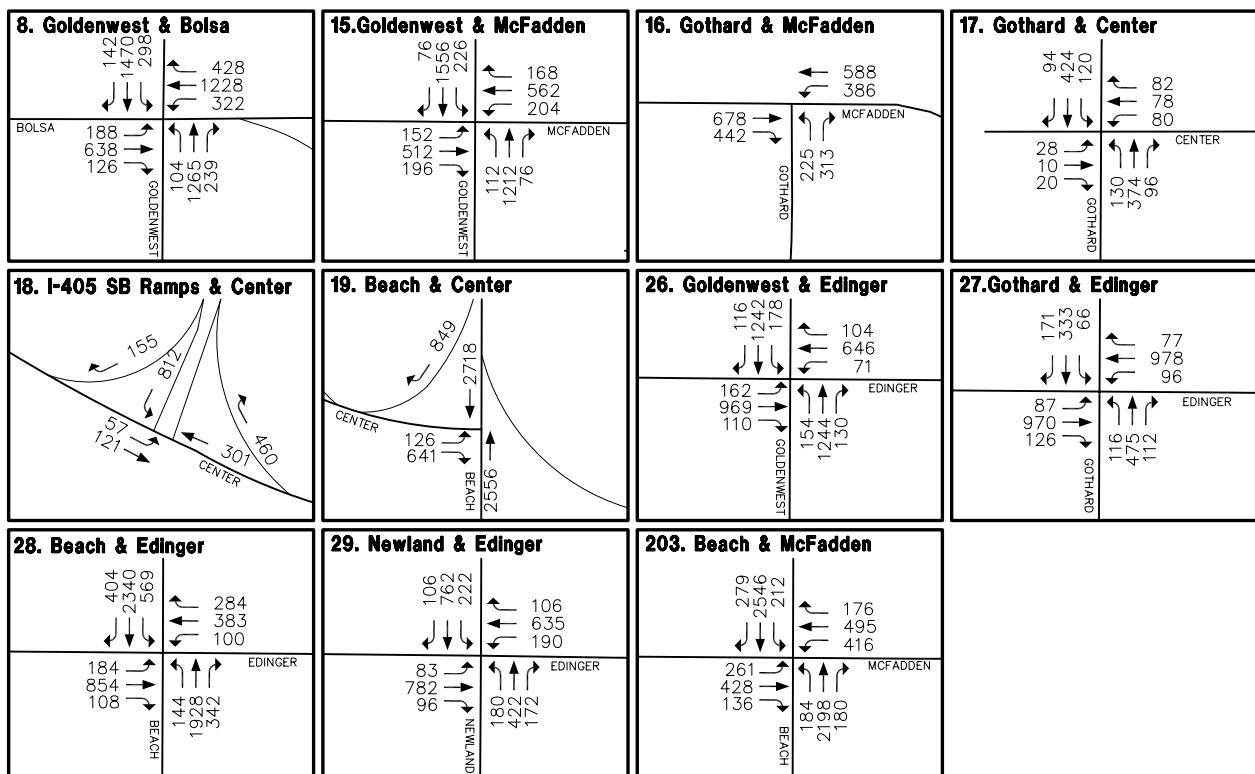
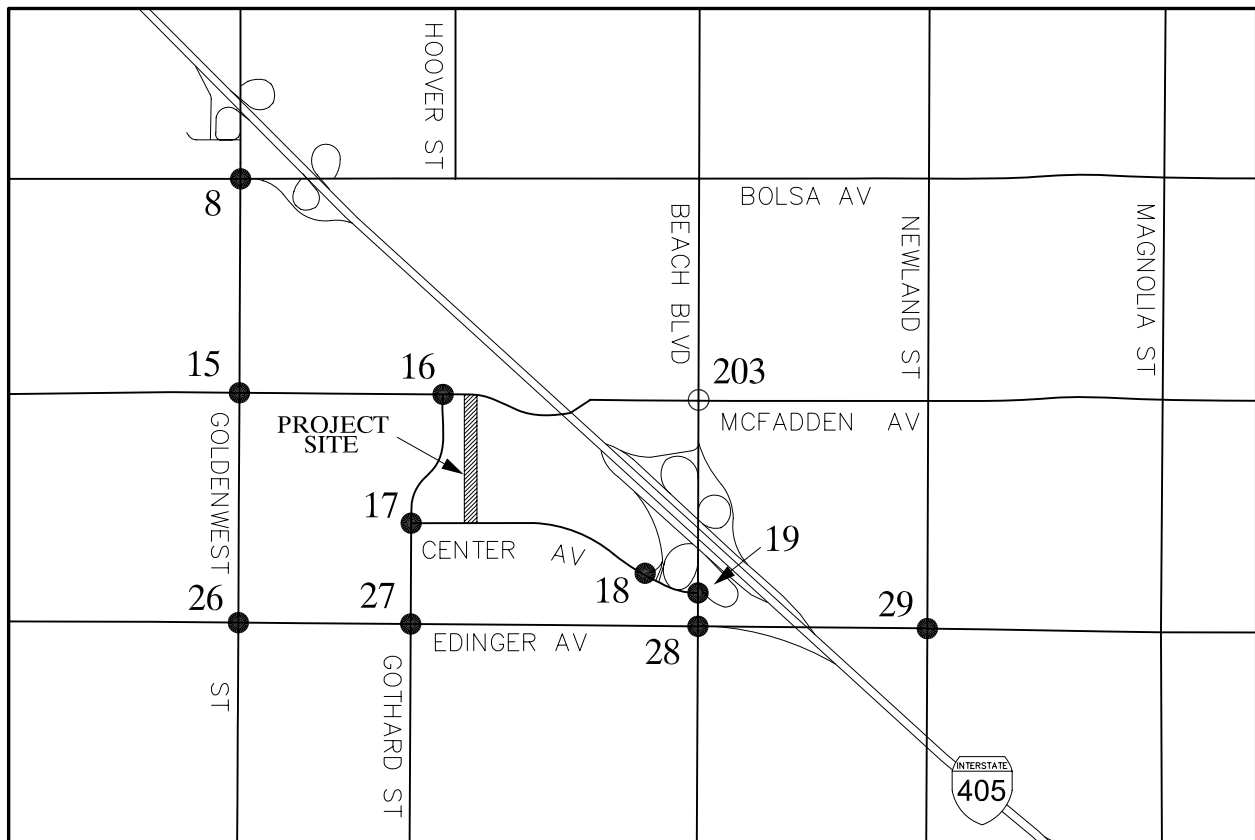


Figure A-5

AM PEAK HOUR VOLUMES
- 2016 NO-PROJECT

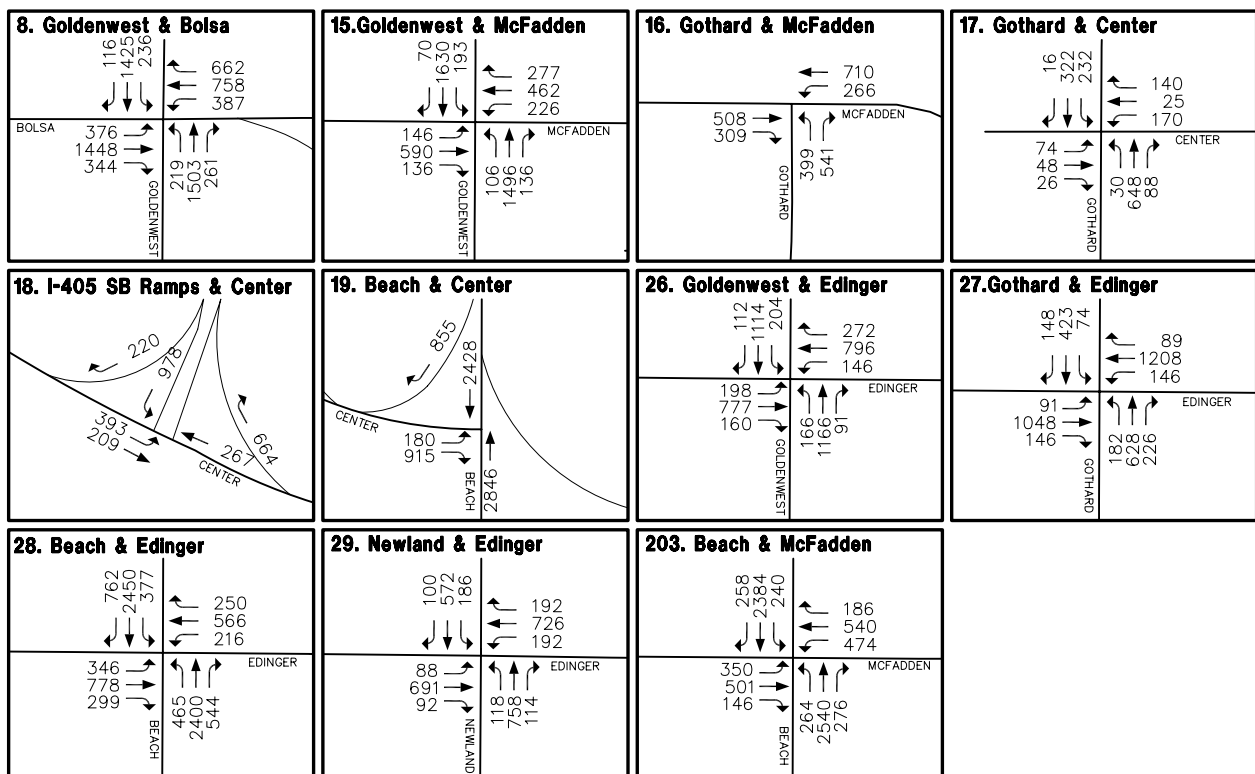
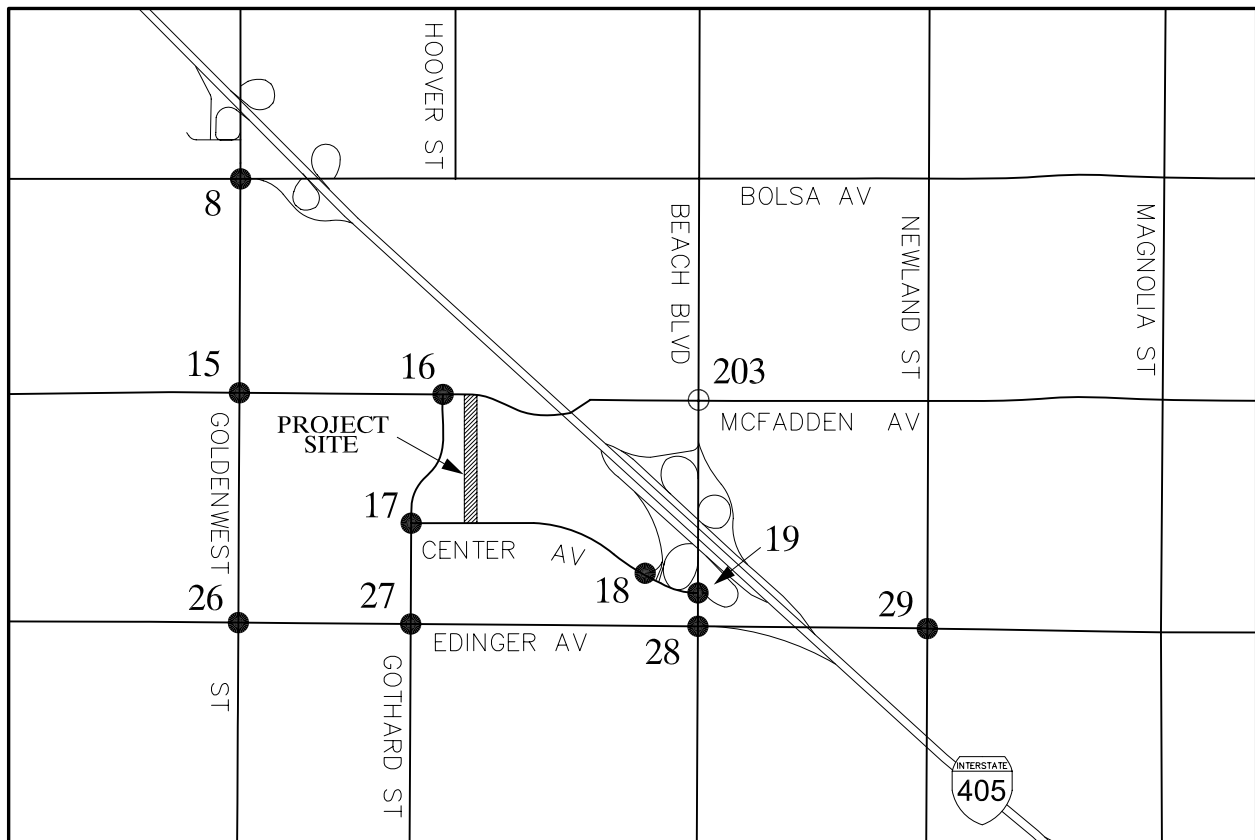


Figure A-6

PM PEAK HOUR VOLUMES
- 2016 NO-PROJECT

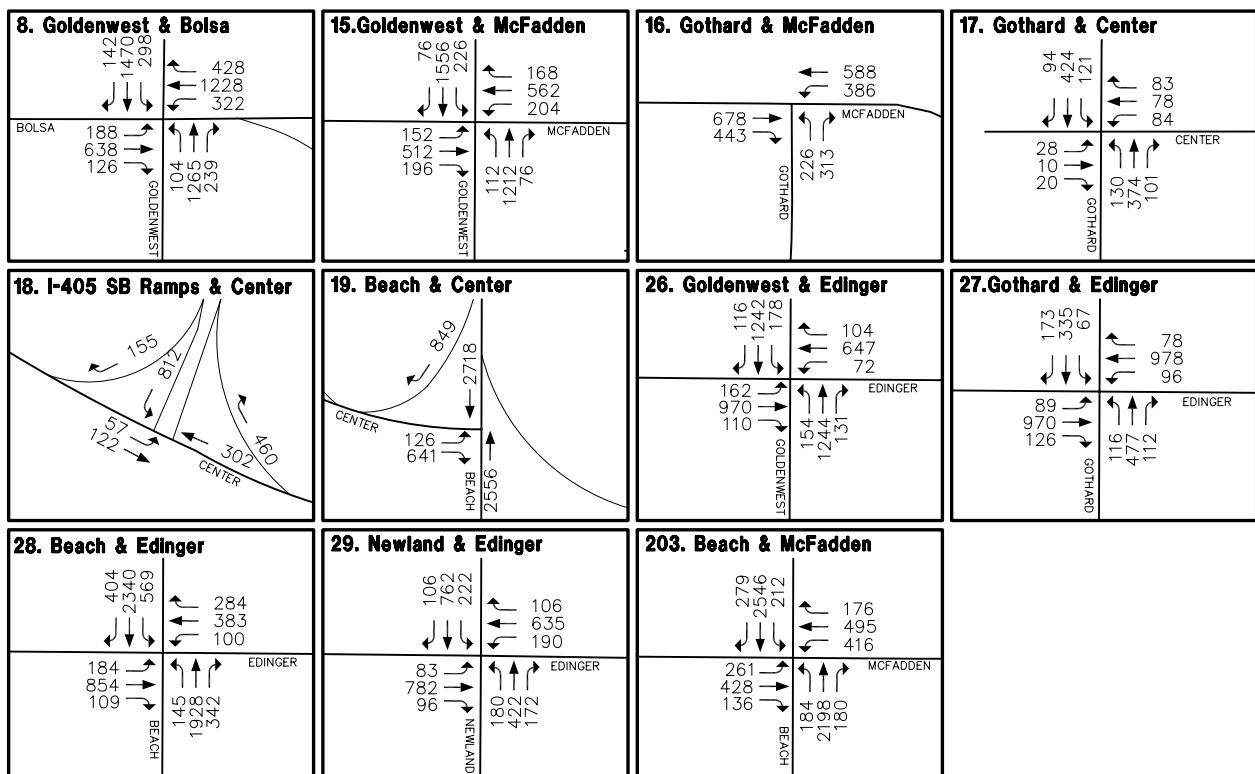
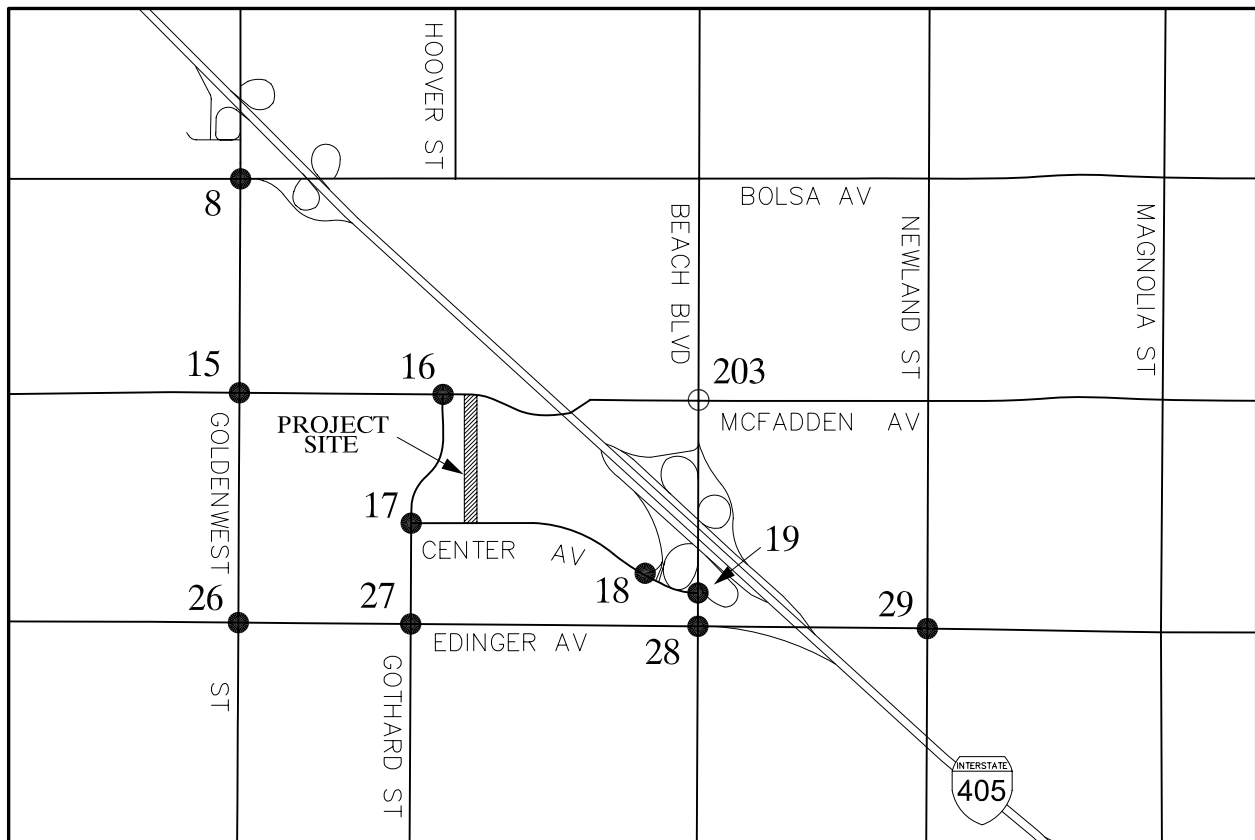


Figure A-7

AM PEAK HOUR VOLUMES
- 2016 WITH PROJECT

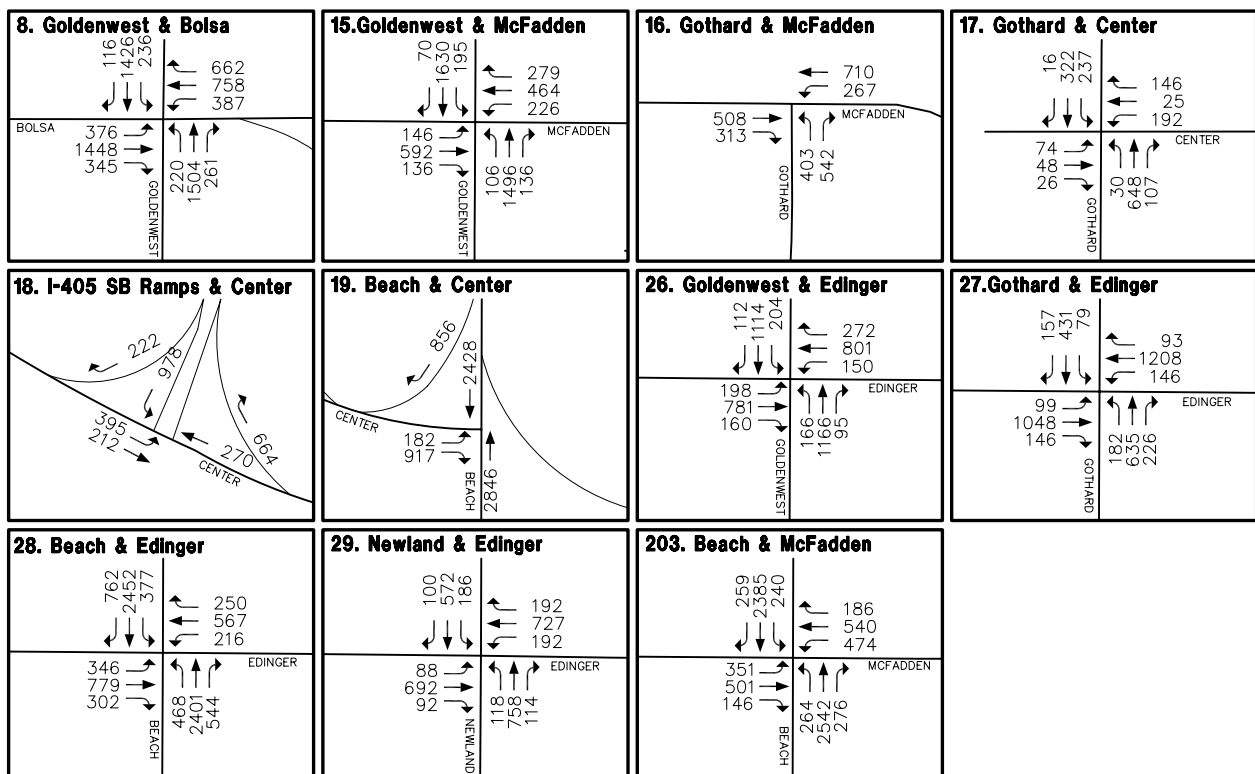
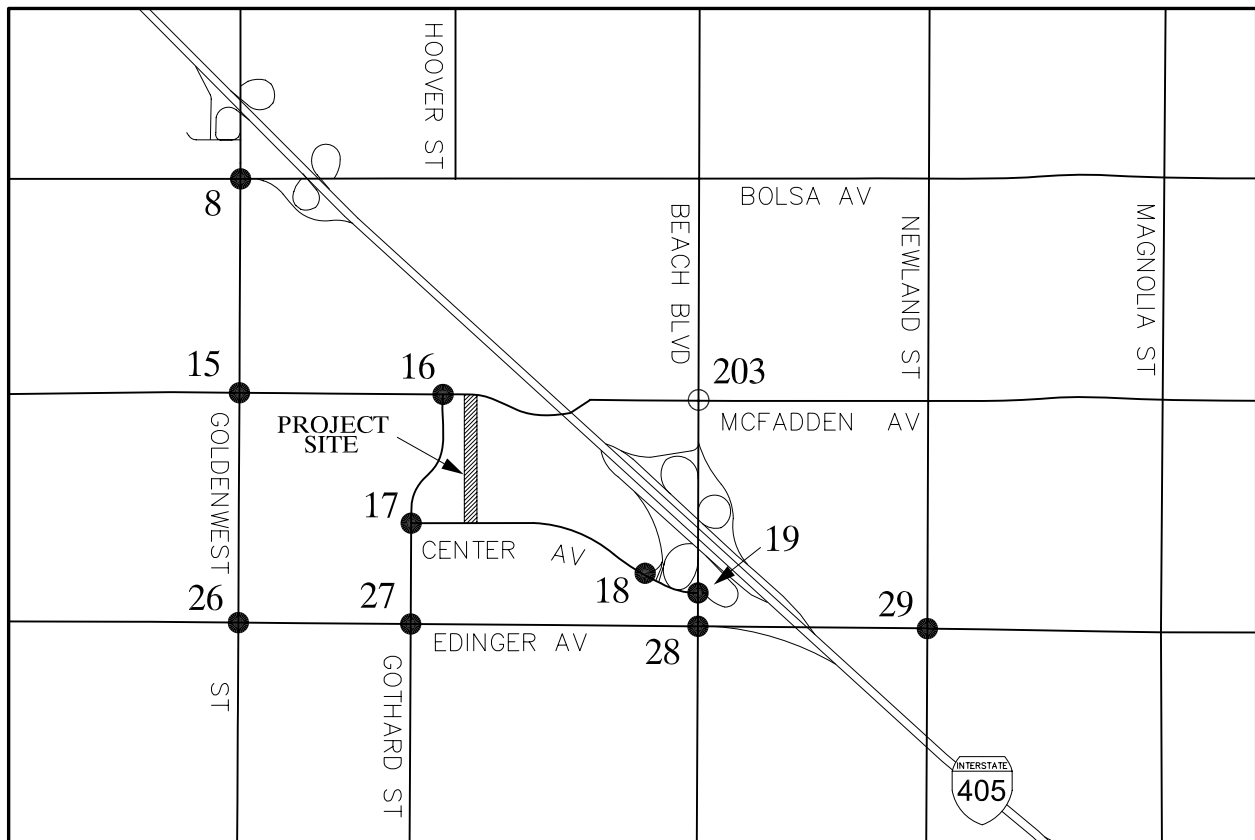


Figure A-8

PM PEAK HOUR VOLUMES
- 2016 WITH-PROJECT

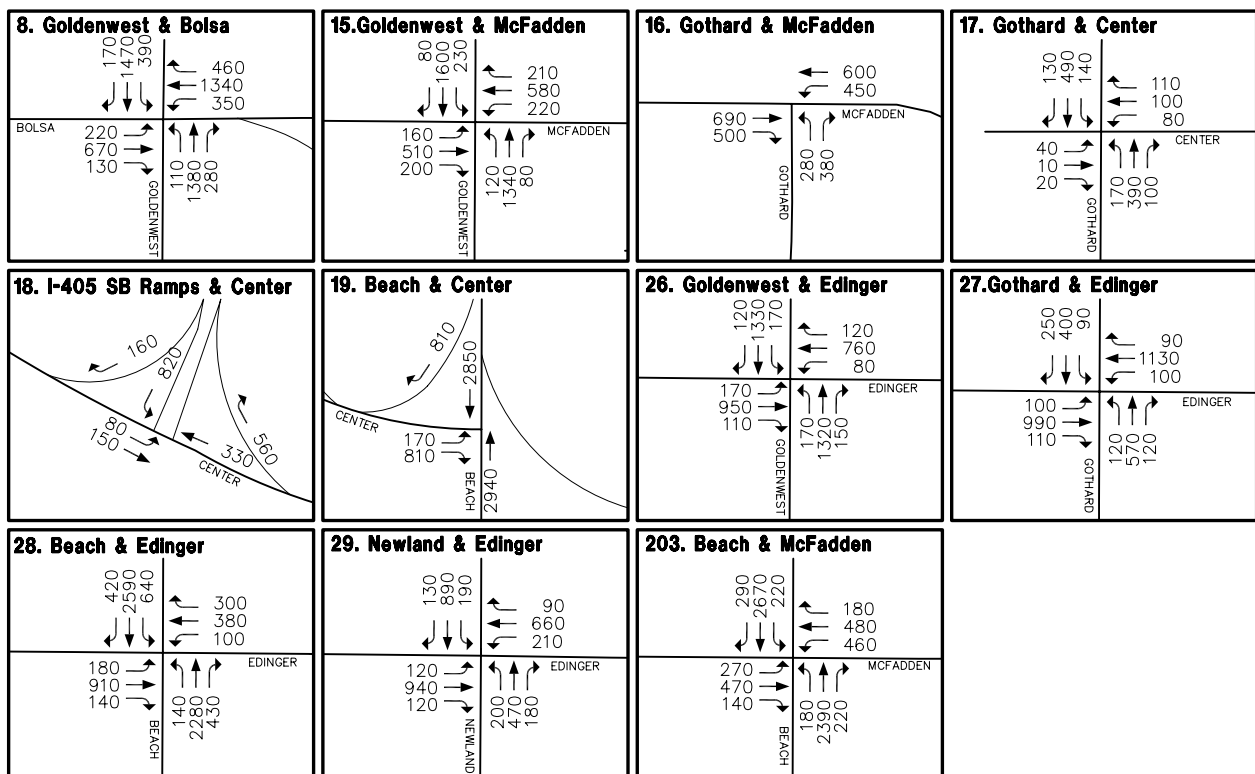
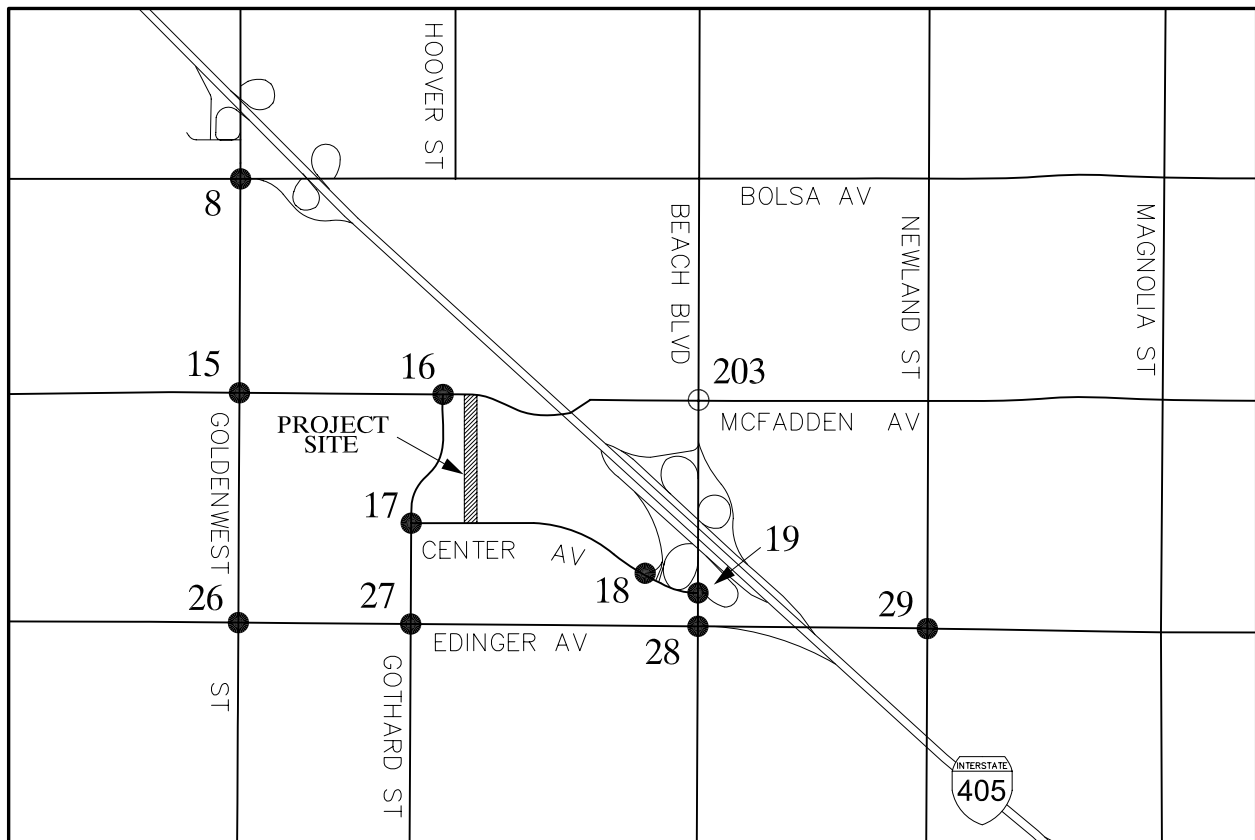


Figure A-9

AM PEAK HOUR VOLUMES
- 2030 GENERAL PLAN

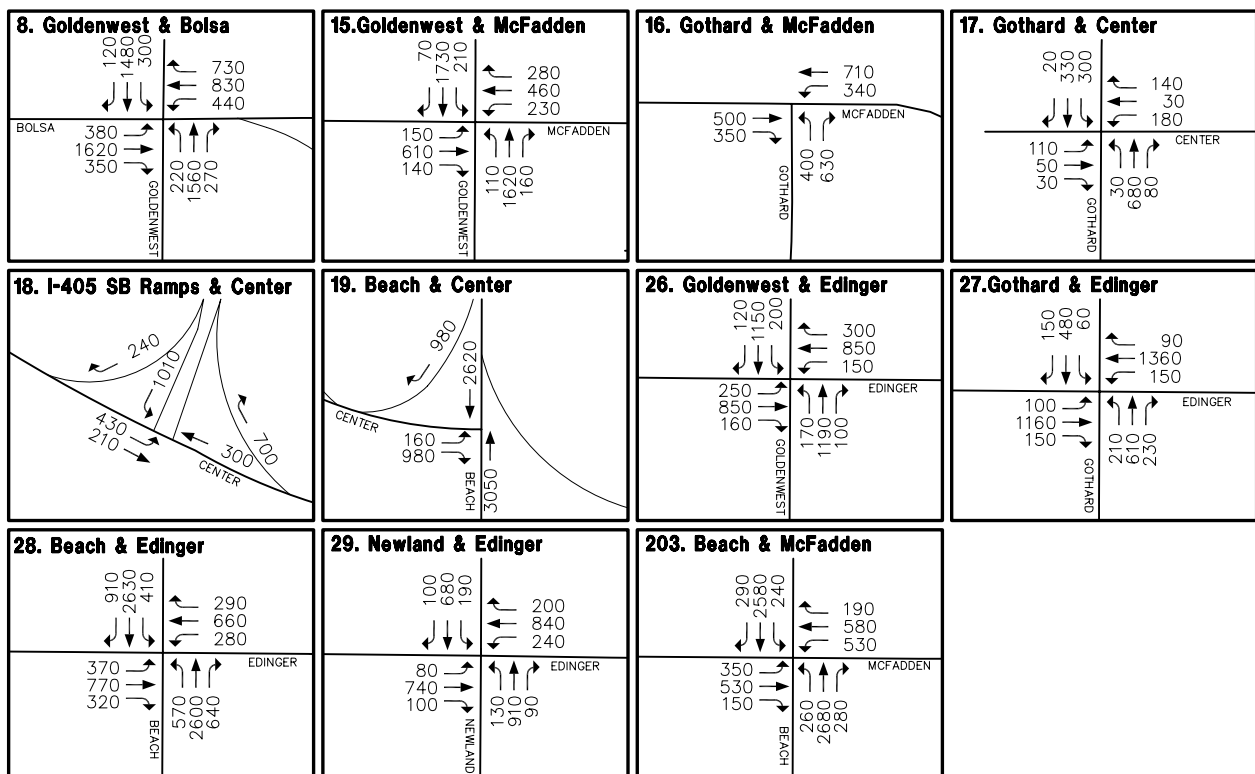
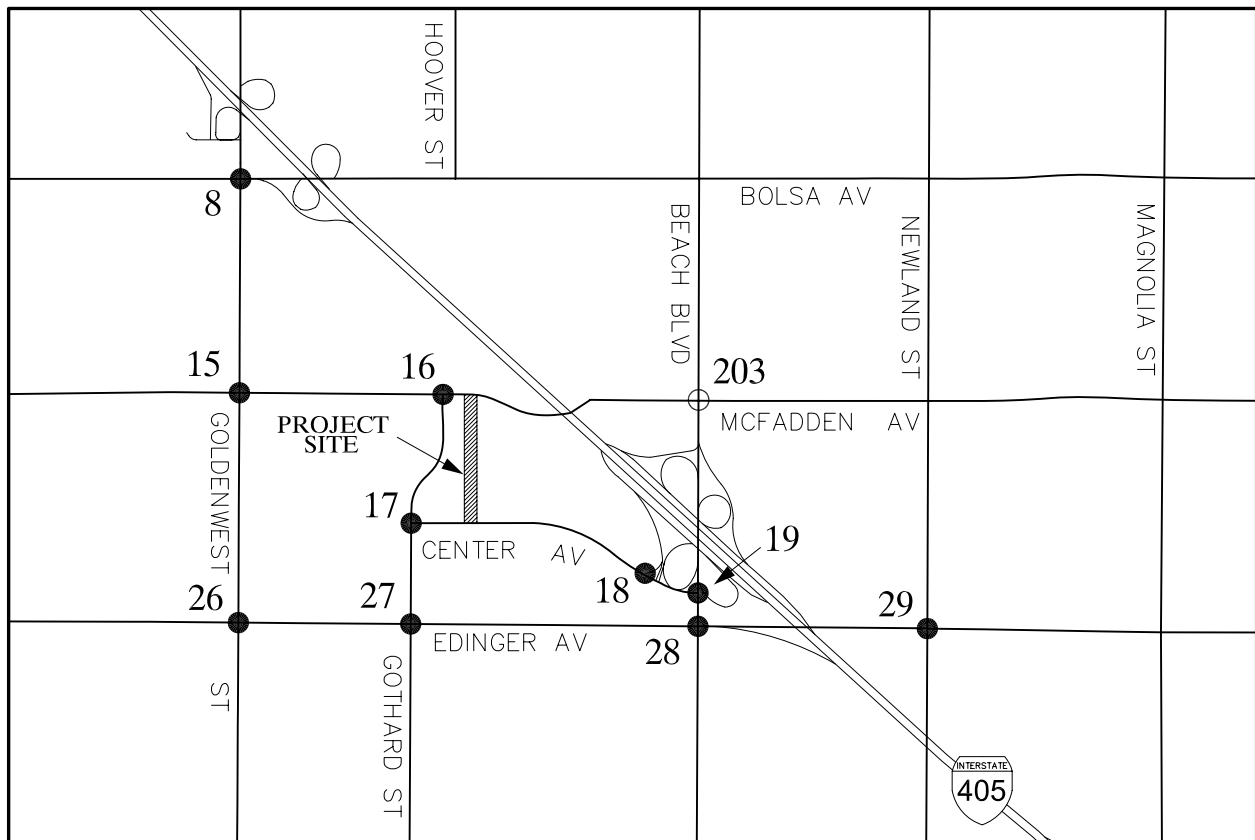


Figure A-10

PM PEAK HOUR VOLUMES
- 2030 GENERAL PLAN

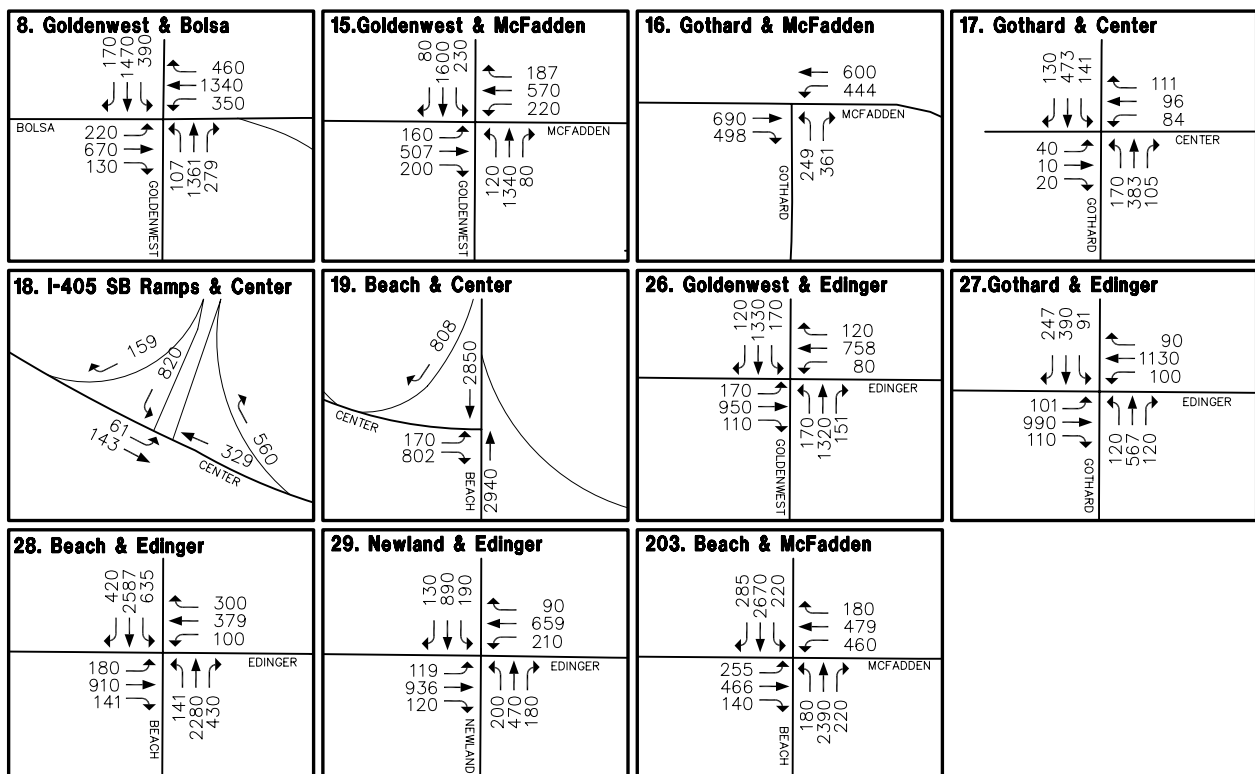
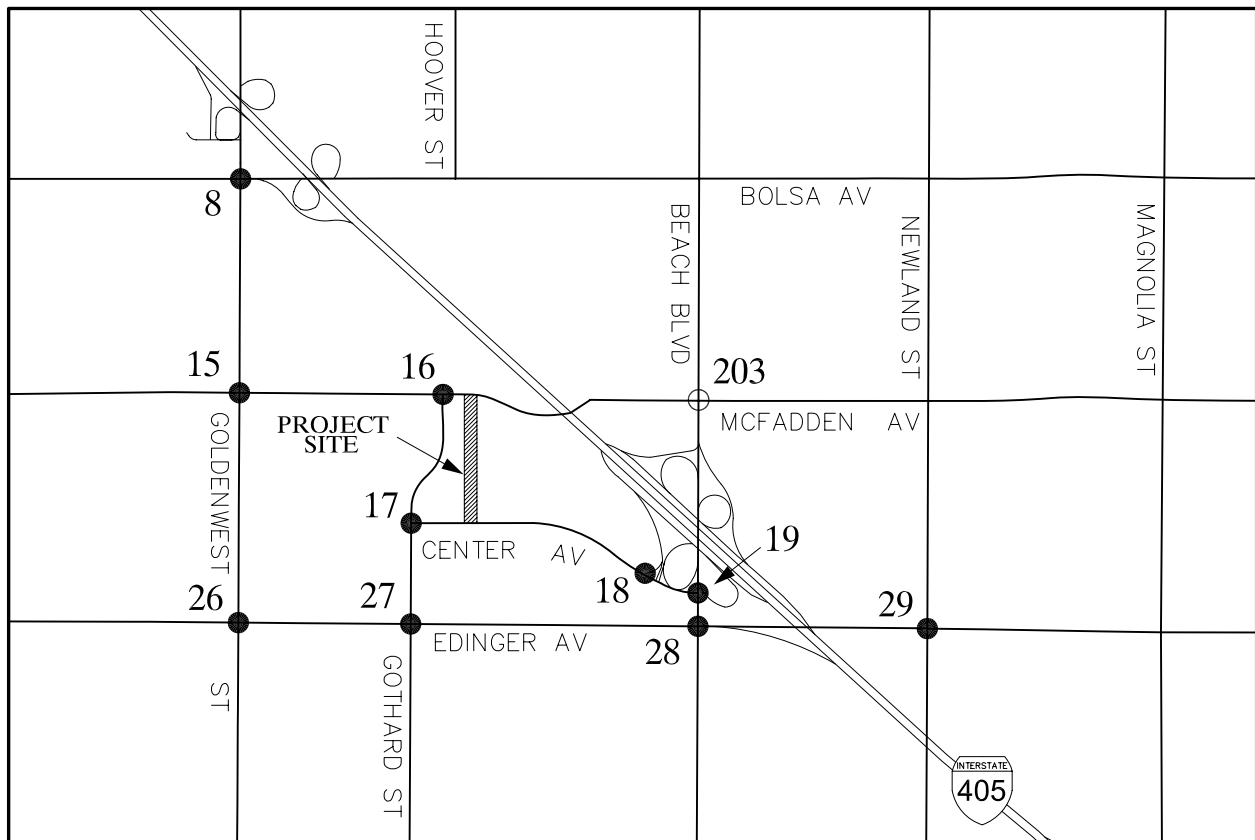


Figure A-11

AM PEAK HOUR VOLUMES
- 2030 WITH PROPOSED PROJECT

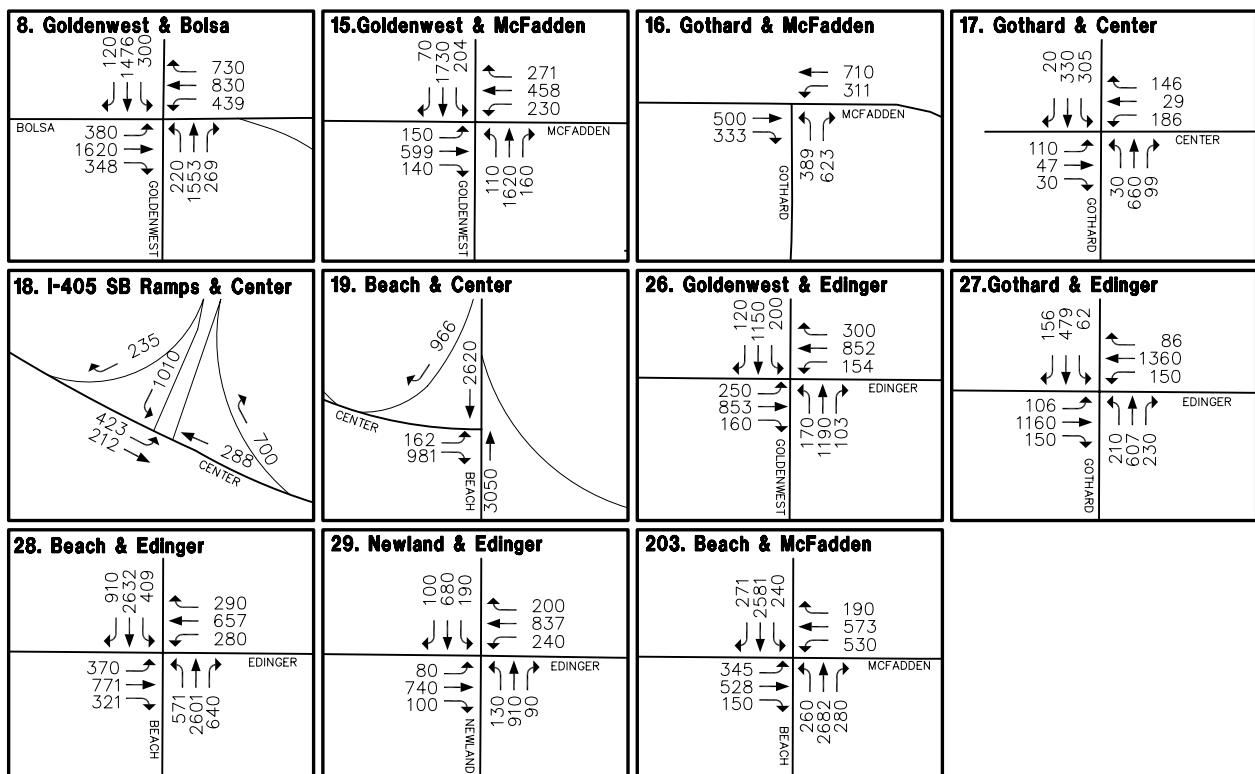
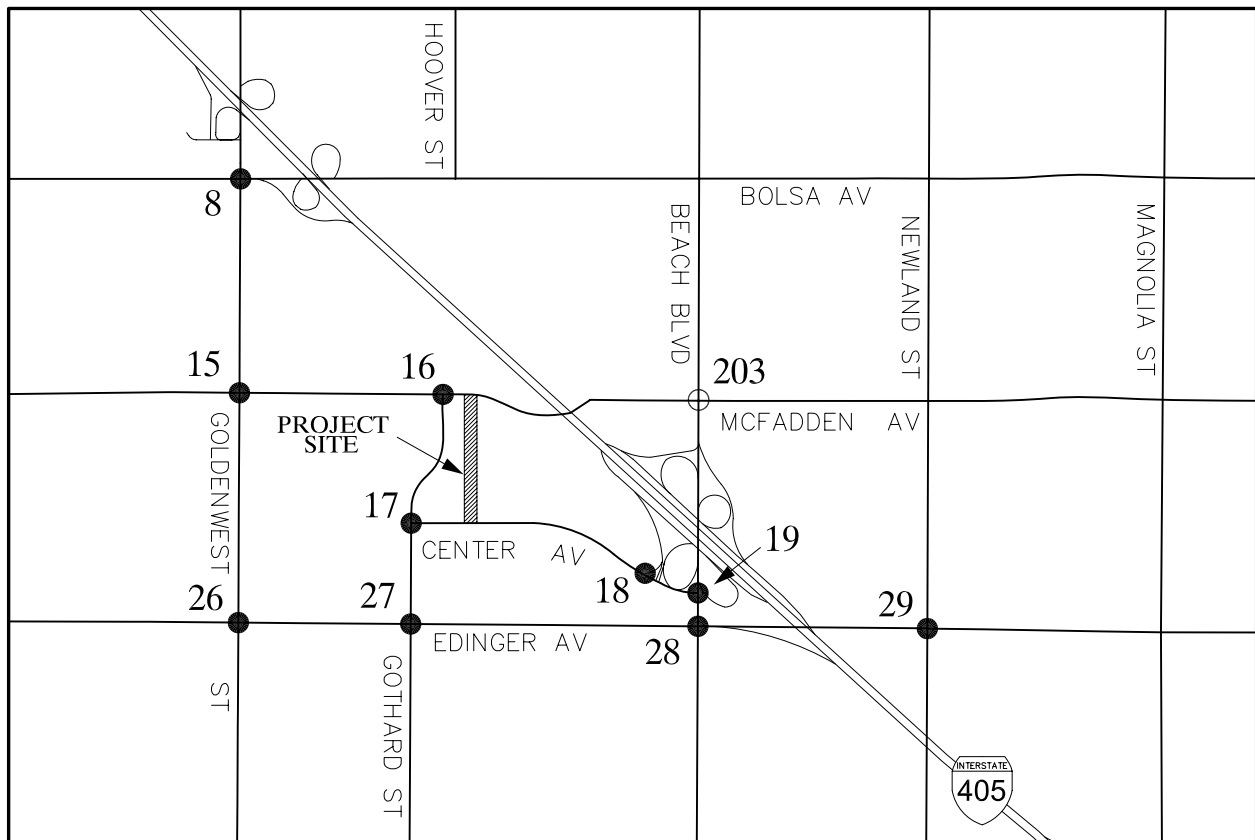
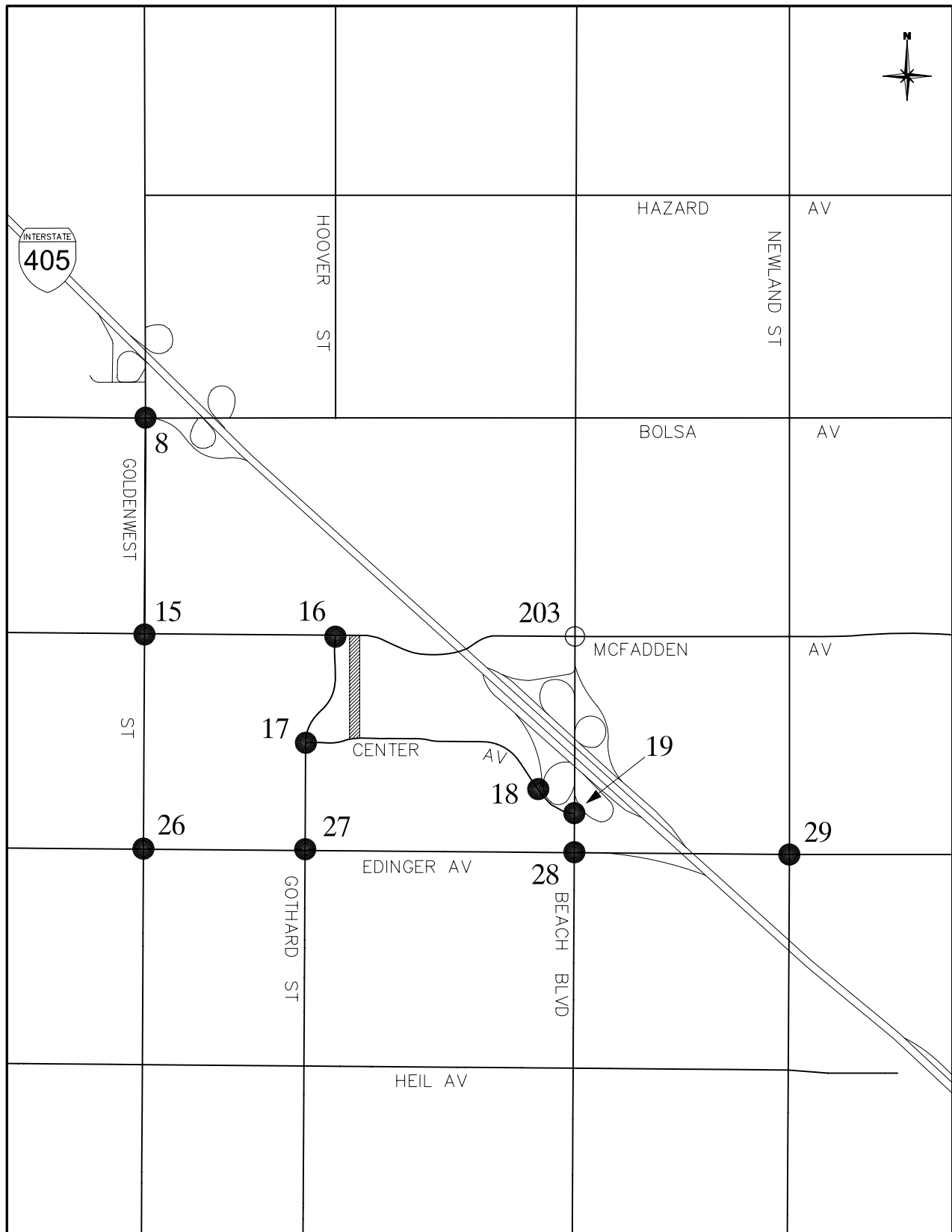


Figure A-12

PM PEAK HOUR VOLUMES
- 2030 WITH PROPOSED PROJECT

Appendix B

INTERSECTION CAPACITY UTILIZATION WORKSHEETS



Legend	
●	HB intersection
○	Other jurisdiction
▨	Project Site

Figure B-1

INTERSECTION LOCATION MAP

8. Goldenwest St & Bolsa Ave

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	2	3400	100	.03	220	.06
NBT	3	5100	1120	.25*	1430	.33*
NBR	0	0	180		250	
SBL	1	1700	160	.09*	140	.08*
SBT	3	5100	1470	.29	1350	.26
SBR	d	1700	100	.06	110	.06
EBL	2	3400	140	.04*	370	.11
EBT	3	5100	590	.12	1190	.23*
EBR	1	1700	120	.07	340	.20
WBL	2	3400	280	.08	310	.09*
WBT	3	5100	1060	.21*	650	.13
WBR	1	1700	380	.22	560	.33
Right Turn Adjustment					WBR	.08*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.64		.86

Existing Plus Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	2	3400	100	.03	221	.07
NBT	3	5100	1120	.25*	1431	.33*
NBR	0	0	180		250	
SBL	1	1700	160	.09*	140	.08*
SBT	3	5100	1470	.29	1351	.26
SBR	d	1700	100	.06	110	.06
EBL	2	3400	140	.04*	370	.11
EBT	3	5100	590	.12	1190	.23*
EBR	1	1700	120	.07	341	.20
WBL	2	3400	280	.08	310	.09*
WBT	3	5100	1060	.21*	650	.13
WBR	1	1700	380	.22	560	.33
Right Turn Adjustment					WBR	.08*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.64		.86

2016 No Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	2	3400	104	.03	219	.06
NBT	3	5100	1265	.29*	1503	.35*
NBR	0	0	239		261	
SBL	1	1700	298	.18*	236	.14*
SBT	3	5100	1470	.29	1425	.28
SBR	d	1700	142	.08	116	.07
EBL	2	3400	188	.06*	376	.11
EBT	3	5100	638	.13	1448	.28*
EBR	1	1700	126	.07	344	.20
WBL	2	3400	322	.09	387	.11*
WBT	3	5100	1228	.24*	758	.15
WBR	1	1700	428	.25	662	.39
Right Turn Adjustment					WBR	.04*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.82		.97

2016 With Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	2	3400	104	.03	220	.06
NBT	3	5100	1265	.29*	1504	.35*
NBR	0	0	239		261	
SBL	1	1700	298	.18*	236	.14*
SBT	3	5100	1470	.29	1426	.28
SBR	d	1700	142	.08	116	.07
EBL	2	3400	188	.06*	376	.11
EBT	3	5100	638	.13	1448	.28*
EBR	1	1700	126	.07	345	.20
WBL	2	3400	322	.09	387	.11*
WBT	3	5100	1228	.24*	758	.15
WBR	1	1700	428	.25	662	.39
Right Turn Adjustment					WBR	.04*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.82		.97

8. Goldenwest St & Bolsa Ave

2030 General Plan						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	2	3400	110	.03	220	.06
NBT	3	5100	1380	.33*	1560	.36*
NBR	0	0	280		270	
SBL	1	1700	390	.23*	300	.18*
SBT	3	5100	1470	.29	1480	.29
SBR	d	1700	170	.10	120	.07
EBL	2	3400	220	.06*	380	.11
EBT	3	5100	670	.13	1620	.32*
EBR	1	1700	130	.08	350	.21
WBL	2	3400	350	.10	440	.13*
WBT	3	5100	1340	.26*	830	.16
WBR	1	1700	460	.27	730	.43
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.93		1.04

2030 with Proposed Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	2	3400	107	.03	220	.06
NBT	3	5100	1361	.32*	1553	.36*
NBR	0	0	279		269	
SBL	1	1700	390	.23*	300	.18*
SBT	3	5100	1470	.29	1476	.29
SBR	d	1700	170	.10	120	.07
EBL	2	3400	220	.06*	380	.11
EBT	3	5100	670	.13	1620	.32*
EBR	1	1700	130	.08	348	.20
WBL	2	3400	350	.10	439	.13*
WBT	3	5100	1340	.26*	830	.16
WBR	1	1700	460	.27	730	.43
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.92		1.04

15. Goldenwest St & Mcfadden Ave

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1700	100	.06*	100	.06
NBT	3	5100	1020	.20	1310	.26*
NBR	d	1700	70	.04	100	.06
SBL	1	1700	220	.13	180	.11*
SBT	3	5100	1490	.31*	1480	.30
SBR	0	0	70		70	
EBL	1	1700	140	.08	140	.08
EBT	2	3400	520	.15*	580	.17*
EBR	d	1700	190	.11	130	.08
WBL	1	1700	180	.11*	220	.13*
WBT	2	3400	550	.16	470	.14
WBR	d	1700	140	.08	290	.17
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.68		.72

Existing Plus Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1700	100	.06*	100	.06
NBT	3	5100	1020	.20	1310	.26*
NBR	d	1700	70	.04	100	.06
SBL	1	1700	220	.13	182	.11*
SBT	3	5100	1490	.31*	1480	.30
SBR	0	0	70		70	
EBL	1	1700	140	.08	140	.08
EBT	2	3400	520	.15*	582	.17*
EBR	d	1700	190	.11	130	.08
WBL	1	1700	180	.11*	220	.13*
WBT	2	3400	550	.16	472	.14
WBR	d	1700	140	.08	292	.17
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.68		.72

2016 No Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1700	112	.07*	106	.06
NBT	3	5100	1212	.24	1496	.29*
NBR	d	1700	76	.04	136	.08
SBL	1	1700	226	.13	193	.11*
SBT	3	5100	1556	.32*	1630	.33
SBR	0	0	76		70	
EBL	1	1700	152	.09	146	.09
EBT	2	3400	512	.15*	590	.17*
EBR	d	1700	196	.12	136	.08
WBL	1	1700	204	.12*	226	.13*
WBT	2	3400	562	.17	462	.14
WBR	d	1700	168	.10	277	.16
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.71		.75

2016 With Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1700	112	.07*	106	.06
NBT	3	5100	1212	.24	1496	.29*
NBR	d	1700	76	.04	136	.08
SBL	1	1700	226	.13	195	.11*
SBT	3	5100	1556	.32*	1630	.33
SBR	0	0	76		70	
EBL	1	1700	152	.09	146	.09
EBT	2	3400	512	.15*	592	.17*
EBR	d	1700	196	.12	136	.08
WBL	1	1700	204	.12*	226	.13*
WBT	2	3400	562	.17	464	.14
WBR	d	1700	168	.10	279	.16
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.71		.75

15. Goldenwest St & Mcfadden Ave

2030 General Plan						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1700	120	.07*	110	.06
NBT	3	5100	1340	.26	1620	.32*
NBR	d	1700	80	.05	160	.09
SBL	1	1700	230	.14	210	.12*
SBT	3	5100	1600	.33*	1730	.35
SBR	0	0	80		70	
EBL	1	1700	160	.09	150	.09
EBT	2	3400	510	.15*	610	.18*
EBR	d	1700	200	.12	140	.08
WBL	1	1700	220	.13*	230	.14*
WBT	2	3400	580	.17	460	.14
WBR	d	1700	210	.12	280	.16
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.73		.81

2030 with Proposed Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1700	120	.07*	110	.06
NBT	3	5100	1340	.26	1620	.32*
NBR	d	1700	80	.05	160	.09
SBL	1	1700	230	.14	204	.12*
SBT	3	5100	1600	.33*	1730	.35
SBR	0	0	80		70	
EBL	1	1700	160	.09	150	.09
EBT	2	3400	507	.15*	599	.18*
EBR	d	1700	200	.12	140	.08
WBL	1	1700	220	.13*	230	.14*
WBT	2	3400	570	.17	458	.13
WBR	d	1700	187	.11	271	.16
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.73		.81

16. Gothard St & Mcfadden Ave

Existing						
	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	190	.06*	420	.12*
NBT	0	0	0		0	
NBR	1	1700	240	.14	420	.25
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3400	660	.19*	520	.15*
EBR	d	1700	360	.21	280	.16
WBL	1	1700	300	.18*	200	.12*
WBT	2	3400	570	.17	710	.21
WBR	0	0	0		0	
Right Turn Adjustment					NBR	.07*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.48	.51	

Existing Plus Project						
	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	191	.06*	424	.12*
NBT	0	0	0		0	
NBR	1	1700	240	.14	421	.25
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3400	660	.19*	520	.15*
EBR	d	1700	361	.21	284	.17
WBL	1	1700	300	.18*	201	.12*
WBT	2	3400	570	.17	710	.21
WBR	0	0	0		0	
Right Turn Adjustment					NBR	.07*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.48	.51	

2016 No Project						
	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	225	.07*	399	.12*
NBT	0	0	0		0	
NBR	1	1700	313	.18	541	.32
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3400	678	.20*	508	.15*
EBR	d	1700	442	.26	309	.18
WBL	1	1700	386	.23*	266	.16*
WBT	2	3400	588	.17	710	.21
WBR	0	0	0		0	
Right Turn Adjustment			EBR	.02*	NBR	.12*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.57	.60	

2016 With Project						
	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	226	.07*	403	.12*
NBT	0	0	0		0	
NBR	1	1700	313	.18	542	.32
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3400	678	.20*	508	.15*
EBR	d	1700	443	.26	313	.18
WBL	1	1700	386	.23*	267	.16*
WBT	2	3400	588	.17	710	.21
WBR	0	0	0		0	
Right Turn Adjustment			EBR	.02*	NBR	.12*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.57	.60	

16. Gothard St & Mcfadden Ave

2030 General Plan						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	2	3400	280	.08*	400	.12*
NBT	0	0	0		0	
NBR	1	1700	380	.22	630	.37
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3400	690	.20*	500	.15*
EBR	d	1700	500	.29	350	.21
WBL	1	1700	450	.26*	340	.20*
WBT	2	3400	600	.18	710	.21
WBR	0	0	0		0	
Right Turn Adjustment			Multi	.06*	NBR	.15*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.65	.67	

2030 with Proposed Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	2	3400	249	.07*	389	.11*
NBT	0	0	0		0	
NBR	1	1700	361	.21	623	.37
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3400	690	.20*	500	.15*
EBR	d	1700	498	.29	333	.20
WBL	1	1700	444	.26*	311	.18*
WBT	2	3400	600	.18	710	.21
WBR	0	0	0		0	
Right Turn Adjustment			Multi	.06*	NBR	.17*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.64	.66	

17. Gothard St & Center Ave

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1700	70	.04	30	.02
NBT	2	3400	360	.11*	630	.19*
NBR	d	1700	90	.05	100	.06
SBL	1	1700	90	.05*	130	.08*
SBT	2	3400	350	.10	310	.09
SBR	d	1700	40	.02	10	.01
EBL	1	1700	10	.01	20	.01
EBT	1	1700	10	.02*	50	.04*
EBR	0	0	20		20	
WBL	1	1700	80	.05*	180	.11*
WBT	2	3400	50	.03	20	.01
WBR	0	0	40		140	.08
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.28		.47

Existing Plus Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1700	70	.04	30	.02
NBT	2	3400	360	.11*	630	.19*
NBR	d	1700	95	.06	119	.07
SBL	1	1700	91	.05*	135	.08*
SBT	2	3400	350	.10	310	.09
SBR	d	1700	40	.02	10	.01
EBL	1	1700	10	.01	20	.01
EBT	1	1700	10	.02*	50	.04*
EBR	0	0	20		20	
WBL	1	1700	84	.05*	202	.12*
WBT	2	3400	50	.03	20	.01
WBR	0	0	41		146	.09
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.28		.48

2016 No Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1700	130	.08*	30	.02
NBT	2	3400	374	.11	648	.19*
NBR	d	1700	96	.06	88	.05
SBL	1	1700	120	.07	232	.14*
SBT	2	3400	424	.12*	322	.09
SBR	d	1700	94	.06	16	.01
EBL	1	1700	28	.02*	74	.04
EBT	1	1700	10	.02	48	.04*
EBR	0	0	20		26	
WBL	1	1700	80	.05	170	.10*
WBT	2	3400	78	.05*	25	.01
WBR	0	0	82	.05	140	.08
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.32		.52

2016 With Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1700	130	.08*	30	.02
NBT	2	3400	374	.11	648	.19*
NBR	d	1700	101	.06	107	.06
SBL	1	1700	121	.07	237	.14*
SBT	2	3400	424	.12*	322	.09
SBR	d	1700	94	.06	16	.01
EBL	1	1700	28	.02*	74	.04
EBT	1	1700	10	.02	48	.04*
EBR	0	0	20		26	
WBL	1	1700	84	.05	192	.11*
WBT	2	3400	78	.05*	25	.01
WBR	0	0	83	.05	146	.09
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.32		.53

17. Gothard St & Center Ave

2030 General Plan						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1700	170	.10*	30	.02
NBT	2	3400	390	.11	680	.20*
NBR	d	1700	100	.06	80	.05
SBL	1	1700	140	.08	300	.18*
SBT	2	3400	490	.14*	330	.10
SBR	d	1700	130	.08	20	.01
EBL	1	1700	40	.02*	110	.06
EBT	1	1700	10	.02	50	.05*
EBR	0	0	20		30	
WBL	1	1700	80	.05	180	.11*
WBT	2	3400	100	.06*	30	.02
WBR	0	0	110	.06	140	.08
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.37		.59

2030 with Proposed Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1700	170	.10*	30	.02
NBT	2	3400	383	.11	660	.19*
NBR	d	1700	105	.06	99	.06
SBL	1	1700	141	.08	305	.18*
SBT	2	3400	473	.14*	330	.10
SBR	d	1700	130	.08	20	.01
EBL	1	1700	40	.02*	110	.06
EBT	1	1700	10	.02	47	.05*
EBR	0	0	20		30	
WBL	1	1700	84	.05	186	.11*
WBT	2	3400	96	.06*	29	.02
WBR	0	0	111	.07	146	.09
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.37		.58

18. I-405 SB Ramps & Center Ave

Existing						
	LANES	CAPACITY	AM PK HOUR VOL	V/C	PM PK HOUR VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3400	800	.24*	930	.27*
SBT	0	0	0		0	
SBR	1	1700	150	.09	200	.12
EBL	1	1700	50	.03*	350	.21*
EBT	2	3400	90	.03	210	.06
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3400	260	.08*	240	.07*
WBR	1	1700	310	.18	610	.36
Right Turn Adjustment					WBR	.15*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.40		.75

Existing Plus Project						
	LANES	CAPACITY	AM PK HOUR VOL	V/C	PM PK HOUR VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3400	800	.24*	930	.27*
SBT	0	0	0		0	
SBR	1	1700	150	.09	202	.12
EBL	1	1700	50	.03*	352	.21*
EBT	2	3400	91	.03	213	.06
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3400	261	.08*	243	.07*
WBR	1	1700	310	.18	610	.36
Right Turn Adjustment					WBR	.15*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.40		.75

2016 No Project						
	LANES	CAPACITY	AM PK HOUR VOL	V/C	PM PK HOUR VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3400	812	.24*	978	.29*
SBT	0	0	0		0	
SBR	1	1700	155	.09	220	.13
EBL	1	1700	57	.03*	393	.23*
EBT	2	3400	121	.04	209	.06
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3400	301	.09*	267	.08*
WBR	1	1700	460	.27	664	.39
Right Turn Adjustment			WBR	.06*	WBR	.16*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.47		.81

2016 With Project						
	LANES	CAPACITY	AM PK HOUR VOL	V/C	PM PK HOUR VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3400	812	.24*	978	.29*
SBT	0	0	0		0	
SBR	1	1700	155	.09	222	.13
EBL	1	1700	57	.03*	395	.23*
EBT	2	3400	122	.04	212	.06
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3400	302	.09*	270	.08*
WBR	1	1700	460	.27	664	.39
Right Turn Adjustment			WBR	.06*	WBR	.16*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.47		.81

18. I-405 SB Ramps & Center Ave

2030 General Plan						
	LANES	CAPACITY	AM PK HOUR VOL	V/C	PM PK HOUR VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3400	820	.24*	1010	.30*
SBT	0	0	0		0	
SBR	1	1700	160	.09	240	.14
EBL	1	1700	80	.05*	430	.25*
EBT	2	3400	150	.04	210	.06
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3400	330	.10*	300	.09*
WBR	1	1700	560	.33	700	.41
Right Turn Adjustment Clearance Interval			WBR	.11* .05*	WBR	.17* .05*
TOTAL CAPACITY UTILIZATION				.55	.86	

2030 with Proposed Project						
	LANES	CAPACITY	AM PK HOUR VOL	V/C	PM PK HOUR VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3400	820	.24*	1010	.30*
SBT	0	0	0		0	
SBR	1	1700	159	.09	235	.14
EBL	1	1700	61	.04*	423	.25*
EBT	2	3400	143	.04	212	.06
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3400	329	.10*	288	.08*
WBR	1	1700	560	.33	700	.41
Right Turn Adjustment Clearance Interval			WBR	.11* .05*	WBR	.18* .05*
TOTAL CAPACITY UTILIZATION				.54	.86	

19. Beach Blvd & Center Ave

Existing						
	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	4	6800	1980	.29	2540	.37*
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	4	6800	2520	.37*	2140	.31
SBR	f		910		690	
EBL	2	3400	60	.02*	210	.06*
EBT	0	0	0		0	
EBR	2	3400	400	.12	820	.24
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Right Turn Adjustment			EBR	.10*	EBR	.15*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.54	.63	

Existing Plus Project						
	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	4	6800	1980	.29	2540	.37*
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	4	6800	2520	.37*	2140	.31
SBR	f		910		691	
EBL	2	3400	60	.02*	212	.06*
EBT	0	0	0		0	
EBR	2	3400	400	.12	822	.24
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Right Turn Adjustment			EBR	.10*	EBR	.15*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.54	.63	

2016 No Project						
	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	4	6800	2556	.38	2846	.42*
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	4	6800	2718	.40*	2428	.36
SBR	f		849		855	
EBL	2	3400	126	.04*	180	.05*
EBT	0	0	0		0	
EBR	2	3400	641	.19	915	.27
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Right Turn Adjustment			EBR	.15*	EBR	.19*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.64	.71	

2016 With Project						
	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	4	6800	2556	.38	2846	.42*
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	4	6800	2718	.40*	2428	.36
SBR	f		849		856	
EBL	2	3400	126	.04*	182	.05*
EBT	0	0	0		0	
EBR	2	3400	641	.19	917	.27
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Right Turn Adjustment			EBR	.15*	EBR	.19*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.64	.71	

19. Beach Blvd & Center Ave

2030 General Plan						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	4	6800	2940	.43*	3050	.45*
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	4	6800	2850	.42	2620	.39
SBR	f		810		980	
EBL	2	3400	170	.05*	160	.05*
EBT	0	0	0		0	
EBR	2	3400	810	.24	980	.29
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Right Turn Adjustment			EBR	.18*	EBR	.21*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.71	.76	

2030 with Proposed Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	4	6800	2940	.43*	3050	.45*
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	4	6800	2850	.42	2620	.39
SBR	f		808		966	
EBL	2	3400	170	.05*	162	.05*
EBT	0	0	0		0	
EBR	2	3400	802	.24	981	.29
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Right Turn Adjustment			EBR	.18*	EBR	.21*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.71	.76	

26. Goldenwest St & Edinger Ave

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1700	130	.08	160	.09
NBT	3	5100	1130	.22*	1130	.22*
NBR	d	1700	100	.06	80	.05
SBL	1	1700	190	.11*	210	.12*
SBT	3	5100	1110	.22	1060	.21
SBR	d	1700	110	.06	100	.06
EBL	1	1700	150	.09	120	.07*
EBT	3	5100	1000	.20*	670	.13
EBR	d	1700	110	.06	160	.09
WBL	1	1700	60	.04*	140	.08
WBT	3	5100	480	.09	720	.14*
WBR	d	1700	80	.05	230	.14
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.62		.60

Existing Plus Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1700	130	.08	160	.09
NBT	3	5100	1130	.22*	1130	.22*
NBR	d	1700	101	.06	84	.05
SBL	1	1700	190	.11*	210	.12*
SBT	3	5100	1110	.22	1060	.21
SBR	d	1700	110	.06	100	.06
EBL	1	1700	150	.09	120	.07*
EBT	3	5100	1001	.20*	674	.13
EBR	d	1700	110	.06	160	.09
WBL	1	1700	61	.04*	144	.08
WBT	3	5100	481	.09	725	.14*
WBR	d	1700	80	.05	230	.14
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.62		.60

2016 No Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1700	154	.09	166	.10
NBT	3	5100	1244	.24*	1166	.23*
NBR	d	1700	130	.08	91	.05
SBL	1	1700	178	.10*	204	.12*
SBT	3	5100	1242	.24	1114	.22
SBR	d	1700	116	.07	112	.07
EBL	1	1700	162	.10*	198	.12*
EBT	3	5100	969	.19	777	.15
EBR	d	1700	110	.06	160	.09
WBL	1	1700	71	.04	146	.09
WBT	3	5100	646	.13*	796	.16*
WBR	d	1700	104	.06	272	.16
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.62		.68

2016 With Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1700	154	.09	166	.10
NBT	3	5100	1244	.24*	1166	.23*
NBR	d	1700	131	.08	95	.06
SBL	1	1700	178	.10*	204	.12*
SBT	3	5100	1242	.24	1114	.22
SBR	d	1700	116	.07	112	.07
EBL	1	1700	162	.10*	198	.12*
EBT	3	5100	970	.19	781	.15
EBR	d	1700	110	.06	160	.09
WBL	1	1700	72	.04	150	.09
WBT	3	5100	647	.13*	801	.16*
WBR	d	1700	104	.06	272	.16
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.62		.68

26. Goldenwest St & Edinger Ave

2030 General Plan						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1700	170	.10*	170	.10
NBT	3	5100	1320	.26	1190	.23*
NBR	d	1700	150	.09	100	.06
SBL	1	1700	170	.10	200	.12*
SBT	3	5100	1330	.26*	1150	.23
SBR	d	1700	120	.07	120	.07
EBL	1	1700	170	.10*	250	.15*
EBT	3	5100	950	.19	850	.17
EBR	d	1700	110	.06	160	.09
WBL	1	1700	80	.05	150	.09
WBT	3	5100	760	.15*	850	.17*
WBR	d	1700	120	.07	300	.18
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.66		.72

2030 with Proposed Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1700	170	.10*	170	.10
NBT	3	5100	1320	.26	1190	.23*
NBR	d	1700	151	.09	103	.06
SBL	1	1700	170	.10	200	.12*
SBT	3	5100	1330	.26*	1150	.23
SBR	d	1700	120	.07	120	.07
EBL	1	1700	170	.10*	250	.15*
EBT	3	5100	950	.19	853	.17
EBR	d	1700	110	.06	160	.09
WBL	1	1700	80	.05	154	.09
WBT	3	5100	758	.15*	852	.17*
WBR	d	1700	120	.07	300	.18
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.66		.72

27. Gothard St & Edinger Ave

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1700	110	.06*	140	.08
NBT	2	3400	340	.10	670	.20*
NBR	d	1700	100	.06	220	.13
SBL	1	1700	30	.02	100	.06*
SBT	2	3400	250	.07*	350	.10
SBR	d	1700	60	.04	150	.09
EBL	1	1700	70	.04	80	.05*
EBT	3	5100	940	.18*	880	.17
EBR	d	1700	150	.09	140	.08
WBL	1	1700	90	.05*	140	.08
WBT	3	5100	750	.16	980	.21*
WBR	0	0	60		100	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.41		.57

Existing Plus Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1700	110	.06*	140	.08
NBT	2	3400	342	.10	677	.20*
NBR	d	1700	100	.06	220	.13
SBL	1	1700	31	.02	105	.06*
SBT	2	3400	252	.07*	358	.11
SBR	d	1700	62	.04	159	.09
EBL	1	1700	72	.04	88	.05*
EBT	3	5100	940	.18*	880	.17
EBR	d	1700	150	.09	140	.08
WBL	1	1700	90	.05*	140	.08
WBT	3	5100	750	.16	980	.21*
WBR	0	0	61		104	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.41		.57

2016 No Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1700	116	.07	182	.11*
NBT	2	3400	475	.14*	628	.18
NBR	d	1700	112	.07	226	.13
SBL	1	1700	66	.04*	74	.04
SBT	2	3400	333	.10	423	.12*
SBR	d	1700	171	.10	148	.09
EBL	1	1700	87	.05*	91	.05*
EBT	3	5100	970	.19	1048	.21
EBR	d	1700	126	.07	146	.09
WBL	1	1700	96	.06	146	.09
WBT	3	5100	978	.21*	1208	.25*
WBR	0	0	77		89	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.49		.58

2016 With Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1700	116	.07	182	.11
NBT	2	3400	477	.14*	635	.19*
NBR	d	1700	112	.07	226	.13
SBL	1	1700	67	.04*	79	.05*
SBT	2	3400	335	.10	431	.13
SBR	d	1700	173	.10	157	.09
EBL	1	1700	89	.05*	99	.06*
EBT	3	5100	970	.19	1048	.21
EBR	d	1700	126	.07	146	.09
WBL	1	1700	96	.06	146	.09
WBT	3	5100	978	.21*	1208	.26*
WBR	0	0	78		93	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.49		.61

27. Gothard St & Edinger Ave

2030 General Plan						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1700	120	.07	210	.12*
NBT	2	3400	570	.17*	610	.18
NBR	d	1700	120	.07	230	.14
SBL	1	1700	90	.05*	60	.04
SBT	2	3400	400	.12	480	.14*
SBR	d	1700	250	.15	150	.09
EBL	1	1700	100	.06*	100	.06*
EBT	3	5100	990	.19	1160	.23
EBR	d	1700	110	.06	150	.09
WBL	1	1700	100	.06	150	.09
WBT	3	5100	1130	.24*	1360	.28*
WBR	0	0	90		90	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.57		.65

2030 with Proposed Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1700	120	.07	210	.12*
NBT	2	3400	567	.17*	607	.18
NBR	d	1700	120	.07	230	.14
SBL	1	1700	91	.05*	62	.04
SBT	2	3400	390	.11	479	.14*
SBR	d	1700	247	.15	156	.09
EBL	1	1700	101	.06*	106	.06*
EBT	3	5100	990	.19	1160	.23
EBR	d	1700	110	.06	150	.09
WBL	1	1700	100	.06	150	.09
WBT	3	5100	1130	.24*	1360	.28*
WBR	0	0	90		86	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.57		.65

28. Beach Blvd & Edinger Ave

Existing						
	LANES	CAPACITY	AM PK HOUR VOL	HOUR V/C	PM PK HOUR VOL	HOUR V/C
NBL	2	3400	150	.04	310	.09
NBT	3	5100	1400	.27*	2100	.41*
NBR	1	1700	210	.12	400	.24
SBL	2	3400	470	.14*	330	.10*
SBT	4	6800	1970	.29	2180	.32
SBR	2	3400	380	.11	540	.16
EBL	2	3400	190	.06	310	.09*
EBT	3	5100	770	.15*	790	.15
EBR	1	1700	60	.04	270	.16
WBL	2	3400	100	.03*	120	.04
WBT	2	3400	390	.11	430	.13*
WBR	1	1700	260	.15	190	.11
Clearance Interval				.05*	.05*	
Note: Assumes Right-Turn Overlap for EBR						

TOTAL CAPACITY UTILIZATION .64 .78

Existing Plus Project						
	LANES	CAPACITY	AM PK HOUR VOL	HOUR V/C	PM PK HOUR VOL	HOUR V/C
NBL	2	3400	151	.04	313	.09
NBT	3	5100	1400	.27*	2101	.41*
NBR	1	1700	210	.12	400	.24
SBL	2	3400	470	.14*	330	.10*
SBT	4	6800	1970	.29	2182	.32
SBR	2	3400	380	.11	540	.16
EBL	2	3400	190	.06	310	.09*
EBT	3	5100	770	.15*	791	.16
EBR	1	1700	61	.04	273	.16
WBL	2	3400	100	.03*	120	.04
WBT	2	3400	390	.11	431	.13*
WBR	1	1700	260	.15	190	.11
Clearance Interval				.05*	.05*	
Note: Assumes Right-Turn Overlap for EBR						

TOTAL CAPACITY UTILIZATION .64 .78

2016 No Project						
	LANES	CAPACITY	AM PK HOUR VOL	HOUR V/C	PM PK HOUR VOL	HOUR V/C
NBL	2	3400	144	.04	465	.14
NBT	3	5100	1928	.38*	2400	.47*
NBR	1	1700	342	.20	544	.32
SBL	2	3400	569	.17*	377	.11*
SBT	4	6800	2340	.34	2450	.36
SBR	2	3400	404	.12	762	.22
EBL	2	3400	184	.05	346	.10*
EBT	3	5100	854	.17*	778	.15
EBR	1	1700	108	.06	299	.18
WBL	2	3400	100	.03*	216	.06
WBT	2	3400	383	.11	566	.17*
WBR	1	1700	284	.17	250	.15
Clearance Interval				.05*	.05*	
Note: Assumes Right-Turn Overlap for EBR						

TOTAL CAPACITY UTILIZATION .80 .90

2016 With Project						
	LANES	CAPACITY	AM PK HOUR VOL	PM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	145	.04	468	.14
NBT	3	5100	1928	.38*	2401	.47*
NBR	1	1700	342	.20	544	.32
SBL	2	3400	569	.17*	377	.11*
SBT	4	6800	2340	.34	2452	.36
SBR	2	3400	404	.12	762	.22
EBL	2	3400	184	.05	346	.10*
EBT	3	5100	854	.17*	779	.15
EBR	1	1700	109	.06	302	.18
WBL	2	3400	100	.03*	216	.06
WBT	2	3400	383	.11	567	.17*
WBR	1	1700	284	.17	250	.15
Clearance Interval				.05*	.05*	
Note: Assumes Right-Turn Overlap for EBR						

TOTAL CAPACITY UTILIZATION .80 .90

28. Beach Blvd & Edinger Ave

2030 General Plan						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	2	3400	140	.04	570	.17
NBT	3	5100	2280	.45*	2600	.51*
NBR	1	1700	430	.25	640	.38
SBL	2	3400	640	.19*	410	.12*
SBT	4	6800	2590	.38	2630	.39
SBR	2	3400	420	.12	910	.27
EBL	2	3400	180	.05	370	.11*
EBT	3	5100	910	.18*	770	.15
EBR	1	1700	140	.08	320	.19
WBL	2	3400	100	.03*	280	.08
WBT	2	3400	380	.11	660	.19*
WBR	1	1700	300	.18	290	.17
Clearance Interval				.05*		.05*
Note: Assumes Right-Turn Overlap for EBR						

TOTAL CAPACITY UTILIZATION .90 .98

2030 with Proposed Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	2	3400	141	.04	571	.17
NBT	3	5100	2280	.45*	2601	.51*
NBR	1	1700	430	.25	640	.38
SBL	2	3400	635	.19*	409	.12*
SBT	4	6800	2587	.38	2632	.39
SBR	2	3400	420	.12	910	.27
EBL	2	3400	180	.05	370	.11*
EBT	3	5100	910	.18*	771	.15
EBR	1	1700	141	.08	321	.19
WBL	2	3400	100	.03*	280	.08
WBT	2	3400	379	.11	657	.19*
WBR	1	1700	300	.18	290	.17
Clearance Interval				.05*		.05*
Note: Assumes Right-Turn Overlap for EBR						

TOTAL CAPACITY UTILIZATION .90 .98

29. Newland St & Edinger Ave

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1700	150	.09	100	.06
NBT	2	3400	350	.15*	530	.20*
NBR	0	0	160		150	
SBL	1	1700	270	.16*	180	.11*
SBT	2	3400	570	.19	410	.15
SBR	0	0	70		100	
EBL	1	1700	30	.02	100	.06
EBT	2	3400	550	.16*	620	.18*
EBR	d	1700	60	.04	80	.05
WBL	1	1700	160	.09*	120	.07*
WBT	2	3400	600	.18	560	.16
WBR	d	1700	130	.08	180	.11
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.61		.61

Existing Plus Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1700	150	.09	100	.06
NBT	2	3400	350	.15*	530	.20*
NBR	0	0	160		150	
SBL	1	1700	270	.16*	180	.11*
SBT	2	3400	570	.19	410	.15
SBR	0	0	70		100	
EBL	1	1700	30	.02	100	.06
EBT	2	3400	550	.16*	621	.18*
EBR	d	1700	60	.04	80	.05
WBL	1	1700	160	.09*	120	.07*
WBT	2	3400	600	.18	561	.17
WBR	d	1700	130	.08	180	.11
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.61		.61

2016 No Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1700	180	.11*	118	.07
NBT	2	3400	422	.17	758	.26*
NBR	0	0	172		114	
SBL	1	1700	222	.13	186	.11*
SBT	2	3400	762	.26*	572	.20
SBR	0	0	106		100	
EBL	1	1700	83	.05	88	.05
EBT	2	3400	782	.23*	691	.20*
EBR	d	1700	96	.06	92	.05
WBL	1	1700	190	.11*	192	.11*
WBT	2	3400	635	.19	726	.21
WBR	d	1700	106	.06	192	.11
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.76		.73

2016 With Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1700	180	.11*	118	.07
NBT	2	3400	422	.17	758	.26*
NBR	0	0	172		114	
SBL	1	1700	222	.13	186	.11*
SBT	2	3400	762	.26*	572	.20
SBR	0	0	106		100	
EBL	1	1700	83	.05	88	.05
EBT	2	3400	782	.23*	692	.20*
EBR	d	1700	96	.06	92	.05
WBL	1	1700	190	.11*	192	.11*
WBT	2	3400	635	.19	727	.21
WBR	d	1700	106	.06	192	.11
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.76		.73

29. Newland St & Edinger Ave

2030 General Plan						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1700	200	.12*	130	.08
NBT	2	3400	470	.19	910	.29*
NBR	0	0	180		90	
SBL	1	1700	190	.11	190	.11*
SBT	2	3400	890	.30*	680	.23
SBR	0	0	130		100	
EBL	1	1700	120	.07	80	.05
EBT	2	3400	940	.28*	740	.22*
EBR	d	1700	120	.07	100	.06
WBL	1	1700	210	.12*	240	.14*
WBT	2	3400	660	.19	840	.25
WBR	d	1700	90	.05	200	.12
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.87		.81

2030 with Proposed Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1700	200	.12*	130	.08
NBT	2	3400	470	.19	910	.29*
NBR	0	0	180		90	
SBL	1	1700	190	.11	190	.11*
SBT	2	3400	890	.30*	680	.23
SBR	0	0	130		100	
EBL	1	1700	119	.07	80	.05
EBT	2	3400	936	.28*	740	.22*
EBR	d	1700	120	.07	100	.06
WBL	1	1700	210	.12*	240	.14*
WBT	2	3400	659	.19	837	.25
WBR	d	1700	90	.05	200	.12
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.87		.81

203. Beach Blvd & McFadden Ave

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	2	3400	190	.06*	270	.08
NBT	4	6800	1910	.30	2330	.38*
NBR	0	0	120		270	
SBL	2	3400	200	.06	240	.07*
SBT	4	6800	2360	.39*	2090	.34
SBR	0	0	270		240	
EBL	2	3400	270	.08*	360	.11*
EBT	2	3400	370	.15	460	.18
EBR	0	0	130		140	
WBL	2	3400	350	.10	390	.11
WBT	2	3400	520	.20*	490	.20*
WBR	0	0	170		180	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.78		.81

Existing Plus Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	2	3400	190	.06*	270	.08
NBT	4	6800	1910	.30	2332	.38*
NBR	0	0	120		270	
SBL	2	3400	200	.06	240	.07*
SBT	4	6800	2360	.39*	2091	.34
SBR	0	0	270		241	
EBL	2	3400	270	.08*	361	.11*
EBT	2	3400	370	.15	460	.18
EBR	0	0	130		140	
WBL	2	3400	350	.10	390	.11
WBT	2	3400	520	.20*	490	.20*
WBR	0	0	170		180	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.78		.81

2016 No Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	2	3400	184	.05*	264	.08
NBT	4	6800	2198	.35	2540	.41*
NBR	0	0	180		276	
SBL	2	3400	212	.06	240	.07*
SBT	4	6800	2546	.42*	2384	.39
SBR	0	0	279		258	
EBL	2	3400	261	.08	350	.10
EBT	2	3400	428	.17*	501	.19*
EBR	0	0	136		146	
WBL	2	3400	416	.12*	474	.14*
WBT	2	3400	495	.20	540	.21
WBR	0	0	176		186	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.81		.86

2016 With Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	2	3400	184	.05*	264	.08
NBT	4	6800	2198	.35	2542	.41*
NBR	0	0	180		276	
SBL	2	3400	212	.06	240	.07*
SBT	4	6800	2546	.42*	2385	.39
SBR	0	0	279		259	
EBL	2	3400	261	.08	351	.10
EBT	2	3400	428	.17*	501	.19*
EBR	0	0	136		146	
WBL	2	3400	416	.12*	474	.14*
WBT	2	3400	495	.20	540	.21
WBR	0	0	176		186	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.81		.86

203. Beach Blvd & McFadden Ave

2030 General Plan						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	2	3400	180	.05*	260	.08
NBT	4	6800	2390	.38	2680	.44*
NBR	0	0	220		280	
SBL	2	3400	220	.06	240	.07*
SBT	4	6800	2670	.44*	2580	.42
SBR	0	0	290		290	
EBL	2	3400	270	.08	350	.10
EBT	2	3400	470	.18*	530	.20*
EBR	0	0	140		150	
WBL	2	3400	460	.14*	530	.16*
WBT	2	3400	480	.19	580	.23
WBR	0	0	180		190	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.86		.92

2030 with Proposed Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	2	3400	180	.05*	260	.08
NBT	4	6800	2390	.38	2682	.44*
NBR	0	0	220		280	
SBL	2	3400	220	.06	240	.07*
SBT	4	6800	2670	.43*	2581	.42
SBR	0	0	285		271	
EBL	2	3400	255	.08	345	.10
EBT	2	3400	466	.18*	528	.20*
EBR	0	0	140		150	
WBL	2	3400	460	.14*	530	.16*
WBT	2	3400	479	.19	573	.22
WBR	0	0	180		190	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.85		.92

253. Huntington Village & Center Ave

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	10	{.01}*	50	{.03}*
NBT	1	1700	20	.02	20	.04
NBR	1	1700	5	.00	10	.01
SBL	0	0	50		80	
SBT	1	1700	10	.05*	20	.09*
SBR	0	0	20		60	
EBL	1	1700	50	.03*	30	.02*
EBT	2	3400	160	.06	240	.08
EBR	0	0	30		40	
WBL	1	1700	5	.00	10	.01
WBT	2	3400	150	.05*	250	.09*
WBR	0	0	30		40	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.19		.28

Existing Plus Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	10	{.01}*	50	{.03}*
NBT	1	1700	20	.02	20	.04
NBR	1	1700	5	.00	10	.01
SBL	0	0	50		80	
SBT	1	1700	10	.05*	20	.09*
SBR	0	0	20		60	
EBL	1	1700	50	.03*	30	.02*
EBT	2	3400	161	.06	246	.08
EBR	0	0	30		40	
WBL	1	1700	5	.00	10	.01
WBT	2	3400	151	.05*	255	.09*
WBR	0	0	30		40	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.19		.28

2016 No Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	15	{.01}*	51	{.03}*
NBT	1	1700	25	.02	25	.04
NBR	1	1700	5	.00	11	.01
SBL	0	0	58		85	
SBT	1	1700	15	.06*	25	.10*
SBR	0	0	28		62	
EBL	1	1700	60	.04*	41	.02
EBT	2	3400	188	.07	314	.11*
EBR	0	0	34		53	
WBL	1	1700	6	.00	11	.01*
WBT	2	3400	166	.06*	275	.09
WBR	0	0	33		43	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.22		.30

2016 With Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	15	{.01}*	51	{.03}*
NBT	1	1700	25	.02	25	.04
NBR	1	1700	5	.00	11	.01
SBL	0	0	58		85	
SBT	1	1700	15	.06*	25	.10*
SBR	0	0	28		62	
EBL	1	1700	60	.04*	41	.02*
EBT	2	3400	189	.07	320	.11
EBR	0	0	34		53	
WBL	1	1700	6	.00	11	.01
WBT	2	3400	167	.06*	280	.10*
WBR	0	0	33		43	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.22		.30

253. Huntington Village & Center Ave

2030 General Plan						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	18	{.01}*	52	{.03}*
NBT	1	1700	30	.03	27	.05
NBR	1	1700	7	.00	12	.01
SBL	0	0	81		91	
SBT	1	1700	20	.08*	28	.11*
SBR	0	0	34		63	
EBL	1	1700	66	.04*	48	.03
EBT	2	3400	208	.07	367	.13*
EBR	0	0	38		62	
WBL	1	1700	7	.00	12	.01*
WBT	2	3400	178	.06*	305	.10
WBR	0	0	35		48	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.24		.33

2030 with Proposed Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	18	{.01}*	52	{.03}*
NBT	1	1700	30	.03	27	.05
NBR	1	1700	6	.00	12	.01
SBL	0	0	72		89	
SBT	1	1700	20	.07*	28	.11*
SBR	0	0	33		63	
EBL	1	1700	66	.04*	47	.03
EBT	2	3400	209	.07	371	.13*
EBR	0	0	38		62	
WBL	1	1700	7	.00	12	.01*
WBT	2	3400	178	.06*	297	.10
WBR	0	0	35		46	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				.23		.33

15. Goldenwest St & Mcfadden Ave

2030 No Project (Weekend)						
	LANES	CAPACITY	VOL	V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	0	.00	100	.06
NBT	3	5100	0	.00	1730	.34*
NBR	d	1700	0	.00	240	.14
SBL	1	1700	0	.00	280	.16*
SBT	3	5100	0	.00*	1540	.32
SBR	0	0	0		80	
EBL	1	1700	0	.00	160	.09
EBT	2	3400	0	.00	490	.14*
EBR	d	1700	0	.00	90	.05
WBL	1	1700	0	.00	180	.11*
WBT	2	3400	0	.00*	300	.09
WBR	d	1700	0	.00	200	.12
Clearance Interval				.00*		.05*
TOTAL CAPACITY UTILIZATION				.00		.80

2030 with Special Events (Weekend)						
	LANES	CAPACITY	VOL	V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	0	.00	105	.06
NBT	3	5100	0	.00	1732	.34*
NBR	d	1700	0	.00	240	.14
SBL	1	1700	0	.00	281	.17*
SBT	3	5100	0	.00*	1543	.32
SBR	0	0	0		80	
EBL	1	1700	0	.00	160	.09
EBT	2	3400	0	.00	491	.14*
EBR	d	1700	0	.00	92	.05
WBL	1	1700	0	.00	180	.11*
WBT	2	3400	0	.00*	301	.09
WBR	d	1700	0	.00	201	.12
Clearance Interval					.00*	.05*
TOTAL CAPACITY UTILIZATION				.00		.81

17. Gothard St & Center Ave

2030 No Project (Weekend)						
	LANES	CAPACITY	VOL	V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	0	.00	10	.01
NBT	2	3400	0	.00	410	.12*
NBR	d	1700	0	.00	130	.08
SBL	1	1700	0	.00	370	.22*
SBT	2	3400	0	.00*	250	.07
SBR	d	1700	0	.00	40	.02
EBL	1	1700	0	.00	220	.13*
EBT	1	1700	0	.00	20	.02
EBR	0	0	0		20	
WBL	1	1700	0	.00	200	.12
WBT	2	3400	0	.00*	30	.02*
WBR	0	0	0		100	.06
Clearance Interval				.00*		.05*
TOTAL CAPACITY UTILIZATION				.00		.54

2030 with Special Events (Weekend)						
	LANES	CAPACITY	VOL	V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	0	.00	12	.01
NBT	2	3400	0	.00	410	.12*
NBR	d	1700	0	.00	130	.08
SBL	1	1700	0	.00	370	.22*
SBT	2	3400	0	.00*	250	.07
SBR	d	1700	0	.00	40	.02
EBL	1	1700	0	.00	220	.13*
EBT	1	1700	0	.00	20	.02
EBR	0	0	0		22	
WBL	1	1700	0	.00	200	.12
WBT	2	3400	0	.00*	30	.02*
WBR	0	0	0		100	.06
Clearance Interval					.00*	.05*
TOTAL CAPACITY UTILIZATION				.00		.54

26. Goldenwest St & Edinger Ave

2030 No Project (Weekend)						
	LANES	CAPACITY	VOL	V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	0	.00	130	.08
NBT	3	5100	0	.00	1060	.21*
NBR	d	1700	0	.00	210	.12
SBL	1	1700	0	.00	350	.21*
SBT	3	5100	0	.00*	1290	.25
SBR	d	1700	0	.00	180	.11
EBL	1	1700	0	.00	330	.19*
EBT	3	5100	0	.00	1060	.21
EBR	d	1700	0	.00	100	.06
WBL	1	1700	0	.00	170	.10
WBT	3	5100	0	.00*	750	.15*
WBR	d	1700	0	.00	470	.28
Right Turn Adjustment					WBR	.02*
Clearance Interval						.05*
TOTAL CAPACITY UTILIZATION				.00	.83	

2030 with Special Events (Weekend)						
	LANES	CAPACITY	VOL	V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	0	.00	136	.08
NBT	3	5100	0	.00	1067	.21*
NBR	d	1700	0	.00	210	.12
SBL	1	1700	0	.00	350	.21*
SBT	3	5100	0	.00*	1295	.25
SBR	d	1700	0	.00	180	.11
EBL	1	1700	0	.00	330	.19*
EBT	3	5100	0	.00	1060	.21
EBR	d	1700	0	.00	111	.07
WBL	1	1700	0	.00	170	.10
WBT	3	5100	0	.00*	754	.15*
WBR	d	1700	0	.00	470	.28
Right Turn Adjustment					WBR	.02*
Clearance Interval						.05*
TOTAL CAPACITY UTILIZATION				.00	.83	

27. Gothard St & Edinger Ave

2030 No Project (Weekend)						
	LANES	CAPACITY	VOL	V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	0	.00	180	.11*
NBT	2	3400	0	.00	320	.09
NBR	d	1700	0	.00	260	.15
SBL	1	1700	0	.00	90	.05
SBT	2	3400	0	.00*	460	.14*
SBR	d	1700	0	.00	130	.08
EBL	1	1700	0	.00	120	.07
EBT	3	5100	0	.00	1520	.30*
EBR	d	1700	0	.00	150	.09
WBL	1	1700	0	.00	170	.10*
WBT	3	5100	0	.00*	1490	.32
WBR	0	0	0		130	
Clearance Interval				.00*	.05*	
TOTAL CAPACITY UTILIZATION				.00	.70	

2030 with Special Events (Weekend)						
	LANES	CAPACITY	VOL	V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	0	.00	184	.11*
NBT	2	3400	0	.00	320	.09
NBR	d	1700	0	.00	260	.15
SBL	1	1700	0	.00	90	.05
SBT	2	3400	0	.00*	484	.14*
SBR	d	1700	0	.00	130	.08
EBL	1	1700	0	.00	120	.07
EBT	3	5100	0	.00	1520	.30*
EBR	d	1700	0	.00	150	.09
WBL	1	1700	0	.00	172	.10*
WBT	3	5100	0	.00*	1490	.32
WBR	0	0	0		130	
Clearance Interval				.00*	.05*	
TOTAL CAPACITY UTILIZATION				.00	.70	

Appendix C

HCM WORKSHEETS

Existing No Project
18: Center & I-405 SB Ramps

AM Peak Hour

						
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (vph)	50	90	260	310	800	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	50	90	260	310	800	150
RTOR Reduction (vph)	0	0	0	144	0	105
Lane Group Flow (vph)	50	90	260	166	800	45
Turn Type	Prot			Perm		Perm
Protected Phases	1	6	2		8	
Permitted Phases				2		8
Actuated Green, G (s)	7.7	75.9	64.2	64.2	36.1	36.1
Effective Green, g (s)	7.7	75.9	64.2	64.2	36.1	36.1
Actuated g/C Ratio	0.06	0.63	0.54	0.54	0.30	0.30
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	114	2238	1893	847	1033	476
v/s Ratio Prot	c0.03	0.03	0.07		c0.23	
v/s Ratio Perm				c0.10		0.03
v/c Ratio	0.44	0.04	0.14	0.20	0.77	0.09
Uniform Delay, d1	54.1	8.3	14.0	14.5	38.2	30.2
Progression Factor	1.00	1.00	0.47	0.29	1.00	1.00
Incremental Delay, d2	2.7	0.0	0.1	0.4	3.7	0.1
Delay (s)	56.8	8.3	6.7	4.7	41.9	30.3
Level of Service	E	A	A	A	D	C
Approach Delay (s)		25.6	5.6		40.1	
Approach LOS		C	A		D	
Intersection Summary						
HCM Average Control Delay			27.0		HCM Level of Service	C
HCM Volume to Capacity ratio			0.41			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	12.0
Intersection Capacity Utilization			43.3%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Existing No Project
19: Center & Beach

AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	60	400	0	1980	2520	910
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.88		0.86	0.86	1.00
Flt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	2787		6408	6408	1583
Flt Permitted	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	2787		6408	6408	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	60	400	0	1980	2520	910
RTOR Reduction (vph)	0	7	0	0	0	0
Lane Group Flow (vph)	60	393	0	1980	2520	910
Turn Type	Perm				Free	
Protected Phases	4			2	6	
Permitted Phases		4				Free
Actuated Green, G (s)	22.4	22.4		89.6	89.6	120.0
Effective Green, g (s)	22.4	22.4		89.6	89.6	120.0
Actuated g/C Ratio	0.19	0.19		0.75	0.75	1.00
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	641	520		4785	4785	1583
v/s Ratio Prot	0.02			0.31	0.39	
v/s Ratio Perm		c0.14				c0.57
v/c Ratio	0.09	0.76		0.41	0.53	0.57
Uniform Delay, d1	40.4	46.2		5.6	6.3	0.0
Progression Factor	0.30	0.36		0.29	2.14	1.00
Incremental Delay, d2	0.1	5.5		0.2	0.3	1.1
Delay (s)	12.3	22.4		1.8	13.9	1.1
Level of Service	B	C		A	B	A
Approach Delay (s)	21.0			1.8	10.5	
Approach LOS	C			A	B	
Intersection Summary						
HCM Average Control Delay			8.4		HCM Level of Service	A
HCM Volume to Capacity ratio			0.61			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	4.0
Intersection Capacity Utilization			57.2%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Existing No Project
28: Edinger & Beach

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	190	770	60	100	390	260	150	1400	210	470	1970	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	*0.90	1.00	0.97	0.95	1.00	0.97	*0.90	1.00	*1.00	0.86	0.88
Flt Protected	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5029	1583	3433	3539	1583	3433	5029	1583	3539	6408	2787
Satd. Flow (perm)	3433	5029	1583	3433	3539	1583	3433	5029	1583	3539	6408	2787
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	190	770	60	100	390	260	150	1400	210	470	1970	380
RTOR Reduction (vph)	0	0	11	0	0	218	0	0	108	0	0	163
Lane Group Flow (vph)	190	770	49	100	390	42	150	1400	102	470	1970	217
Turn Type	Prot	pm+ov		Prot	Perm		Prot	Perm		Prot	Perm	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	17.8	30.3	39.0	6.9	19.4	19.4	8.7	44.1	44.1	22.7	58.1	58.1
Effective Green, g (s)	17.8	30.3	39.0	6.9	19.4	19.4	8.7	44.1	44.1	22.7	58.1	58.1
Actuated g/C Ratio	0.15	0.25	0.32	0.06	0.16	0.16	0.07	0.37	0.37	0.19	0.48	0.48
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	509	1270	567	197	572	256	249	1848	582	669	3103	1349
v/s Ratio Prot	c0.06	c0.15	0.01	0.03	c0.11		0.04	c0.28		c0.13	0.31	
v/s Ratio Perm			0.02			0.03			0.06			0.08
v/c Ratio	0.37	0.61	0.09	0.51	0.68	0.16	0.60	0.76	0.18	0.70	0.63	0.16
Uniform Delay, d1	46.1	39.6	28.1	54.9	47.4	43.3	54.0	33.3	25.7	45.5	23.1	17.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.80	0.32	0.05
Incremental Delay, d2	0.5	2.2	0.1	2.1	3.3	0.3	4.1	3.0	0.7	2.9	0.9	0.2
Delay (s)	46.5	41.7	28.2	57.0	50.7	43.6	58.0	36.2	26.3	39.1	8.2	1.1
Level of Service	D	D	C	E	D	D	E	D	C	D	A	A
Approach Delay (s)		41.8			49.1			36.9			12.4	
Approach LOS		D			D			D			B	
Intersection Summary												
HCM Average Control Delay			28.2			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			72.0%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

Existing No Project
203: McFadden & Beach

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	270	370	130	350	520	170	190	1910	120	200	2360	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	0.97	0.95		0.97	0.95		0.97	0.86		0.97	0.86	
Flt	1.00	0.96		1.00	0.96		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3401		3433	3408		3433	6351		3433	6309	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	3401		3433	3408		3433	6351		3433	6309	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	270	370	130	350	520	170	190	1910	120	200	2360	270
RTOR Reduction (vph)	0	30	0	0	27	0	0	7	0	0	16	0
Lane Group Flow (vph)	270	470	0	350	663	0	190	2023	0	200	2614	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	11.0	21.2		15.9	26.1		7.7	57.1		9.8	59.2	
Effective Green, g (s)	11.0	21.2		15.9	26.1		7.7	57.1		9.8	59.2	
Actuated g/C Ratio	0.09	0.18		0.13	0.22		0.06	0.48		0.08	0.49	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	315	601		455	741		220	3022		280	3112	
v/s Ratio Prot	0.08	0.14		c0.10	c0.19		c0.06	0.32		0.06	c0.41	
v/s Ratio Perm												
v/c Ratio	0.86	0.78		0.77	0.90		0.86	0.67		0.71	0.84	
Uniform Delay, d1	53.7	47.2		50.3	45.6		55.6	24.2		53.7	26.3	
Progression Factor	1.00	1.00		1.00	1.00		1.33	0.39		1.00	1.00	
Incremental Delay, d2	19.9	6.6		7.7	13.3		26.5	1.1		8.4	2.9	
Delay (s)	73.6	53.8		57.9	59.0		100.7	10.6		62.1	29.2	
Level of Service	E	D		E	E		F	B		E	C	
Approach Delay (s)		60.7			58.6			18.3			31.5	
Approach LOS		E			E			B			C	
Intersection Summary												
HCM Average Control Delay			34.6			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			85.0%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

Existing No Project
18: Center & I-405 SB Ramps

PM Peak Hour

						
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (vph)	350	210	240	610	930	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	350	210	240	610	930	200
RTOR Reduction (vph)	0	0	0	393	0	138
Lane Group Flow (vph)	350	210	240	217	930	62
Turn Type	Prot			Perm		Perm
Protected Phases	1	6	2		8	
Permitted Phases				2		8
Actuated Green, G (s)	27.9	74.6	42.7	42.7	37.4	37.4
Effective Green, g (s)	27.9	74.6	42.7	42.7	37.4	37.4
Actuated g/C Ratio	0.23	0.62	0.36	0.36	0.31	0.31
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	412	2200	1259	563	1070	493
v/s Ratio Prot	c0.20	0.06	0.07		c0.27	
v/s Ratio Perm				c0.14		0.04
v/c Ratio	0.85	0.10	0.19	0.39	0.87	0.13
Uniform Delay, d1	44.0	9.1	26.7	28.9	39.0	29.6
Progression Factor	1.00	1.00	0.71	1.56	1.00	1.00
Incremental Delay, d2	15.0	0.1	0.3	1.9	7.7	0.1
Delay (s)	59.1	9.2	19.2	46.8	46.7	29.7
Level of Service	E	A	B	D	D	C
Approach Delay (s)		40.4	39.0		43.7	
Approach LOS		D	D		D	
Intersection Summary						
HCM Average Control Delay			41.4		HCM Level of Service	D
HCM Volume to Capacity ratio			0.67			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	12.0
Intersection Capacity Utilization			63.8%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Existing No Project
19: Center & Beach

PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	210	820	0	2450	2140	690
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.88		0.86	0.86	1.00
Flt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	2787		6408	6408	1583
Flt Permitted	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	2787		6408	6408	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	210	820	0	2450	2140	690
RTOR Reduction (vph)	0	5	0	0	0	0
Lane Group Flow (vph)	210	815	0	2450	2140	690
Turn Type	Perm				Free	
Protected Phases	4			2	6	
Permitted Phases		4				Free
Actuated Green, G (s)	41.8	41.8		70.2	70.2	120.0
Effective Green, g (s)	41.8	41.8		70.2	70.2	120.0
Actuated g/C Ratio	0.35	0.35		0.59	0.59	1.00
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	1196	971		3749	3749	1583
v/s Ratio Prot	0.06			0.38	0.33	
v/s Ratio Perm		0.29				0.44
v/c Ratio	0.18	0.84		0.65	0.57	0.44
Uniform Delay, d1	27.1	36.0		16.7	15.5	0.0
Progression Factor	0.19	0.25		0.09	0.91	1.00
Incremental Delay, d2	0.1	4.8		0.5	0.4	0.6
Delay (s)	5.1	13.9		2.1	14.5	0.6
Level of Service	A	B		A	B	A
Approach Delay (s)	12.1			2.1	11.1	
Approach LOS	B			A	B	
Intersection Summary						
HCM Average Control Delay			7.8		HCM Level of Service	A
HCM Volume to Capacity ratio			0.72			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	8.0
Intersection Capacity Utilization			66.4%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Existing No Project
28: Edinger & Beach

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	310	790	270	120	430	190	310	2100	400	330	2180	540
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	*0.90	1.00	0.97	0.95	1.00	0.97	*0.90	1.00	*1.00	0.86	0.88
Flt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5029	1583	3433	3539	1583	3433	5029	1583	3539	6408	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5029	1583	3433	3539	1583	3433	5029	1583	3539	6408	2787
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	310	790	270	120	430	190	310	2100	400	330	2180	540
RTOR Reduction (vph)	0	0	29	0	0	156	0	0	146	0	0	206
Lane Group Flow (vph)	310	790	241	120	430	34	310	2100	254	330	2180	334
Turn Type	Prot	pm+ov		Prot	Perm		Prot	Perm		Prot	Perm	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	13.6	21.9	41.9	10.9	19.2	19.2	20.0	58.2	58.2	13.0	51.2	51.2
Effective Green, g (s)	13.6	21.9	41.9	10.9	19.2	19.2	20.0	58.2	58.2	13.0	51.2	51.2
Actuated g/C Ratio	0.11	0.18	0.35	0.09	0.16	0.16	0.17	0.49	0.49	0.11	0.43	0.43
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	389	918	605	312	566	253	572	2439	768	383	2734	1189
v/s Ratio Prot	c0.09	c0.16	0.07	0.03	0.12		0.09	c0.42		c0.09	0.34	
v/s Ratio Perm			0.09			0.02			0.16			0.12
v/c Ratio	0.80	0.86	0.40	0.38	0.76	0.13	0.54	0.86	0.33	0.86	0.80	0.28
Uniform Delay, d1	51.9	47.6	29.5	51.4	48.2	43.3	45.8	27.3	19.0	52.6	29.9	22.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.54	0.28
Incremental Delay, d2	10.8	10.4	0.4	0.8	5.8	0.2	1.1	4.3	1.2	14.8	2.0	0.5
Delay (s)	62.7	58.0	29.9	52.2	54.0	43.5	46.9	31.6	20.1	65.6	18.1	6.7
Level of Service	E	E	C	D	D	D	D	C	C	E	B	A
Approach Delay (s)		53.5			51.0			31.6			21.2	
Approach LOS		D			D			C			C	
Intersection Summary												
HCM Average Control Delay			33.2			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			84.1%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

Existing No Project
203: McFadden & Beach

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	360	460	140	390	490	180	270	2330	270	240	2090	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	0.97	0.95		0.97	0.95		0.97	0.86		0.97	0.86	
Frt	1.00	0.96		1.00	0.96		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3415		3433	3397		3433	6308		3433	6309	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	3415		3433	3397		3433	6308		3433	6309	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	360	460	140	390	490	180	270	2330	270	240	2090	240
RTOR Reduction (vph)	0	24	0	0	31	0	0	17	0	0	16	0
Lane Group Flow (vph)	360	576	0	390	639	0	270	2583	0	240	2314	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	12.0	21.5		17.0	26.5		10.5	56.0		9.5	55.0	
Effective Green, g (s)	12.0	21.5		17.0	26.5		10.5	56.0		9.5	55.0	
Actuated g/C Ratio	0.10	0.18		0.14	0.22		0.09	0.47		0.08	0.46	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	343	612		486	750		300	2944		272	2892	
v/s Ratio Prot	c0.10	0.17		c0.11	c0.19		c0.08	c0.41		0.07	0.37	
v/s Ratio Perm												
v/c Ratio	1.05	0.94		0.80	0.85		0.90	0.88		0.88	0.80	
Uniform Delay, d1	54.0	48.6		49.9	44.9		54.2	28.9		54.7	27.8	
Progression Factor	1.00	1.00		1.00	1.00		1.30	0.43		1.00	1.00	
Incremental Delay, d2	62.2	22.9		9.3	9.2		24.4	3.4		26.7	2.4	
Delay (s)	116.2	71.5		59.1	54.1		94.8	15.9		81.4	30.2	
Level of Service	F	E		E	D		F	B		F	C	
Approach Delay (s)		88.3			55.9			23.4			35.0	
Approach LOS		F			E			C			C	
Intersection Summary												
HCM Average Control Delay			40.4			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			88.0%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

Existing With Project
18: Center & I-405 SB Ramps

AM Peak Hour

						
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (vph)	50	91	261	310	800	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	50	91	261	310	800	150
RTOR Reduction (vph)	0	0	0	144	0	105
Lane Group Flow (vph)	50	91	261	166	800	45
Turn Type	Prot			Perm		Perm
Protected Phases	1	6	2		8	
Permitted Phases				2		8
Actuated Green, G (s)	7.7	75.9	64.2	64.2	36.1	36.1
Effective Green, g (s)	7.7	75.9	64.2	64.2	36.1	36.1
Actuated g/C Ratio	0.06	0.63	0.54	0.54	0.30	0.30
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	114	2238	1893	847	1033	476
v/s Ratio Prot	c0.03	0.03	0.07		c0.23	
v/s Ratio Perm				c0.10		0.03
v/c Ratio	0.44	0.04	0.14	0.20	0.77	0.09
Uniform Delay, d1	54.1	8.3	14.0	14.5	38.2	30.2
Progression Factor	1.00	1.00	0.47	0.29	1.00	1.00
Incremental Delay, d2	2.7	0.0	0.1	0.4	3.7	0.1
Delay (s)	56.8	8.4	6.7	4.7	41.9	30.3
Level of Service	E	A	A	A	D	C
Approach Delay (s)		25.5	5.6		40.1	
Approach LOS		C	A		D	
Intersection Summary						
HCM Average Control Delay			27.0		HCM Level of Service	C
HCM Volume to Capacity ratio			0.41			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	12.0
Intersection Capacity Utilization			43.4%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Existing With Project
19: Center & Beach

AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	60	400	0	1980	2520	910
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.88		0.86	0.86	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	2787		6408	6408	1583
Flt Permitted	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	2787		6408	6408	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	60	400	0	1980	2520	910
RTOR Reduction (vph)	0	7	0	0	0	0
Lane Group Flow (vph)	60	393	0	1980	2520	910
Turn Type	Perm				Free	
Protected Phases	4			2	6	
Permitted Phases		4				Free
Actuated Green, G (s)	22.4	22.4		89.6	89.6	120.0
Effective Green, g (s)	22.4	22.4		89.6	89.6	120.0
Actuated g/C Ratio	0.19	0.19		0.75	0.75	1.00
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	641	520		4785	4785	1583
v/s Ratio Prot	0.02			0.31	0.39	
v/s Ratio Perm		c0.14				c0.57
v/c Ratio	0.09	0.76		0.41	0.53	0.57
Uniform Delay, d1	40.4	46.2		5.6	6.3	0.0
Progression Factor	0.30	0.37		0.29	2.14	1.00
Incremental Delay, d2	0.1	5.5		0.2	0.3	1.1
Delay (s)	12.3	22.4		1.8	13.9	1.1
Level of Service	B	C		A	B	A
Approach Delay (s)	21.1			1.8	10.5	
Approach LOS	C			A	B	
Intersection Summary						
HCM Average Control Delay			8.4		HCM Level of Service	A
HCM Volume to Capacity ratio			0.61			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	4.0
Intersection Capacity Utilization			57.2%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Existing With Project
28: Edinger & Beach

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	190	770	61	100	390	260	151	1400	210	470	1970	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	*0.90	1.00	0.97	0.95	1.00	0.97	*0.90	1.00	*1.00	0.86	0.88
Flt Protected	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5029	1583	3433	3539	1583	3433	5029	1583	3539	6408	2787
Satd. Flow (perm)	3433	5029	1583	3433	3539	1583	3433	5029	1583	3539	6408	2787
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	190	770	61	100	390	260	151	1400	210	470	1970	380
RTOR Reduction (vph)	0	0	11	0	0	218	0	0	108	0	0	163
Lane Group Flow (vph)	190	770	50	100	390	42	151	1400	102	470	1970	217
Turn Type	Prot	pm+ov		Prot	Perm		Prot	Perm		Prot	Perm	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	17.8	30.3	39.0	6.9	19.4	19.4	8.7	44.1	44.1	22.7	58.1	58.1
Effective Green, g (s)	17.8	30.3	39.0	6.9	19.4	19.4	8.7	44.1	44.1	22.7	58.1	58.1
Actuated g/C Ratio	0.15	0.25	0.32	0.06	0.16	0.16	0.07	0.37	0.37	0.19	0.48	0.48
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	509	1270	567	197	572	256	249	1848	582	669	3103	1349
v/s Ratio Prot	c0.06	c0.15	0.01	0.03	c0.11		0.04	c0.28		c0.13	0.31	
v/s Ratio Perm			0.03			0.03			0.06			0.08
v/c Ratio	0.37	0.61	0.09	0.51	0.68	0.16	0.61	0.76	0.18	0.70	0.63	0.16
Uniform Delay, d1	46.1	39.6	28.1	54.9	47.4	43.3	54.0	33.3	25.7	45.5	23.1	17.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.80	0.32	0.05
Incremental Delay, d2	0.5	2.2	0.1	2.1	3.3	0.3	4.1	3.0	0.7	2.9	0.9	0.2
Delay (s)	46.5	41.7	28.2	57.0	50.7	43.6	58.1	36.2	26.3	39.1	8.2	1.1
Level of Service	D	D	C	E	D	D	E	D	C	D	A	A
Approach Delay (s)		41.8			49.1			36.9			12.4	
Approach LOS		D			D			D			B	
Intersection Summary												
HCM Average Control Delay			28.3			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			72.0%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

Existing With Project
203: McFadden & Beach

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	270	370	130	350	520	170	190	1910	120	200	2360	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	0.97	0.95		0.97	0.95		0.97	0.86		0.97	0.86	
Frt	1.00	0.96		1.00	0.96		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3401		3433	3408		3433	6351		3433	6309	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	3401		3433	3408		3433	6351		3433	6309	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	270	370	130	350	520	170	190	1910	120	200	2360	270
RTOR Reduction (vph)	0	30	0	0	27	0	0	7	0	0	16	0
Lane Group Flow (vph)	270	470	0	350	663	0	190	2023	0	200	2614	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	11.0	21.2		15.9	26.1		7.7	57.1		9.8	59.2	
Effective Green, g (s)	11.0	21.2		15.9	26.1		7.7	57.1		9.8	59.2	
Actuated g/C Ratio	0.09	0.18		0.13	0.22		0.06	0.48		0.08	0.49	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	315	601		455	741		220	3022		280	3112	
v/s Ratio Prot	0.08	0.14		c0.10	c0.19		c0.06	0.32		0.06	c0.41	
v/s Ratio Perm												
v/c Ratio	0.86	0.78		0.77	0.90		0.86	0.67		0.71	0.84	
Uniform Delay, d1	53.7	47.2		50.3	45.6		55.6	24.2		53.7	26.3	
Progression Factor	1.00	1.00		1.00	1.00		1.33	0.39		1.00	1.00	
Incremental Delay, d2	19.9	6.6		7.7	13.3		26.5	1.1		8.4	2.9	
Delay (s)	73.6	53.8		57.9	59.0		100.7	10.6		62.1	29.2	
Level of Service	E	D		E	E		F	B		E	C	
Approach Delay (s)		60.7			58.6			18.3			31.5	
Approach LOS		E			E			B			C	
Intersection Summary												
HCM Average Control Delay			34.6			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			85.0%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

Existing With Project
18: Center & I-405 SB Ramps

PM Peak Hour

						
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (vph)	350	210	240	610	930	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	350	210	240	610	930	200
RTOR Reduction (vph)	0	0	0	393	0	138
Lane Group Flow (vph)	350	210	240	217	930	62
Turn Type	Prot			Perm		Perm
Protected Phases	1	6	2		8	
Permitted Phases				2		8
Actuated Green, G (s)	27.9	74.6	42.7	42.7	37.4	37.4
Effective Green, g (s)	27.9	74.6	42.7	42.7	37.4	37.4
Actuated g/C Ratio	0.23	0.62	0.36	0.36	0.31	0.31
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	412	2200	1259	563	1070	493
v/s Ratio Prot	c0.20	0.06	0.07		c0.27	
v/s Ratio Perm				c0.14		0.04
v/c Ratio	0.85	0.10	0.19	0.39	0.87	0.13
Uniform Delay, d1	44.0	9.1	26.7	28.9	39.0	29.6
Progression Factor	1.00	1.00	0.70	1.55	1.00	1.00
Incremental Delay, d2	15.0	0.1	0.3	1.9	7.7	0.1
Delay (s)	59.1	9.2	19.1	46.7	46.7	29.7
Level of Service	E	A	B	D	D	C
Approach Delay (s)		40.4	38.9		43.7	
Approach LOS		D	D		D	
Intersection Summary						
HCM Average Control Delay			41.4		HCM Level of Service	D
HCM Volume to Capacity ratio			0.67			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	12.0
Intersection Capacity Utilization			63.8%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Existing With Project
19: Center & Beach

PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	212	822	0	2450	2140	691
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.88		0.86	0.86	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	2787		6408	6408	1583
Flt Permitted	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	2787		6408	6408	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	212	822	0	2450	2140	691
RTOR Reduction (vph)	0	5	0	0	0	0
Lane Group Flow (vph)	212	817	0	2450	2140	691
Turn Type	Perm				Free	
Protected Phases	4			2	6	
Permitted Phases		4				Free
Actuated Green, G (s)	41.9	41.9		70.1	70.1	120.0
Effective Green, g (s)	41.9	41.9		70.1	70.1	120.0
Actuated g/C Ratio	0.35	0.35		0.58	0.58	1.00
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	1199	973		3743	3743	1583
v/s Ratio Prot	0.06			0.38	0.33	
v/s Ratio Perm		0.29				0.44
v/c Ratio	0.18	0.84		0.65	0.57	0.44
Uniform Delay, d1	27.1	36.0		16.8	15.6	0.0
Progression Factor	0.18	0.25		0.09	0.91	1.00
Incremental Delay, d2	0.1	4.9		0.5	0.4	0.6
Delay (s)	5.0	14.0		2.1	14.6	0.6
Level of Service	A	B		A	B	A
Approach Delay (s)	12.2			2.1	11.2	
Approach LOS	B			A	B	
Intersection Summary						
HCM Average Control Delay			7.8		HCM Level of Service	A
HCM Volume to Capacity ratio			0.72			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	8.0
Intersection Capacity Utilization			66.4%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Existing With Project
28: Edinger & Beach

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	310	791	273	120	431	190	313	2101	400	330	2182	540
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	*0.90	1.00	0.97	0.95	1.00	0.97	*0.90	1.00	*1.00	0.86	0.88
Flt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5029	1583	3433	3539	1583	3433	5029	1583	3539	6408	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5029	1583	3433	3539	1583	3433	5029	1583	3539	6408	2787
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	310	791	273	120	431	190	313	2101	400	330	2182	540
RTOR Reduction (vph)	0	0	29	0	0	156	0	0	146	0	0	206
Lane Group Flow (vph)	310	791	244	120	431	34	313	2101	254	330	2182	334
Turn Type	Prot	pm+ov		Prot	Perm		Prot	Perm		Prot	Perm	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	13.6	22.0	42.0	10.9	19.3	19.3	20.0	58.1	58.1	13.0	51.1	51.1
Effective Green, g (s)	13.6	22.0	42.0	10.9	19.3	19.3	20.0	58.1	58.1	13.0	51.1	51.1
Actuated g/C Ratio	0.11	0.18	0.35	0.09	0.16	0.16	0.17	0.48	0.48	0.11	0.43	0.43
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	389	922	607	312	569	255	572	2435	766	383	2729	1187
v/s Ratio Prot	c0.09	c0.16	0.07	0.03	0.12		0.09	c0.42		c0.09	0.34	
v/s Ratio Perm			0.09			0.02			0.16			0.12
v/c Ratio	0.80	0.86	0.40	0.38	0.76	0.13	0.55	0.86	0.33	0.86	0.80	0.28
Uniform Delay, d1	51.9	47.5	29.5	51.4	48.1	43.2	45.8	27.4	19.0	52.6	30.0	22.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.54	0.28
Incremental Delay, d2	10.8	10.2	0.4	0.8	5.7	0.2	1.1	4.3	1.2	14.8	2.1	0.5
Delay (s)	62.7	57.7	29.9	52.2	53.8	43.4	46.9	31.8	20.2	65.6	18.1	6.8
Level of Service	E	E	C	D	D	D	D	C	C	E	B	A
Approach Delay (s)		53.3			50.9			31.8			21.2	
Approach LOS		D			D			C			C	
Intersection Summary												
HCM Average Control Delay			33.2			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			84.1%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

Existing With Project
203: McFadden & Beach

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	361	460	140	390	490	180	270	2332	270	240	2091	241
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	0.97	0.95		0.97	0.95		0.97	0.86		0.97	0.86	
Frt	1.00	0.96		1.00	0.96		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3415		3433	3397		3433	6308		3433	6309	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	3415		3433	3397		3433	6308		3433	6309	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	361	460	140	390	490	180	270	2332	270	240	2091	241
RTOR Reduction (vph)	0	24	0	0	31	0	0	17	0	0	17	0
Lane Group Flow (vph)	361	576	0	390	639	0	270	2585	0	240	2315	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	12.0	21.5		17.0	26.5		10.5	56.0		9.5	55.0	
Effective Green, g (s)	12.0	21.5		17.0	26.5		10.5	56.0		9.5	55.0	
Actuated g/C Ratio	0.10	0.18		0.14	0.22		0.09	0.47		0.08	0.46	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	343	612		486	750		300	2944		272	2892	
v/s Ratio Prot	c0.11	0.17		c0.11	c0.19		c0.08	c0.41		0.07	0.37	
v/s Ratio Perm												
v/c Ratio	1.05	0.94		0.80	0.85		0.90	0.88		0.88	0.80	
Uniform Delay, d1	54.0	48.6		49.9	44.9		54.2	28.9		54.7	27.8	
Progression Factor	1.00	1.00		1.00	1.00		1.30	0.43		1.00	1.00	
Incremental Delay, d2	63.0	22.9		9.3	9.2		24.4	3.4		26.7	2.4	
Delay (s)	117.0	71.5		59.1	54.1		94.7	16.0		81.4	30.2	
Level of Service	F	E		E	D		F	B		F	C	
Approach Delay (s)		88.6			55.9			23.4			35.0	
Approach LOS		F			E			C			D	
Intersection Summary												
HCM Average Control Delay			40.4			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			88.1%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

2016 No Project
18: Center & I-405 SB Ramps

AM Peak Hour

						
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (vph)	57	122	302	460	812	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	57	122	302	460	812	155
RTOR Reduction (vph)	0	0	0	214	0	109
Lane Group Flow (vph)	57	122	302	246	812	46
Turn Type	Prot			Perm		Perm
Protected Phases	1	6	2		8	
Permitted Phases				2		8
Actuated Green, G (s)	8.1	76.2	64.1	64.1	35.8	35.8
Effective Green, g (s)	8.1	76.2	64.1	64.1	35.8	35.8
Actuated g/C Ratio	0.07	0.64	0.53	0.53	0.30	0.30
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	119	2247	1890	846	1024	472
v/s Ratio Prot	c0.03	0.03	0.09		c0.24	
v/s Ratio Perm				c0.16		0.03
v/c Ratio	0.48	0.05	0.16	0.29	0.79	0.10
Uniform Delay, d1	53.9	8.3	14.2	15.4	38.7	30.4
Progression Factor	1.00	1.00	0.45	1.08	1.00	1.00
Incremental Delay, d2	3.0	0.0	0.2	0.7	4.3	0.1
Delay (s)	56.9	8.3	6.6	17.4	43.0	30.5
Level of Service	E	A	A	B	D	C
Approach Delay (s)		23.8	13.1		41.0	
Approach LOS		C	B		D	
Intersection Summary						
HCM Average Control Delay			28.2		HCM Level of Service	C
HCM Volume to Capacity ratio			0.47			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	12.0
Intersection Capacity Utilization			44.8%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

2016 No Project
19: Center & Beach

AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	126	641	0	2556	2718	849
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.88		0.86	0.86	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	2787		6408	6408	1583
Flt Permitted	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	2787		6408	6408	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	126	641	0	2556	2718	849
RTOR Reduction (vph)	0	1	0	0	0	0
Lane Group Flow (vph)	126	640	0	2556	2718	849
Turn Type	Perm			Free		
Protected Phases	4			2	6	
Permitted Phases		4				Free
Actuated Green, G (s)	34.6	34.6		77.4	77.4	120.0
Effective Green, g (s)	34.6	34.6		77.4	77.4	120.0
Actuated g/C Ratio	0.29	0.29		0.64	0.64	1.00
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	990	804		4133	4133	1583
v/s Ratio Prot	0.04			0.40	0.42	
v/s Ratio Perm		0.23				0.54
v/c Ratio	0.13	0.80		0.62	0.66	0.54
Uniform Delay, d1	31.5	39.4		12.6	13.1	0.0
Progression Factor	0.38	0.32		0.12	1.05	1.00
Incremental Delay, d2	0.0	4.7		0.5	0.5	0.8
Delay (s)	11.9	17.2		2.0	14.3	0.8
Level of Service	B	B		A	B	A
Approach Delay (s)	16.3			2.0	11.1	
Approach LOS	B			A	B	
Intersection Summary						
HCM Average Control Delay			8.3		HCM Level of Service	A
HCM Volume to Capacity ratio			0.70			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	8.0
Intersection Capacity Utilization			68.5%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

2016 No Project
28: Edinger & Beach

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	184	854	108	100	383	284	144	1928	342	569	2340	404
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	*0.90	1.00	0.97	0.95	1.00	0.97	*0.90	1.00	*1.00	0.86	0.88
Flt Protected	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5029	1583	3433	3539	1583	3433	5029	1583	3539	6408	2787
Satd. Flow (perm)	3433	5029	1583	3433	3539	1583	3433	5029	1583	3539	6408	2787
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	184	854	108	100	383	284	144	1928	342	569	2340	404
RTOR Reduction (vph)	0	0	3	0	0	221	0	0	62	0	0	141
Lane Group Flow (vph)	184	854	105	100	383	63	144	1928	280	569	2340	263
Turn Type	Prot	pm+ov		Prot	Perm		Prot	Perm		Prot	Perm	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	9.6	23.3	32.0	4.0	17.7	17.7	8.7	55.0	55.0	21.7	68.0	68.0
Effective Green, g (s)	9.6	23.3	32.0	4.0	17.7	17.7	8.7	55.0	55.0	21.7	68.0	68.0
Actuated g/C Ratio	0.08	0.19	0.27	0.03	0.15	0.15	0.07	0.46	0.46	0.18	0.57	0.57
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	275	976	475	114	522	233	249	2305	726	640	3631	1579
v/s Ratio Prot	c0.05	c0.17	0.02	0.03	0.11		0.04	c0.38		c0.16	0.37	
v/s Ratio Perm			0.05			0.04			0.18			0.09
v/c Ratio	0.67	0.88	0.22	0.88	0.73	0.27	0.58	0.84	0.39	0.89	0.64	0.17
Uniform Delay, d1	53.7	46.9	34.3	57.8	48.9	45.4	53.9	28.5	21.4	48.0	17.7	12.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.05	0.52	0.03
Incremental Delay, d2	6.1	10.8	0.2	47.9	5.3	0.6	3.2	3.8	1.6	11.4	0.7	0.2
Delay (s)	59.7	57.8	34.5	105.6	54.2	46.1	57.1	32.3	22.9	61.8	10.0	0.6
Level of Service	E	E	C	F	D	D	E	C	C	E	A	A
Approach Delay (s)		55.9			57.9			32.5			17.7	
Approach LOS		E			E			C			B	
Intersection Summary												
HCM Average Control Delay			32.1			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			86.7%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

2016 No Project
203: McFadden & Beach

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	261	428	136	416	495	176	184	2198	180	212	2546	279
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	0.97	0.95		0.97	0.95		0.97	0.86		0.97	0.86	
Frt	1.00	0.96		1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3411		3433	3400		3433	6335		3433	6313	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	3411		3433	3400		3433	6335		3433	6313	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	261	428	136	416	495	176	184	2198	180	212	2546	279
RTOR Reduction (vph)	0	26	0	0	30	0	0	11	0	0	15	0
Lane Group Flow (vph)	261	538	0	416	641	0	184	2367	0	212	2810	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	11.0	20.7		16.7	26.4		7.6	56.7		9.9	59.0	
Effective Green, g (s)	11.0	20.7		16.7	26.4		7.6	56.7		9.9	59.0	
Actuated g/C Ratio	0.09	0.17		0.14	0.22		0.06	0.47		0.08	0.49	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	315	588		478	748		217	2993		283	3104	
v/s Ratio Prot	0.08	0.16		c0.12	c0.19		0.05	0.37		c0.06	c0.45	
v/s Ratio Perm												
v/c Ratio	0.83	0.92		0.87	0.86		0.85	0.79		0.75	0.91	
Uniform Delay, d1	53.6	48.8		50.6	45.0		55.6	26.7		53.8	27.9	
Progression Factor	1.00	1.00		1.00	1.00		1.31	0.26		1.00	1.00	
Incremental Delay, d2	16.2	19.0		15.8	9.6		21.2	1.8		10.4	5.0	
Delay (s)	69.8	67.7		66.3	54.6		94.1	8.7		64.2	32.9	
Level of Service	E	E		E	D		F	A		E	C	
Approach Delay (s)		68.4			59.1			14.9			35.1	
Approach LOS		E			E			B			D	
Intersection Summary												
HCM Average Control Delay			35.3			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			88.2%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

2016 No Project
18: Center & I-405 SB Ramps

PM Peak Hour

						
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (vph)	393	209	267	664	978	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	393	209	267	664	978	220
RTOR Reduction (vph)	0	0	0	449	0	147
Lane Group Flow (vph)	393	209	267	215	978	73
Turn Type	Prot			Perm		Perm
Protected Phases	1	6	2		8	
Permitted Phases				2		8
Actuated Green, G (s)	30.6	73.5	38.9	38.9	38.5	38.5
Effective Green, g (s)	30.6	73.5	38.9	38.9	38.5	38.5
Actuated g/C Ratio	0.26	0.61	0.32	0.32	0.32	0.32
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	451	2168	1147	513	1101	508
v/s Ratio Prot	c0.22	0.06	0.08		c0.28	
v/s Ratio Perm				c0.14		0.05
v/c Ratio	0.87	0.10	0.23	0.42	0.89	0.14
Uniform Delay, d1	42.8	9.6	29.6	31.7	38.7	29.0
Progression Factor	1.00	1.00	0.66	1.97	1.00	1.00
Incremental Delay, d2	16.6	0.1	0.4	2.2	8.9	0.1
Delay (s)	59.5	9.7	19.8	64.6	47.6	29.2
Level of Service	E	A	B	E	D	C
Approach Delay (s)		42.2	51.8		44.2	
Approach LOS		D	D		D	
Intersection Summary						
HCM Average Control Delay			46.3		HCM Level of Service	D
HCM Volume to Capacity ratio			0.71			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	12.0
Intersection Capacity Utilization			69.6%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

2016 No Project
19: Center & Beach

PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	180	915	0	2846	2428	855
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.88		0.86	0.86	1.00
Flt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	2787		6408	6408	1583
Flt Permitted	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	2787		6408	6408	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	180	915	0	2846	2428	855
RTOR Reduction (vph)	0	2	0	0	0	0
Lane Group Flow (vph)	180	913	0	2846	2428	855
Turn Type	Perm				Free	
Protected Phases	4			2	6	
Permitted Phases		4				Free
Actuated Green, G (s)	44.5	44.5		67.5	67.5	120.0
Effective Green, g (s)	44.5	44.5		67.5	67.5	120.0
Actuated g/C Ratio	0.37	0.37		0.56	0.56	1.00
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	1273	1034		3605	3605	1583
v/s Ratio Prot	0.05			0.44	0.38	
v/s Ratio Perm		0.33				0.54
v/c Ratio	0.14	0.88		0.79	0.67	0.54
Uniform Delay, d1	25.1	35.3		20.7	18.5	0.0
Progression Factor	0.21	0.27		0.11	0.89	1.00
Incremental Delay, d2	0.0	6.4		0.6	0.5	0.7
Delay (s)	5.3	15.9		2.9	17.0	0.7
Level of Service	A	B		A	B	A
Approach Delay (s)	14.2			2.9	12.8	
Approach LOS	B			A	B	
Intersection Summary						
HCM Average Control Delay			9.1		HCM Level of Service	A
HCM Volume to Capacity ratio			0.83			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	8.0
Intersection Capacity Utilization			73.9%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

2016 No Project
28: Edinger & Beach

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	346	778	299	216	566	250	465	2400	544	377	2450	762
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	*0.90	1.00	0.97	0.95	1.00	0.97	*0.90	1.00	*1.00	0.86	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5029	1583	3433	3539	1583	3433	5029	1583	3539	6408	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5029	1583	3433	3539	1583	3433	5029	1583	3539	6408	2787
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	346	778	299	216	566	250	465	2400	544	377	2450	762
RTOR Reduction (vph)	0	0	8	0	0	151	0	0	148	0	0	263
Lane Group Flow (vph)	346	778	291	216	566	99	465	2400	396	377	2450	499
Turn Type	Prot	pm+ov		Prot	Perm		Prot	Perm		Prot	Perm	
Protected Phases	7	4	5	3	8	5		2	1		6	
Permitted Phases	4			8				2		6		
Actuated Green, G (s)	12.5	22.0	42.0	12.0	21.5	21.5	20.0	57.0	57.0	13.0	50.0	50.0
Effective Green, g (s)	12.5	22.0	42.0	12.0	21.5	21.5	20.0	57.0	57.0	13.0	50.0	50.0
Actuated g/C Ratio	0.10	0.18	0.35	0.10	0.18	0.18	0.17	0.48	0.48	0.11	0.42	0.42
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	358	922	607	343	634	284	572	2389	752	383	2670	1161
v/s Ratio Prot	c0.10	0.15	0.08	0.06	c0.16	0.14		c0.48	c0.11		0.38	
v/s Ratio Perm	0.10			0.06				0.25		0.18		
v/c Ratio	0.97	0.84	0.48	0.63	0.89	0.35	0.81	1.00	0.53	0.98	0.92	0.43
Uniform Delay, d1	53.5	47.3	30.5	51.9	48.1	43.1	48.2	31.5	22.1	53.4	33.1	24.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.63	0.43
Incremental Delay, d2	38.3	9.3	0.6	3.6	14.9	0.7	8.6	19.5	2.6	35.3	4.9	0.9
Delay (s)	91.9	56.7	31.1	55.5	63.0	43.9	56.8	51.0	24.7	83.9	25.7	11.5
Level of Service	F	E	C	E	E	D	E	D	C	F	C	B
Approach Delay (s)	59.8		56.8				47.6		28.8			
Approach LOS	E		E				D		C			
Intersection Summary												
HCM Average Control Delay			43.3	HCM Level of Service			D					
HCM Volume to Capacity ratio			0.94									
Actuated Cycle Length (s)			120.0	Sum of lost time (s)			12.0					
Intersection Capacity Utilization			96.0%	ICU Level of Service			F					
Analysis Period (min)			15									
c Critical Lane Group												

2016 No Project
203: McFadden & Beach

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	350	501	146	474	540	186	264	2540	276	240	2384	258
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	0.97	0.95		0.97	0.95		0.97	0.86		0.97	0.86	
Frt	1.00	0.97		1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3419		3433	3403		3433	6314		3433	6314	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	3419		3433	3403		3433	6314		3433	6314	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	350	501	146	474	540	186	264	2540	276	240	2384	258
RTOR Reduction (vph)	0	22	0	0	29	0	0	15	0	0	15	0
Lane Group Flow (vph)	350	625	0	474	697	0	264	2801	0	240	2627	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	12.0	21.0		18.0	27.0		10.0	56.0		9.0	55.0	
Effective Green, g (s)	12.0	21.0		18.0	27.0		10.0	56.0		9.0	55.0	
Actuated g/C Ratio	0.10	0.18		0.15	0.22		0.08	0.47		0.08	0.46	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	343	598		515	766		286	2947		257	2894	
v/s Ratio Prot	0.10	c0.18		c0.14	0.20		c0.08	c0.44		0.07	0.42	
v/s Ratio Perm												
v/c Ratio	1.02	1.04		0.92	0.91		0.92	0.95		0.93	0.91	
Uniform Delay, d1	54.0	49.5		50.3	45.3		54.6	30.7		55.2	30.1	
Progression Factor	1.00	1.00		1.00	1.00		1.34	0.30		1.00	1.00	
Incremental Delay, d2	53.9	49.0		21.9	14.9		25.1	6.0		38.4	5.4	
Delay (s)	107.9	98.5		72.2	60.2		98.5	15.4		93.6	35.6	
Level of Service	F	F		E	E		F	B		F	D	
Approach Delay (s)		101.8			64.9			22.5			40.4	
Approach LOS		F			E			C			D	
Intersection Summary												
HCM Average Control Delay			44.8			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.93									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			93.6%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

2016 With Project
18: Center & I-405 SB Ramps

AM Peak Hour

						
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (vph)	57	122	302	460	812	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	57	122	302	460	812	155
RTOR Reduction (vph)	0	0	0	214	0	109
Lane Group Flow (vph)	57	122	302	246	812	46
Turn Type	Prot			Perm		Perm
Protected Phases	1	6	2		8	
Permitted Phases				2		8
Actuated Green, G (s)	8.1	76.2	64.1	64.1	35.8	35.8
Effective Green, g (s)	8.1	76.2	64.1	64.1	35.8	35.8
Actuated g/C Ratio	0.07	0.64	0.53	0.53	0.30	0.30
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	119	2247	1890	846	1024	472
v/s Ratio Prot	c0.03	0.03	0.09		c0.24	
v/s Ratio Perm				c0.16		0.03
v/c Ratio	0.48	0.05	0.16	0.29	0.79	0.10
Uniform Delay, d1	53.9	8.3	14.2	15.4	38.7	30.4
Progression Factor	1.00	1.00	0.45	1.08	1.00	1.00
Incremental Delay, d2	3.0	0.0	0.2	0.7	4.3	0.1
Delay (s)	56.9	8.3	6.6	17.4	43.0	30.5
Level of Service	E	A	A	B	D	C
Approach Delay (s)		23.8	13.1		41.0	
Approach LOS		C	B		D	
Intersection Summary						
HCM Average Control Delay			28.2		HCM Level of Service	C
HCM Volume to Capacity ratio			0.47			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	12.0
Intersection Capacity Utilization			44.8%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

2016 With Project
19: Center & Beach

AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	126	641	0	2556	2718	849
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.88		0.86	0.86	1.00
Flt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	2787		6408	6408	1583
Flt Permitted	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	2787		6408	6408	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	126	641	0	2556	2718	849
RTOR Reduction (vph)	0	1	0	0	0	0
Lane Group Flow (vph)	126	640	0	2556	2718	849
Turn Type	Perm			Free		
Protected Phases	4			2	6	
Permitted Phases		4				Free
Actuated Green, G (s)	34.6	34.6		77.4	77.4	120.0
Effective Green, g (s)	34.6	34.6		77.4	77.4	120.0
Actuated g/C Ratio	0.29	0.29		0.64	0.64	1.00
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	990	804		4133	4133	1583
v/s Ratio Prot	0.04			0.40	0.42	
v/s Ratio Perm		0.23				0.54
v/c Ratio	0.13	0.80		0.62	0.66	0.54
Uniform Delay, d1	31.5	39.4		12.6	13.1	0.0
Progression Factor	0.38	0.32		0.12	1.05	1.00
Incremental Delay, d2	0.0	4.7		0.5	0.5	0.8
Delay (s)	12.0	17.2		2.0	14.3	0.8
Level of Service	B	B		A	B	A
Approach Delay (s)	16.4			2.0	11.1	
Approach LOS	B			A	B	
Intersection Summary						
HCM Average Control Delay			8.3		HCM Level of Service	A
HCM Volume to Capacity ratio			0.70			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	8.0
Intersection Capacity Utilization			68.5%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

2016 With Project
28: Edinger & Beach

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	184	854	109	100	383	284	145	1928	342	569	2340	404
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	*0.90	1.00	0.97	0.95	1.00	0.97	*0.90	1.00	*1.00	0.86	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5029	1583	3433	3539	1583	3433	5029	1583	3539	6408	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5029	1583	3433	3539	1583	3433	5029	1583	3539	6408	2787
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	184	854	109	100	383	284	145	1928	342	569	2340	404
RTOR Reduction (vph)	0	0	3	0	0	221	0	0	62	0	0	141
Lane Group Flow (vph)	184	854	106	100	383	63	145	1928	280	569	2340	263
Turn Type	Prot	pm+ov		Prot	Perm		Prot	Perm		Prot	Perm	
Protected Phases	7	4	5	3	8	5		2	1		6	
Permitted Phases	4			8				2			6	
Actuated Green, G (s)	9.6	23.3	32.0	4.0	17.7	17.7	8.7	55.0	55.0	21.7	68.0	68.0
Effective Green, g (s)	9.6	23.3	32.0	4.0	17.7	17.7	8.7	55.0	55.0	21.7	68.0	68.0
Actuated g/C Ratio	0.08	0.19	0.27	0.03	0.15	0.15	0.07	0.46	0.46	0.18	0.57	0.57
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	275	976	475	114	522	233	249	2305	726	640	3631	1579
v/s Ratio Prot	c0.05	c0.17	0.02	0.03	0.11	0.04		c0.38	c0.16		0.37	
v/s Ratio Perm	0.05			0.04				0.18			0.09	
v/c Ratio	0.67	0.88	0.22	0.88	0.73	0.27	0.58	0.84	0.39	0.89	0.64	0.17
Uniform Delay, d1	53.7	46.9	34.3	57.8	48.9	45.4	53.9	28.5	21.4	48.0	17.7	12.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.05	0.52	0.03
Incremental Delay, d2	6.1	10.8	0.2	47.9	5.3	0.6	3.4	3.8	1.6	11.4	0.7	0.2
Delay (s)	59.7	57.8	34.5	105.6	54.2	46.1	57.3	32.3	22.9	61.8	10.0	0.6
Level of Service	E	E	C	F	D	D	E	C	C	E	A	A
Approach Delay (s)	55.9		57.9				32.5			17.7		
Approach LOS	E		E				C			B		
Intersection Summary												
HCM Average Control Delay			32.2	HCM Level of Service			C					
HCM Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			120.0	Sum of lost time (s)			12.0					
Intersection Capacity Utilization			86.7%	ICU Level of Service			E					
Analysis Period (min)			15									
c Critical Lane Group												

2016 With Project
203: McFadden & Beach

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	261	428	136	416	495	176	184	2198	180	212	2546	279
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	0.97	0.95		0.97	0.95		0.97	0.86		0.97	0.86	
Frt	1.00	0.96		1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3411		3433	3400		3433	6335		3433	6313	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	3411		3433	3400		3433	6335		3433	6313	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	261	428	136	416	495	176	184	2198	180	212	2546	279
RTOR Reduction (vph)	0	26	0	0	30	0	0	11	0	0	15	0
Lane Group Flow (vph)	261	538	0	416	641	0	184	2367	0	212	2810	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	11.0	20.7		16.7	26.4		7.6	56.7		9.9	59.0	
Effective Green, g (s)	11.0	20.7		16.7	26.4		7.6	56.7		9.9	59.0	
Actuated g/C Ratio	0.09	0.17		0.14	0.22		0.06	0.47		0.08	0.49	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	315	588		478	748		217	2993		283	3104	
v/s Ratio Prot	0.08	0.16		c0.12	c0.19		0.05	0.37		c0.06	c0.45	
v/s Ratio Perm												
v/c Ratio	0.83	0.92		0.87	0.86		0.85	0.79		0.75	0.91	
Uniform Delay, d1	53.6	48.8		50.6	45.0		55.6	26.7		53.8	27.9	
Progression Factor	1.00	1.00		1.00	1.00		1.31	0.26		1.00	1.00	
Incremental Delay, d2	16.2	19.0		15.8	9.6		21.2	1.8		10.4	5.0	
Delay (s)	69.8	67.7		66.3	54.6		94.1	8.7		64.2	32.9	
Level of Service	E	E		E	D		F	A		E	C	
Approach Delay (s)		68.4			59.1			14.9			35.1	
Approach LOS		E			E			B			D	
Intersection Summary												
HCM Average Control Delay			35.3			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			88.2%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

2016 With Project
18: Center & I-405 SB Ramps

PM Peak Hour

						
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (vph)	395	212	270	664	978	222
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	395	212	270	664	978	222
RTOR Reduction (vph)	0	0	0	449	0	148
Lane Group Flow (vph)	395	212	270	215	978	74
Turn Type	Prot			Perm		Perm
Protected Phases	1	6	2		8	
Permitted Phases				2		8
Actuated Green, G (s)	30.7	73.5	38.8	38.8	38.5	38.5
Effective Green, g (s)	30.7	73.5	38.8	38.8	38.5	38.5
Actuated g/C Ratio	0.26	0.61	0.32	0.32	0.32	0.32
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	453	2168	1144	512	1101	508
v/s Ratio Prot	c0.22	0.06	0.08		c0.28	
v/s Ratio Perm				c0.14		0.05
v/c Ratio	0.87	0.10	0.24	0.42	0.89	0.15
Uniform Delay, d1	42.8	9.6	29.7	31.8	38.7	29.0
Progression Factor	1.00	1.00	0.66	1.96	1.00	1.00
Incremental Delay, d2	16.6	0.1	0.4	2.2	8.9	0.1
Delay (s)	59.4	9.7	20.0	64.6	47.6	29.2
Level of Service	E	A	B	E	D	C
Approach Delay (s)		42.0	51.7		44.2	
Approach LOS		D	D		D	
Intersection Summary						
HCM Average Control Delay			46.3		HCM Level of Service	D
HCM Volume to Capacity ratio			0.72			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	12.0
Intersection Capacity Utilization			69.7%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

2016 With Project
19: Center & Beach

PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	182	917	0	2846	2428	856
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.88		0.86	0.86	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	2787		6408	6408	1583
Flt Permitted	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	2787		6408	6408	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	182	917	0	2846	2428	856
RTOR Reduction (vph)	0	2	0	0	0	0
Lane Group Flow (vph)	182	915	0	2846	2428	856
Turn Type	Perm			Free		
Protected Phases	4			2	6	
Permitted Phases		4				Free
Actuated Green, G (s)	44.5	44.5		67.5	67.5	120.0
Effective Green, g (s)	44.5	44.5		67.5	67.5	120.0
Actuated g/C Ratio	0.37	0.37		0.56	0.56	1.00
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	1273	1034		3605	3605	1583
v/s Ratio Prot	0.05			0.44	0.38	
v/s Ratio Perm		0.33				0.54
v/c Ratio	0.14	0.89		0.79	0.67	0.54
Uniform Delay, d1	25.1	35.4		20.7	18.5	0.0
Progression Factor	0.21	0.27		0.11	0.89	1.00
Incremental Delay, d2	0.0	6.5		0.6	0.5	0.7
Delay (s)	5.3	16.1		2.9	17.0	0.7
Level of Service	A	B		A	B	A
Approach Delay (s)	14.3			2.9	12.8	
Approach LOS	B			A	B	
Intersection Summary						
HCM Average Control Delay			9.1		HCM Level of Service	A
HCM Volume to Capacity ratio			0.83			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	8.0
Intersection Capacity Utilization			73.9%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

2016 With Project
28: Edinger & Beach

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	346	779	302	216	567	250	468	2401	544	377	2452	762
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	*0.90	1.00	0.97	0.95	1.00	0.97	*0.90	1.00	*1.00	0.86	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5029	1583	3433	3539	1583	3433	5029	1583	3539	6408	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5029	1583	3433	3539	1583	3433	5029	1583	3539	6408	2787
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	346	779	302	216	567	250	468	2401	544	377	2452	762
RTOR Reduction (vph)	0	0	8	0	0	151	0	0	148	0	0	263
Lane Group Flow (vph)	346	779	294	216	567	99	468	2401	396	377	2452	499
Turn Type	Prot	pm+ov		Prot	Perm		Prot	Perm		Prot	Perm	
Protected Phases	7	4	5	3	8	5		2	1		6	
Permitted Phases	4			8				2			6	
Actuated Green, G (s)	12.5	22.0	42.0	12.0	21.5	21.5	20.0	57.0	57.0	13.0	50.0	50.0
Effective Green, g (s)	12.5	22.0	42.0	12.0	21.5	21.5	20.0	57.0	57.0	13.0	50.0	50.0
Actuated g/C Ratio	0.10	0.18	0.35	0.10	0.18	0.18	0.17	0.48	0.48	0.11	0.42	0.42
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	358	922	607	343	634	284	572	2389	752	383	2670	1161
v/s Ratio Prot	c0.10	0.15	0.08	0.06	c0.16	0.14		c0.48	c0.11		0.38	
v/s Ratio Perm	0.11			0.06				0.25			0.18	
v/c Ratio	0.97	0.84	0.48	0.63	0.89	0.35	0.82	1.01	0.53	0.98	0.92	0.43
Uniform Delay, d1	53.5	47.4	30.5	51.9	48.1	43.1	48.2	31.5	22.1	53.4	33.1	24.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.63	0.43
Incremental Delay, d2	38.3	9.4	0.6	3.6	15.0	0.7	8.9	19.6	2.6	35.2	4.9	0.9
Delay (s)	91.9	56.7	31.1	55.5	63.2	43.9	57.1	51.1	24.7	83.8	25.7	11.5
Level of Service	F	E	C	E	E	D	E	D	C	F	C	B
Approach Delay (s)	59.8		56.9				47.7			28.8		
Approach LOS	E		E				D			C		
Intersection Summary												
HCM Average Control Delay			43.4	HCM Level of Service			D					
HCM Volume to Capacity ratio			0.94									
Actuated Cycle Length (s)			120.0	Sum of lost time (s)			12.0					
Intersection Capacity Utilization			96.0%	ICU Level of Service			F					
Analysis Period (min)			15									
c Critical Lane Group												

2016 With Project
203: McFadden & Beach

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	351	501	146	474	540	186	264	2542	276	240	2385	259
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	0.97	0.95		0.97	0.95		0.97	0.86		0.97	0.86	
Frt	1.00	0.97		1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3419		3433	3403		3433	6314		3433	6314	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	3419		3433	3403		3433	6314		3433	6314	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	351	501	146	474	540	186	264	2542	276	240	2385	259
RTOR Reduction (vph)	0	22	0	0	29	0	0	15	0	0	15	0
Lane Group Flow (vph)	351	625	0	474	697	0	264	2803	0	240	2629	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	12.0	21.0		18.0	27.0		10.0	56.0		9.0	55.0	
Effective Green, g (s)	12.0	21.0		18.0	27.0		10.0	56.0		9.0	55.0	
Actuated g/C Ratio	0.10	0.18		0.15	0.22		0.08	0.47		0.08	0.46	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	343	598		515	766		286	2947		257	2894	
v/s Ratio Prot	0.10	c0.18		c0.14	0.20		c0.08	c0.44		0.07	0.42	
v/s Ratio Perm												
v/c Ratio	1.02	1.04		0.92	0.91		0.92	0.95		0.93	0.91	
Uniform Delay, d1	54.0	49.5		50.3	45.3		54.6	30.7		55.2	30.2	
Progression Factor	1.00	1.00		1.00	1.00		1.34	0.31		1.00	1.00	
Incremental Delay, d2	54.7	49.0		21.9	14.9		25.1	6.1		38.4	5.4	
Delay (s)	108.7	98.5		72.2	60.2		98.4	15.5		93.6	35.6	
Level of Service	F	F		E	E		F	B		F	D	
Approach Delay (s)		102.1			64.9			22.6			40.4	
Approach LOS		F			E			C			D	
Intersection Summary												
HCM Average Control Delay			44.8			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.94									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			93.7%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

2030 With Project
18: Center & I-405 SB Ramps

AM Peak Hour

						
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (vph)	61	143	329	560	820	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	61	143	329	560	820	159
RTOR Reduction (vph)	0	0	0	263	0	111
Lane Group Flow (vph)	61	143	329	297	820	48
Turn Type	Prot			Perm		Perm
Protected Phases	1	6	2		8	
Permitted Phases				2		8
Actuated Green, G (s)	8.3	75.9	63.6	63.6	36.1	36.1
Effective Green, g (s)	8.3	75.9	63.6	63.6	36.1	36.1
Actuated g/C Ratio	0.07	0.63	0.53	0.53	0.30	0.30
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	122	2238	1876	839	1033	476
v/s Ratio Prot	c0.03	0.04	0.09		c0.24	
v/s Ratio Perm				c0.19		0.03
v/c Ratio	0.50	0.06	0.18	0.35	0.79	0.10
Uniform Delay, d1	53.8	8.4	14.6	16.3	38.5	30.2
Progression Factor	1.00	1.00	0.49	1.28	1.00	1.00
Incremental Delay, d2	3.2	0.1	0.2	1.1	4.3	0.1
Delay (s)	57.0	8.5	7.3	22.0	42.8	30.3
Level of Service	E	A	A	C	D	C
Approach Delay (s)		23.0	16.6		40.8	
Approach LOS		C	B		D	
Intersection Summary						
HCM Average Control Delay			28.6		HCM Level of Service	C
HCM Volume to Capacity ratio			0.51			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	12.0
Intersection Capacity Utilization			45.9%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

2030 With Project
19: Center & Beach

AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	170	802	0	2940	2850	808
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.88		0.86	0.86	1.00
Flt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	2787		6408	6408	1583
Flt Permitted	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	2787		6408	6408	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	170	802	0	2940	2850	808
RTOR Reduction (vph)	0	1	0	0	0	0
Lane Group Flow (vph)	170	801	0	2940	2850	808
Turn Type	Perm				Free	
Protected Phases	4			2	6	
Permitted Phases		4				Free
Actuated Green, G (s)	41.0	41.0		71.0	71.0	120.0
Effective Green, g (s)	41.0	41.0		71.0	71.0	120.0
Actuated g/C Ratio	0.34	0.34		0.59	0.59	1.00
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	1173	952		3791	3791	1583
v/s Ratio Prot	0.05			0.46	0.44	
v/s Ratio Perm		0.29				0.51
v/c Ratio	0.14	0.84		0.78	0.75	0.51
Uniform Delay, d1	27.4	36.5		18.5	18.0	0.0
Progression Factor	0.30	0.25		0.13	1.16	1.00
Incremental Delay, d2	0.0	5.9		0.8	0.7	0.6
Delay (s)	8.3	14.9		3.2	21.7	0.6
Level of Service	A	B		A	C	A
Approach Delay (s)	13.7			3.2	17.0	
Approach LOS	B			A	B	
Intersection Summary						
HCM Average Control Delay			11.2		HCM Level of Service	B
HCM Volume to Capacity ratio			0.80			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	8.0
Intersection Capacity Utilization			76.0%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

2030 With Project
28: Edinger & Beach

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	180	910	141	100	379	300	141	2280	430	635	2587	420
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	*0.90	1.00	0.97	0.95	1.00	0.97	*0.90	1.00	*1.00	0.86	0.88
Flt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5029	1583	3433	3539	1583	3433	5029	1583	3539	6408	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5029	1583	3433	3539	1583	3433	5029	1583	3539	6408	2787
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	180	910	141	100	379	300	141	2280	430	635	2587	420
RTOR Reduction (vph)	0	0	2	0	0	220	0	0	60	0	0	137
Lane Group Flow (vph)	180	910	139	100	379	80	141	2280	370	635	2587	283
Turn Type	Prot	pm+ov		Prot	Perm		Prot	Perm		Prot	Perm	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	9.7	23.0	32.0	4.0	17.3	17.3	9.0	55.0	55.0	22.0	68.0	68.0
Effective Green, g (s)	9.7	23.0	32.0	4.0	17.3	17.3	9.0	55.0	55.0	22.0	68.0	68.0
Actuated g/C Ratio	0.08	0.19	0.27	0.03	0.14	0.14	0.08	0.46	0.46	0.18	0.57	0.57
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	278	964	475	114	510	228	257	2305	726	649	3631	1579
v/s Ratio Prot	c0.05	c0.18	0.02	0.03	0.11		0.04	c0.45		c0.18	0.40	
v/s Ratio Perm			0.07			0.05			0.23			0.10
v/c Ratio	0.65	0.94	0.29	0.88	0.74	0.35	0.55	0.99	0.51	0.98	0.71	0.18
Uniform Delay, d1	53.5	47.9	35.0	57.8	49.2	46.3	53.5	32.2	23.0	48.8	18.9	12.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.44	0.08
Incremental Delay, d2	5.1	18.3	0.3	47.9	5.8	0.9	2.4	16.4	2.5	22.9	0.8	0.2
Delay (s)	58.6	66.1	35.3	105.6	55.0	47.2	55.9	48.6	25.5	69.5	9.2	1.2
Level of Service	E	E	D	F	E	D	E	D	C	E	A	A
Approach Delay (s)		61.5			58.5			45.5			18.8	
Approach LOS		E			E			D			B	
Intersection Summary												
HCM Average Control Delay			37.5				HCM Level of Service			D		
HCM Volume to Capacity ratio			0.94									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			96.4%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

2030 With Project
203: McFadden & Beach

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	255	466	140	460	479	180	180	2390	220	220	2670	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	0.97	0.95		0.97	0.95		0.97	0.86		0.97	0.86	
Frt	1.00	0.97		1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3417		3433	3394		3433	6327		3433	6315	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	3417		3433	3394		3433	6327		3433	6315	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	255	466	140	460	479	180	180	2390	220	220	2670	285
RTOR Reduction (vph)	0	23	0	0	33	0	0	12	0	0	15	0
Lane Group Flow (vph)	255	583	0	460	626	0	180	2598	0	220	2940	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	11.0	21.0		17.0	27.0		7.0	56.1		9.9	59.0	
Effective Green, g (s)	11.0	21.0		17.0	27.0		7.0	56.1		9.9	59.0	
Actuated g/C Ratio	0.09	0.18		0.14	0.22		0.06	0.47		0.08	0.49	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	315	598		486	764		200	2958		283	3105	
v/s Ratio Prot	0.07	c0.17		c0.13	0.18		0.05	0.41		c0.06	c0.47	
v/s Ratio Perm												
v/c Ratio	0.81	0.97		0.95	0.82		0.90	0.88		0.78	0.95	
Uniform Delay, d1	53.5	49.2		51.0	44.2		56.2	28.9		54.0	29.0	
Progression Factor	1.00	1.00		1.00	1.00		1.36	0.26		1.00	1.00	
Incremental Delay, d2	14.2	30.2		27.6	6.9		27.6	2.7		12.6	7.8	
Delay (s)	67.6	79.5		78.6	51.1		103.9	10.1		66.6	36.8	
Level of Service	E	E		E	D		F	B		E	D	
Approach Delay (s)		76.0			62.4			16.2			38.9	
Approach LOS		E			E			B			D	
Intersection Summary												
HCM Average Control Delay			38.2			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.95									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			92.4%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

2030 With Project
18: Center & I-405 SB Ramps

PM Peak Hour

						
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (vph)	423	212	288	700	1010	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	423	212	288	700	1010	235
RTOR Reduction (vph)	0	0	0	446	0	150
Lane Group Flow (vph)	423	212	288	254	1010	85
Turn Type	Prot			Perm		Perm
Protected Phases	1	6	2		8	
Permitted Phases				2		8
Actuated Green, G (s)	31.6	73.7	38.1	38.1	38.3	38.3
Effective Green, g (s)	31.6	73.7	38.1	38.1	38.3	38.3
Actuated g/C Ratio	0.26	0.61	0.32	0.32	0.32	0.32
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	466	2174	1124	503	1096	505
v/s Ratio Prot	c0.24	0.06	0.08		c0.29	
v/s Ratio Perm				c0.16		0.05
v/c Ratio	0.91	0.10	0.26	0.50	0.92	0.17
Uniform Delay, d1	42.8	9.5	30.4	33.3	39.4	29.4
Progression Factor	1.00	1.00	0.66	1.39	1.00	1.00
Incremental Delay, d2	21.1	0.1	0.4	2.9	12.4	0.2
Delay (s)	63.9	9.6	20.5	49.1	51.8	29.5
Level of Service	E	A	C	D	D	C
Approach Delay (s)		45.8	40.8		47.6	
Approach LOS		D	D		D	
Intersection Summary						
HCM Average Control Delay			44.9		HCM Level of Service	D
HCM Volume to Capacity ratio			0.77			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	12.0
Intersection Capacity Utilization			73.4%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

2030 With Project
19: Center & Beach

PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	162	981	0	3050	2620	966
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.88		0.86	0.86	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	2787		6408	6408	1583
Flt Permitted	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	2787		6408	6408	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	162	981	0	3050	2620	966
RTOR Reduction (vph)	0	1	0	0	0	0
Lane Group Flow (vph)	162	980	0	3050	2620	966
Turn Type	Perm			Free		
Protected Phases	4			2	6	
Permitted Phases		4				Free
Actuated Green, G (s)	46.1	46.1		65.9	65.9	120.0
Effective Green, g (s)	46.1	46.1		65.9	65.9	120.0
Actuated g/C Ratio	0.38	0.38		0.55	0.55	1.00
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	1319	1071		3519	3519	1583
v/s Ratio Prot	0.05			0.48	0.41	
v/s Ratio Perm		0.35				0.61
v/c Ratio	0.12	0.91		0.87	0.74	0.61
Uniform Delay, d1	23.9	35.1		23.3	20.6	0.0
Progression Factor	0.21	0.24		0.14	0.89	1.00
Incremental Delay, d2	0.0	8.0		0.3	0.6	0.7
Delay (s)	5.1	16.5		3.5	19.0	0.7
Level of Service	A	B		A	B	A
Approach Delay (s)	14.9			3.5	14.1	
Approach LOS	B			A	B	
Intersection Summary						
HCM Average Control Delay			10.1		HCM Level of Service	B
HCM Volume to Capacity ratio			0.89			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	8.0
Intersection Capacity Utilization			79.0%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

2030 With Project
28: Edinger & Beach

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	370	771	321	280	657	290	571	2601	640	409	2632	910
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	*0.90	1.00	0.97	0.95	1.00	0.97	*0.90	1.00	*1.00	0.86	0.88
Flt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5029	1583	3433	3539	1583	3433	5029	1583	3539	6408	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5029	1583	3433	3539	1583	3433	5029	1583	3539	6408	2787
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	370	771	321	280	657	290	571	2601	640	409	2632	910
RTOR Reduction (vph)	0	0	3	0	0	149	0	0	148	0	0	275
Lane Group Flow (vph)	370	771	318	280	657	141	571	2601	492	409	2632	635
Turn Type	Prot	pm+ov		Prot	Perm		Prot	Perm		Prot	Perm	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	12.0	22.0	42.0	12.0	22.0	22.0	20.0	57.0	57.0	13.0	50.0	50.0
Effective Green, g (s)	12.0	22.0	42.0	12.0	22.0	22.0	20.0	57.0	57.0	13.0	50.0	50.0
Actuated g/C Ratio	0.10	0.18	0.35	0.10	0.18	0.18	0.17	0.48	0.48	0.11	0.42	0.42
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	343	922	607	343	649	290	572	2389	752	383	2670	1161
v/s Ratio Prot	c0.11	0.15	0.09	0.08	c0.19		c0.17	c0.52		0.12	0.41	
v/s Ratio Perm			0.11			0.09			0.31			0.23
v/c Ratio	1.08	0.84	0.52	0.82	1.01	0.48	1.00	1.09	0.65	1.07	0.99	0.55
Uniform Delay, d1	54.0	47.3	31.0	52.9	49.0	43.9	50.0	31.5	24.0	53.5	34.6	26.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.87	0.69	0.56
Incremental Delay, d2	71.2	8.9	0.8	13.9	38.4	1.3	36.9	47.7	4.4	57.5	11.5	1.3
Delay (s)	125.2	56.2	31.9	66.8	87.4	45.2	86.9	79.2	28.4	104.3	35.6	16.1
Level of Service	F	E	C	E	F	D	F	E	C	F	D	B
Approach Delay (s)		68.3			72.7			71.8			38.2	
Approach LOS		E			E			E			D	
Intersection Summary												
HCM Average Control Delay			58.7			HCM Level of Service			E			
HCM Volume to Capacity ratio			1.04									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			104.0%			ICU Level of Service			G			
Analysis Period (min)			15									
c Critical Lane Group												

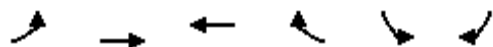
2030 With Project
203: McFadden & Beach

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	345	528	150	530	573	190	260	2682	280	240	2581	271
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	0.97	0.95		0.97	0.95		0.97	0.86		0.97	0.86	
Frt	1.00	0.97		1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3422		3433	3407		3433	6317		3433	6317	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	3422		3433	3407		3433	6317		3433	6317	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	345	528	150	530	573	190	260	2682	280	240	2581	271
RTOR Reduction (vph)	0	21	0	0	27	0	0	14	0	0	15	0
Lane Group Flow (vph)	345	657	0	530	736	0	260	2948	0	240	2837	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	12.0	21.0		18.0	27.0		10.0	56.0		9.0	55.0	
Effective Green, g (s)	12.0	21.0		18.0	27.0		10.0	56.0		9.0	55.0	
Actuated g/C Ratio	0.10	0.18		0.15	0.22		0.08	0.47		0.08	0.46	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	343	599		515	767		286	2948		257	2895	
v/s Ratio Prot	0.10	c0.19		c0.15	0.22		c0.08	c0.47		0.07	0.45	
v/s Ratio Perm												
v/c Ratio	1.01	1.10		1.03	0.96		0.91	1.00		0.93	0.98	
Uniform Delay, d1	54.0	49.5		51.0	46.0		54.5	32.0		55.2	32.0	
Progression Factor	1.00	1.00		1.00	1.00		1.37	0.26		1.00	1.00	
Incremental Delay, d2	50.1	65.8		47.3	22.7		19.2	12.1		38.4	12.7	
Delay (s)	104.1	115.3		98.3	68.7		93.9	20.3		93.6	44.6	
Level of Service	F	F		F	E		F	C		F	D	
Approach Delay (s)		111.5			80.8			26.2			48.4	
Approach LOS		F			F			C			D	
Intersection Summary												
HCM Average Control Delay			52.5			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.99									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			98.2%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

Project Driveway - Year 2016
1: Center Ave & Project Driveway

AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	6	230	240	1	1	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	6	230	240	1	1	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLT	TL			
Median storage (veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	241				368	120
vC1, stage 1 conf vol					240	
vC2, stage 2 conf vol					127	
vCu, unblocked vol	241				368	120
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	99
cM capacity (veh/h)	1323				725	908
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	6	115	115	160	81	6
Volume Left	6	0	0	0	0	1
Volume Right	0	0	0	0	1	5
cSH	1323	1700	1700	1700	1700	872
Volume to Capacity	0.00	0.07	0.07	0.09	0.05	0.01
Queue Length 95th (ft)	0	0	0	0	0	1
Control Delay (s)	7.7	0.0	0.0	0.0	0.0	9.2
Lane LOS	A					A
Approach Delay (s)	0.2			0.0		9.2
Approach LOS						A
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			16.7%		ICU Level of Service	A
Analysis Period (min)			15			

Project Driveway - Year 2016
1: Center Ave & Project Driveway

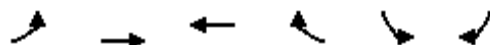
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	24	290	335	5	6	27
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	24	290	335	5	6	27
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLT	TWLT			
Median storage (veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	340				530	170
vC1, stage 1 conf vol					338	
vC2, stage 2 conf vol					193	
vCu, unblocked vol	340				530	170
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	98				99	97
cM capacity (veh/h)	1216				631	844
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	24	145	145	223	117	33
Volume Left	24	0	0	0	0	6
Volume Right	0	0	0	0	5	27
cSH	1216	1700	1700	1700	1700	795
Volume to Capacity	0.02	0.09	0.09	0.13	0.07	0.04
Queue Length 95th (ft)	2	0	0	0	0	3
Control Delay (s)	8.0	0.0	0.0	0.0	0.0	9.7
Lane LOS	A					A
Approach Delay (s)	0.6			0.0		9.7
Approach LOS						A
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			26.1%		ICU Level of Service	A
Analysis Period (min)			15			

Project Driveway - Year 2030
1: Center Ave & Project Driveway

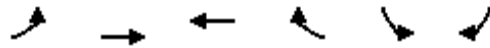
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	6	270	290	1	1	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	6	270	290	1	1	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLT	TWLT			
Median storage (veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	291				438	146
vC1, stage 1 conf vol					290	
vC2, stage 2 conf vol					147	
vCu, unblocked vol	291				438	146
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	99
cM capacity (veh/h)	1268				682	875
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	6	135	135	193	98	6
Volume Left	6	0	0	0	0	1
Volume Right	0	0	0	0	1	5
cSH	1268	1700	1700	1700	1700	836
Volume to Capacity	0.00	0.08	0.08	0.11	0.06	0.01
Queue Length 95th (ft)	0	0	0	0	0	1
Control Delay (s)	7.9	0.0	0.0	0.0	0.0	9.3
Lane LOS	A					A
Approach Delay (s)	0.2			0.0		9.3
Approach LOS						A
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			18.0%		ICU Level of Service	A
Analysis Period (min)			15			

Project Driveway - Year 2030
1: Center Ave & Project Driveway

PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	24	350	360	5	6	27
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	24	350	360	5	6	27
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLT	TWLT			
Median storage (veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	365				586	182
vC1, stage 1 conf vol					362	
vC2, stage 2 conf vol					223	
vCu, unblocked vol	365				586	182
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	98				99	97
cM capacity (veh/h)	1190				605	829
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	24	175	175	240	125	33
Volume Left	24	0	0	0	0	6
Volume Right	0	0	0	0	5	27
cSH	1190	1700	1700	1700	1700	777
Volume to Capacity	0.02	0.10	0.10	0.14	0.07	0.04
Queue Length 95th (ft)	2	0	0	0	0	3
Control Delay (s)	8.1	0.0	0.0	0.0	0.0	9.8
Lane LOS	A					A
Approach Delay (s)	0.5			0.0		9.8
Approach LOS						A
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			26.8%		ICU Level of Service	A
Analysis Period (min)			15			

Appendix D

DERIVATION OF TRIP RATES FOR SKATE PARK

This section discusses the derivation of the trip generation rates for the Skate Park land use. Traffic counts were performed for three local skate parks in Orange County: Etnies, Lake Forest; Tewinkle, Costa Mesa; and Laguna Hill Skate Park, Laguna Hills. A review of the traffic data showed that the Etnies skate park in Lake Forest would be consistent with the planned uses for the proposed Center Avenue skate park and this data was then used to derive the trip rates. Table D-1 summarizes the traffic data that was used to derive the trip rates, followed by the traffic count worksheets.

Table D-1
DERIVATION OF TRIP RATES FOR SKATE PARK

Day of Week	Count Date	AM Peak Hour			PM Peak Hour			ADT
		In	Out	TOTAL	In	Out	Total	
WEEKDAY								
Monday	2/7/2011	7	6	13	27	30	57	402
Friday	2/4/2011	--	--	--	28	34	62	--
WEEKDAY AVERAGE		7			28	32	60	402
Weekday Trip Rate	TSF	0.16	0.14	0.30	0.63	0.73	1.36	9.14
Weekend								
Saturday	2/5/2011	35	34	69	42	36	78	749
Sunday	2/6/2011	51	44	95	21	25	46	713
WEEKEND AVERAGE		43	39	82	32	31	62	731
Weekend Trip Rate	TSF	0.98	0.89	1.86	0.72	0.69	1.41	16.61
SUMMER WEEKDAY								
Thursday	6/30/2011	1	4	5	12	13	25	--
Tuesday	7/5/2011	5	4	9	19	18	37	414
Wednesday	7/6/2011	8	13	21	8	9	17	536
Thursday	7/7/2011	2	10	12	14	25	39	601
SUMMER AVERAGE		4	8	12	13	16	30	517
Summer Trip Rate	TSF	0.09	0.18	0.27	0.30	0.37	0.67	11.75

Note: Site surveyed is Etnies Skate Park, Lake Forest (44,000 sq. ft. of skate park)

AM Peak Hour of Adjacent Street Traffic = 7 – 9 AM

PM Peak Hour of Adjacent Street Traffic = 4 – 6 PM

Weekend counts show a mid-day peak hour, however peak hour of adjacent street traffic time frame was used in this analysis to maintain consistency.

Table D-2
Existing (2011) Weekday to Weekend Conversion Factors

Location	North Leg					East Leg					South Leg					West Leg				
	SBL	SBT	SBR	SB	NB	WBL	WBT	SBR	WB	EB	NBL	NBT	NBR	NB	SB	EBL	EBT	EBR	EB	WB
AM Peak Hour																				
2010 Weekday																				
Goldenwest St & Mcfadden	220	1490	70	1780	1300	180	550	140	870	810	100	1020	70	1190	1860	140	520	190	850	720
Gothard St & Center Ave	90	350	40	480	410	80	50	40	170	190	70	360	90	520	450	10	10	20	40	160
Goldenwest St Edinger Ave	190	1110	110	1410	1360	60	480	80	620	1290	130	1130	100	1360	1280	150	1000	110	1260	720
Gothard St & Edinger Ave	30	250	60	340	470	90	750	60	900	1070	110	340	100	550	490	70	940	150	1160	920
2010 Weekend																				
Goldenwest St & Mcfadden	250	1320	80	1650	1770	170	310	220	700	880	90	1400	150	1640	1570	150	480	80	710	480
Gothard St & Center Ave	160	230	20	410	530	220	20	100	340	340	10	390	160	560	460	40	20	10	70	50
Goldenwest St Edinger Ave	370	1190	150	1710	1530	160	640	360	1160	1380	120	1010	170	1300	1450	160	840	100	1100	910
Gothard St & Edinger Ave	160	340	130	630	620	160	1070	160	1390	1560	120	360	250	730	640	100	1150	140	1390	1320
Increase																				
Goldenwest St & Mcfadden	14%	-11%	14%	-7%	36%	-6%	-44%	57%	-20%	9%	-10%	37%	114%	38%	-16%	7%	-8%	-58%	-16%	-33%
Gothard St & Center Ave	78%	-34%	-50%	-15%	29%	175%	-60%	150%	100%	79%	-86%	8%	78%	8%	2%	300%	100%	-50%	75%	-69%
Goldenwest St Edinger Ave	95%	7%	36%	21%	13%	167%	33%	350%	87%	7%	-8%	-11%	70%	-4%	13%	7%	-16%	-9%	-13%	26%
Gothard St & Edinger Ave	433 %	36%	117%	85%	32%	78%	43%	167%	124%	21%	9%	6%	150%	33%	31%	43%	22%	-7%	10%	83%
PM Peak Hour																				
2010 Weekday																				
Goldenwest St & Mcfadden	180	1480	70	1730	1740	220	470	290	980	860	100	1310	100	1510	1830	140	580	130	850	640
Gothard St & Center Ave	130	310	10	450	790	180	20	140	340	280	30	630	100	760	510	20	50	20	90	60
Goldenwest St Edinger Ave	210	1060	100	1370	1480	140	720	230	1090	960	160	1130	80	1370	1360	120	670	160	950	980
Gothard St & Edinger Ave	100	350	150	600	850	140	980	100	1220	1200	140	670	220	1030	630	80	880	140	1100	1270
2010 Weekend																				
Goldenwest St & Mcfadden	250	1320	80	1650	1770	170	310	220	700	880	90	1400	150	1640	1570	150	480	80	710	480

Table D-2
Existing (2011) Weekday to Weekend Conversion Factors

Location	North Leg					East Leg					South Leg					West Leg				
	SBL	SBT	SBR	SB	NB	WBL	WBT	SBR	WB	EB	NBL	NBT	NBR	NB	SB	EBL	EBT	EBR	EB	WB
Gothard St & Center Ave	160	230	20	410	530	220	20	100	340	340	10	390	160	560	460	40	20	10	70	50
Goldenwest St Edinger Ave	370	1190	150	1710	1530	160	640	360	1160	1380	120	1010	170	1300	1450	160	840	100	1100	910
Gothard St & Edinger Ave	160	340	130	630	620	160	1070	160	1390	1560	120	360	250	730	640	100	1150	140	1390	1320
Increase																				
Goldenwest St & Mcfadden	39%	-11%	14%	-5%	2%	-23%	-34%	-24%	-29%	2%	-10%	7%	50%	9%	-14%	7%	-17%	-38%	-16%	-25%
Gothard St & Center Ave	23%	-26%	100%	-9%	-33%	22%	0%	-29%	0%	21%	-67%	-38%	60%	-26%	-10%	100%	-60%	-50%	-22%	-17%
Goldenwest St Edinger Ave	76%	12%	50%	25%	3%	14%	-11%	57%	6%	44%	-25%	-11%	113%	-5%	7%	33%	25%	-38%	16%	-7%
Gothard St & Edinger Ave	60%	-3%	-13%	5%	-27%	14%	9%	60%	14%	30%	-14%	-46%	14%	-29%	2%	25%	31%	0%	26%	4%

Table D-3
2035 WEEKDAY TO WEEKEND CONVERSION FACTORS

Location	North Leg					East Leg					South Leg					West Leg				
	SBL	SBT	SBR	SB	NB	WBL	WBT	SBR	WB	EB	NBL	NBT	NBR	NB	SB	EBL	EBT	EBR	EB	WB
AM Peak Hour																				
2035 Weekday																				
Goldenwest St & Mcfadden	230	1600	80	1910	1687	220	570	187	977	817	120	1340	80	1540	2020	160	507	200	867	770
Gothard St & Center Ave	140	473	130	743	533	80	96	110	286	250	170	383	100	653	573	40	10	20	70	396
Goldenwest St Edinger Ave	170	1330	120	1620	1610	79	757	120	956	1269	170	1320	150	1640	1519	170	949	110	1229	1047
Gothard St & Edinger Ave	90	388	245	723	753	100	1130	89	1319	1200	120	565	120	805	598	99	990	110	1199	1495
2035 Weekend																				
Goldenwest St & Mcfadden	261	1417	91	1770	2305	208	321	294	823	901	108	1839	171	2119	1709	171	468	84	724	521
Gothard St & Center Ave	249	311	65	625	655	220	38	170	428	447	24	415	178	617	541	70	20	10	100	128
Goldenwest St Edinger Ave	331	1426	164	1921	1761	180	1009	400	1589	1383	157	1180	255	1592	1706	181	797	100	1078	1330
Gothard St & Edinger Ave	220	528	315	1063	929	178	1612	189	1979	1731	131	598	300	1029	808	141	1211	103	1455	2058
Increase																				
Goldenwest St & Mcfadden	14%	-11%	14%	-7%	36%	-6%	-44%	57%	-20%	9%	-10%	37%	114%	38%	-16%	7%	-8%	-58%	-16%	-33%
Gothard St & Center Ave	78%	-34%	-50%	-15%	29%	175%	-60%	150%	100%	79%	-86%	8%	78%	8%	2%	300%	100%	-50%	75%	-69%
Goldenwest St Edinger Ave	95%	7%	36%	21%	13%	167%	33%	350%	87%	7%	-8%	-11%	70%	-4%	13%	7%	-16%	-9%	-13%	26%
Gothard St & Edinger Ave	433 %	36%	117%	85%	32%	78%	43%	167%	124%	21%	9%	6%	150%	33%	31%	43%	22%	-7%	10%	83%
PM Peak Hour																				
2035 Weekday																				
Goldenwest St & Mcfadden	202	1730	70	2002	2039	230	456	269	955	959	110	1620	160	1890	2100	150	597	140	887	636
Gothard St & Center Ave	300	330	20	650	910	164	29	140	333	427	30	660	80	770	524	110	47	30	187	79
Goldenwest St Edinger Ave	200	1150	120	1470	1740	150	847	300	1297	1148	170	1190	99	1459	1460	250	849	160	1259	1137
Gothard St & Edinger Ave	57	471	147	675	780	150	1360	82	1592	1447	210	600	230	1040	771	98	1160	150	1408	1717
2035 Weekend																				
Goldenwest St & Mcfadden	281	1543	80	1904	2096	178	301	204	683	1015	99	1731	240	2070	1807	161	494	86	741	480

Table D-3
2035 WEEKDAY TO WEEKEND CONVERSION FACTORS

Location	North Leg					East Leg					South Leg					West Leg				
	SBL	SBT	SBR	SB	NB	WBL	WBT	SBR	WB	EB	NBL	NBT	NBR	NB	SB	EBL	EBT	EBR	EB	WB
Gothard St & Center Ave	369	245	40	654	729	200	29	100	329	516	10	409	128	547	460	220	19	15	254	79
Goldenwest St Edinger Ave	352	1291	180	1823	1867	171	753	470	1394	1627	128	1064	210	1402	1562	333	1064	100	1498	1060
Gothard St & Edinger Ave	91	458	127	676	576	171	1485	131	1788	1868	180	322	261	764	779	123	1516	150	1788	1792
Increase																				
Goldenwest St & Mcfadden	39%	-11%	14%	-5%	2%	-23%	-34%	-24%	-29%	2%	-10%	7%	50%	9%	-14%	7%	-17%	-38%	-16%	-25%
Gothard St & Center Ave	23%	-26%	100%	-9%	-33%	22%	0%	-29%	0%	21%	-67%	-38%	60%	-26%	-10%	100%	-60%	-50%	-22%	-17%
Goldenwest St Edinger Ave	76%	12%	50%	25%	3%	14%	-11%	57%	6%	44%	-25%	-11%	113%	-5%	7%	33%	25%	-38%	16%	-7%
Gothard St & Edinger Ave	60%	-3%	-13%	5%	-27%	14%	9%	60%	14%	30%	-14%	-46%	14%	-29%	2%	25%	31%	0%	26%	4%

2223 WELLINGTON ST 315
SANTA ANA CA 92701

STREET : ETNIES SKATEPARK
: ENTRANCE
CITY : LAKE FOREST

Site: 021103.003
Date: 02/04/11

Interval	EB		WB		Combined		Day:	Friday
Begin	AM	PM	AM	PM	AM	PM		
12:00	*	*	*	*	*	*		
12:15	*	*	*	*	*	*		
12:30	*	*	*	*	*	*		
12:45	*	*	*	*	*	*		
01:00	*	*	*	*	*	*		
01:15	*	*	*	*	*	*		
01:30	*	*	*	*	*	*		
01:45	*	*	*	*	*	*		
02:00	*	*	*	*	*	*		
02:15	*	*	*	*	*	*		
02:30	*	6	*	12	*	18		
02:45	*	12	*	10	*	22		
03:00	*	5	13	10	20	15	33	
03:15	*	2	*	3	*	5		
03:30	*	4	*	2	*	6		
03:45	*	2	*	5	*	7		
04:00	*	2	20	2	13	4	33	
04:15	*	6	*	4	*	10		
04:30	*	1	*	2	*	3		
04:45	*	11	*	5	*	16		
05:00	*	5	28	8	34	13	62	
05:15	*	12	*	16	*	28		
05:30	*	8	*	10	*	18		
05:45	*	3	*	0	*	3		
06:00	*	7	24	8	29	15	53	
06:15	*	1	*	3	*	4		
06:30	*	8	*	12	*	20		
06:45	*	8	*	6	*	14		
07:00	*	12	28	14	28	26	56	
07:15	*	14	*	11	*	25		
07:30	*	0	*	2	*	2		
07:45	*	2	*	1	*	3		
08:00	*	7	39	4	38	11	77	
08:15	*	6	*	8	*	14		
08:30	*	12	*	14	*	26		
08:45	*	14	*	12	*	26		
09:00	*	18	29	18	28	36	57	
09:15	*	7	*	4	*	11		
09:30	*	2	*	4	*	6		
09:45	*	2	*	2	*	4		
10:00	*	7	10	12	17	19	27	
10:15	*	2	*	4	*	6		
10:30	*	1	*	1	*	2		
10:45	*	0	*	0	*	0		
11:00	*	0	0	0	0	0	0	
11:15	*	0	*	0	*	0		
11:30	*	0	*	0	*	0		
11:45	*	0	*	0	*	0		
Totals	0	209	0	229	0	438		
Split%	*	47.7	*	52.3				
Day Totals		209		229		438		
Day Splits		47.7		52.3				
Peak Hour	*	08:30	*	08:15	*	08:15		
Volume	*	51	*	52	*	102		
Factor	*	0.71	*	0.72	*	0.71		

2223 WELLINGTON ST 315
SANTA ANA CA 92701

STREET : ETNIES SKATEPARK
: ENTRANCE
CITY : LAKE FOREST

Site: 021103.003
Date: 02/05/11

Interval	EB				WB				Combined				Day:	Saturday
Begin	AM		PM		AM		PM		AM		PM			
12:00	0	0	4	35	0	0	5	34	0	0	9	69		
12:15	0		16		0		10		0		26			
12:30	0		6		0		9		0		15			
12:45	0		9		0		10		0		19			
01:00	0	0	8	28	0	0	9	32	0	0	17	60		
01:15	0		9		0		7		0		16			
01:30	0		5		0		8		0		13			
01:45	0		6		0		8		0		14			
02:00	0	0	4	23	0	0	4	15	0	0	8	38		
02:15	0		5		0		4		0		9			
02:30	0		12		0		6		0		18			
02:45	0		2		0		1		0		3			
03:00	0	0	6	34	0	0	4	21	0	0	10	55		
03:15	0		14		0		6		0		20			
03:30	0		7		0		5		0		12			
03:45	0		7		0		6		0		13			
04:00	0	0	8	42	0	0	2	36	0	0	10	78		
04:15	0		14		0		18		0		32			
04:30	0		10		0		2		0		12			
04:45	0		10		0		14		0		24			
05:00	0	0	12	30	0	0	11	33	0	0	23	63		
05:15	0		15		0		16		0		31			
05:30	0		0		0		2		0		2			
05:45	0		3		0		4		0		7			
06:00	2	2	6	20	2	2	12	34	4	4	18	54		
06:15	0		4		0		8		0		12			
06:30	0		6		0		6		0		12			
06:45	0		4		0		8		0		12			
07:00	0	1	1	22	0	2	1	17	0	3	2	39		
07:15	0		8		0		8		0		16			
07:30	1		12		2		6		3		18			
07:45	0		1		0		2		0		3			
08:00	3	15	3	21	4	11	2	10	7	26	5	31		
08:15	0		1		0		2		0		3			
08:30	1		9		1		4		2		13			
08:45	11		8		6		2		17		10			
09:00	8	19	7	26	5	17	7	25	13	36	14	51		
09:15	4		4		6		4		10		8			
09:30	3		6		2		6		5		12			
09:45	4		9		4		8		8		17			
10:00	8	42	4	11	4	30	12	19	12	72	16	30		
10:15	12		7		6		7		18		14			
10:30	14		0		16		0		30		0			
10:45	8		0		4		0		12		0			
11:00	8	19	0	0	11	21	0	0	19	40	0	0		
11:15	4		0		6		0		10		0			
11:30	5		0		4		0		9		0			
11:45	2		0		0		0		2		0			
Totals	98		292		83		276		181		568			
Split%	54.1		51.4		45.9		48.6							

Day Totals	390				359				749			
Day Splits	52.1				47.9							
Peak Hour	10:00		04:30		10:15		04:15		10:15		04:15	
Volume	42		47		37		45		79		91	
Factor	0.75		0.78		0.58		0.63		0.66		0.71	

EB = in
WB = out

2223 WELLINGTON ST 315
SANTA ANA CA 92701

STREET : ETNIES SKATEPARK
: ENTRANCE
CITY : LAKE FOREST

Site: 021103.003
Date: 02/07/11

Interval	EB (IN)				WB (OUT)				Combined				Day:	Monday
Begin	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM		
12:00	0	0	0	8	0	0	4	10	0	0	4	18		
12:15	0	0	0		0	0	0		0	0	0			
12:30	0	2			0	0	0		0		2			
12:45	0	6			0	0	6		0		12			
01:00	0	0	4	13	0	0	2	10	0	0	6	23		
01:15	0	4			0		4		0		8			
01:30	0	4			0		3		0		7			
01:45	0	1			0		1		0		2			
02:00	0	0	6	13	0	0	10	19	0	0	16	32		
02:15	0	3			0		2		0		5			
02:30	0	2			0		5		0		7			
02:45	0	2			0		2		0		4			
03:00	0	0	6	23	0	0	6	17	0	0	12	40		
03:15	0	4			0		2		0		6			
03:30	0	8			0		3		0		11			
03:45	0	5			0		6		0		11			
04:00	0	0	2	14	0	0	2	15	0	0	4	29		
04:15	0	6			0		2		0		8			
04:30	0	4			0		10		0		14			
04:45	0	2			0		1		0		3			
05:00	0	0	8	27	0	0	4	30	0	0	12	57		
05:15	0	8			0		8		0		16			
05:30	0	5			0		8		0		13			
05:45	0	6			0		10		0		16			
06:00	0	5	6	12	2	9	6	15	2	14	12	27		
06:15	1	4			2		6		3		10			
06:30	2	2			2		3		4		5			
06:45	2	0			3		0		5		0			
07:00	2	4	0	3	0	2	0	3	2	6	0	6		
07:15	0	2			2		2		2		4			
07:30	2	1			0		0		2		1			
07:45	0	0			0		1		0		1			
08:00	0	7	1	17	0	6	3	20	0	13	4	37		
08:15	5	6			2		3		7		9			
08:30	0	4			2		6		2		10			
08:45	2	6			2		8		4		14			
09:00	6	15	4	4	2	10	6	6	8	25	10	10		
09:15	3	0			6		0		9		0			
09:30	2	0			2		0		4		0			
09:45	4	0			0		0		4		0			
10:00	2	9	0	0	6	12	0	0	8	21	0	0		
10:15	4	0			4		0		8		0			
10:30	0	0			0		0		0		0			
10:45	3	0			2		0		5		0			
11:00	4	22	0	0	0	22	0	0	4	44	0	0		
11:15	6	0			2		0		8		0			
11:30	6	0			8		0		14		0			
11:45	6	0			12		0		18		0			
Totals	62	134			61	145			123	279				
Split%	50.4	48.0			49.6	52.0								

Day Totals 196 206 402
Day Splits 48.8 51.2

Peak Hour 11:00 05:00 11:00 05:15 11:00 05:00
Volume 22 27 22 32 44 57
Factor 0.92 0.84 0.46 0.80 0.61 0.89

TRAFFIC DATA SERVICES INC.

2223 WELLINGTON ST 315

SANTA ANA CA 92701

STREET : SKATE PARK DRWY E/O

: LAKE FOREST DR

CITY : LAKE FOREST

Site: 071101.001

Date: 06/30/11

Interval	EB			WB			Combined			Day:	Thursday
Begin	AM	PM		AM	PM		AM	PM			
12:00	*	2	9	*	2	6	*	4	15		
12:15	*	4		*	1		*	5			
12:30	*	2		*	1		*	3			
12:45	*	1		*	2		*	3			
01:00	*	2	19	*	4	20	*	6	39		
01:15	*	6		*	6		*	12			
01:30	*	3		*	2		*	5			
01:45	*	8		*	8		*	16			
02:00	*	8	27	*	10	19	*	18	46		
02:15	*	6		*	2		*	8			
02:30	*	2		*	2		*	4			
02:45	*	11		*	5		*	16			
03:00	*	6	16	*	4	11	*	10	27		
03:15	*	2		*	4		*	6			
03:30	*	2		*	0		*	2			
03:45	*	6		*	3		*	9			
04:00	*	2	12	*	4	13	*	6	25		
04:15	*	2		*	0		*	2			
04:30	*	0		*	1		*	1			
04:45	*	8		*	8		*	16			
05:00	*	2	12	*	1	8	*	3	20		
05:15	*	2		*	3		*	5			
05:30	6	8		*	3		*	11			
05:45	0	0		1	1		1	1			
06:00	0	3	1	0	3	2	0	6	3	20	
06:15	2	0		2	1		4	1			
06:30	0	6		0	3		0	9			
06:45	1	2		1	5		2	7			
07:00	1	1	2	4	4	3	5	5	5	30	
07:15	0	2		0	5		0	7			
07:30	0	4		0	2		0	6			
07:45	0	6		0	6		0	12			
08:00	0	0	8	2	2	6	2	2	14	29	
08:15	0	1		0	2		0	3			
08:30	0	2		0	2		0	4			
08:45	0	6		0	2		0	8			
09:00	0	17	4	2	12	5	2	29	9	29	
09:15	4	6		0	4		4	10			
09:30	6	0		4	3		10	3			
09:45	7	4		6	3		13	7			
10:00	8	12	2	7	17	4	15	29	6	10	
10:15	2	1		8	2		10	3			
10:30	2	0		2	1		4	1			
10:45	0	0		0	0		0	0			
11:00	4	12	0	4	8	0	8	20	0	0	
11:15	0	0		0	0		0	0			
11:30	8	0		2	0		10	0			
11:45	0	0		2	0		2	0			
Totals	51	152		47	138		92	290			
Split%	55.4	52.4		51.1	47.6						

Day Totals	203	185	382
Day Splits	53.1	48.4	

Peak Hour	09:15	02:00	09:30	01:15	09:30	01:15
Volume	25	27	25	26	48	51
Factor	0.78	0.61	0.78	0.65	0.80	0.71

EB= in
WB= out

TRAFFIC DATA SERVICES INC.

2223 WELLINGTON ST 315

SANTA ANA CA 92701

STREET : SKATE PARK DRWY E/O

: LAKE FOREST DR

CITY : LAKE FOREST

Site: 071101.001

Date: 07/01/11

Interval	EB				WB				Combined				Day:	Friday
Begin	AM	PM			AM	PM			AM	PM				
12:00	0	1	3	15	0	2	0	7	0	3	3	22		
12:15	0		6		0		2		0		8			
12:30	0		2		0		2		0		4			
12:45	1		4		2		3		3		7			
01:00	0	0	2	30	0	0	2	14	0	0	4	44		
01:15	0		6		0		6		0		12			
01:30	0		6		0		0		0		6			
01:45	0		16		0		6		0		22			
02:00	0	0	4	18	0	0	6	15	0	0	10	33		
02:15	0		8		0		4		0		12			
02:30	0		2		0		2		0		4			
02:45	0		4		0		3		0		7			
03:00	0	0	2	17	0	0	4	21	0	0	6	38		
03:15	0		1		0		2		0		3			
03:30	0		10		0		5		0		15			
03:45	0		4		0		10		0		14			
04:00	0	0	0	3	0	0	2	6	0	0	2	9		
04:15	0		1		0		2		0		3			
04:30	0		1		0		1		0		2			
04:45	0		1		0		1		0		2			
05:00	0	0	8	19	0	0	3	13	0	0	11	32		
05:15	0		5		0		4		0		9			
05:30	0		2		0		0		0		2			
05:45	0		4		0		6		0		10			
06:00	0	2	1	9	0	0	8	19	0	2	9	28		
06:15	0		4		0		6		0		10			
06:30	2		3		0		2		2		5			
06:45	0		1		0		3		0		4			
07:00	1	5	7	9	2	4	4	10	3	9	11	19		
07:15	0		2		0		4		0		6			
07:30	1		0		1		2		2		2			
07:45	3		0		1		0		4		0			
08:00	1	2	1	4	0	3	2	5	1	5	3	9		
08:15	1		1		0		0		1		1			
08:30	0		0		1		1		1		1			
08:45	0		2		2		2		2		4			
09:00	0	25	0	3	0	16	2	4	0	41	2	7		
09:15	3		1		4		1		7		2			
09:30	6		1		4		0		10		1			
09:45	16		1		8		1		24		2			
10:00	3	7	2	2	10	13	7	7	13	20	9	9		
10:15	4		0		2		0		6		0			
10:30	0		0		1		0		1		0			
10:45	0		0		0		0		0		0			
11:00	1	9	0	2	3	9	0	1	4	18	0	3		
11:15	2		0		1		0		3		0			
11:30	4		0		3		0		7		0			
11:45	2		2		2		1		4		3			
Totals	51		131		47		122		98		253			
Split%	52.0		51.8		48.0		48.2							

Day Totals	182	169	351
Day Splits	51.9	48.1	

Peak Hour	09:30	01:30	09:15	05:45	09:15	01:15
Volume	29	34	26	22	54	50
Factor	0.45	0.53	0.65	0.69	0.56	0.57

TRAFFIC DATA SERVICES INC.

2223 WELLINGTON ST 315

SANTA ANA CA 92701

STREET : SKATE PARK DRWY E/O

: LAKE FOREST DR

CITY : LAKE FOREST

Site: 071101.001

Date: 07/02/11

Interval	EB				WB				Combined				Day:	Saturday
Begin	AM	PM			AM	PM			AM	PM				
12:00	0	0	0	10	0	0	0	6	0	0	0	16		
12:15	0		2		0		0		0		2			
12:30	0		4		0		2		0		6			
12:45	0		4		0		4		0		8			
01:00	0	0	2	8	0	0	2	6	0	0	4	14		
01:15	0		4		0		0		0		4			
01:30	0		0		0		2		0		2			
01:45	0		2		0		2		0		4			
02:00	0	0	2	11	0	0	2		0	0	4			
02:15	0		6		0		*		0		*			
02:30	0		3		0		2		0		5			
02:45	0		0		0		1		0		1			
03:00	0	0	2	4	0	0	4	6	0	0	6	10		
03:15	0		0		0		0		0		0			
03:30	0		1		0		1		0		2			
03:45	0		1		0		1		0		2			
04:00	0	0	3	8	0	0	0	12	0	0	3	20		
04:15	0		3		0		6		0		9			
04:30	0		0		0		2		0		2			
04:45	0		2		0		4		0		6			
05:00	0	0	1	(11)	0	0	2	(10)	0	0	3	21	5-6pm	
05:15	0		2		0		2		0		4			
05:30	0		7		0		6		0		13			
05:45	0		1		0		0		0		1			
06:00	0	2	0	7	0	0	0	6	0	2	0	13		
06:15	0		4		0		3		0		7			
06:30	0		1		0		1		0		2			
06:45	2		2		0		2		2		4			
07:00	0	0	2	11	0	0	0	10	0	0	2	21		
07:15	0		2		0		4		0		6			
07:30	0		3		0		2		0		5			
07:45	0		4		0		4		0		8			
08:00	2	4	2	8	0	5	0	3	2	9	2	11		
08:15	0		2		1		2		1		4			
08:30	0		4		0		1		0		5			
08:45	2		0		4		0		6		0			
09:00	5	9	0	9	2	6	1	13	7	15	1	22		
09:15	0		4		1		6		1		10			
09:30	0		0		0		0		0		0			
09:45	4		5		3		6		7		11			
10:00	5	(12)	1	1	6	(10)	6	7	11	22	7	8	10-11am	
10:15	3		0		2		1		5		1			
10:30	2		0		2		0		4		0			
10:45	2		0		0		0		2		0			
11:00	2	6	0	0	2	7	0	0	4	13	0	0		
11:15	2		0		2		0		4		0			
11:30	2		0		2		0		4		0			
11:45	0		0		1		0		1		0			
Totals	33		88		28		84		61		166			
Split%	54.1		53.0		45.9		50.6							

Day Totals	121		112		227
Day Splits	53.3		49.3		

Peak Hour	09:45	12:30	09:45	09:15	09:45	09:15
Volume	14	14	13	18	27	28
Factor	0.70	0.88	0.54	0.75	0.61	0.64

TRAFFIC DATA SERVICES INC.

2223 WELLINGTON ST 315

SANTA ANA CA 92701

STREET : SKATE PARK DRWY E/O

: LAKE FOREST DR

CITY : LAKE FOREST

Site: 071101.001

Date: 07/03/11

Interval	EB				WB				Combined				Day:	Sunday
Begin	AM		PM		AM		PM		AM		PM			
12:00	0	0	2	14	0	0	4	17	0	0	6	31		
12:15	0		5		0		3		0		8			
12:30	0		4		0		6		0		10			
12:45	0		3		0		4		0		7			
01:00	0	0	3	11	0	0	2	8	0	0	5	19		
01:15	0		6		0		4		0		10			
01:30	0		2		0		2		0		4			
01:45	0		0		0		0		0		0			
02:00	0	0	4	10	0	0	5	11	0	0	9	21		
02:15	0		2		0		2		0		4			
02:30	0		3		0		4		0		7			
02:45	0		1		0		0		0		1			
03:00	0	0	2	10	0	0	0	15	0	0	2	25		
03:15	0		2		0		4		0		6			
03:30	0		2		0		5		0		7			
03:45	0		4		0		6		0		10			
04:00	0	0	8	19	0	0	8	16	0	0	16	35		
04:15	0		4		0		4		0		8			
04:30	0		4		0		4		0		8			
04:45	0		3		0		0		0		3			
05:00	0	0	1	1	0	0	1	1	0	0	2	2		
05:15	0		0		0		0		0		0			
05:30	0		0		0		0		0		0			
05:45	0		0		0		0		0		0			
06:00	0	4	0	6	0		1	5	0		1	11		
06:15	2		3		2		0		4		3			
06:30	0		3		0		2		0		5			
06:45	2		0		*		2		*		2			
07:00	0	0	2	16	0	1	1	12	0	1	3	28		
07:15	0		3		1		2		1		5			
07:30	0		3		0		3		0		6			
07:45	0		8		0		6		0		14			
08:00	0	0	2	9	0	0	0	6	0	0	2	15		
08:15	0		4		0		2		0		6			
08:30	0		0		0		2		0		2			
08:45	0		3		0		2		0		5			
09:00	2	9	2	11	1	6	1	8	3	15	3	19		
09:15	3		2		1		2		4		4			
09:30	0		6		0		4		0		10			
09:45	4		1		4		1		8		2			
10:00	11	37	4	4	1	19	6	8	12	56	10	12		
10:15	14		0		10		2		24		2			
10:30	8		0		6		0		14		0			
10:45	4		0		2		0		6		0			
11:00	12	24	0	0	0	12	0	0	12	36	0	0		
11:15	4		0		6		0		10		0			
11:30	4		0		2		0		6		0			
11:45	4		0		4		0		8		0			
Totals	74		111		40		107		112		218			
Split%	66.1		50.9		35.7		49.1							

4-5 pm

10-11 am

Day Totals	185				147				330			
Day Splits	56.1				44.5							
Peak Hour	10:15		03:45		09:45		03:15		09:45		03:45	
Volume	38		20		21		23		58		42	
Factor	0.68		0.63		0.52		0.72		0.60		0.66	

TRAFFIC DATA SERVICES INC.

2223 WELLINGTON ST 315

SANTA ANA CA 92701

STREET : SKATE PARK DRWY E/O

: LAKE FOREST DR

CITY : LAKE FOREST

Site: 071101.001

Date: 07/04/11

Interval	EB				WB				Combined				Day:	Monday
Begin	AM		PM		AM		PM		AM		PM			
12:00	0	0	2	18	0	0	2	15	0	0	4	33		
12:15	0		8		0		2		0		10			
12:30	0		5		0		11		0		16			
12:45	0		3		0		0		0		3			
01:00	0	0	4	11	0	0	4	8	0	0	8	19		
01:15	0		5		0		2		0		7			
01:30	0		2		0		0		0		2			
01:45	0		0		0		2		0		2			
02:00	0	0	0	14	0	0	0	5	0	0	0	19		
02:15	0		8		0		3		0		11			
02:30	0		4		0		0		0		4			
02:45	0		2		0		2		0		4			
03:00	0	0	0	0	0	0	2	6	0	0	2	6		
03:15	0		0		0		1		0		1			
03:30	0		0		0		2		0		2			
03:45	0		0		0		1		0		1			
04:00	0	0	2	6	0	0	0	4	0	0	2	10		
04:15	0		2		0		0		0		2			
04:30	0		0		0		0		0		0			
04:45	0		2		0		4		0		6			
05:00	0	0	0	0	0	0	0	0	0	0	0	0		
05:15	0		0		0		0		0		0			
05:30	0		0		0		0		0		0			
05:45	0		0		0		0		0		0			
06:00	0	0	0	3	0	0	0	4	0	0	0	7		
06:15	0		2		0		2		0		4			
06:30	0		1		0		2		0		3			
06:45	0		0		0		0		0		0			
07:00	2	3	0	0	0	0	0	0	2	3	0	0		
07:15	1		0		0		0		1		0			
07:30	0		0		0		0		0		0			
07:45	0		0		0		0		0		0			
08:00	0	3	0	0	0	2	0	0	0	5	0	0		
08:15	0		0		0		0		0		0			
08:30	1		0		0		0		1		0			
08:45	2		0		2		0		4		0			
09:00	2	8	0	0	2	6	0	0	4	14	0	0		
09:15	0		0		0		0		0		0			
09:30	3		0		4		0		7		0			
09:45	3		0		0		0		3		0			
10:00	1	4	0	0	*		0	0	*		0	0		
10:15	0		0		0		0		0		0			
10:30	2		0		1		0		3		0			
10:45	1		0		2		0		3		0			
11:00	0	6	0	0	0	5	0	0	0	11	0	0		
11:15	2		0		0		0		2		0			
11:30	2		0		3		0		5		0			
11:45	2		0		2		0		4		0			
Totals	24		52		16		42		39		94			
Split%	61.5		55.3		41.0		44.7							

Day Totals	76	58	133
Day Splits	57.1	43.6	

Peak Hour	09:00	12:15	08:45	12:15	08:45	12:15
Volume	8	20	8	17	15	37
Factor	0.67	0.63	0.50	0.39	0.54	0.58

TRAFFIC DATA SERVICES INC.

2223 WELLINGTON ST 315

SANTA ANA CA 92701

STREET : SKATE PARK DRWY E/O

: LAKE FOREST DR

Site: 071101.001

Date: 07/05/11

CITY : LAKE FOREST

Interval	EB				WB				Combined				Day:	Tuesday
Begin	AM		PM		AM		PM		AM		PM			
12:00	0	0	7	15	0	0	7	19	0	0	14	34		
12:15	0		4		0		4		0		8			
12:30	0		2		0		2		0		4			
12:45	0		2		0		6		0		8			
01:00	0	0	3	16	0	0	2	20	0	0	5	36		
01:15	0		2		0		4		0		6			
01:30	0		2		0		4		0		6			
01:45	0		9		0		10		0		19			
02:00	0	0	6	16	0	0	12	24	0	0	18	40		
02:15	0		0		0		2		0		2			
02:30	0		8		0		8		0		16			
02:45	0		2		0		2		0		4			
03:00	0	0	6	15	0	0	4	20	0	0	10	35		
03:15	0		0		0		2		0		2			
03:30	0		1		0		4		0		5			
03:45	0		8		0		10		0		18			
04:00	0	0	4	19	0	0	2	18	0	0	6	37		
04:15	0		4		0		6		0		10			
04:30	0		2		0		4		0		6			
04:45	0		9		0		6		0		15			
05:00	0	0	1	8	0	0	5	15	0	0	6	23		
05:15	0		4		0		6		0		10			
05:30	0		0		0		0		0		0			
05:45	0		3		0		4		0		7			
06:00	0	0	2	13	0	0	4	18	0	0	6	31		
06:15	0		4		0		5		0		9			
06:30	0		3		0		4		0		7			
06:45	0		4		0		5		0		9			
07:00	1	5	2	6	2	4	8	14	3	9	10	20		
07:15	0		2		0		2		0		4			
07:30	0		0		0		0		0		0			
07:45	4		2		2		4		6		6			
08:00	0	0	5	15	1	1	6	21	1	1	11	36		
08:15	0		7		0		5		0		12			
08:30	0		2		0		6		0		8			
08:45	0		1		0		4		0		5			
09:00	3	21	6	9	2	7	8	16	5	28	14	25		
09:15	4		0		1		1		5		1			
09:30	9		2		2		3		11		5			
09:45	5		1		2		4		7		5			
10:00	6	11	6	6	7	17	6	8	13	28	12	14		
10:15	3		0		4		2		7		2			
10:30	1		0		2		0		3		0			
10:45	1		0		4		0		5		0			
11:00	1	9	0	0	1	8	0	0	2	17	0	0		
11:15	5		0		4		0		9		0			
11:30	1		0		1		0		2		0			
11:45	2		0		2		0		4		0			
Totals	46		138		37		193		83		331			
Split%	55.4		41.7		44.6		58.3							

Day Totals	184	230	414
Day Splits	44.4	55.6	

Peak Hour	09:15	01:45	10:00	01:45	09:30	01:45
Volume	24	23	17	32	38	55
Factor	0.67	0.64	0.61	0.67	0.73	0.72

TRAFFIC DATA SERVICES INC.

2223 WELLINGTON ST 315

SANTA ANA CA 92701

STREET : SKATE PARK DRWY E/O

: LAKE FOREST DR

CITY : LAKE FOREST

Site: 071101.001

Date: 07/06/11

Interval	EB				WB				Combined				Day:	Wednesday
Begin	AM		PM		AM		PM		AM		PM			
12:00	0	0	2	10	0	0	2	14	0	0	4	24		
12:15	0		0		0		0		0		0			
12:30	0		2		0		4		0		6			
12:45	0		6		0		8		0		14			
01:00	0	0	6	28	0	0	4	27	0	0	10	55		
01:15	0		3		0		4		0		7			
01:30	0		2		0		1		0		3			
01:45	0		17		0		18		0		35			
02:00	0	0	6	9	0	0	10	19	0	0	16	28		
02:15	0		1		0		1		0		2			
02:30	0		1		0		2		0		3			
02:45	0		1		0		6		0		7			
03:00	0	0	4	16	0	0	6	27	0	0	10	43		
03:15	0		2		0		5		0		7			
03:30	0		6		0		6		0		12			
03:45	0		4		0		10		0		14			
04:00	0	0	4	8	0	0	6	9	0	0	10	17		
04:15	0		2		0		1		0		3			
04:30	0		0		0		0		0		0			
04:45	0		2		0		2		0		4			
05:00	0	0	2	6	0	0	2	9	0	0	4	15		
05:15	0		1		0		4		0		5			
05:30	0		3		0		2		0		5			
05:45	0		0		0		1		0		1			
06:00	0	2	2	16	0	2	2	20	0	4	4	36		
06:15	0		6		0		5		0		11			
06:30	2		1		2		4		4		5			
06:45	0		7		0		9		0		16			
07:00	0	8	18	34	0	13	21	48	0	21	39	82		
07:15	2		8		2		19		4		27			
07:30	0		0		2		2		2		2			
07:45	6		8		9		6		15		14			
08:00	0	6	2	17	2	9	5	24	2	15	7	41		
08:15	0		6		1		7		1		13			
08:30	3		5		4		6		7		11			
08:45	3		4		2		6		5		10			
09:00	0	19	2	14	1	21	6	27	1	40	8	41		
09:15	3		5		4		5		7		10			
09:30	8		3		10		12		18		15			
09:45	8		4		6		4		14		8			
10:00	11	21	2	2	10	27	12	12	21	48	14	14		
10:15	4		0		8		0		12		0			
10:30	6		0		8		0		14		0			
10:45	0		0		1		0		1		0			
11:00	2	6	0	0	0	6	0	0	2	12	0	0		
11:15	2		0		2		0		4		0			
11:30	0		0		0		0		0		0			
11:45	2		0		4		0		6		0			
Totals	62		160		78		236		140		396			
Split%	44.3		40.4		55.7		59.6							
Day Totals		222				314				536				
Day Splits		41.4				58.6								
Peak Hour	09:30		06:30		09:30		06:30		09:30		06:30			
Volume	31		34		34		53		65		87			
Factor	0.70		0.47		0.85		0.63		0.77		0.56			

TRAFFIC DATA SERVICES INC.

2223 WELLINGTON ST 315

SANTA ANA CA 92701

STREET : SKATE PARK DRWY E/O

: LAKE FOREST DR

CITY : LAKE FOREST

Site: 071101.001

Date: 07/07/11

Interval	EB				WB				Combined		Day:	Thursday
Begin	AM		PM		AM		PM		AM	PM		
12:00	0	0	6	14	0	0	10	23	0	0	16	37
12:15	0		3		0		4		0		7	
12:30	0		3		0		6		0		9	
12:45	0		2		0		3		0		5	
01:00	0	0	4	21	0	0	9	35	0	0	13	56
01:15	0		4		0		6		0		10	
01:30	0		6		0		6		0		12	
01:45	0		7		0		14		0		21	
02:00	0	0	4	24	0	0	15	42	0	0	19	66
02:15	0		12		0		15		0		27	
02:30	0		4		0		7		0		11	
02:45	0		4		0		5		0		9	
03:00	0	0	6	10	0	0	9	17	0	0	15	27
03:15	0		3		0		2		0		5	
03:30	0		1		0		4		0		5	
03:45	0		0		0		2		0		2	
04:00	0	0	6	14	0	0	10	25	0	0	16	39
04:15	0		4		0		8		0		12	
04:30	0		0		0		0		0		0	
04:45	0		4		0		7		0		11	
05:00	0	0	0	6	0	0	2	9	0	0	2	15
05:15	0		1		0		2		0		3	
05:30	0		4		0		1		0		5	
05:45	0		1		0		4		0		5	
06:00	0	4	1	18	0	7	4	28	0	11	5	46
06:15	0		12		0		14		0		26	
06:30	2		2		2		7		4		9	
06:45	2		3		5		3		7		6	
07:00	0	2	7	29	4	10	10	42	4	12	17	71
07:15	0		8		0		7		0		15	
07:30	2		8		6		14		8		22	
07:45	0		6		0		11		0		17	
08:00	0	3	6	18	0	2	9	34	0	5	15	52
08:15	1		3		2		9		3		12	
08:30	0		1		0		6		0		7	
08:45	2		8		0		10		2		18	
09:00	2	23	0	9	2	24	4	21	4	47	4	30
09:15	2		6		4		8		6		14	
09:30	2		2		1		7		3		9	
09:45	17		1		17		2		34		3	
10:00	10	17	2	5	14	29	6	11	24	46	8	16
10:15	1		3		6		5		7		8	
10:30	4		0		7		0		11		0	
10:45	2		0		2		0		4		0	
11:00	6	12	0	0	6	13	0	0	12	25	0	0
11:15	1		0		4		0		5		0	
11:30	2		0		0		0		2		0	
11:45	3		0		3		0		6		0	
Totals	61		168		85		287		146		455	
Split%	41.8		36.9		58.2		63.1					
Day Totals		229				372			601			
Day Splits		38.1				61.9						
Peak Hour	09:45		01:30		09:45		01:45		09:45		01:30	
Volume	32		29		44		51		76		79	
Factor	0.47		0.60		0.65		0.85		0.56		0.73	

TRAFFIC DATA SERVICES INC.

2223 WELLINGTON ST 315

SANTA ANA CA 92701

STREET : SKATE PARK DRWY E/O

: LAKE FOREST DR

CITY : LAKE FOREST

Site: 071101.001

Date: 07/08/11

Interval	EB			WB			Combined		Day:	Friday
Begin	AM	PM		AM	PM		AM	PM		
12:00	0	2	*	0	2	*	0	4	*	
12:15	0		*	0		*	0		*	
12:30	0		*	0		*	0		*	
12:45	2		*	2		*	4		*	
01:00	0	0	*	0	0	*	0	0	*	
01:15	0		*	0		*	0		*	
01:30	0		*	0		*	0		*	
01:45	0		*	0		*	0		*	
02:00	0	0	*	0	0	*	0	0	*	
02:15	0		*	0		*	0		*	
02:30	0		*	0		*	0		*	
02:45	0		*	0		*	0		*	
03:00	0	0	*	0	0	*	0	0	*	
03:15	0		*	0		*	0		*	
03:30	0		*	0		*	0		*	
03:45	0		*	0		*	0		*	
04:00	0	0	*	0	0	*	0	0	*	
04:15	0		*	0		*	0		*	
04:30	0		*	0		*	0		*	
04:45	0		*	0		*	0		*	
05:00	0		*	0		*	0		*	
05:15	0		*	0		*	0		*	
05:30	0		*	0		*	0		*	
05:45	*	*	*	*	*	*	*	*	*	
06:00	*	*	*	*	*	*	*	*	*	
06:15	*	*	*	*	*	*	*	*	*	
06:30	*	*	*	*	*	*	*	*	*	
06:45	*	*	*	*	*	*	*	*	*	
07:00	*	*	*	*	*	*	*	*	*	
07:15	*	*	*	*	*	*	*	*	*	
07:30	*	*	*	*	*	*	*	*	*	
07:45	*	*	*	*	*	*	*	*	*	
08:00	*	*	*	*	*	*	*	*	*	
08:15	*	*	*	*	*	*	*	*	*	
08:30	*	*	*	*	*	*	*	*	*	
08:45	*	*	*	*	*	*	*	*	*	
09:00	*	*	*	*	*	*	*	*	*	
09:15	*	*	*	*	*	*	*	*	*	
09:30	*	*	*	*	*	*	*	*	*	
09:45	*	*	*	*	*	*	*	*	*	
10:00	*	*	*	*	*	*	*	*	*	
10:15	*	*	*	*	*	*	*	*	*	
10:30	*	*	*	*	*	*	*	*	*	
10:45	*	*	*	*	*	*	*	*	*	
11:00	*	*	*	*	*	*	*	*	*	
11:15	*	*	*	*	*	*	*	*	*	
11:30	*	*	*	*	*	*	*	*	*	
11:45	*	*	*	*	*	*	*	*	*	
Totals	2	0		2	0		4	0		
Split%	50.0	*		50.0	*					
Day Totals		2			2			4		
Day Splits		50.0			50.0					
Peak Hour	12:00	*		12:00	*		12:00	*		
Volume	2	*		2	*		4	*		
Factor	0.25	*		0.25	*		0.25	*		

Appendix E

PROJECT SHARE CONTRIBUTION WORKSHEETS

Table E-1
2016 INTERSECTION V/C EVALUATION
(NO PROJECT VERSUS WITH PROJECT)

Int.#	LOCATION	Jurisdiction	AM PEAK HOUR				PM PEAK HOUR			
			Move	Lanes	Volume	ICU	Move	Lanes	Volume	ICU
8	Goldenwest St & Bolsa Ave	Huntington Beach					NBT	3	1	0.000
							SBL	1	0	0.000
							EBL	2	0	0.000
							WBT	2	0	0.000
							WBR	1	0	0.000
							Total			0.000
28	Beach Blvd & Edinger Ave	Huntington Beach					NBT	3	1	0.000
							SBL	2	0	0.000
							EBL	2	0	0.000
							WBT	2	1	0.000
							Total			0.000

Table E-2
2030 INTERSECTION V/C EVALUATION
(SPECIFIC PLAN VERSUS GENERAL PLAN)

Int.#	LOCATION	Jurisdiction	AM PEAK HOUR				PM PEAK HOUR			
			Move	Lanes	Volume	ICU	Move	Lanes	Volume	ICU
8	Goldenwest St & Bolsa Ave	Huntington Beach	NBT	3	-7	-0.001	NBT	3	-7	-0.001
			SBL	1	0	0.000	SBL	1	0	0.000
			EBL	2	0	0.000	EBL	2	0	0.000
			WBT	2	-1	0.000	WBT	2	-1	0.000
			Total			-0.001	Total			-0.001
28	Beach Blvd & Edinger Ave	Huntington Beach					NBT	3	1	0.000
							SBL	2	-1	0.000
							EBL	2	0	0.000
							WBT	2	-3	-0.001
							Total			-0.001
203	Beach Blvd & McFadden Ave						NBT	4	2	0.000
							SBL	2	0	0.000
		Westminster					EBT	2	-2	-0.001
							WBL	2	0	0.000
							Total			0.000

Table E-3
2030 INTERSECTION V/C EVALUATION FOR CUMULATIVE DEFICIENCIES

Int.#	LOCATION	Jurisdiction	AM PEAK HOUR				PM PEAK HOUR			
			Move	Lanes	Volume	ICU	Move	Lanes	Volume	ICU
8	Goldenwest St & Bolsa Ave	Huntington Beach	NBT	3	0	0.000	NBT	3	1	0.000
			SBL	1	0	0.000	SBL	1	0	0.000
			EBL	2	0	0.000	EBL	2	0	0.000
			WBT	3	0	0.000	WBT	3	0	0.000
			Total			0.000	Total			0.000
28	Beach Blvd & Edinger Ave	Huntington Beach					NBT	3	1	0.000
							SBL	2	0	0.000
							EBL	2	0	0.000
							WBT	2	1	0.000
							Total			0.000
203	Beach Blvd McFadden Ave	Westminster					NBT	4	2	0.000
							SBL	1	0	0.000
							EBL	1	1	0.001
							WBT	2	0	0.000
							Total			0.001