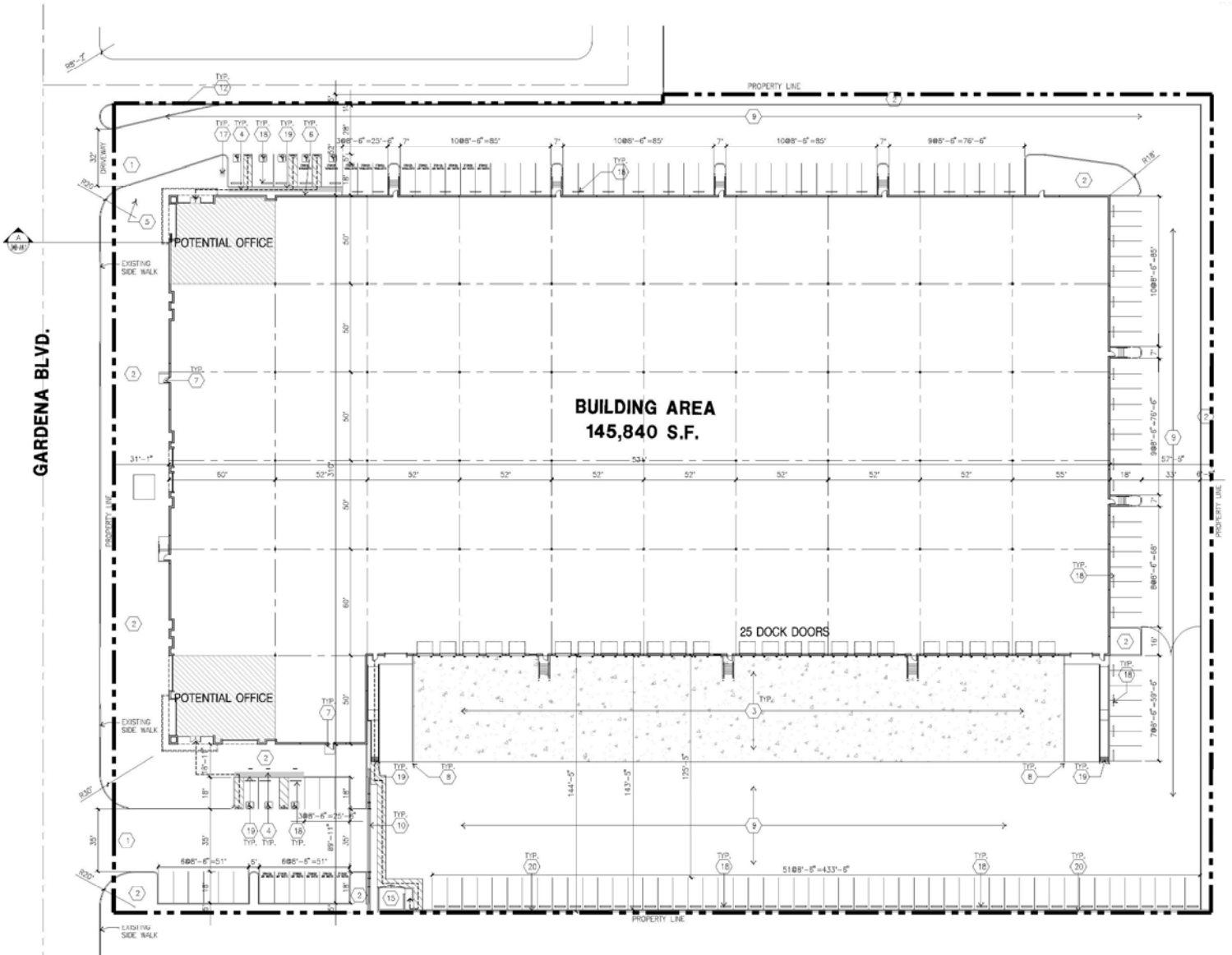


APPENDIX I
Traffic Impact Analysis

333 W. GARDENA BOULEVARD INDUSTRIAL PROJECT PRELIMINARY TRAFFIC IMPACT ANALYSIS City of Carson



**PROPOSED 333 WEST GARDENA BOULEVARD INDUSTRIAL
PROJECT PRELIMINARY TRAFFIC IMPACT ANALYSIS
City of Carson, California**

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1.0 Introduction

1.1 Purpose of Report & Study Objectives

The purpose of this analysis and report is to evaluate and assess the proposed 333 West Gardena Boulevard Industrial project from a traffic and circulation standpoint.

This traffic study has been prepared in accordance with the traffic study guidelines, requirements and thresholds of significance for the City of Carson, the County of Los Angeles, and State of California Department of Transportation (Caltrans) and evaluates the potential traffic impacts associated with the proposed project in accordance with the applicable agency's thresholds of significance.

1.2 Site Location & Project Description

The project site is located at 333 West Gardena Boulevard in the City of Carson.

The project site is currently vacant.

The proposed project is planned to consist of the following land uses:

- 145,840 square feet of general light industrial use.

Access for the proposed project is planned to be provided as follows:

- One full access unsignalized driveway serving mainly passenger vehicles on the west end of the site along Gardena Boulevard; and
- One full access unsignalized driveway serving mainly trucks on the east end of the site along Gardena Boulevard.

The project is planned to open in 2021 and is evaluated in a single phase.

The location of the project site is presented on Exhibit A. The site plan is shown on Exhibit B.

1.3 Traffic Study Area & Analysis Scenarios

Exhibit A illustrates the site location map and traffic analysis study area. The study area consists of the following signalized and unsignalized intersections listed below. The study intersections are under the jurisdiction of different agencies (City of Carson, City of Los Angeles, County of Los Angeles and Caltrans).

Study Intersections by Jurisdiction

Study Intersection	Responsible Jurisdiction			
	City of Carson	City of Los Angeles	Los Angeles County	State Highway (Caltrans)
1. Figueroa Street / Gardena Boulevard (Signalized)	X	X		
2. Broadway / Gardena Boulevard (Signalized)	X			
3. Main Street / Gardena Boulevard (Signalized)	X			
4. Broadway / Albertoni Street (Signalized)	X			
5. Main Street / SR-91 Westbound Ramps (Signalized)	X			X
6. Main Street / Albertoni Street (Signalized)	X			
7. SR-91 Eastbound Ramps / Albertoni Street (Signalized)	X			X
8. I-110 Southbound Ramps / Redondo Beach Boulevard (Signalized)		X		X
9. I-110 Northbound Ramps / Redondo Beach Boulevard (Signalized)		X		X
10. Figueroa Street / Redondo Beach Boulevard (Signalized)		X	X	
11. Figueroa Street / 164 th Street (Unsignalized)	X	X		
12. 164 th Street / Gardena Boulevard (Unsignalized)	X			
13. Project Driveway 1 / Gardena Boulevard (Unsignalized)	X			
14. Project Driveway 2 / Gardena Boulevard (Unsignalized)	X			

Notes: X = intersection within jurisdiction.

The analysis evaluates traffic conditions of the study intersections and driveways for the following scenarios:

- Existing Conditions;
- Forecast Existing Plus Project Conditions;
- Forecast Opening Year (2021) Without Project Conditions; and
- Forecast Opening Year (2021) With Project Conditions.

2.0 Analysis Methodologies, Performance Criteria, & Thresholds of Significance

This section of the report presents the methodologies used to perform the traffic analyses summarized in this report in accordance with the City of Carson, City of Los Angeles, County of Los Angeles, and Caltrans requirements.

This section also discusses the agency-established applicable performance criteria and thresholds of significance for the study facilities.

2.1 Study Intersection Peak Hour Level of Service Analysis Methodology

Level of service (LOS) is commonly used as a qualitative description of intersection operation and is based on the capacity of the intersection and the volume of traffic using the intersection.

The definitions of level of service for uninterrupted flow (flow unrestrained by the existence of traffic control devices) are:

- LOS A represents free flow. Individual users are virtually unaffected by the presence of others in the traffic stream.
- LOS B is in the range of stable flow, but the presence of other users in the traffic stream begins to be noticeable. Freedom to select desired speeds is relatively unaffected, but there is a slight decline in the freedom to maneuver.
- LOS C is in the range of stable flow, but marks the beginning of the range of flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream.
- LOS D represents high-density but stable flow. Speed and freedom to maneuver are severely restricted, and the driver experiences a generally poor level of comfort and convenience.

- LOS E represents operating conditions at or near the capacity level. All speeds are reduced to a low, but relatively uniform value. Small increases in flow will cause breakdowns in traffic movement.
- LOS F is used to define forced or breakdown flow. This condition exists wherever the amount of traffic approaching a point exceeds the amount which can traverse the point. Queues form behind such locations.

2.1.1 ICU Methodology – City of Carson, City of Los Angeles & Los Angeles County Signalized Intersections#

The *Intersection Capacity Utilization (ICU)* analysis method is utilized by the City of Carson, City of Los Angeles, and the County of Los Angeles to determine the operating LOS of signalized intersections.

To calculate the ICU, the volume of traffic using the intersection is compared with the capacity of the intersection. ICU is usually expressed as a ratio. This ratio represents that portion of the hour required to provide sufficient capacity to accommodate all intersection traffic if all approaches operate at capacity. The ICU analysis utilizes a lane capacity of 1,600 vehicles per hour per lane and a clearance time of 10 percent.

The ICU analysis methodology describes the operation of an intersection using a range of LOS from LOS A (free-flow conditions) to LOS F (severely congested conditions), based on the corresponding ranges of volume-to-capacity at intersections. The following thresholds are used in assigning a letter value to the resulting Levels of Service.

ICU Intersection LOS & V/C Ranges

LOS	CRITICAL VOLUME TO CAPACITY RATIO
A	0.00 - 0.60
B	0.61 - 0.70
C	0.71 - 0.80
D	0.81 - 0.90
E	0.91 - 1.00
F	>1.00

2.1.2 HCM Methodology – City of Carson, City of Los Angeles, County of Los Angeles Unsignalized Intersections/Driveways & All State Highway Intersections

The Highway Capacity Manual (HCM) methodology is the adopted methodology for evaluation of State Highway facilities by The State of California Department of Transportation (Caltrans).

This methodology is also utilized for evaluation of unsignalized study intersections and driveways in the City and County jurisdiction.

The HCM methodology defines level of service as a qualitative measure which describes operational conditions within a traffic stream, generally in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. The criteria used to evaluate LOS (Level of Service) conditions vary based on the type of roadway and whether the traffic flow is considered interrupted or uninterrupted.

For signalized intersections and all-way stop-controlled intersections, average control delay per vehicle is used to determine the level of service. For intersections and driveways with stop control on the minor approach only, the calculation of level of service is dependent on the occurrence of gaps occurring in the free-flow traffic movement of the main street, and the level of service is determined based on the worst individual movements on the stop-controlled minor approach or movements sharing a single lane on the stop-controlled minor approach.

The HCM analysis methodology describes the operation of an intersection using a range of LOS from LOS A (free-flow conditions) to LOS F (severely congested conditions), based on the corresponding ranges of stopped delay experienced per vehicle for signalized and unsignalized intersections. The following thresholds are used in assigning a letter value to the resulting Levels of Service.

HCM Intersection LOS & Delay Ranges

LOS	Average Control Delay Per Vehicle (Seconds)	
	Signalized	Unsignalized
A	0.00 - 10.00	0.00 - 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	>80.00	>50.00

2.1.3 Study Intersection LOS Analysis Methodology Utilized

The following table summarizes the LOS analysis method(s) utilized for each study intersection.

Study Intersection LOS Methodology Utilized

Study Intersection	LOS Analysis Methodology Used in Analysis
1. Figueroa Street / Gardena Boulevard (Signalized)	ICU
2. Broadway / Gardena Boulevard (Signalized)	ICU
3. Main Street / Gardena Boulevard (Signalized)	ICU
4. Broadway / Albertoni Street (Signalized)	ICU
5. Main Street / SR-91 Westbound Ramps (Signalized)	ICU & HCM
6. Main Street / Albertoni Street (Signalized)	ICU
7. SR-91 Eastbound Ramps / Albertoni Street (Signalized)	ICU & HCM
8. I-110 Southbound Ramps / Redondo Beach Boulevard (Signalized)	ICU & HCM
9. I-110 Northbound Ramps / Redondo Beach Boulevard (Signalized)	ICU & HCM
10. Figueroa Street / Redondo Beach Boulevard (Signalized)	ICU
11. Figueroa Street / 164 th Street (Unsignalized)	HCM
12. 164 th Street / Gardena Boulevard (Unsignalized)	HCM
13. Project Driveway 1 / Gardena Boulevard (Unsignalized)	HCM
14. Project Driveway 2 / Gardena Boulevard (Unsignalized)	HCM

2.2 Level of Service Performance Criteria & Thresholds of Significance

The following are the jurisdictional performance criteria and thresholds of significance applicable to the study area.

2.2.1 City of Carson, City of Los Angeles, and County of Los Angeles Performance Criteria & Thresholds of Significance

The acceptable LOS for the City of Carson, City of Los Angeles, and the County of Los Angeles is LOS D or better.

Significant traffic impacts for City of Carson, City of Los Angeles, and the County of Los Angeles Signalized locations will be determined through the following criteria per the guidelines:

<u>LOS Without Project</u>	<u>V/C Difference</u>
C	0.040 or more
D	0.020 or more
E,F	0.010 or more

This study assumes for City of Carson unsignalized study intersections, a significant impact occurs if the level of service is deficient (E or F) and the intersection satisfies the traffic signal warrant.

2.2.2 State Highway Performance Criteria & Thresholds of Significance

Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS D on State Highway facilities.

While Caltrans has not established traffic thresholds of significance, this traffic analysis utilizes the following traffic thresholds of significance based on discussions with Caltrans staff:

- A significant project impact occurs at a State Highway signalized study intersection when the addition of project-generated trips causes the peak hour level of service of the study intersection to change from acceptable operation (LOS A, B, C, or D) to deficient operation (LOS E or F).

3.0 Existing Traffic Volumes & Circulation System

This section provides a discussion of existing study area conditions and traffic volumes.

3.1 Existing Traffic Controls & Intersection Geometrics

Exhibit C identifies the existing traffic control and geometry conditions for the study area.

3.2 Existing Conditions Traffic Volumes

Existing conditions intersection level of service calculations are based upon manual AM and PM peak hour turning movement counts taken in July 2019 during weekday conditions. The AM peak hour traffic volumes were determined by counting the three-hour peak period between 7:00 AM and 10:00 AM and using the highest hour within that three-hour peak period. Similarly, the PM peak hour traffic volumes were identified by counting the three-hour peak period between 3:00 PM and 6:00 PM and using the highest hour within that three-hour peak period. The traffic count worksheets are included in Appendix A.

Existing traffic volumes for the study area intersections and driveways are shown on Exhibit D.

4.0 Projected & Future Traffic Volumes

This section provides a discussion on methodologies utilized to derive future traffic volumes for the study area.

4.1. Project Traffic Conditions

4.1.1 Project Trip Generation

Trip generation represents the amount of trips that is attracted and produced by land use.

Trip generation for the proposed project is determined based on ITE 10th Edition trip generation rates for the proposed land uses as shown in Table 1.

Since the proposed land is industrial, it is expected to attract heavy vehicle traffic. This would be mainly the hauling of freight by large multi-axle trucks. Large trucks generally occupy more space on the roadway; therefore, in order to show the equivalent impacts of the trucks at this site, the project trip generation has been converted to passenger car equivalents (PCE). The *City of Fontana Truck Trip Generation Study for Light Industrial Uses, August 2003* was used to estimate the heavy vehicle mix for this project. The following PCE factors are used to convert truck trips into PCE based on County of San Bernardino recommended PCE-factors for conversion of trucks into passenger vehicles:

<u>Vehicle Type</u>	<u>PCE Factor</u>
Passenger Car	1.0
2 Axle Trucks	1.5
3 Axle Trucks	2.0
4+ Axle Trucks	3.0

Utilizing the ITE trip generation rates shown in Table 1, Table 2 summarizes the daily and peak hour trip generation for the proposed project.

As shown in Table 2, without applying PCE-factors, the proposed project is forecast to generate approximately 723 daily trips which include approximately 102 AM peak hour trip and approximately 92 PM peak hour trips.

As also shown in Table 2, after applying PCE-factors, the proposed project is forecast to generate approximately 918 PCE-adjusted daily trips which include approximately 129 PCE-adjusted AM peak hour trip and approximately 116 PCE-adjusted PM peak hour trips.

4.1.2 Project Trip Distribution

Trip distribution represents the directional orientation of trips to and from the project. Trip distribution is heavily influenced by the geographical location of the site, the location of residential, retail, employment, recreational opportunities, and the proximity to the regional freeway system. The directional orientation of project-generated trips was determined by evaluating existing and proposed land uses and highways within the community.

Forecast trip distribution for the proposed project has been developed through discussions with the project applicant team.

Exhibit E shows the forecast trip distribution for passenger vehicles.

Exhibit F shows the forecast trip distribution for truck trips.

4.1.3 Modal Split

Modal split denotes the proportion of traffic generated by a project that would use any of the transportation modes, namely buses, cars, bicycles, motorcycles, trains, carpools, etc. The traffic reducing potential of public transit and other modes can be notable. However, the traffic projections in this study are conservative because no modal split reduction is applied to the projections.

4.1.4 Project Peak Hour Traffic Volumes/Assignment

The assignment of project-generated trips to and from the project site on the adjoining roadway system is based upon the project's trip generation, trip distribution, and proposed arterial highway and local street systems this traffic study assumes would be in place by the time of occupancy of the site.

Project traffic volumes are shown on Exhibit G.

4.2 Forecast Existing Plus Project Traffic Volumes

Forecast Existing Plus Project Conditions traffic volumes are derived by adding the project traffic volumes shown in Exhibit G to the existing traffic volumes shown in Exhibit D.

Forecast Existing Plus Project Conditions traffic volumes are shown in Exhibit H.

4.3 Background Traffic

4.3.1 Method of Projection

To assess future conditions, project traffic is combined with existing traffic, area-wide growth, and cumulative projects' traffic.

Consistent with the *Alondra Boulevard & Ball Avenue Project Traffic Impact Analysis (Kunzman Associates, Inc., January 6, 2016)*, Forecast Opening Year (2021) Conditions traffic volumes were derived by applying an annual growth rate of 0.5 percent per year over a two-year period to existing traffic volumes to account for background growth in 2021. It should be noted this is a conservative assumption since the growth rate is applied to all movements at the study intersections and driveways.

4.3.2 Cumulative Projects Traffic

Information on cumulative projects in the vicinity of study area has been obtained from the *Alondra Boulevard & Ball Avenue Project Traffic Impact Analysis (Kunzman Associates, Inc., January 6, 2016)*. The Alondra Boulevard & Ball Avenue Project itself is also accounted for as a cumulative project in this analysis.

Table 3 shows the cumulative projects and the forecast trip generation associated with these project.

Exhibit I shows the location of the cumulative projects.

As shown in Table 3, the cumulative projects are forecast to generate approximately 7,004 daily trips, which include approximately 452 AM peak hour trips and approximately 523 PM peak hour trips.

Cumulative Projects traffic volumes at the study locations are shown on Exhibit J.

Some of the cumulative projects may be downsized or may not be developed by project opening year (2021). In addition, many of the cumulative projects have been or will be subject to a variety of mitigation measures to reduce potential traffic impacts associated with those projects. However, those mitigation measures have not been taken into account in projecting the potential traffic impact of the cumulative projects.

Therefore, the cumulative analysis in this study is conservative. Additionally, the cumulative analysis utilizes an annual growth rate of 0.5 percent which would likely already capture and account for most cumulative projects in the area. The annual growth rate methodology is conservative since it is applied to all movements at the study intersections and driveways.

4.4 Forecast Opening Year (2021) Without Project Conditions Traffic Volumes

Forecast Opening Year (2021) Without Project Conditions traffic volumes consist of existing traffic volumes, a 0.50% annual growth rate and traffic associated with the cumulative projects.

Forecast Opening Year (2021) Without Project Conditions does not include traffic project traffic.

Forecast Opening Year (2021) Without Project Conditions traffic volumes are shown on Exhibit J.

4.5 Forecast Opening Year (2021) With Project Conditions Traffic Volumes

Forecast Opening Year (2021) With Project Conditions traffic volumes consist of existing traffic volumes, a 0.50% annual growth rate, traffic associated with the cumulative projects and project-generated traffic.

Forecast Opening Year (2021) With Project Conditions traffic volumes are shown on Exhibit K.

5.0 City of Carson, City of Los Angeles & Los Angeles County Study Intersection LOS Analysis

This section provides a discussion and summary of the level of service (LOS) analysis for the City of Carson, City of Los Angeles, and County of Los Angeles study intersections.

5.1 City & County Study Intersections Existing Conditions Level of Service

Table 4 summarizes the results of the LOS analysis for the City and County study intersections for Existing Conditions.

Detailed LOS analysis sheets for Existing Conditions are contained in Appendix B.

As shown in Table 4, the City and County study intersections are currently operating at an acceptable level of service (LOS D or better) during the peak hours for Existing Conditions.

5.2 City & County Study Intersections Forecast Existing Plus Project Conditions Level of Service

Table 5 summarizes the results of the LOS analysis for the City and County study intersections for Forecast Existing Plus Project Conditions.

Detailed LOS analysis sheets for Forecast Existing Plus Project Conditions are contained in Appendix C.

As shown in Table 5, the City and County study intersections are forecast to operate at an acceptable level of service (LOS D or better) during the peak hours for Forecast Existing Plus Project Conditions.

As also shown in Table 5, based on agency-established thresholds of significance, the proposed project is forecast to not result in a significant traffic impact at the City and County study intersections for Forecast Existing Plus Project Conditions.

5.3 City & County Study Intersections Forecast Opening Year (2021) Without Project Conditions Level of Service

Table 6 summarizes the results of the LOS analysis for the City and County study intersections for Forecast Opening Year (2021) Without Project Conditions.

Detailed LOS analysis sheets for Forecast Opening Year (2021) Without Project Conditions are contained in Appendix D.

As shown in Table 6, the City and County study intersections are forecast to operate at an acceptable level of service (LOS D or better) during the peak hours for Forecast Opening Year (2021) Without Project Conditions.

5.4 City & County Study Intersections Forecast Opening Year (2021) With Project Conditions Level of Service

Table 7 summarizes the results of the LOS analysis for the City and County study intersections for Forecast Opening Year (2021) With Project Conditions.

Detailed LOS analysis sheets for Forecast Opening Year (2021) With Project Conditions are contained in Appendix E.

As shown in Table 7, the City and County study intersections are forecast to operate at an acceptable level of service (LOS D or better) during the peak hours for Forecast Opening Year (2021) With Project Conditions.

As also shown in Table 7, based on agency-established thresholds of significance, the proposed project is forecast to not result in a significant traffic impact at the City and County study intersections for Forecast Opening Year (2021) With Project Conditions.

6.0 State Highway Study Intersection LOS Analysis

This section provides a discussion and summary of the level of service (LOS) analysis for the State Highway study intersections under the jurisdiction of Caltrans.

6.1 State Highway Study Intersections Existing Conditions Level of Service

Table 8 summarizes the results of the LOS analysis for the State Highway study intersections for Existing Conditions.

Detailed LOS analysis sheets for Existing Conditions are contained in Appendix B.

As shown in Table 8, the State Highway study intersections are currently operating at an acceptable level of service (LOS D or better) during the peak hours for Existing Conditions.

6.2 State Highway Study Intersections Forecast Existing Plus Project Conditions Level of Service

Table 9 summarizes the results of the LOS analysis for the State Highway study intersections for Forecast Existing Plus Project Conditions.

Detailed LOS analysis sheets for Forecast Existing Plus Project Conditions are contained in Appendix C.

As shown in Table 9, the State Highway study intersections are forecast to operate at an acceptable level of service (LOS D or better) during the peak hours for Forecast Existing Plus Project Conditions.

As also shown in Table 9, based on State Highway established thresholds of significance, the proposed project is forecast to not result in a significant traffic impact at the State Highway study intersections for Forecast Existing Plus Project Conditions.

6.3 State Highway Study Intersections Forecast Opening Year (2021) Without Project Conditions Level of Service

Table 10 summarizes the results of the LOS analysis for the State Highway study intersections for Forecast Opening Year (2021) Without Project Conditions.

Detailed LOS analysis sheets for Forecast Opening Year (2021) Without Project Conditions are contained in Appendix D.

As shown in Table 10, the State Highway study intersections are forecast to operate at an acceptable level of service (LOS D or better) during the peak hours for Forecast Opening Year (2021) Without Project Conditions.

6.4 State Highway Study Intersections Forecast Opening Year (2021) With Project Conditions Level of Service

Table 11 summarizes the results of the LOS analysis for the State Highway study intersections for Forecast Opening Year (2021) With Project Conditions.

Detailed LOS analysis sheets for Forecast Opening Year (2021) With Project Conditions are contained in Appendix E.

As shown in Table 11, the State Highway study intersections are forecast to operate at an acceptable level of service (LOS D or better) during the peak hours for Forecast Opening Year (2021) With Project Conditions.

As also shown in Table 11, based on State Highway established thresholds of significance, the proposed project is forecast to not result in a significant traffic impact at the State Highway study intersections for Forecast Opening Year (2021) With Project Conditions.

7.0 Los Angeles CMP Study Intersection Analysis

The purpose of the Congestion Management Program (CMP) is to develop a coordinated approach to managing and decreasing traffic congestion by linking the various transportation, land use and air quality planning programs throughout the County. The program is consistent with that of the Southern California Association of Governments (SCAG). The CMP program requires review of significant individual projects, which might on their own impact the CMP transportation system.

According to the CMP (*Los Angeles County Metropolitan Transportation Authority, 2010*), those proposed projects, which meet the following criteria, must be evaluated:

- All CMP arterial monitoring intersections, including monitored freeway on- or off-ramp intersections, where the proposed project will add 50 or more trips during either the a.m. or p.m. weekday peak hours (of adjacent street traffic).
- Mainline freeway monitoring locations where the project will add 150 or more trips, in either direction, during either the AM or PM weekday peak hours.

The proposed project is forecast to not contribute the required number of trips to any CMP-monitored study intersection. Hence, a CMP traffic analysis is not required for the proposed project.

The proposed project is also forecast to add less than 50 peak hour trips to the freeway mainline of the I-110 and SR-91.

8.0 Mitigation Measures

No traffic mitigation measures are required for the proposed project since based on applicable agency-established thresholds of significance, the proposed project is forecast to result in no significant traffic impacts for the study scenarios evaluated in this report.

9.0 Conclusions

Project Trip Generation:

Trip generation for the proposed project is determined based on ITE 10th Edition trip generation rates for the proposed land uses.

Since the proposed land is industrial, it is expected to attract heavy vehicle traffic. This would be mainly the hauling of freight by large multi-axle trucks. Large trucks generally occupy more space on the roadway; therefore, in order to show the equivalent impacts of the trucks at this site, the project trip generation has been converted to passenger car equivalents (PCE). The *City of Fontana Truck Trip Generation Study for Light Industrial Uses, August 2003* was used to estimate the heavy vehicle mix for this project. The following PCE factors are used to convert truck trips into PCE based on County of San Bernardino recommended PCE-factors for conversion of trucks into passenger vehicles:

<u>Vehicle Type</u>	<u>PCE Factor</u>
Passenger Car	1.0
2 Axle Trucks	1.5
3 Axle Trucks	2.0
4+ Axle Trucks	3.0

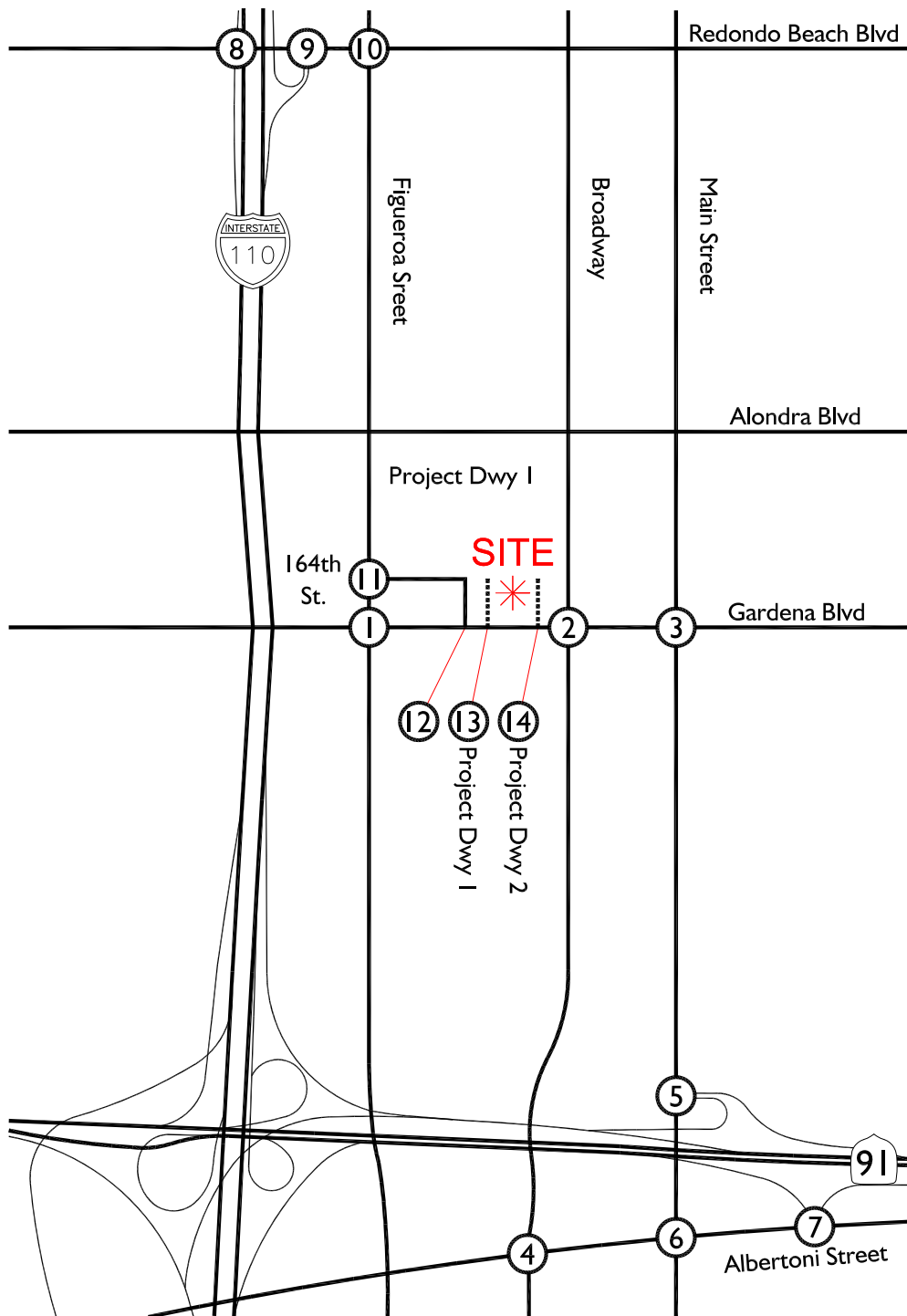
Without applying PCE-factors, the proposed project is forecast to generate approximately 723 daily trips which include approximately 102 AM peak hour trip and approximately 92 PM peak hour trips.

After applying PCE-factors, the proposed project is forecast to generate approximately 918 PCE-adjusted daily trips which include approximately 129 PCE-adjusted AM peak hour trip and approximately 116 PCE-adjusted PM peak hour trips.

Level of Service & Mitigation Measures:

The proposed project is forecast to result in no significant traffic impacts for any of the study scenarios evaluated in this analysis, and hence, no traffic mitigation measures are required for the proposed project based on applicable agency-established thresholds of significance.

Exhibits

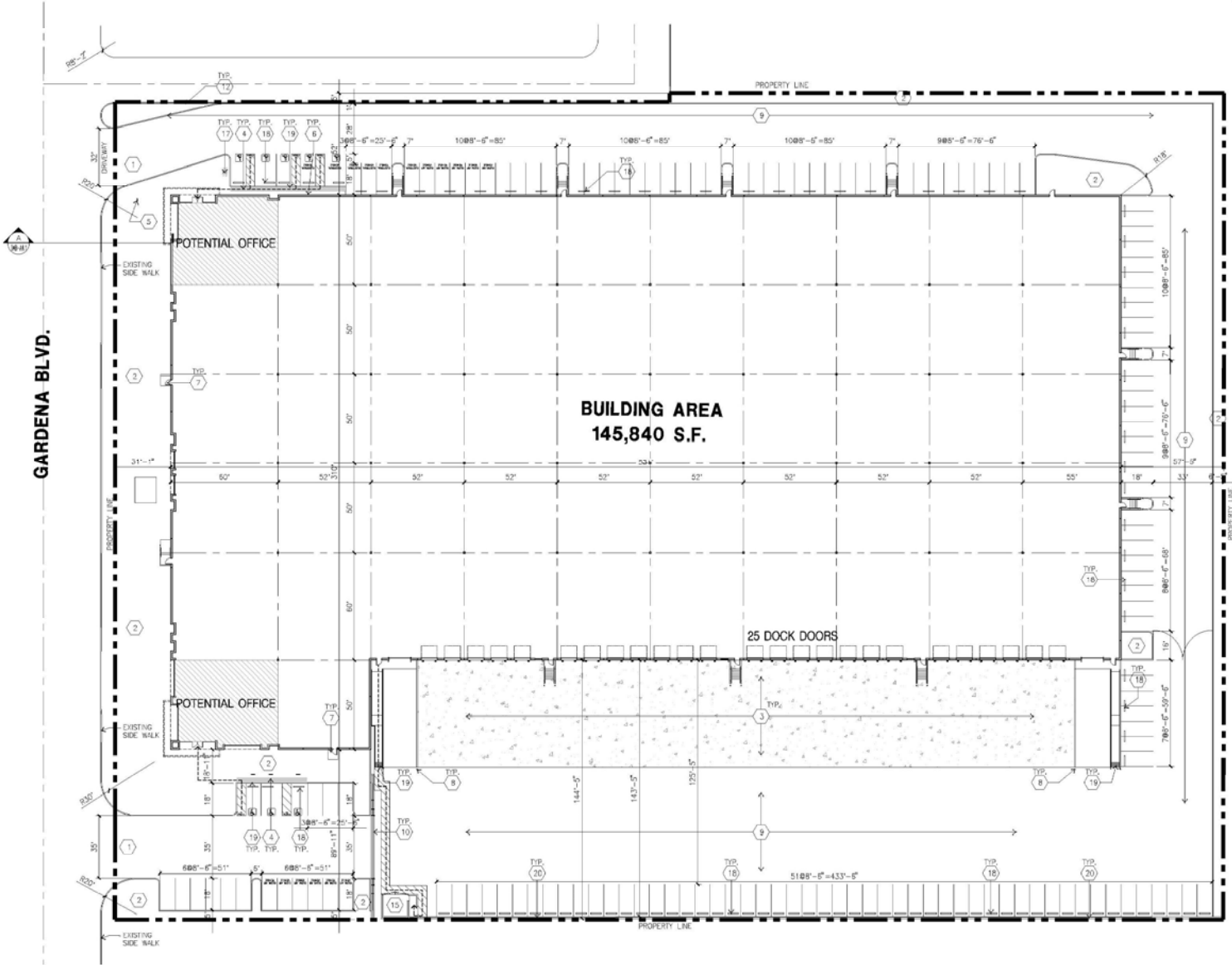


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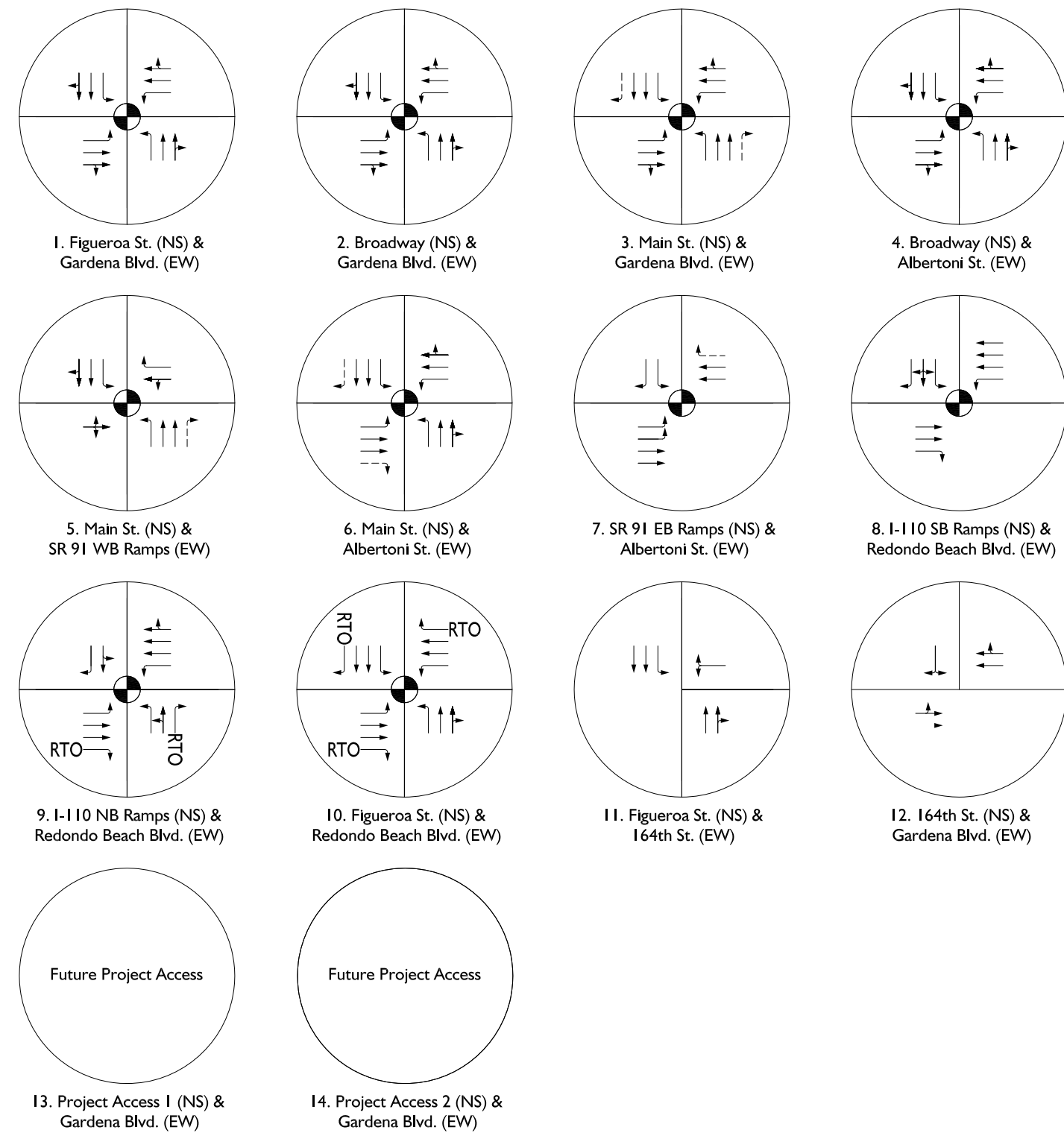
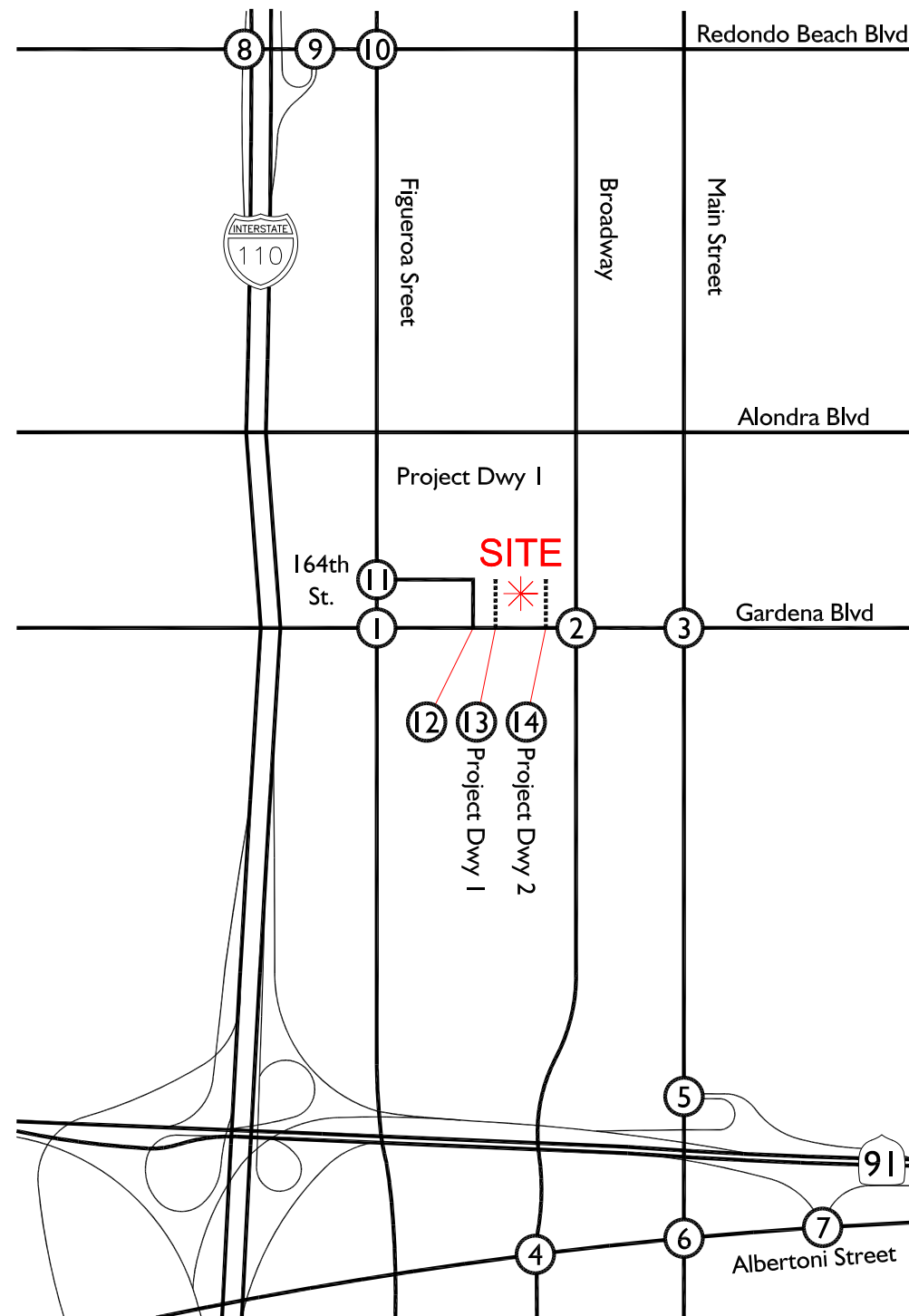
- ① = Study Area Intersection
- = Project Driveway



Exhibit B Site Plan



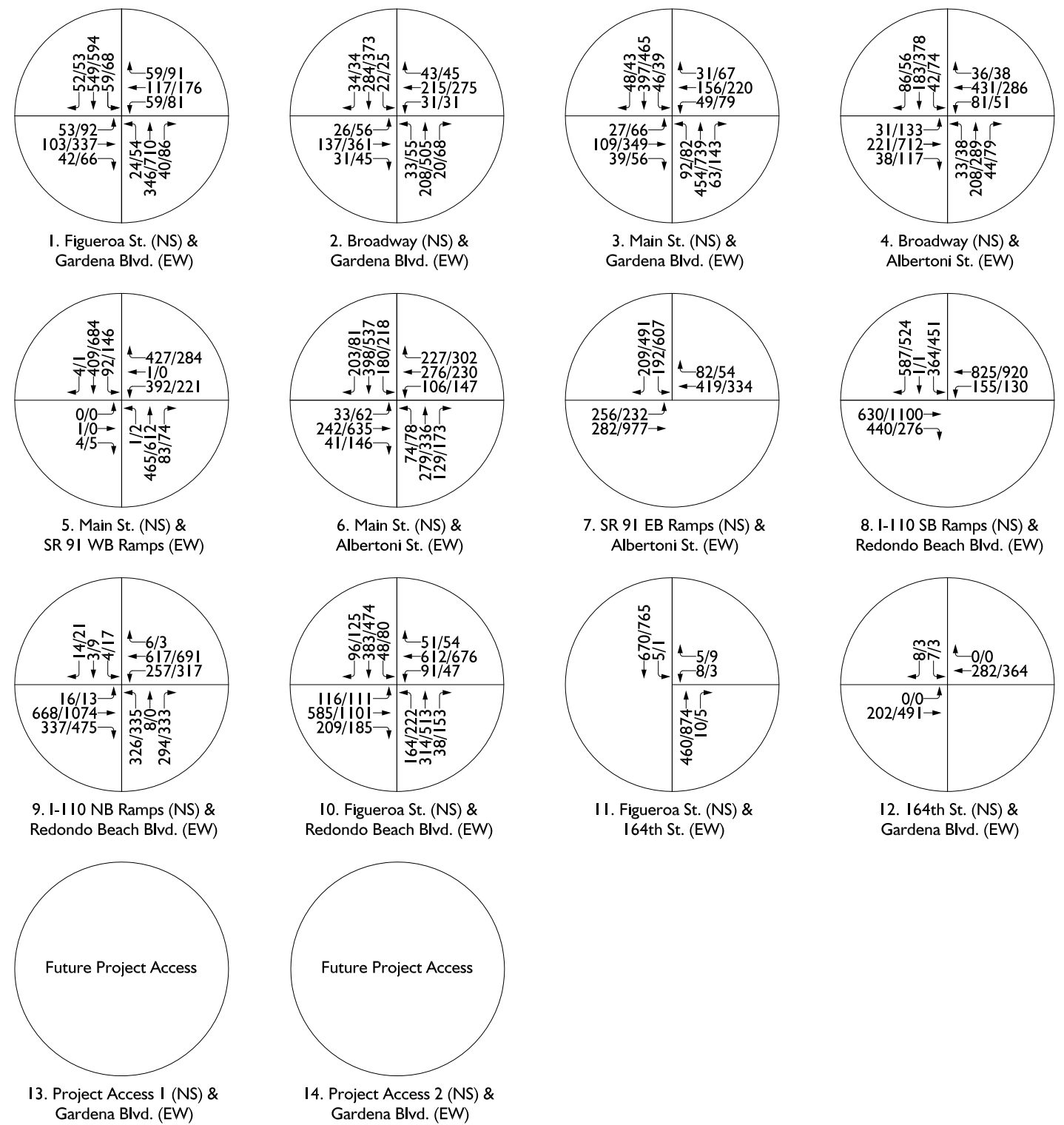
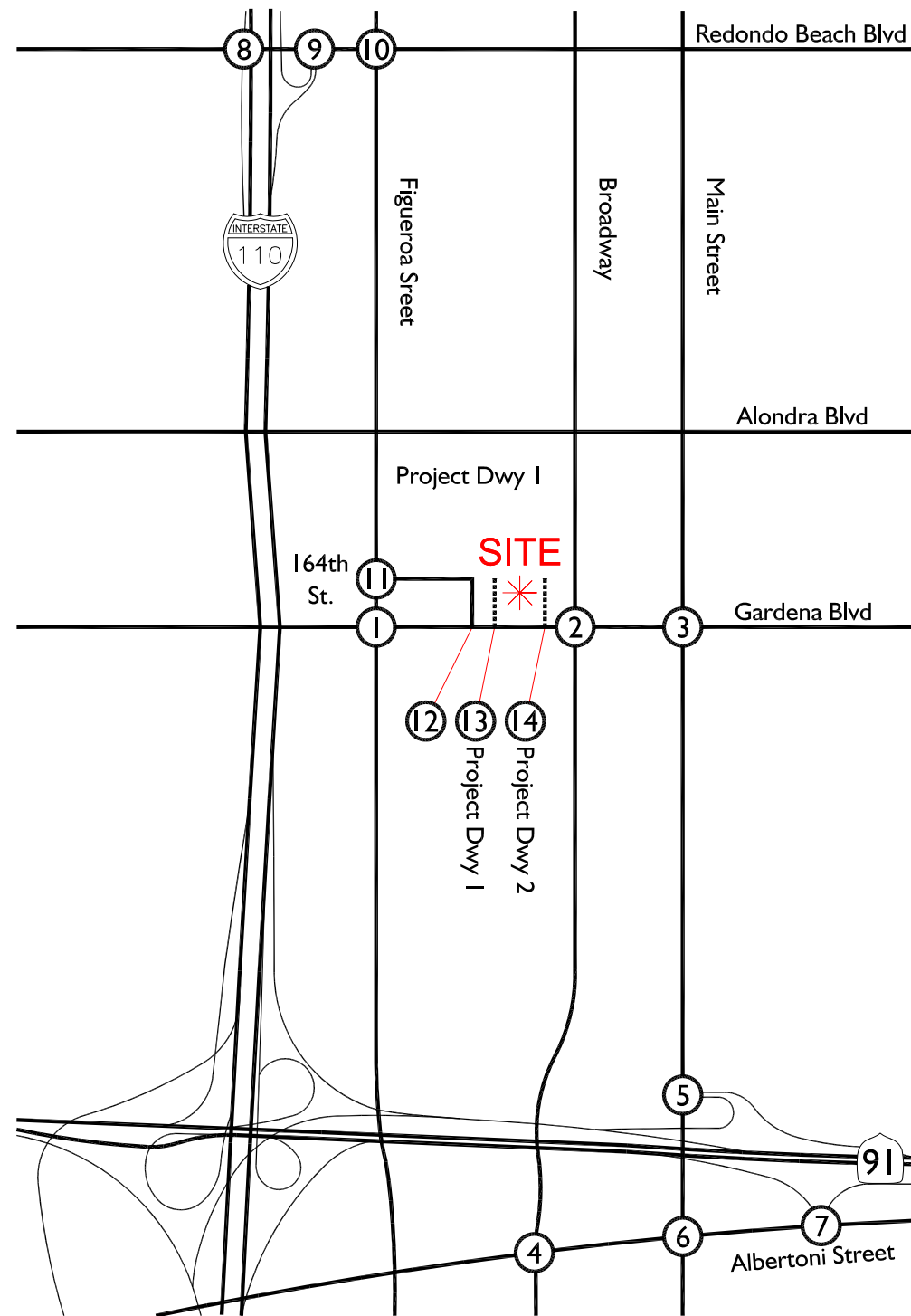
Existing Traffic Control & Study Intersection Geometry



Legend:

- = Traffic Signal
- = Study Area Intersection
- = Project Driveway
- = Right Turn Overlap



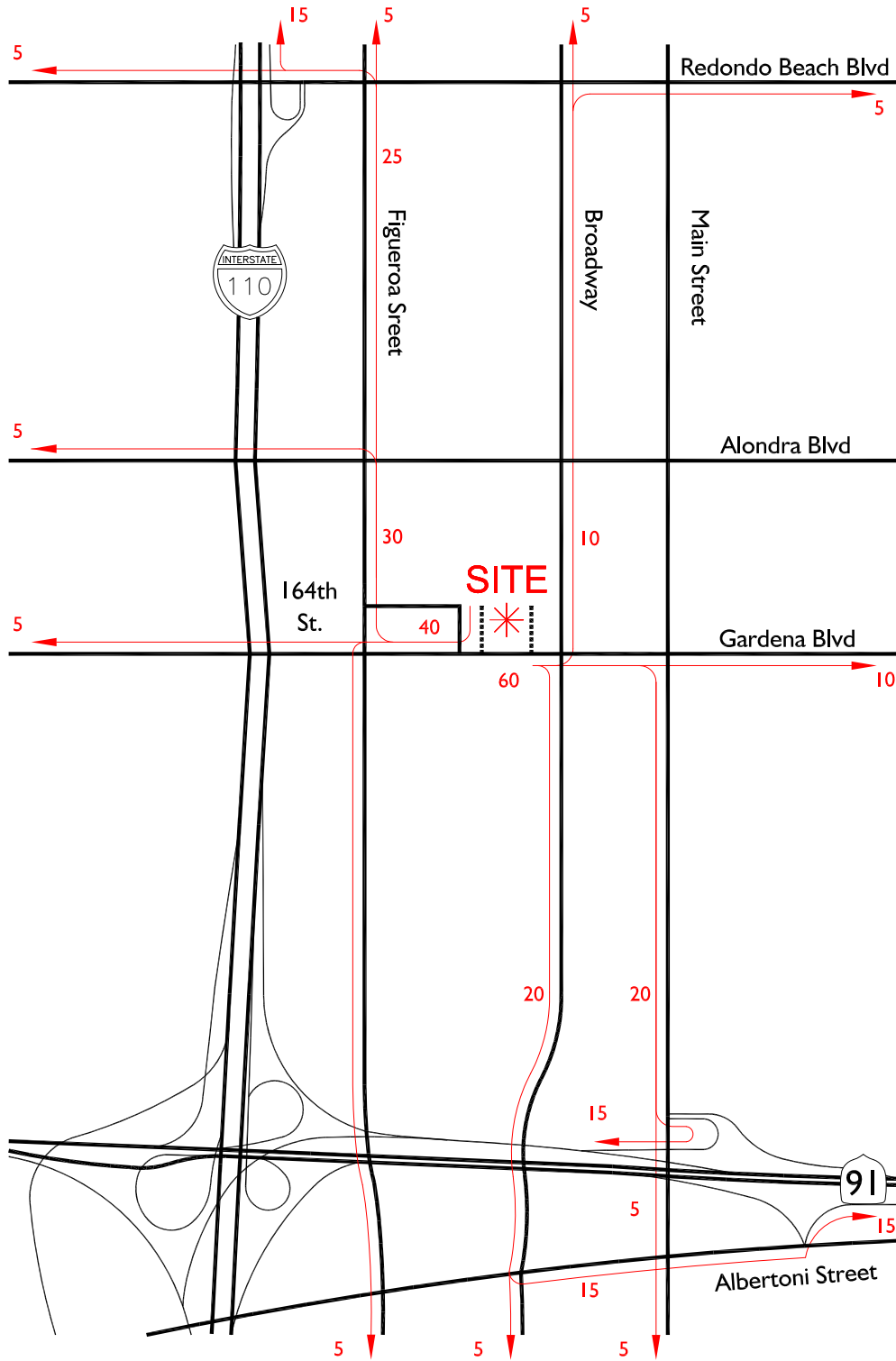


Legend:

- ① = Study Area Intersection
- = Project Driveway
- 5/10 = AM/PM Peak Hour Volumes



Project Trip Distribution - Passenger Vehicles

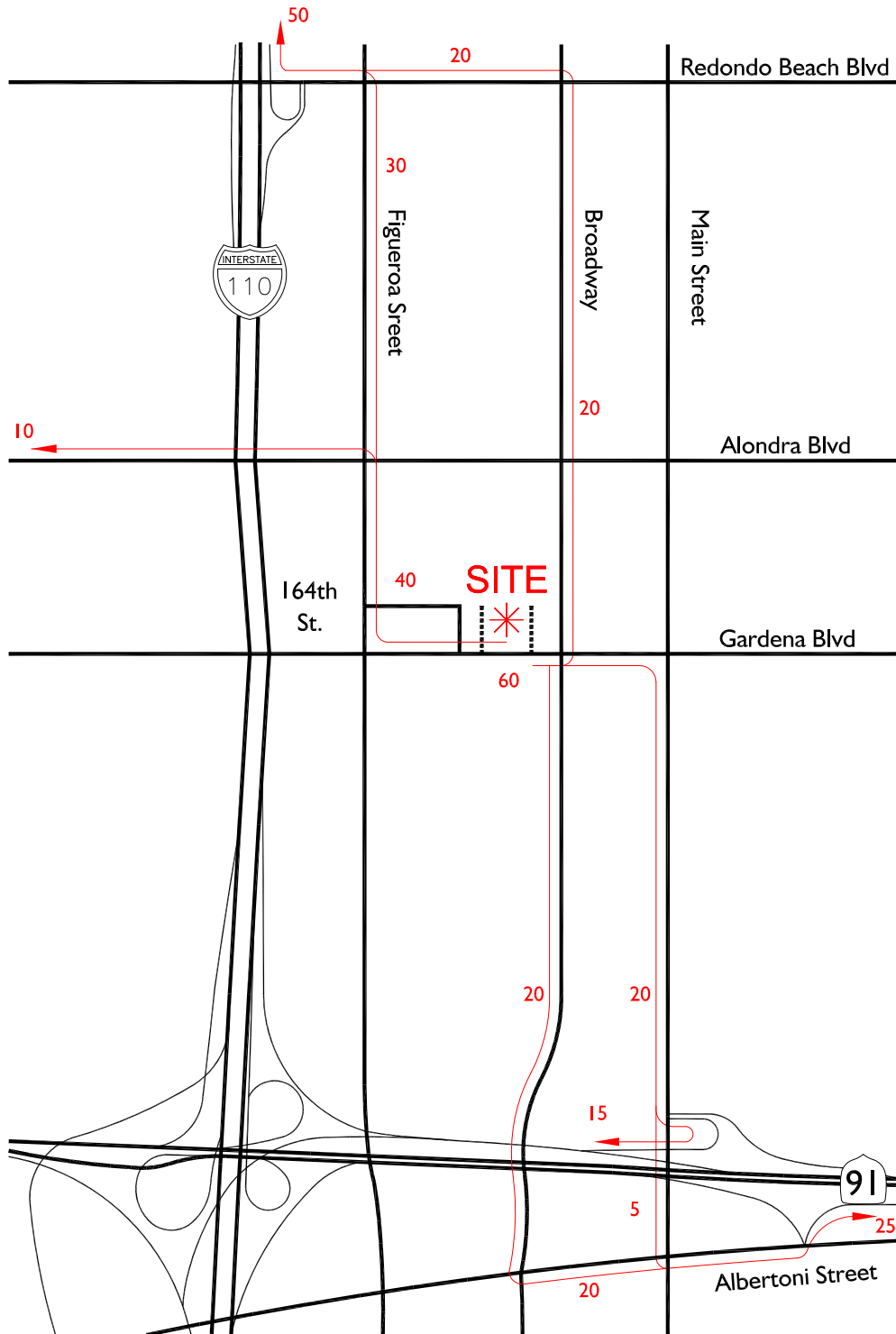


Legend:

- 10 = Percent to/from Project
- = Project Driveway



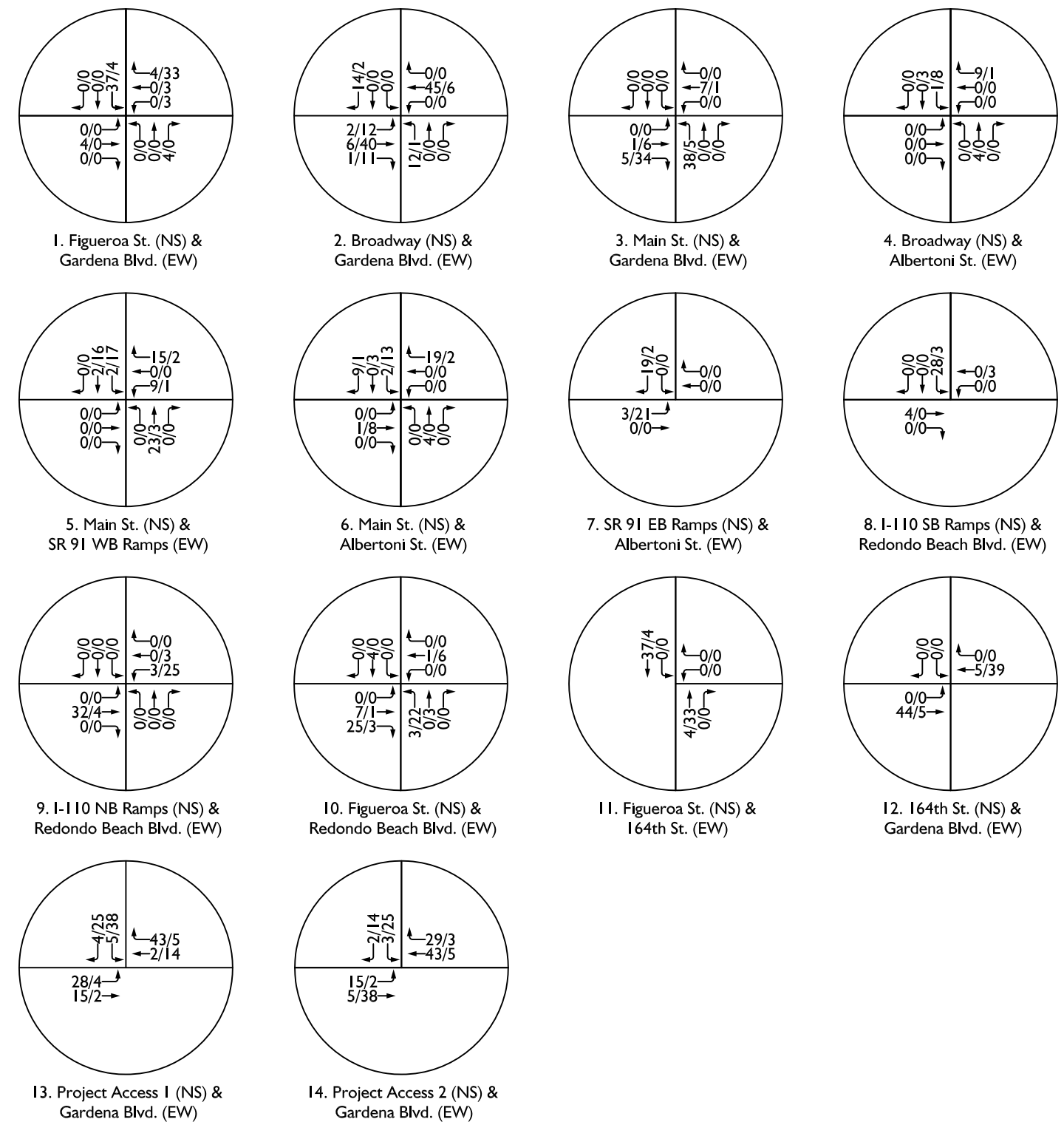
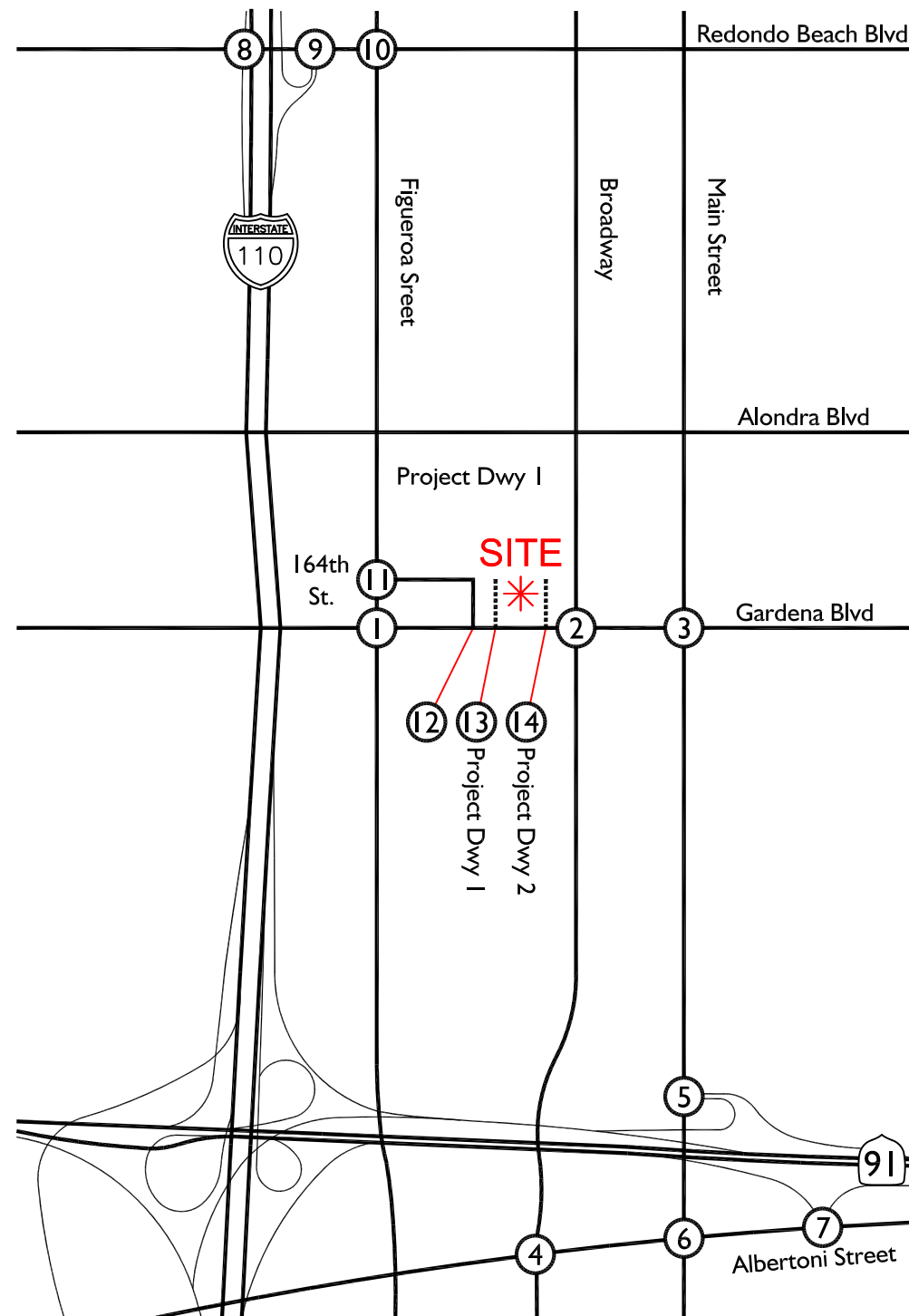
Project Trip Distribution - Trucks



Legend:

- 10 = Percent to/from Project
- = Project Driveway



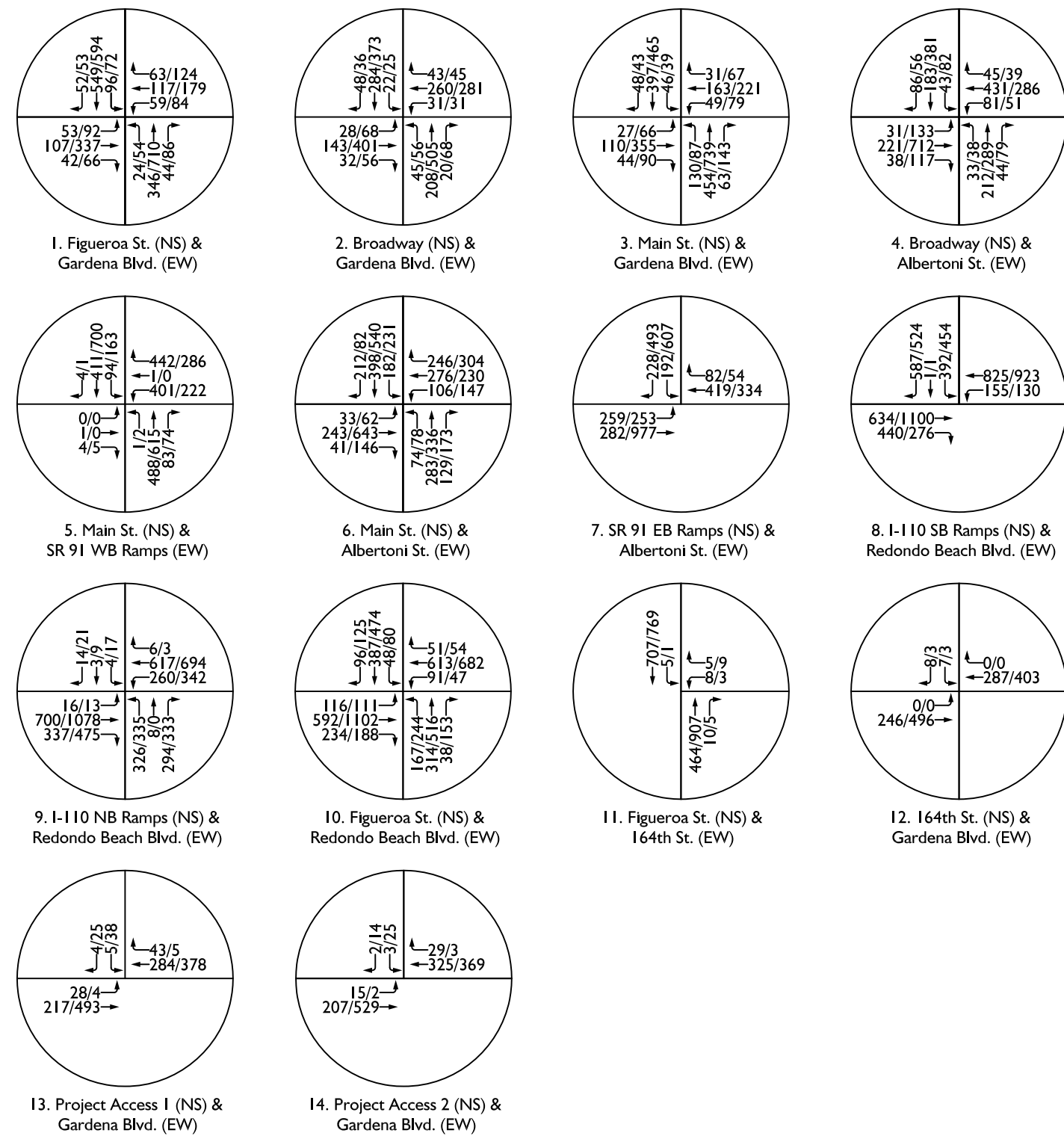
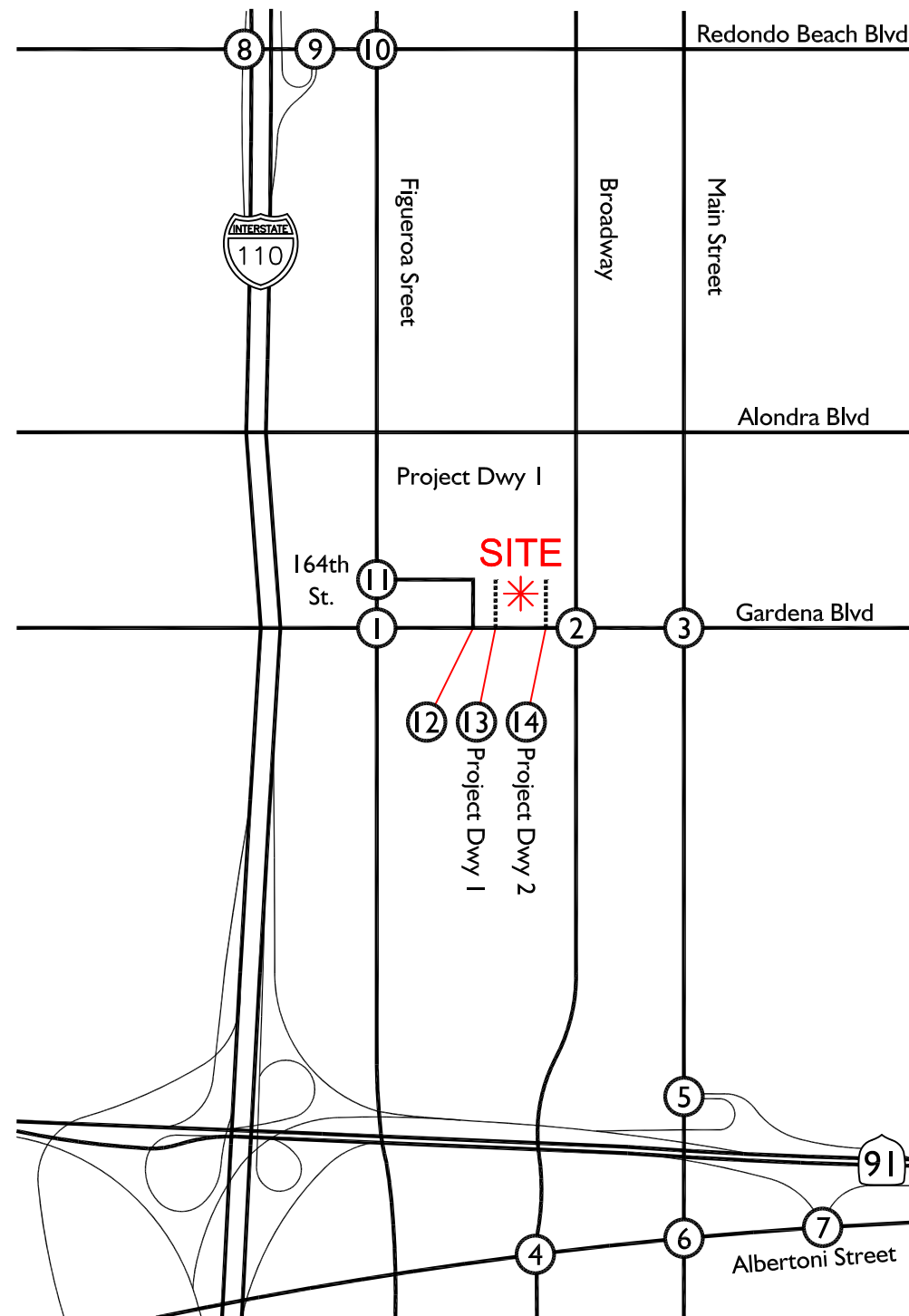


Legend:

- ① = Study Area Intersection
- = Project Driveway
- 5/10 = AM/PM Peak Hour Volumes



Forecast Existing Plus Project Traffic Volumes

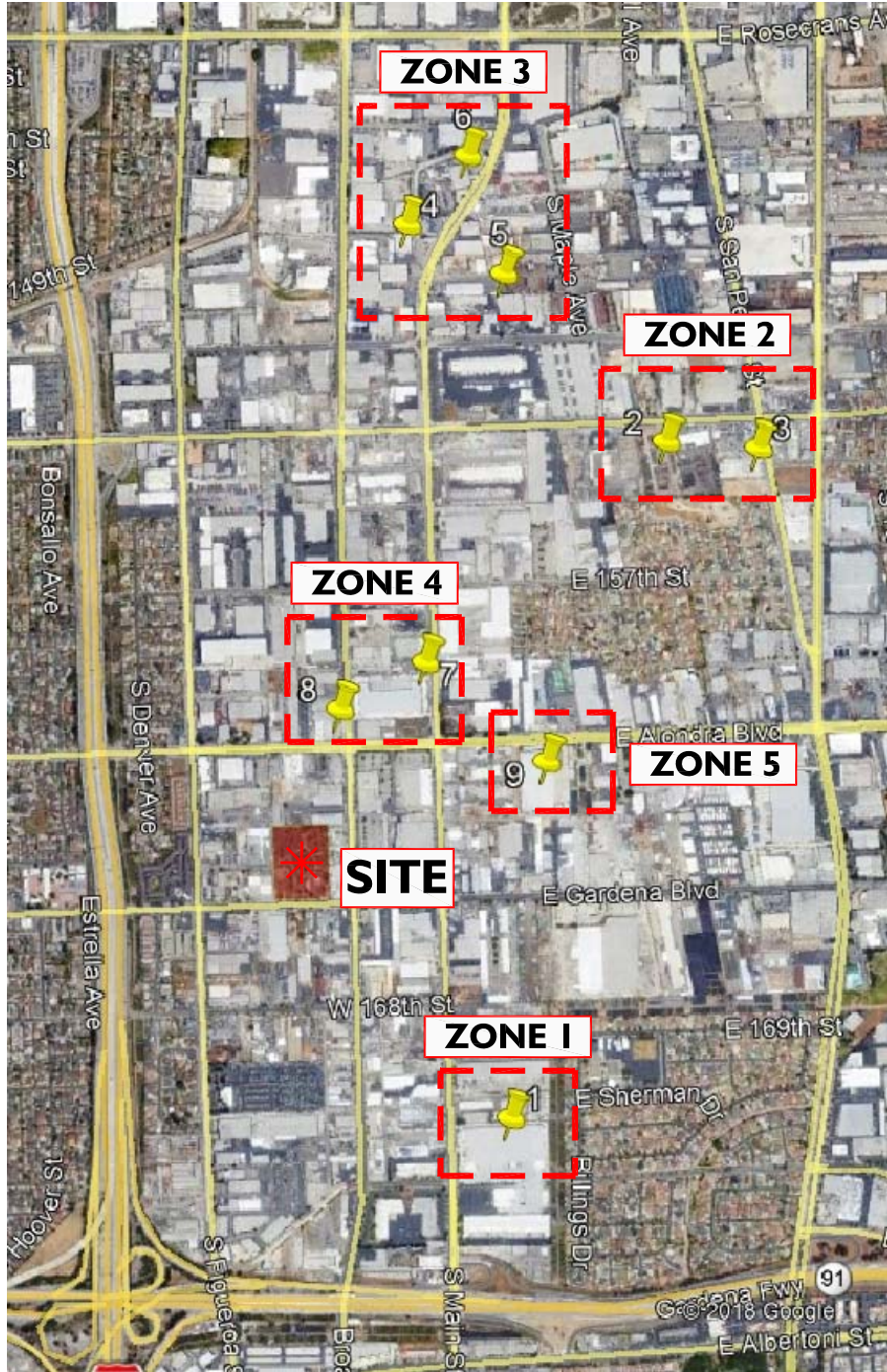


Legend:

- ① = Study Area Intersection
- = Project Driveway
- 5/10 = AM/PM Peak Hour Volumes



Exhibit I Cumulative Projects Location Map



Legend:

- ① = Cumulative Project
- * = Project Site

Zone 1:

- ① = 17110, 17118 & 17120 S. Main St.

Zone 2:

- ② = 370 E. Redondo Beach Blvd.
- ③ = 15401 S. San Pedro St.

Zone 3:

- ④ = 14835 S. Spring St.
- ⑤ = 14930 S. Main St.
- ⑥ = 14605 S. Main St.

Zone 4:

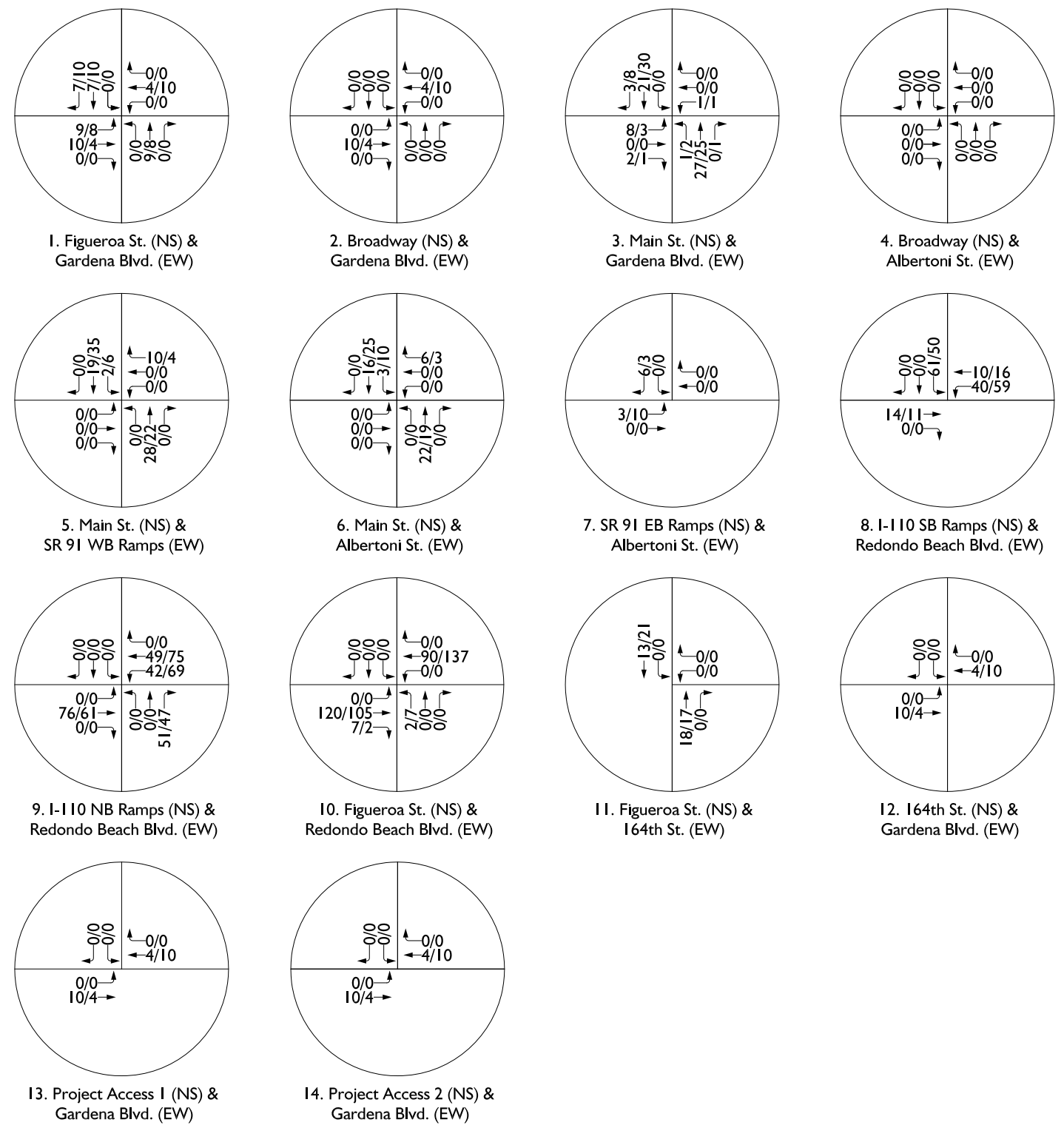
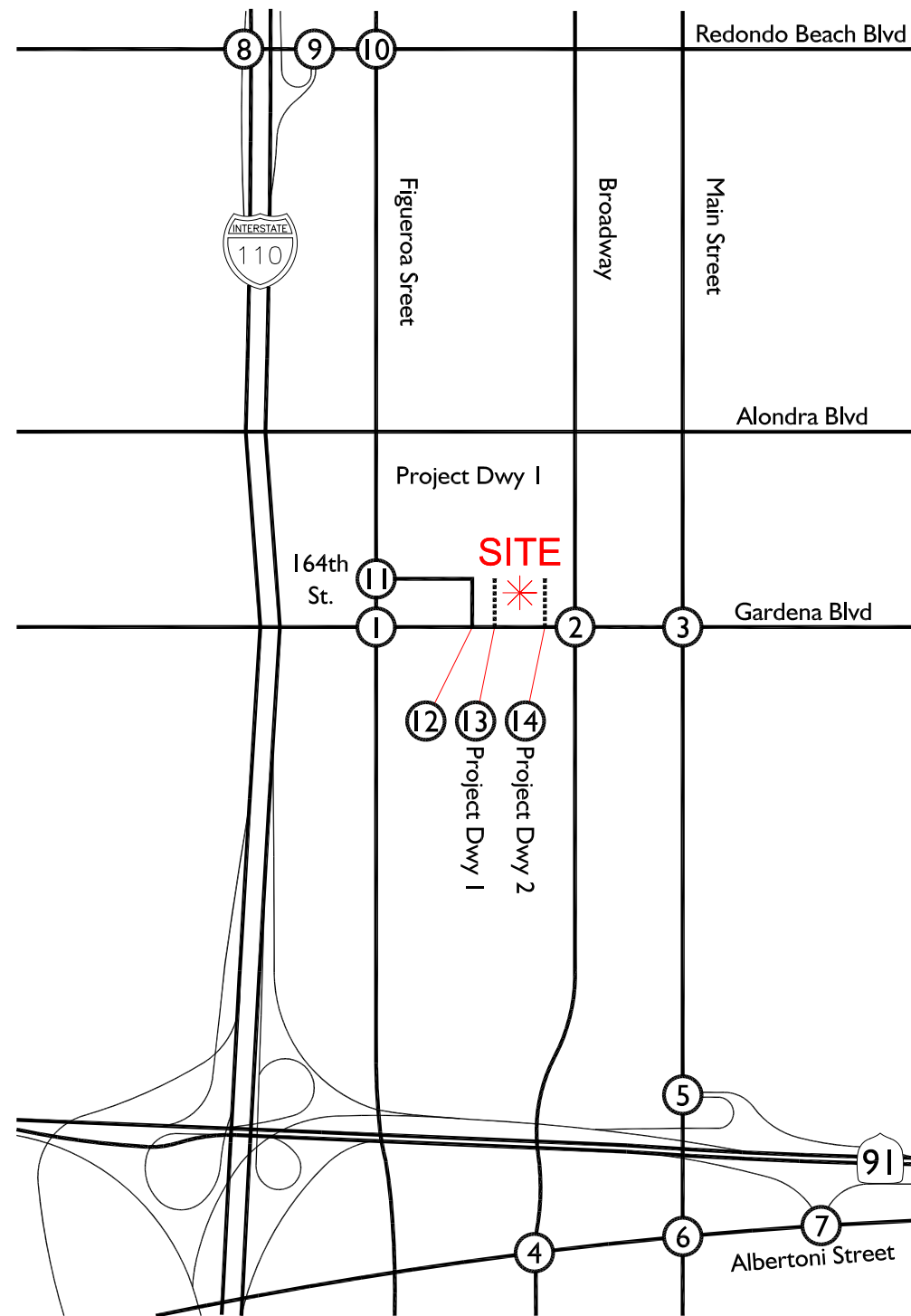
- ⑦ = 15913 S. Main St.
- ⑧ = 305 W. Alondra Blvd.

Zone 5:

- ⑨ = 200 E. Alondra Blvd.



Forecast Cumulative Project Traffic Volumes

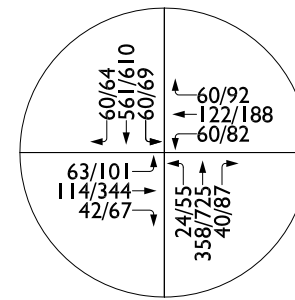
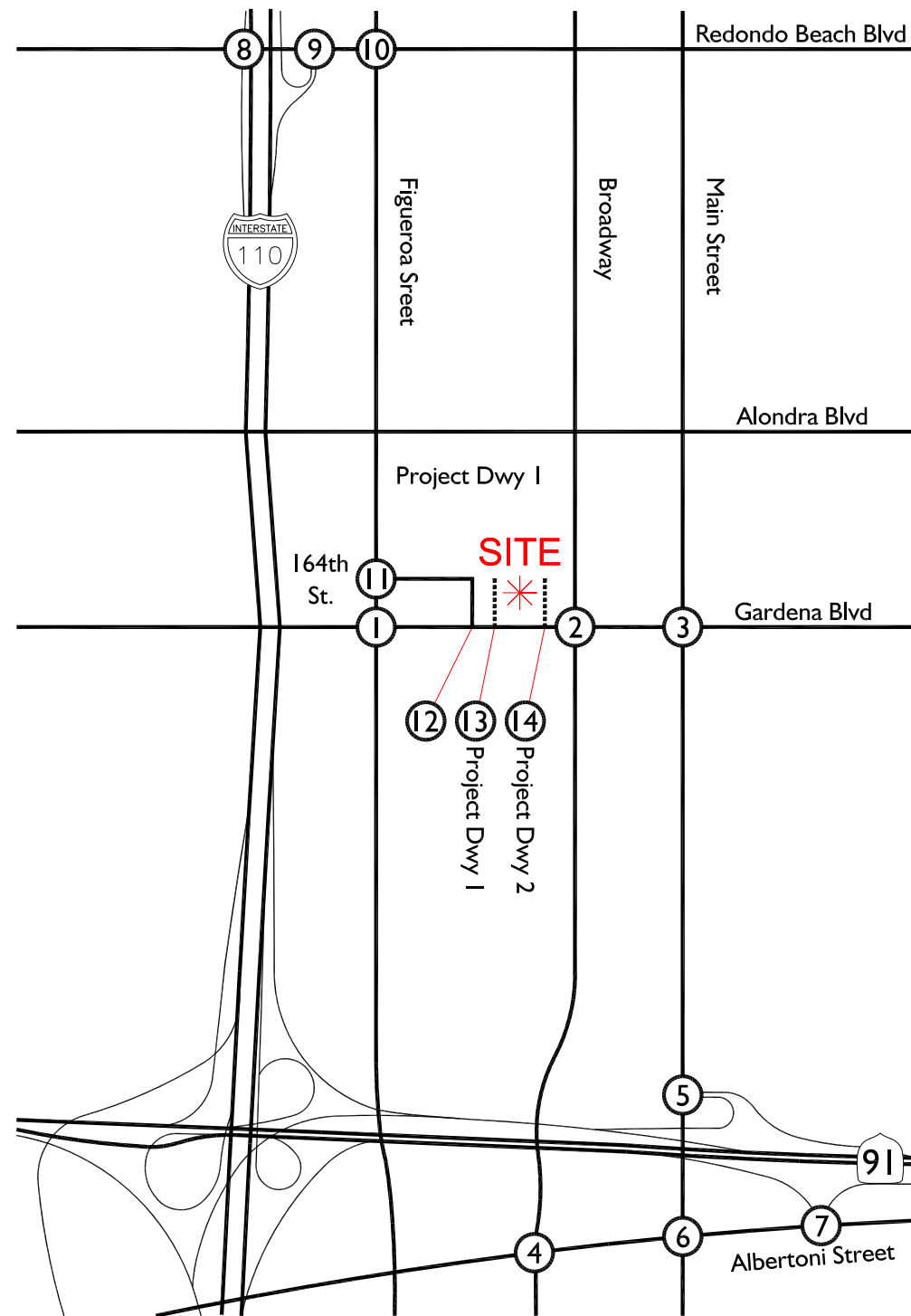


Legend:

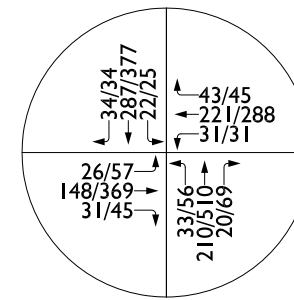
- ① = Study Area Intersection
- = Project Driveway
- 5/10 = AM/PM Peak Hour Volumes



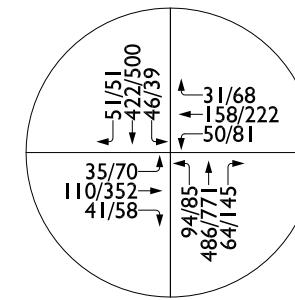
Forecast Opening Year (2021) Without Project Traffic Volumes



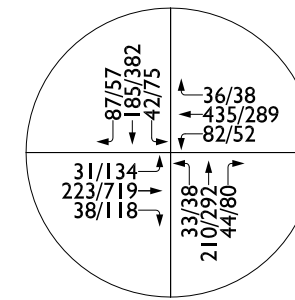
1. Figueroa St. (NS) & Gardena Blvd. (EW)



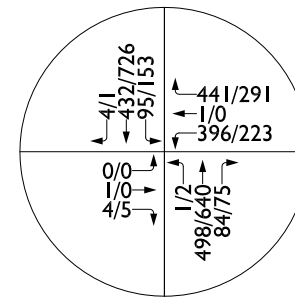
2. Broadway (NS) & Gardena Blvd. (EW)



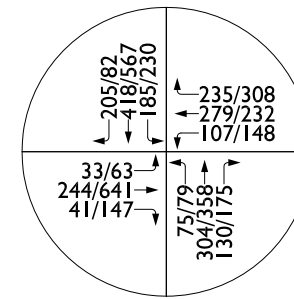
3. Main St. (NS) & Gardena Blvd. (EW)



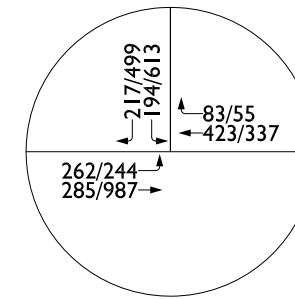
4. Broadway (NS) & Albertoni St. (EW)



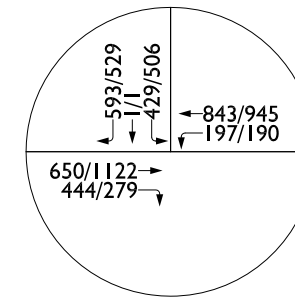
5. Main St. (NS) & SR 91 WB Ramps (EW)



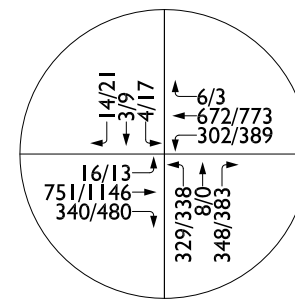
6. Main St. (NS) & Albertoni St. (EW)



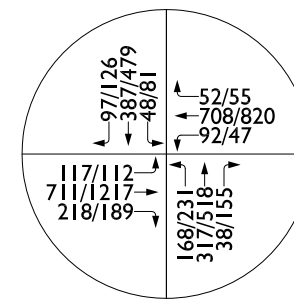
7. SR 91 EB Ramps (NS) & Albertoni St. (EW)



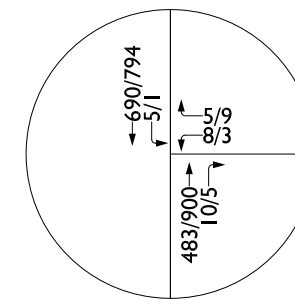
8. I-110 SB Ramps (NS) & Redondo Beach Blvd. (EW)



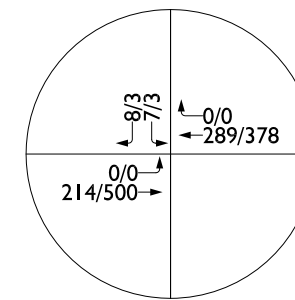
9. I-110 NB Ramps (NS) & Redondo Beach Blvd. (EW)



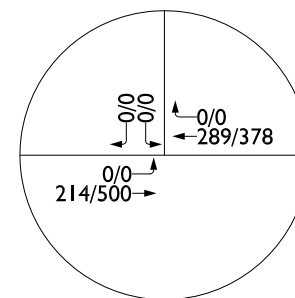
10. Figueroa St. (NS) & Redondo Beach Blvd. (EW)



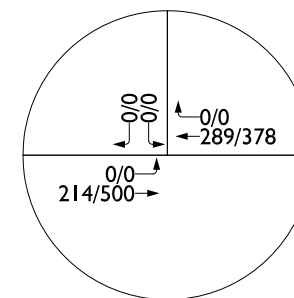
11. Figueroa St. (NS) & 164th St. (EW)



12. 164th St. (NS) & Gardena Blvd. (EW)



13. Project Access 1 (NS) & Gardena Blvd. (EW)



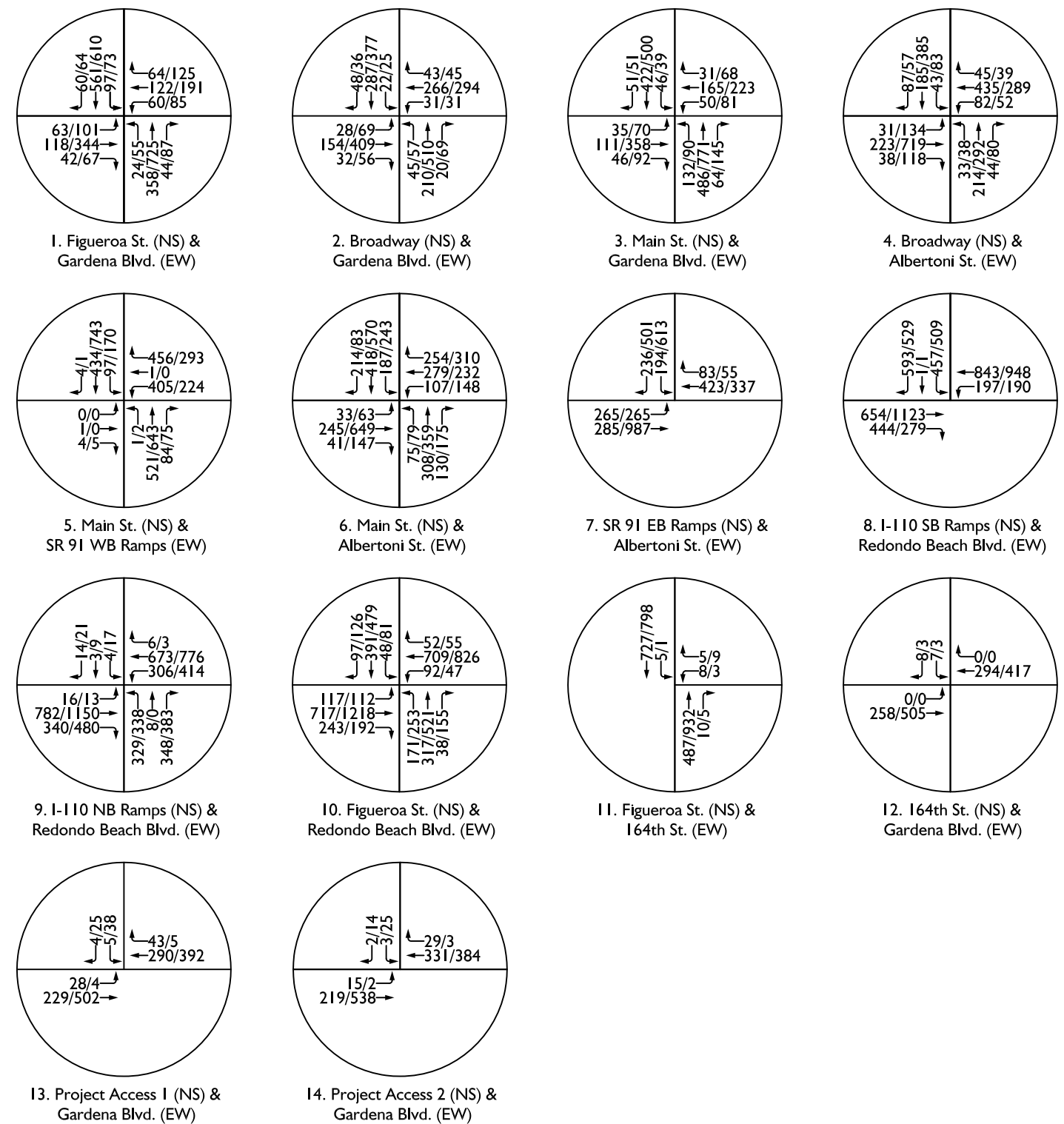
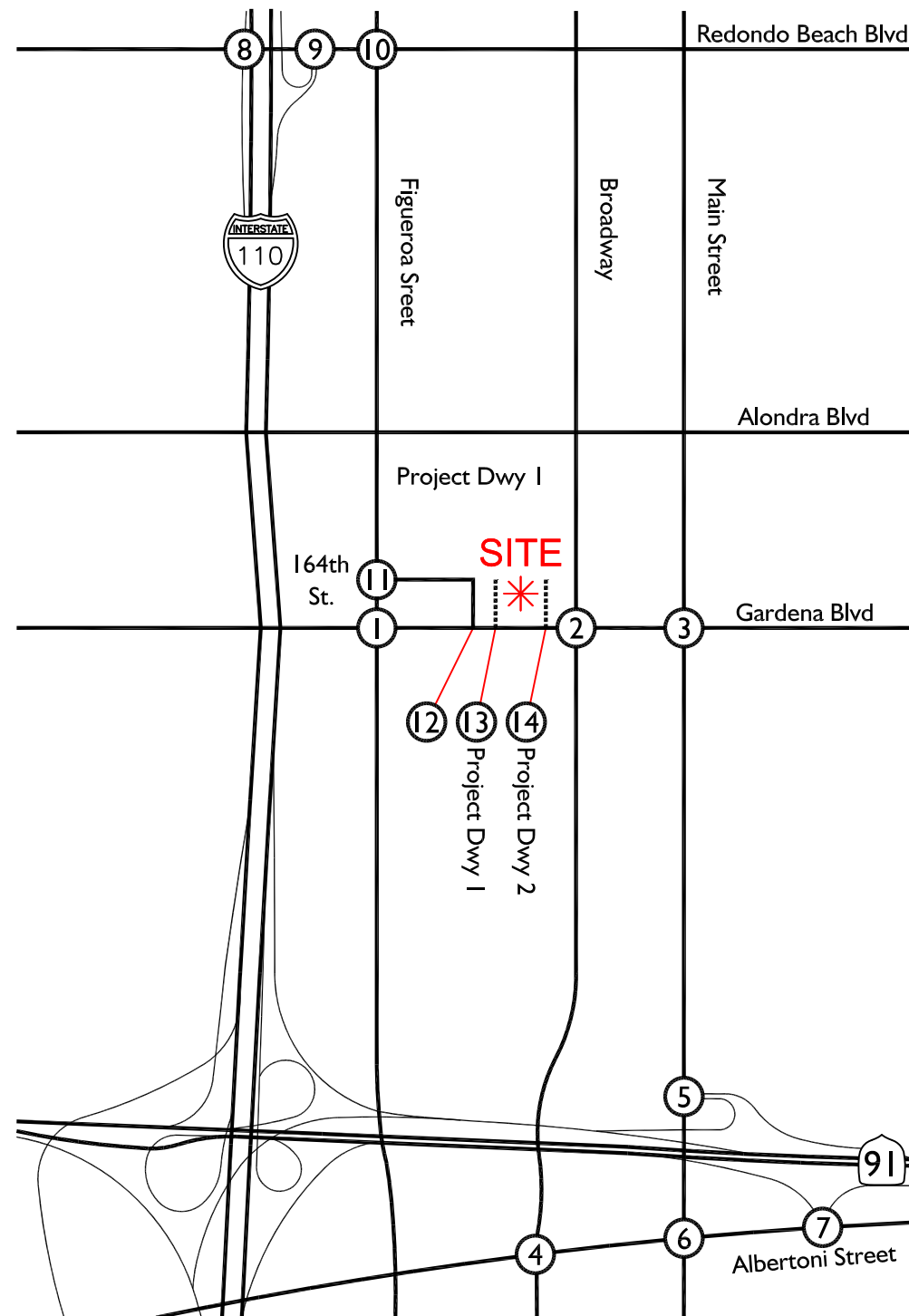
14. Project Access 2 (NS) & Gardena Blvd. (EW)

Legend:

- ① = Study Area Intersection
- = Project Driveway
- 5/10 = AM/PM Peak Hour Volumes



Forecast Opening Year (2021) With Project Traffic Volumes



Legend:

- ① = Study Area Intersection
- = Project Driveway
- 5/10 = AM/PM Peak Hour Volumes



Tables

Table 1
ITE Trip Generation Rates

Land Use	Units ¹	Peak Hour						Daily
		AM			PM			
		In	Out	Total	In	Out	Total	
Light Industrial	TSF							
Trip Generation Rates ²		0.619	0.081	0.700	0.080	0.550	0.630	4.960
PCE Inbound/Outbound Splits ³		88%	12%	100%	13%	87%	100%	--
Passenger Car Equivalent Rates Calculations								
Passenger Cars								
Recommended Mix (%) ⁴		78.60%	78.60%	78.60%	78.60%	78.60%	78.60%	78.60%
PCE Factor ⁵		1.0	1.0	1.0	1.0	1.0	1.0	1.0
PCE Rates		0.486	0.064	0.550	0.063	0.432	0.495	3.899
2-Axle Trucks								
Recommended Mix (%) ⁴		8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
PCE Factor ⁵		1.5	1.5	1.5	1.5	1.5	1.5	1.5
PCE Rates		0.074	0.010	0.084	0.010	0.066	0.076	0.595
3-Axle Trucks								
Recommended Mix (%) ⁴		3.90%	3.90%	3.90%	3.90%	3.90%	3.90%	3.90%
PCE Factor ⁵		2.0	2.0	2.0	2.0	2.0	2.0	2.0
PCE Rates		0.048	0.006	0.055	0.006	0.043	0.049	0.387
4-Axle Trucks								
Recommended Mix (%) ⁴		9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%
PCE Factor ⁵		3.0	3.0	3.0	3.0	3.0	3.0	3.0
PCE Rates		0.176	0.023	0.200	0.023	0.157	0.180	1.414
Final Rates (In Passenger Car Equivalents)								
Passenger Cars		0.486	0.064	0.550	0.063	0.432	0.495	3.899
2-Axle Trucks		0.074	0.010	0.084	0.010	0.066	0.076	0.595
3-Axle Trucks		0.048	0.006	0.055	0.006	0.043	0.049	0.387
4-Axle+ Trucks		0.176	0.023	0.200	0.023	0.157	0.180	1.414

Building Size: 145.840 TSF

¹ TSF = Thousand Square Feet

² Trip Generation Source: ITE Trip Generation, 10th Ed., 2017

³ Inbound/Outbound Splits per ITE Trip Generation, 10th Ed., 2017

⁴ Recommended Vehicle Mix Percentages per City of Fontana Truck Trip Generation Study for Light Industrial uses, August 2003 (Page 22)

⁵ Recommended PCE Factor per San Bernardino County CMP, 2005 Update

**Table 2
Proposed Project Trip Generation (Passenger Car Equivalents)**

ITE TRIP GENERATION									
Land Use	Quantity	Units¹	Weekday Peak Hour						Daily
			AM			PM			
			In	Out	Total	In	Out	Total	
Light Industrial	145.84	TSF	90	12	102	12	80	92	723

ITE TRIP GENERATION IN PASSENGER CAR EQUIVALENTS							
Vehicle Mix	Weekday Peak Hour						Daily
	AM			PM			
	In	Out	Total	In	Out	Total	
Passenger Cars	71	9	80	9	63	72	569
2-Axle Trucks	11	1	12	1	10	11	87
3-Axle Trucks	7	1	8	1	6	7	56
4-Axle+ Trucks	26	3	29	3	23	26	206
Final Trip Generation (In Passenger Car Equivalents)	115	14	129	14	102	116	918

¹ TSF = Thousand Square Feet

Table 3
Cumulative Projects Trip Generation¹

ID No.	Jurisdiction	Project Address	Peak Hour						Daily
			AM			PM			
			In	Out	Total	In	Out	Total	
TAZ 1									
1	Carson	17110, 17118 & 17120 S Main Street	22	8	30	11	22	33	456
TAZ 1 Total			22	8	30	11	22	33	456
TAZ 2									
2	Los Angeles County	370 E Redondo Beach Boulevard	2	0	2	0	2	2	16
3	Los Angeles County	15401 S San Pedro Street, Gardena	30	4	34	5	32	37	261
TAZ 2 Total			32	4	36	5	34	39	277
TAZ 3									
4	Los Angeles County	14835 S Spring Street, Gardena	0	24	20	14	0	14	399
5	Los Angeles County	14930 S Main Street, Gardena							
6	Los Angeles County	14605 S Main Street, Gardena							
TAZ 3 Total			0	24	20	14	0	14	399
TAZ 4									
5	Los Angeles County	15913 S Main Street, Gardena	178	131	309	168	208	376	5,185
6	Los Angeles County	305 W Alondra Boulevard, Gardena							
TAZ 4 Total			178	131	309	168	208	376	5,185
TAZ 5									
7	Carson	SEC of Alondra Blvd and Ball Ave	46	11	57	15	46	61	687
TAZ 5 Total			46	11	57	15	46	61	687
Total Cumulative Projects Trip Generation			278	178	452	213	310	523	7,004

¹ Cumulative Projects obtained from *Alondra Boulevard & Ball Avenue Project Traffic Impact Analysis, Table 2 & Table 6*

Table 4
City & County - Study Intersection LOS Analysis Summary
Existing Conditions

Intersection		Traffic Control ⁴	Methodology	Delay ² (Secs)		V/C Ratio ³		Level of Service	
				AM	PM	AM	PM	AM	PM
1.	Figueroa Street (NS) / Gardena Boulevard (EW)	TS	ICU	--	--	0.385	0.568	A	A
2.	Broadway (NS) / Gardena Boulevard (EW)	TS	ICU	--	--	0.317	0.441	A	A
3.	Main Street (NS) / Gardena Boulevard (EW)	TS	ICU	--	--	0.358	0.531	A	A
4.	Broadway (NS) / Albertoni Street (EW)	TS	ICU	--	--	0.370	0.552	A	A
5.	Main Street (NS) / SR-91 Westbound Ramps (EW)	TS	ICU	--	--	0.570	0.560	A	A
6.	Main Street (NS) / Albertoni Street (EW)	TS	ICU	--	--	0.532	0.717	A	C
7.	SR-91 Eastbound Ramps (NS) / Albertoni Street (EW)	TS	ICU	--	--	0.442	0.785	A	C
8.	I-110 Southbound Ramps (NS) / Redondo Beach Boulevard (EW)	TS	ICU	--	--	0.670	0.728	B	C
9.	I-110 Northbound Ramps (NS) / Redondo Beach Boulevard (EW)	TS	ICU	--	--	0.583	0.755	A	C
10.	Figueroa Street (NS) / Redondo Beach Boulevard (EW)	TS	ICU	--	--	0.586	0.760	A	C
11.	Figueroa Street (NS) / 164th Street (EW)	CSS	HCM	12.6	13.9	--	--	B	B
12.	164th Street (NS) / Gardena Boulevard (EW)	CSS	HCM	10.3	11.9	--	--	B	B
13.	Project Driveway 1 (NS) / Gardena Boulevard (EW)	CSS	HCM	--	--	--	--	--	--
14.	Project Driveway 2 (NS) / Gardena Boulevard (EW)	CSS	HCM	--	--	--	--	--	--

¹ When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. Where "1" is indicated for the through movement and "0"s are indicated for R/L movements, the R and/or L turns are shared with the through movement.

Deficient operation shown in **Bold**.

L = Left; T = Through; R = Right; > = Right Turn Overlap; >> = Free Right Turn; * = Defacto Right Turn Lane; ! = Indicates general purpose lane; **Underline** = Improvement;

² HCM Analysis Software: Synchro, Version 10.0. Per the 2010 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all-way stop control. For intersections with cross-street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

³ ICU Analysis Software: Traffix, Version 8.0. V/C = Volume to capacity ratio.

⁴ TS = Traffic Signal
 CSS = Cross-Street Stop

**Table 5
City & County - Study Intersection LOS Analysis Summary
Existing Plus Project Conditions**

Intersection	Traffic Control ⁴	Methodology	Existing Conditions						Existing Plus Project Conditions									
			Delay ² (Secs)		V/C Ratio ³		Level of Service		Delay ² (Secs)		V/C Ratio ³		Change in V/C Ratio		Level of Service		Significant Impact?	
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1. Figueroa Street (NS) / Gardena Boulevard (EW)	TS	ICU	--	--	0.385	0.568	A	A	--	--	0.386	0.572	0.001	0.004	A	A	No	No
2. Broadway (NS) / Gardena Boulevard (EW)	TS	ICU	--	--	0.317	0.441	A	A	--	--	0.344	0.457	0.027	0.016	A	A	No	No
3. Main Street (NS) / Gardena Boulevard (EW)	TS	ICU	--	--	0.358	0.531	A	A	--	--	0.384	0.544	0.026	0.013	A	A	No	No
4. Broadway (NS) / Albertoni Street (EW)	TS	ICU	--	--	0.370	0.552	A	A	--	--	0.375	0.557	0.005	0.005	A	A	No	No
5. Main Street (NS) / SR-91 Westbound Ramps (EW)	TS	ICU	--	--	0.570	0.560	A	A	--	--	0.588	0.573	0.018	0.013	A	A	No	No
6. Main Street (NS) / Albertoni Street (EW)	TS	ICU	--	--	0.532	0.717	A	C	--	--	0.545	0.721	0.013	0.004	A	C	No	No
7. SR-91 Eastbound Ramps (NS) / Albertoni Street (EW)	TS	ICU	--	--	0.442	0.785	A	C	--	--	0.454	0.785	0.012	0.000	A	C	No	No
8. I-110 Southbound Ramps (NS) / Redondo Beach Boulevard (EW)	TS	ICU	--	--	0.670	0.728	B	C	--	--	0.676	0.729	0.006	0.001	B	C	No	No
9. I-110 Northbound Ramps (NS) / Redondo Beach Boulevard (EW)	TS	ICU	--	--	0.583	0.755	A	C	--	--	0.594	0.772	0.011	0.017	A	C	No	No
10. Figueroa Street (NS) / Redondo Beach Boulevard (EW)	TS	ICU	--	--	0.586	0.760	A	C	--	--	0.589	0.774	0.003	0.014	A	C	No	No
11. Figueroa Street (NS) / 164th Street (EW)	CSS	HCM	12.6	13.9	--	--	B	B	12.7	14.2	--	--	--	--	B	B	No	No
12. 164th Street (NS) / Gardena Boulevard (EW)	CSS	HCM	10.3	11.9	--	--	B	B	10.5	12.3	--	--	--	--	B	B	No	No
13. Project Driveway 1 (NS) / Gardena Boulevard (EW)	CSS	HCM	--	--	--	--	--	--	11.2	13.8	--	--	--	--	B	B	--	--
14. Project Driveway 2 (NS) / Gardena Boulevard (EW)	CSS	HCM	--	--	--	--	--	--	11.3	13.5	--	--	--	--	B	B	--	--

¹ When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. Where "1" is indicated for the through movement and "0"s are indicated for R/L movements, the R and/or L turns are shared with the through movement. Deficient operation shown in **Bold**.

L = Left; T = Through; R = Right; > = Right Turn Overlap; >> = Free Right Turn; * = Defacto Right Turn Lane; ! = Indicates general purpose lane; **Bold Underline** = Improvement;

² HCM Analysis Software: Synchro, Version 10.0. Per the 2010 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all-way stop control. For intersections with cross-street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

³ ICU Analysis Software: Traffix, Version 8.0. V/C = Volume to capacity ratio.

⁴ TS = Traffic Signal
CSS = Cross-Street Stop

Table 6
City & County - Study Intersection LOS Analysis Summary
Forecast Opening Year (2021) Without Project Conditions

Intersection		Traffic Control ⁴	Methodology	Delay ² (Secs)		V/C Ratio ³		Level of Service	
				AM	PM	AM	PM	AM	PM
1.	Figueroa Street (NS) / Gardena Boulevard (EW)	TS	ICU	--	--	0.405	0.576	A	A
2.	Broadway (NS) / Gardena Boulevard (EW)	TS	ICU	--	--	0.320	0.446	A	A
3.	Main Street (NS) / Gardena Boulevard (EW)	TS	ICU	--	--	0.369	0.544	A	A
4.	Broadway (NS) / Albertoni Street (EW)	TS	ICU	--	--	0.373	0.557	A	A
5.	Main Street (NS) / SR-91 Westbound Ramps (EW)	TS	ICU	--	--	0.591	0.578	A	A
6.	Main Street (NS) / Albertoni Street (EW)	TS	ICU	--	--	0.548	0.737	A	C
7.	SR-91 Eastbound Ramps (NS) / Albertoni Street (EW)	TS	ICU	--	--	0.450	0.792	A	C
8.	I-110 Southbound Ramps (NS) / Redondo Beach Boulevard (EW)	TS	ICU	--	--	0.714	0.785	C	C
9.	I-110 Northbound Ramps (NS) / Redondo Beach Boulevard (EW)	TS	ICU	--	--	0.637	0.823	B	D
10.	Figueroa Street (NS) / Redondo Beach Boulevard (EW)	TS	ICU	--	--	0.620	0.804	B	D
11.	Figueroa Street (NS) / 164th Street (EW)	CSS	HCM	12.8	14.1	--	--	B	B
12.	164th Street (NS) / Gardena Boulevard (EW)	CSS	HCM	10.4	12.0	--	--	B	B
13.	Project Driveway 1 (NS) / Gardena Boulevard (EW)	CSS	HCM	--	--	--	--	--	--
14.	Project Driveway 2 (NS) / Gardena Boulevard (EW)	CSS	HCM	--	--	--	--	--	--

¹ When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. Where "1" is indicated for the through movement and "0"s are indicated for R/L movements, the R and/or L turns are shared with the through movement.

Deficient operation shown in **Bold**.

L = Left; T = Through; R = Right; > = Right Turn Overlap; >> = Free Right Turn; * = Defacto Right Turn Lane; ! = Indicates general purpose lane; **Underline** = Improvement;

² HCM Analysis Software: Synchro, Version 10.0. Per the 2010 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all-way stop control. For intersections with cross-street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

³ ICU Analysis Software: Traffix, Version 8.0. V/C = Volume to capacity ratio.

⁴ TS = Traffic Signal
 CSS = Cross-Street Stop

Table 7
City of Carson - Study Intersection LOS Analysis Summary
Forecast Opening Year (2021) With Project Conditions

Intersection	Traffic Control ⁴	Methodology	Forecast Opening Year (2021)								Forecast Opening Year (2021)							
			Without Project Conditions				With Project Conditions				Without Project Conditions				With Project Conditions			
			Delay ² (Secs)		V/C Ratio ³		Level of Service		Delay ² (Secs)		V/C Ratio ³		Change in V/C Ratio		Level of Service		Significant Impact?	
AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	
1. Figueroa Street (NS) / Gardena Boulevard (EW)	TS	ICU	--	--	0.405	0.576	A	A	--	--	0.406	0.581	0.001	0.005	A	A	No	No
2. Broadway (NS) / Gardena Boulevard (EW)	TS	ICU	--	--	0.320	0.446	A	A	--	--	0.347	0.462	0.027	0.016	A	A	No	No
3. Main Street (NS) / Gardena Boulevard (EW)	TS	ICU	--	--	0.369	0.544	A	A	--	--	0.395	0.557	0.026	0.013	A	A	No	No
4. Broadway (NS) / Albertoni Street (EW)	TS	ICU	--	--	0.373	0.557	A	A	--	--	0.378	0.562	0.005	0.005	A	A	No	No
5. Main Street (NS) / SR-91 Westbound Ramps (EW)	TS	ICU	--	--	0.591	0.578	A	A	--	--	0.608	0.591	0.017	0.013	B	A	No	No
6. Main Street (NS) / Albertoni Street (EW)	TS	ICU	--	--	0.548	0.737	A	C	--	--	0.558	0.741	0.010	0.004	A	C	No	No
7. SR-91 Eastbound Ramps (NS) / Albertoni Street (EW)	TS	ICU	--	--	0.450	0.792	A	C	--	--	0.462	0.792	0.012	0.000	A	C	No	No
8. I-110 Southbound Ramps (NS) / Redondo Beach Boulevard (EW)	TS	ICU	--	--	0.714	0.785	C	C	--	--	0.719	0.786	0.005	0.001	C	C	No	No
9. I-110 Northbound Ramps (NS) / Redondo Beach Boulevard (EW)	TS	ICU	--	--	0.637	0.823	B	D	--	--	0.650	0.840	0.013	0.017	B	D	No	No
10. Figueroa Street (NS) / Redondo Beach Boulevard (EW)	TS	ICU	--	--	0.620	0.804	B	D	--	--	0.624	0.818	0.004	0.014	B	D	No	No
11. Figueroa Street (NS) / 164th Street (EW)	CSS	HCM	12.8	14.1	--	--	B	B	12.9	14.5	--	--	--	--	B	B	No	No
12. 164th Street (NS) / Gardena Boulevard (EW)	CSS	HCM	10.4	12.0	--	--	B	B	10.6	12.4	--	--	--	--	B	B	No	No
13. Project Driveway 1 (NS) / Gardena Boulevard (EW)	CSS	HCM	--	--	--	--	--	--	11.3	14.1	--	--	--	--	B	B	--	--
14. Project Driveway 2 (NS) / Gardena Boulevard (EW)	CSS	HCM	--	--	--	--	--	--	11.4	13.8	--	--	--	--	B	B	--	--

¹ When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. Where "1" is indicated for the through movement and "0"s are indicated for R/L movements, the R and/or L turns are shared with the through movement. Deficient operation shown in **Bold**.

L = Left; T = Through; R = Right; > = Right Turn Overlap; >> = Free Right Turn; * = Defacto Right Turn Lane; ! = Indicates general purpose lane; **Bold Underline** = Improvement;

² HCM Analysis Software: Synchro, Version 10.0. Per the 2010 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all-way stop control. For intersections with cross-street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

³ ICU Analysis Software: Traffix, Version 8.0. V/C = Volume to capacity ratio.

⁴ TS = Traffic Signal
 CSS = Cross-Street Stop

Table 8
State Highway - Study Intersection LOS Analysis Summary
Existing Conditions

Intersection		Traffic Control ⁴	Methodology	Delay ² (Secs)		Level of Service	
				AM	PM	AM	PM
5.	Main Street (NS) / SR-91 Westbound Ramps (EW)	TS	HCM	27.1	18.3	C	B
7.	SR-91 Eastbound Ramps (NS) / Albertoni Street (EW)	TS	HCM	15.2	20.2	B	C
8.	I-110 Southbound Ramps (NS) / Redondo Beach Boulevard (EW)	TS	HCM	21.0	19.7	C	B
9.	I-110 Northbound Ramps (NS) / Redondo Beach Boulevard (EW)	TS	HCM	34.4	42.1	C	D
11.	Figueroa Street (NS) / 164th Street (EW)	CSS	HCM	12.6	13.9	B	B
12.	164th Street (NS) / Gardena Boulevard (EW)	CSS	HCM	10.3	11.9	B	B
13.	Project Driveway 1 (NS) / Gardena Boulevard (EW)	CSS	HCM	--	--	--	--
14.	Project Driveway 2 (NS) / Gardena Boulevard (EW)	CSS	HCM	--	--	--	--

¹ When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. Where "1" is indicated for the through movement and "0"s are indicated for R/L movements, the R and/or L turns are shared with the through movement.

Deficient operation shown in **Bold**.

L = Left; T = Through; R = Right; > = Right Turn Overlap; >> = Free Right Turn; * = Defacto Right Turn Lane; ! = Indicates general purpose lane; **Improvement** = Improvement;

² HCM Analysis Software: Synchro, Version 10.0. Per the 2010 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all-way stop control. For intersections with cross-street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

³ ICU Analysis Software: Traffix, Version 8.0. V/C = Volume to capacity ratio.

⁴ TS = Traffic Signal

CSS = Cross-Street Stop

Table 9
State Highway - Study Intersection LOS Analysis Summary
Existing Plus Project Conditions

Intersection		Traffic Control ⁴	Methodology	Existing Conditions				Existing Plus Project Conditions					
				Delay ² (Secs)		Level of Service		Delay ² (Secs)		Level of Service		Significant Impact?	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
5.	Main Street (NS) / SR-91 Westbound Ramps (EW)	TS	HCM	27.1	18.3	C	B	24.4	19.1	C	B	No	No
7.	SR-91 Eastbound Ramps (NS) / Albertoni Street (EW)	TS	HCM	15.2	20.2	B	C	15.2	20.0	B	B	No	No
8.	I-110 Southbound Ramps (NS) / Redondo Beach Boulevard (EW)	TS	HCM	21.0	19.7	C	B	21.2	19.8	C	B	No	No
9.	I-110 Northbound Ramps (NS) / Redondo Beach Boulevard (EW)	TS	HCM	34.4	42.1	C	D	36.5	48.4	D	D	No	No
11.	Figueroa Street (NS) / 164th Street (EW)	CSS	HCM	12.6	13.9	B	B	12.7	14.2	B	B	No	No
12.	164th Street (NS) / Gardena Boulevard (EW)	CSS	HCM	10.3	11.9	B	B	10.5	12.3	B	B	No	No
13.	Project Driveway 2 (NS) / Gardena Boulevard (EW)	CSS	HCM	--	--	--	--	11.2	13.8	B	B	--	--
14.	Project Driveway 3 (NS) / Gardena Boulevard (EW)	CSS	HCM	--	--	--	--	11.3	13.5	B	B	--	--

¹ When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. Where "1" is indicated for the through movement and "0"s are indicated for R/L movements, the R and/or L turns are shared with the through movement.

Deficient operation shown in **Bold**.

L = Left; T = Through; R = Right; > = Right Turn Overlap; >> = Free Right Turn; * = Defacto Right Turn Lane; ! = Indicates general purpose lane; **Underline** = Improvement;

² HCM Analysis Software: Synchro, Version 10.0. Per the 2010 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all-way stop control. For intersections with cross-street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

³ ICU Analysis Software: Traffix, Version 8.0. V/C = Volume to capacity ratio.

⁴ TS = Traffic Signal
 CSS = Cross-Street Stop

Table 10
State Highway - Study Intersection LOS Analysis Summary
Forecast Opening Year (2021) Without Project Conditions

Intersection		Traffic Control ⁴	Methodology	Delay ² (Secs)		Level of Service	
				AM	PM	AM	PM
5.	Main Street (NS) / SR-91 Westbound Ramps (EW)	TS	HCM	24.3	18.9	C	B
7.	SR-91 Eastbound Ramps (NS) / Albertoni Street (EW)	TS	HCM	15.2	20.1	B	C
8.	I-110 Southbound Ramps (NS) / Redondo Beach Boulevard (EW)	TS	HCM	22.5	22.6	C	C
9.	I-110 Northbound Ramps (NS) / Redondo Beach Boulevard (EW)	TS	HCM	45.4	51.2	D	D
11.	Figueroa Street (NS) / 164th Street (EW)	CSS	HCM	12.8	14.1	B	B
12.	164th Street (NS) / Gardena Boulevard (EW)	CSS	HCM	10.4	12.0	B	B
13.	Project Driveway 2 (NS) / Gardena Boulevard (EW)	CSS	HCM	--	--	--	--
14.	Project Driveway 3 (NS) / Gardena Boulevard (EW)	CSS	HCM	--	--	--	--

¹ When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. Where "1" is indicated for the through movement and "0"s are indicated for R/L movements, the R and/or L turns are shared with the through movement.

Deficient operation shown in **Bold**.

L = Left; T = Through; R = Right; > = Right Turn Overlap; >> = Free Right Turn; * = Defacto Right Turn Lane; ! = Indicates general purpose lane; **Improvement** = Improvement;

² HCM Analysis Software: Synchro, Version 10.0. Per the 2010 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all-way stop control. For intersections with cross-street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

³ ICU Analysis Software: Traffix, Version 8.0. V/C = Volume to capacity ratio.

⁴ TS = Traffic Signal

CSS = Cross-Street Stop

Table 11
State Highway - Study Intersection LOS Analysis Summary
Forecast Opening Year (2021) With Project Conditions

Intersection		Traffic Control ⁴	Methodology	Forecast Opening Year (2021)				Forecast Opening Year (2021)					
				Without Project Conditions				With Project Conditions					
				Delay ² (Secs)		Level of Service		Delay ² (Secs)		Level of Service		Significant Impact?	
AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM		
5.	Main Street (NS) / SR-91 Westbound Ramps (EW)	TS	HCM	24.3	18.9	C	B	25.3	19.6	C	B	No	No
7.	SR-91 Eastbound Ramps (NS) / Albertoni Street (EW)	TS	HCM	15.2	20.1	B	C	15.3	21.2	B	C	No	No
8.	I-110 Southbound Ramps (NS) / Redondo Beach Boulevard (EW)	TS	HCM	22.5	22.6	C	C	22.7	22.7	C	C	No	No
9.	I-110 Northbound Ramps (NS) / Redondo Beach Boulevard (EW)	TS	HCM	45.4	51.2	D	D	48.5	54.5	D	D	No	No
11.	Figueroa Street (NS) / 164th Street (EW)	CSS	HCM	12.8	14.1	B	B	12.9	14.5	B	B	No	No
12.	164th Street (NS) / Gardena Boulevard (EW)	CSS	HCM	10.4	12.0	B	B	10.6	12.4	B	B	No	No
13.	Project Driveway 1 (NS) / Gardena Boulevard (EW)	CSS	HCM	--	--	--	--	11.3	14.1	B	B	--	--
14.	Project Driveway 2 (NS) / Gardena Boulevard (EW)	CSS	HCM	--	--	--	--	11.4	13.8	B	B	--	--

¹ When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. Where "1" is indicated for the through movement and "0"s are indicated for R/L movements, the R and/or L turns are shared with the through movement.

Deficient operation shown in **Bold**.

L = Left; T = Through; R = Right; > = Right Turn Overlap; >> = Free Right Turn; * = Defacto Right Turn Lane; ! = Indicates general purpose lane; **Bold Underline** = Improvement;

² HCM Analysis Software: Synchro, Version 10.0. Per the 2010 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all-way stop control. For intersections with cross-street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

³ ICU Analysis Software: Traffix, Version 8.0. V/C = Volume to capacity ratio.

⁴ TS = Traffic Signal
 CSS = Cross-Street Stop

Appendices

Appendix A

Existing Traffic Count Worksheets

City of Carson
 N/S: South Figueroa Street
 E/W: West Gardena Boulevard
 Weather: Clear

File Name : 01_CRS_Figueroa_Gardena AM
 Site Code : 10519499
 Start Date : 7/18/2019
 Page No : 1

Groups Printed- Total Volume

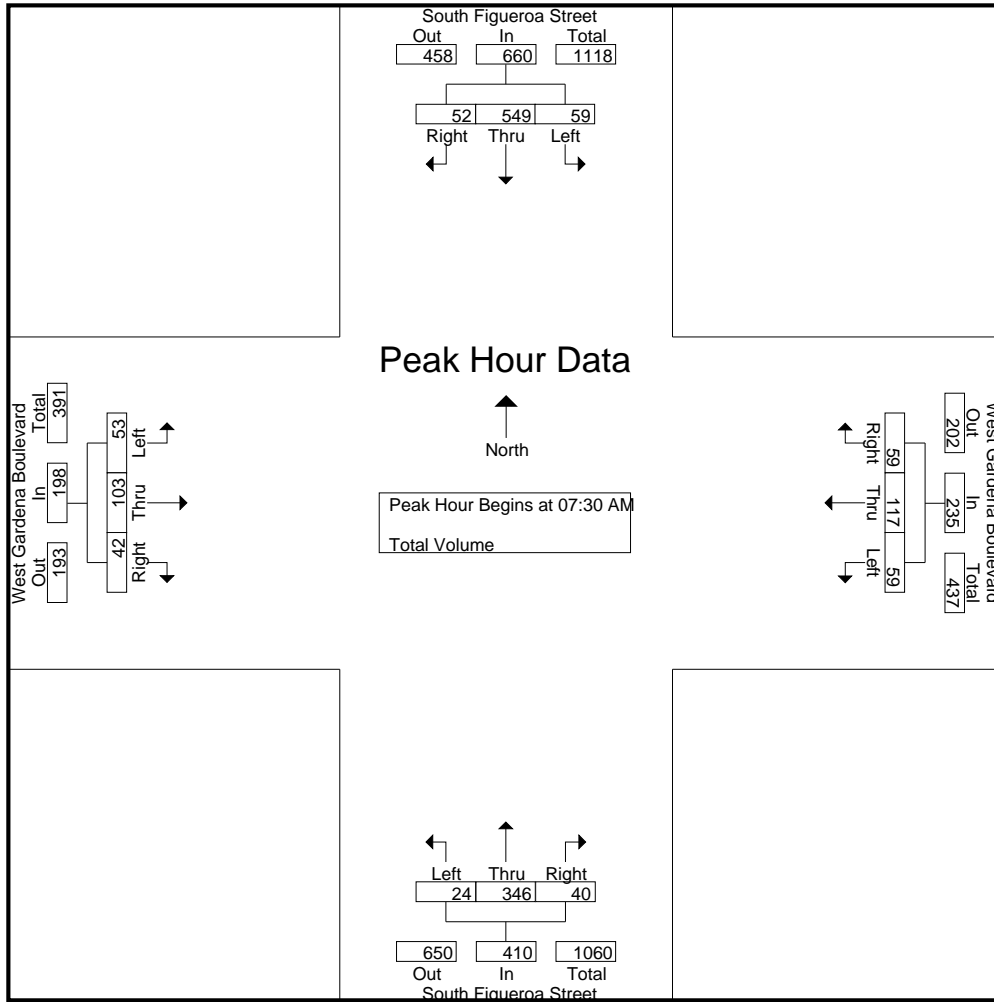
Start Time	South Figueroa Street Southbound				West Gardena Boulevard Westbound				South Figueroa Street Northbound				West Gardena Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	13	96	8	117	15	21	24	60	5	58	8	71	11	18	7	36	284
07:15 AM	15	124	16	155	18	25	15	58	9	65	6	80	12	28	6	46	339
07:30 AM	17	149	13	179	18	25	16	59	3	74	10	87	11	20	10	41	366
07:45 AM	15	146	16	177	23	34	12	69	7	100	9	116	15	30	12	57	419
Total	60	515	53	628	74	105	67	246	24	297	33	354	49	96	35	180	1408
08:00 AM	15	130	11	156	10	31	17	58	10	82	6	98	17	24	10	51	363
08:15 AM	12	124	12	148	8	27	14	49	4	90	15	109	10	29	10	49	355
08:30 AM	6	96	14	116	9	32	16	57	10	79	4	93	22	26	8	56	322
08:45 AM	11	91	9	111	14	31	18	63	16	100	6	122	14	35	10	59	355
Total	44	441	46	531	41	121	65	227	40	351	31	422	63	114	38	215	1395
09:00 AM	10	99	16	125	5	23	15	43	9	96	5	110	13	22	13	48	326
09:15 AM	5	94	11	110	8	22	10	40	4	93	9	106	9	22	8	39	295
09:30 AM	15	78	8	101	8	24	12	44	10	78	9	97	7	29	8	44	286
09:45 AM	8	83	6	97	8	30	21	59	8	64	10	82	13	22	9	44	282
Total	38	354	41	433	29	99	58	186	31	331	33	395	42	95	38	175	1189
Grand Total	142	1310	140	1592	144	325	190	659	95	979	97	1171	154	305	111	570	3992
Apprch %	8.9	82.3	8.8		21.9	49.3	28.8		8.1	83.6	8.3		27	53.5	19.5		
Total %	3.6	32.8	3.5	39.9	3.6	8.1	4.8	16.5	2.4	24.5	2.4	29.3	3.9	7.6	2.8	14.3	

Start Time	South Figueroa Street Southbound				West Gardena Boulevard Westbound				South Figueroa Street Northbound				West Gardena Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:30 AM	17	149	13	179	18	25	16	59	3	74	10	87	11	20	10	41	366
07:45 AM	15	146	16	177	23	34	12	69	7	100	9	116	15	30	12	57	419
08:00 AM	15	130	11	156	10	31	17	58	10	82	6	98	17	24	10	51	363
08:15 AM	12	124	12	148	8	27	14	49	4	90	15	109	10	29	10	49	355
Total Volume	59	549	52	660	59	117	59	235	24	346	40	410	53	103	42	198	1503
% App. Total	8.9	83.2	7.9		25.1	49.8	25.1		5.9	84.4	9.8		26.8	52	21.2		
PHF	.868	.921	.813	.922	.641	.860	.868	.851	.600	.865	.667	.884	.779	.858	.875	.868	.897

Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

City of Carson
 N/S: South Figueroa Street
 E/W: West Gardena Boulevard
 Weather: Clear

File Name : 01_CRS_Figueroa_Gardena AM
 Site Code : 10519499
 Start Date : 7/18/2019
 Page No : 2



Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM				07:00 AM				08:45 AM				08:00 AM			
+0 mins.	15	124	16	155	15	21	24	60	16	100	6	122	17	24	10	51
+15 mins.	17	149	13	179	18	25	15	58	9	96	5	110	10	29	10	49
+30 mins.	15	146	16	177	18	25	16	59	4	93	9	106	22	26	8	56
+45 mins.	15	130	11	156	23	34	12	69	10	78	9	97	14	35	10	59
Total Volume	62	549	56	667	74	105	67	246	39	367	29	435	63	114	38	215
% App. Total	9.3	82.3	8.4		30.1	42.7	27.2		9	84.4	6.7		29.3	53	17.7	
PHF	.912	.921	.875	.932	.804	.772	.698	.891	.609	.918	.806	.891	.716	.814	.950	.911

City of Carson
 N/S: South Figueroa Street
 E/W: West Gardena Boulevard
 Weather: Clear

File Name : 01_CRS_Figueroa_Gardena PM
 Site Code : 10519499
 Start Date : 7/18/2019
 Page No : 1

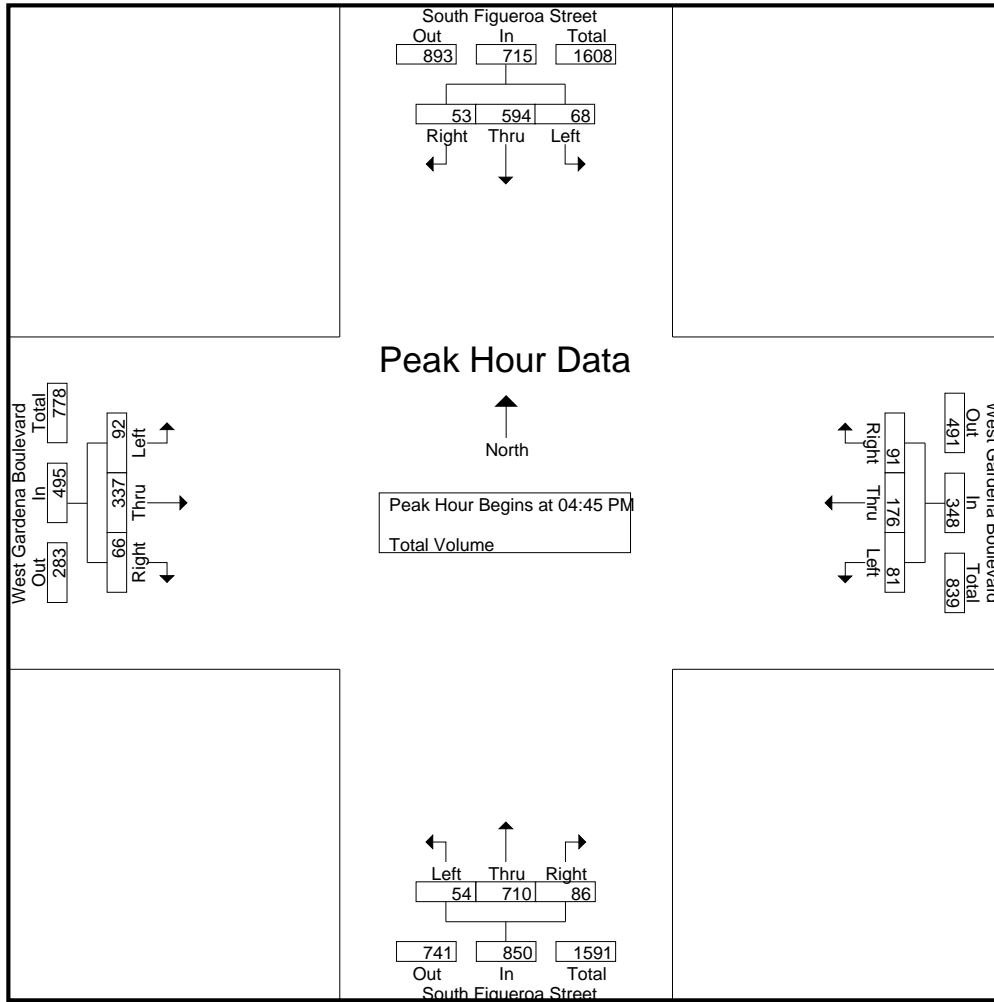
Groups Printed- Total Volume

Start Time	South Figueroa Street Southbound				West Gardena Boulevard Westbound				South Figueroa Street Northbound				West Gardena Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
03:00 PM	8	143	11	162	15	26	24	65	14	143	15	172	20	44	14	78	477
03:15 PM	11	127	11	149	16	31	15	62	15	123	21	159	17	41	16	74	444
03:30 PM	13	132	19	164	16	39	24	79	13	146	17	176	15	46	15	76	495
03:45 PM	21	147	7	175	17	47	17	81	20	165	13	198	20	88	8	116	570
Total	53	549	48	650	64	143	80	287	62	577	66	705	72	219	53	344	1986
04:00 PM	10	116	16	142	20	42	18	80	17	160	31	208	29	70	15	114	544
04:15 PM	10	167	18	195	17	41	11	69	14	166	15	195	21	71	15	107	566
04:30 PM	12	148	15	175	21	38	28	87	10	157	21	188	15	66	20	101	551
04:45 PM	10	133	17	160	22	35	25	82	7	168	15	190	22	69	20	111	543
Total	42	564	66	672	80	156	82	318	48	651	82	781	87	276	70	433	2204
05:00 PM	11	172	13	196	22	49	22	93	16	203	29	248	23	84	16	123	660
05:15 PM	18	145	13	176	17	54	24	95	11	170	25	206	21	93	15	129	606
05:30 PM	29	144	10	183	20	38	20	78	20	169	17	206	26	91	15	132	599
05:45 PM	17	154	19	190	16	36	27	79	17	140	9	166	29	61	18	108	543
Total	75	615	55	745	75	177	93	345	64	682	80	826	99	329	64	492	2408
Grand Total	170	1728	169	2067	219	476	255	950	174	1910	228	2312	258	824	187	1269	6598
Apprch %	8.2	83.6	8.2		23.1	50.1	26.8		7.5	82.6	9.9		20.3	64.9	14.7		
Total %	2.6	26.2	2.6	31.3	3.3	7.2	3.9	14.4	2.6	28.9	3.5	35	3.9	12.5	2.8	19.2	

Start Time	South Figueroa Street Southbound				West Gardena Boulevard Westbound				South Figueroa Street Northbound				West Gardena Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	10	133	17	160	22	35	25	82	7	168	15	190	22	69	20	111	543
05:00 PM	11	172	13	196	22	49	22	93	16	203	29	248	23	84	16	123	660
05:15 PM	18	145	13	176	17	54	24	95	11	170	25	206	21	93	15	129	606
05:30 PM	29	144	10	183	20	38	20	78	20	169	17	206	26	91	15	132	599
Total Volume	68	594	53	715	81	176	91	348	54	710	86	850	92	337	66	495	2408
% App. Total	9.5	83.1	7.4		23.3	50.6	26.1		6.4	83.5	10.1		18.6	68.1	13.3		
PHF	.586	.863	.779	.912	.920	.815	.910	.916	.675	.874	.741	.857	.885	.906	.825	.938	.912

City of Carson
 N/S: South Figueroa Street
 E/W: West Gardena Boulevard
 Weather: Clear

File Name : 01_CRS_Figueroa_Gardena PM
 Site Code : 10519499
 Start Date : 7/18/2019
 Page No : 2



Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM				04:30 PM				04:45 PM				04:45 PM			
+0 mins.	11	172	13	196	21	38	28	87	7	168	15	190	22	69	20	111
+15 mins.	18	145	13	176	22	35	25	82	16	203	29	248	23	84	16	123
+30 mins.	29	144	10	183	22	49	22	93	11	170	25	206	21	93	15	129
+45 mins.	17	154	19	190	17	54	24	95	20	169	17	206	26	91	15	132
Total Volume	75	615	55	745	82	176	99	357	54	710	86	850	92	337	66	495
% App. Total	10.1	82.6	7.4		23	49.3	27.7		6.4	83.5	10.1		18.6	68.1	13.3	
PHF	.647	.894	.724	.950	.932	.815	.884	.939	.675	.874	.741	.857	.885	.906	.825	.938

City of Carson
 N/S: South Broadway
 E/W: West Gardena Boulevard
 Weather: Clear

File Name : 02_CR_S Broadway_Gardena AM
 Site Code : 10519499
 Start Date : 7/18/2019
 Page No : 1

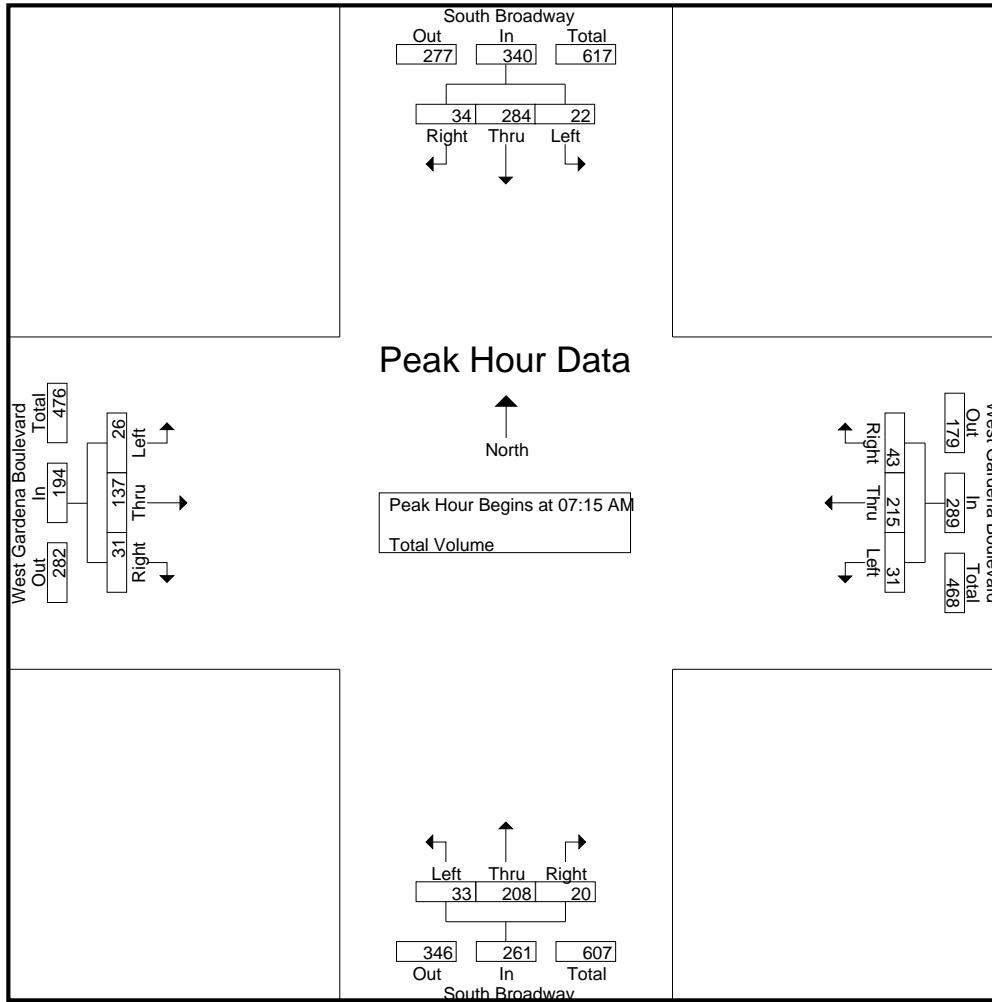
Groups Printed- Total Volume

Start Time	South Broadway Southbound				West Gardena Boulevard Westbound				South Broadway Northbound				West Gardena Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	3	51	10	64	11	48	11	70	5	43	4	52	7	20	9	36	222
07:15 AM	7	68	9	84	11	47	13	71	5	50	10	65	9	34	6	49	269
07:30 AM	4	83	9	96	4	51	14	69	7	48	4	59	7	35	5	47	271
07:45 AM	3	78	13	94	8	61	9	78	11	59	3	73	5	40	7	52	297
Total	17	280	41	338	34	207	47	288	28	200	21	249	28	129	27	184	1059
08:00 AM	8	55	3	66	8	56	7	71	10	51	3	64	5	28	13	46	247
08:15 AM	6	71	5	82	11	46	7	64	5	47	1	53	6	46	5	57	256
08:30 AM	4	40	9	53	7	49	12	68	9	54	7	70	4	30	10	44	235
08:45 AM	2	48	9	59	9	48	5	62	5	55	3	63	4	42	10	56	240
Total	20	214	26	260	35	199	31	265	29	207	14	250	19	146	38	203	978
09:00 AM	4	47	5	56	6	43	7	56	5	42	4	51	2	33	7	42	205
09:15 AM	5	38	4	47	7	32	8	47	9	37	8	54	3	28	3	34	182
09:30 AM	2	40	8	50	4	30	4	38	7	33	7	47	6	29	9	44	179
09:45 AM	0	44	10	54	3	44	7	54	6	43	6	55	5	28	5	38	201
Total	11	169	27	207	20	149	26	195	27	155	25	207	16	118	24	158	767
Grand Total	48	663	94	805	89	555	104	748	84	562	60	706	63	393	89	545	2804
Apprch %	6	82.4	11.7		11.9	74.2	13.9		11.9	79.6	8.5		11.6	72.1	16.3		
Total %	1.7	23.6	3.4	28.7	3.2	19.8	3.7	26.7	3	20	2.1	25.2	2.2	14	3.2	19.4	

Start Time	South Broadway Southbound				West Gardena Boulevard Westbound				South Broadway Northbound				West Gardena Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	7	68	9	84	11	47	13	71	5	50	10	65	9	34	6	49	269
07:30 AM	4	83	9	96	4	51	14	69	7	48	4	59	7	35	5	47	271
07:45 AM	3	78	13	94	8	61	9	78	11	59	3	73	5	40	7	52	297
08:00 AM	8	55	3	66	8	56	7	71	10	51	3	64	5	28	13	46	247
Total Volume	22	284	34	340	31	215	43	289	33	208	20	261	26	137	31	194	1084
% App. Total	6.5	83.5	10		10.7	74.4	14.9		12.6	79.7	7.7		13.4	70.6	16		
PHF	.688	.855	.654	.885	.705	.881	.768	.926	.750	.881	.500	.894	.722	.856	.596	.933	.912

City of Carson
 N/S: South Broadway
 E/W: West Gardena Boulevard
 Weather: Clear

File Name : 02_CRS_S Broadway_Gardena AM
 Site Code : 10519499
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Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				08:00 AM			
+0 mins.	7	68	9	84	11	47	13	71	5	50	10	65	5	28	13	46
+15 mins.	4	83	9	96	4	51	14	69	7	48	4	59	6	46	5	57
+30 mins.	3	78	13	94	8	61	9	78	11	59	3	73	4	30	10	44
+45 mins.	8	55	3	66	8	56	7	71	10	51	3	64	4	42	10	56
Total Volume	22	284	34	340	31	215	43	289	33	208	20	261	19	146	38	203
% App. Total	6.5	83.5	10		10.7	74.4	14.9		12.6	79.7	7.7		9.4	71.9	18.7	
PHF	.688	.855	.654	.885	.705	.881	.768	.926	.750	.881	.500	.894	.792	.793	.731	.890

City of Carson
 N/S: South Broadway
 E/W: West Gardena Boulevard
 Weather: Clear

File Name : 02_CRS_S Broadway_Gardena PM
 Site Code : 10519499
 Start Date : 7/18/2019
 Page No : 1

Groups Printed- Total Volume

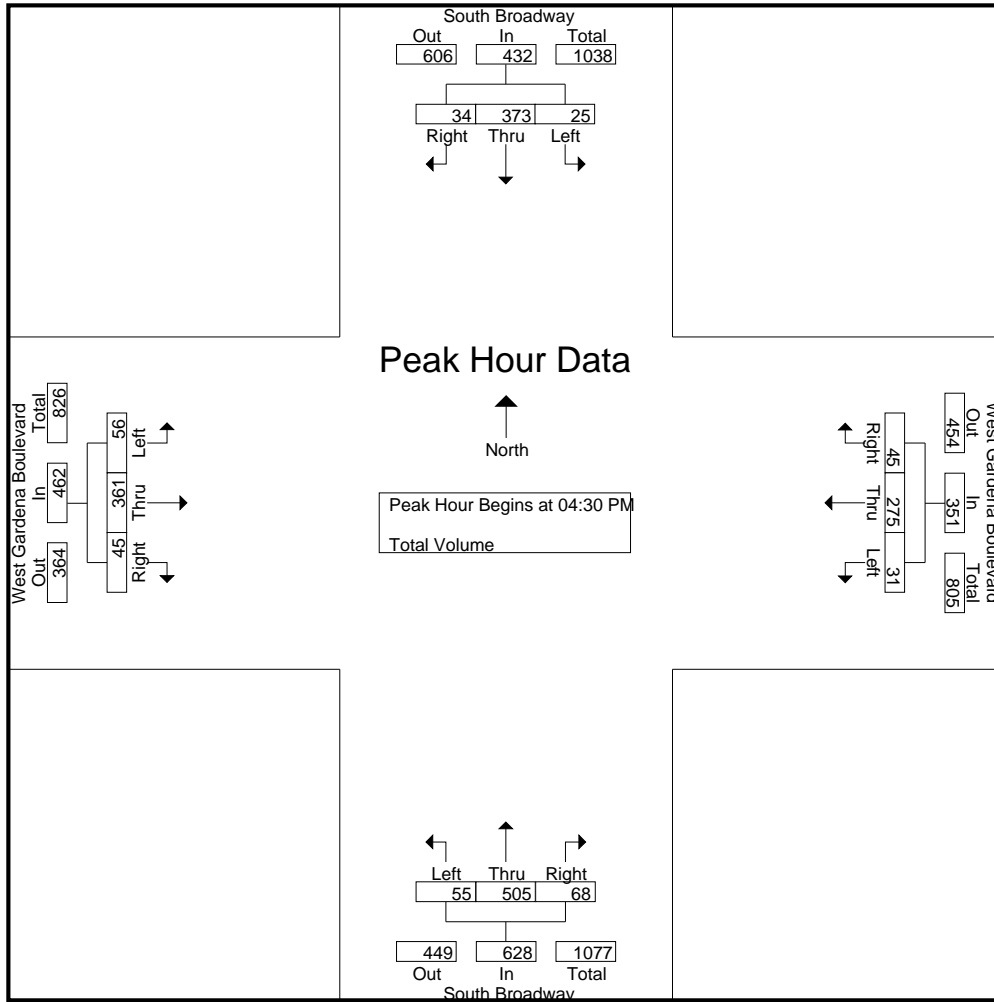
Start Time	South Broadway Southbound				West Gardena Boulevard Westbound				South Broadway Northbound				West Gardena Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
03:00 PM	7	82	7	96	9	47	7	63	10	82	10	102	11	55	16	82	343
03:15 PM	9	76	14	99	3	49	6	58	13	74	7	94	9	58	5	72	323
03:30 PM	10	91	14	115	7	53	14	74	7	108	15	130	12	57	13	82	401
03:45 PM	13	87	10	110	12	69	13	94	13	83	18	114	12	98	14	124	442
Total	39	336	45	420	31	218	40	289	43	347	50	440	44	268	48	360	1509
04:00 PM	14	95	12	121	5	61	9	75	10	137	15	162	17	83	11	111	469
04:15 PM	5	59	8	72	5	43	13	61	8	125	12	145	12	81	10	103	381
04:30 PM	11	97	13	121	10	73	15	98	15	120	20	155	15	70	19	104	478
04:45 PM	4	80	5	89	10	60	6	76	16	122	19	157	15	76	5	96	418
Total	34	331	38	403	30	237	43	310	49	504	66	619	59	310	45	414	1746
05:00 PM	7	110	11	128	7	64	12	83	15	129	13	157	19	90	18	127	495
05:15 PM	3	86	5	94	4	78	12	94	9	134	16	159	7	125	3	135	482
05:30 PM	8	83	9	100	7	50	10	67	13	103	14	130	12	104	19	135	432
05:45 PM	3	65	5	73	2	48	7	57	14	95	11	120	9	71	11	91	341
Total	21	344	30	395	20	240	41	301	51	461	54	566	47	390	51	488	1750
Grand Total	94	1011	113	1218	81	695	124	900	143	1312	170	1625	150	968	144	1262	5005
Apprch %	7.7	83	9.3		9	77.2	13.8		8.8	80.7	10.5		11.9	76.7	11.4		
Total %	1.9	20.2	2.3	24.3	1.6	13.9	2.5	18	2.9	26.2	3.4	32.5	3	19.3	2.9	25.2	

Start Time	South Broadway Southbound				West Gardena Boulevard Westbound				South Broadway Northbound				West Gardena Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:30 PM	11	97	13	121	10	73	15	98	15	120	20	155	15	70	19	104	478
04:45 PM	4	80	5	89	10	60	6	76	16	122	19	157	15	76	5	96	418
05:00 PM	7	110	11	128	7	64	12	83	15	129	13	157	19	90	18	127	495
05:15 PM	3	86	5	94	4	78	12	94	9	134	16	159	7	125	3	135	482
Total Volume	25	373	34	432	31	275	45	351	55	505	68	628	56	361	45	462	1873
% App. Total	5.8	86.3	7.9		8.8	78.3	12.8		8.8	80.4	10.8		12.1	78.1	9.7		
PHF	.568	.848	.654	.844	.775	.881	.750	.895	.859	.942	.850	.987	.737	.722	.592	.856	.946

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:30 PM

City of Carson
 N/S: South Broadway
 E/W: West Gardena Boulevard
 Weather: Clear

File Name : 02_CRS_S Broadway_Gardena PM
 Site Code : 10519499
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Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	03:15 PM				04:30 PM				04:30 PM				04:45 PM			
+0 mins.	9	76	14	99	10	73	15	98	15	120	20	155	15	76	5	96
+15 mins.	10	91	14	115	10	60	6	76	16	122	19	157	19	90	18	127
+30 mins.	13	87	10	110	7	64	12	83	15	129	13	157	7	125	3	135
+45 mins.	14	95	12	121	4	78	12	94	9	134	16	159	12	104	19	135
Total Volume	46	349	50	445	31	275	45	351	55	505	68	628	53	395	45	493
% App. Total	10.3	78.4	11.2		8.8	78.3	12.8		8.8	80.4	10.8		10.8	80.1	9.1	
PHF	.821	.918	.893	.919	.775	.881	.750	.895	.859	.942	.850	.987	.697	.790	.592	.913

City of Carson
 N/S: South Main Street
 E/W: Gardena Boulevard
 Weather: Clear

File Name : 03_CRS_S Main_Gardena AM
 Site Code : 10519499
 Start Date : 7/18/2019
 Page No : 1

Groups Printed- Total Volume

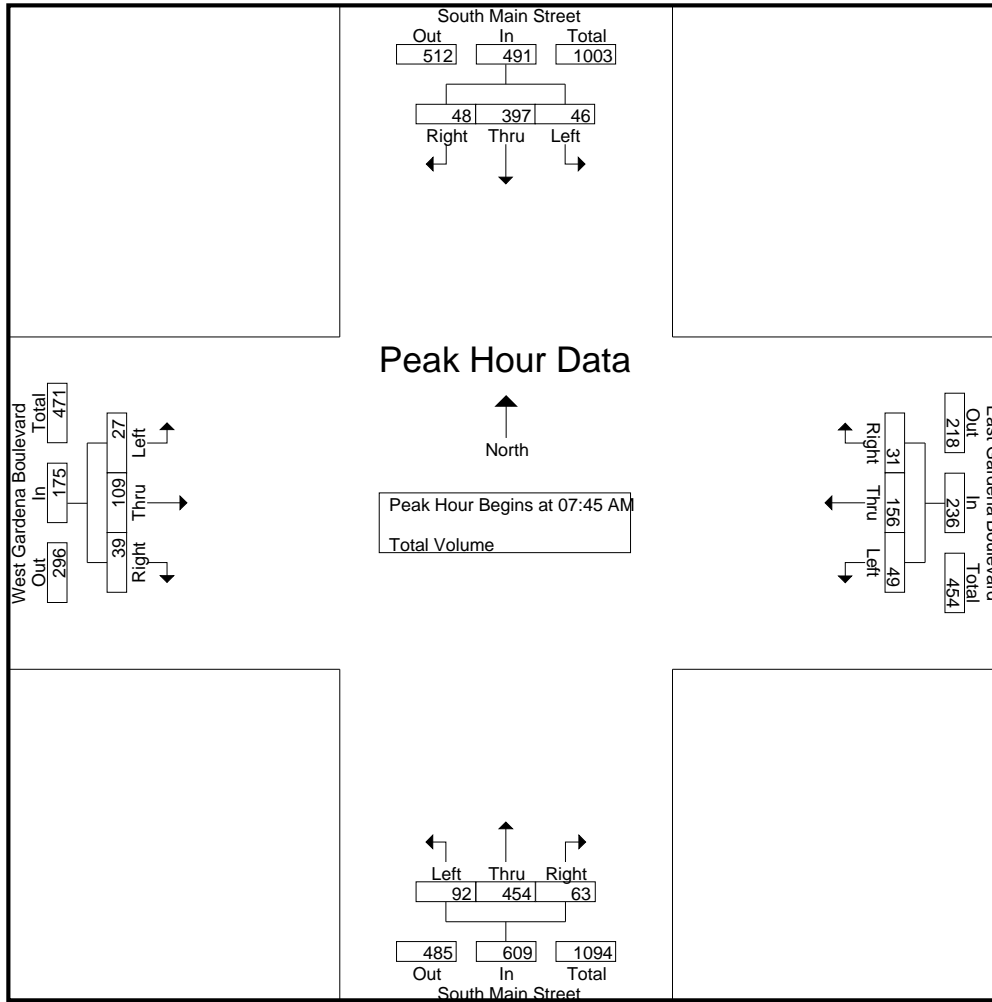
Start Time	South Main Street Southbound				East Gardena Boulevard Westbound				South Main Street Northbound				West Gardena Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	7	70	11	88	19	35	5	59	28	101	12	141	7	18	8	33	321
07:15 AM	3	81	14	98	10	34	8	52	30	92	7	129	14	21	9	44	323
07:30 AM	5	88	17	110	11	26	1	38	26	90	15	131	8	24	14	46	325
07:45 AM	8	128	16	152	9	43	10	62	29	139	19	187	6	25	13	44	445
Total	23	367	58	448	49	138	24	211	113	422	53	588	35	88	44	167	1414
08:00 AM	20	102	13	135	14	42	9	65	21	103	12	136	7	24	7	38	374
08:15 AM	13	87	10	110	12	39	5	56	14	108	17	139	7	29	13	49	354
08:30 AM	5	80	9	94	14	32	7	53	28	104	15	147	7	31	6	44	338
08:45 AM	4	82	10	96	15	39	12	66	19	97	10	126	10	27	8	45	333
Total	42	351	42	435	55	152	33	240	82	412	54	548	31	111	34	176	1399
09:00 AM	8	75	6	89	9	25	10	44	26	88	14	128	10	25	9	44	305
09:15 AM	10	75	11	96	11	19	10	40	17	93	4	114	14	20	10	44	294
09:30 AM	6	68	8	82	12	20	5	37	9	95	17	121	2	21	12	35	275
09:45 AM	6	66	10	82	5	30	10	45	24	88	10	122	8	19	7	34	283
Total	30	284	35	349	37	94	35	166	76	364	45	485	34	85	38	157	1157
Grand Total	95	1002	135	1232	141	384	92	617	271	1198	152	1621	100	284	116	500	3970
Apprch %	7.7	81.3	11		22.9	62.2	14.9		16.7	73.9	9.4		20	56.8	23.2		
Total %	2.4	25.2	3.4	31	3.6	9.7	2.3	15.5	6.8	30.2	3.8	40.8	2.5	7.2	2.9	12.6	

Start Time	South Main Street Southbound				East Gardena Boulevard Westbound				South Main Street Northbound				West Gardena Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:45 AM	8	128	16	152	9	43	10	62	29	139	19	187	6	25	13	44	445
08:00 AM	20	102	13	135	14	42	9	65	21	103	12	136	7	24	7	38	374
08:15 AM	13	87	10	110	12	39	5	56	14	108	17	139	7	29	13	49	354
08:30 AM	5	80	9	94	14	32	7	53	28	104	15	147	7	31	6	44	338
Total Volume	46	397	48	491	49	156	31	236	92	454	63	609	27	109	39	175	1511
% App. Total	9.4	80.9	9.8		20.8	66.1	13.1		15.1	74.5	10.3		15.4	62.3	22.3		
PHF	.575	.775	.750	.808	.875	.907	.775	.908	.793	.817	.829	.814	.964	.879	.750	.893	.849

Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:45 AM

City of Carson
 N/S: South Main Street
 E/W: Gardena Boulevard
 Weather: Clear

File Name : 03_CRS_S Main_Gardena AM
 Site Code : 10519499
 Start Date : 7/18/2019
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Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:30 AM				08:00 AM				07:45 AM				08:15 AM			
+0 mins.	5	88	17	110	14	42	9	65	29	139	19	187	7	29	13	49
+15 mins.	8	128	16	152	12	39	5	56	21	103	12	136	7	31	6	44
+30 mins.	20	102	13	135	14	32	7	53	14	108	17	139	10	27	8	45
+45 mins.	13	87	10	110	15	39	12	66	28	104	15	147	10	25	9	44
Total Volume	46	405	56	507	55	152	33	240	92	454	63	609	34	112	36	182
% App. Total	9.1	79.9	11		22.9	63.3	13.8		15.1	74.5	10.3		18.7	61.5	19.8	
PHF	.575	.791	.824	.834	.917	.905	.688	.909	.793	.817	.829	.814	.850	.903	.692	.929

City of Carson
 N/S: South Main Street
 E/W: Gardena Boulevard
 Weather: Clear

File Name : 03_CRS_S Main_Gardena PM
 Site Code : 10519499
 Start Date : 7/18/2019
 Page No : 1

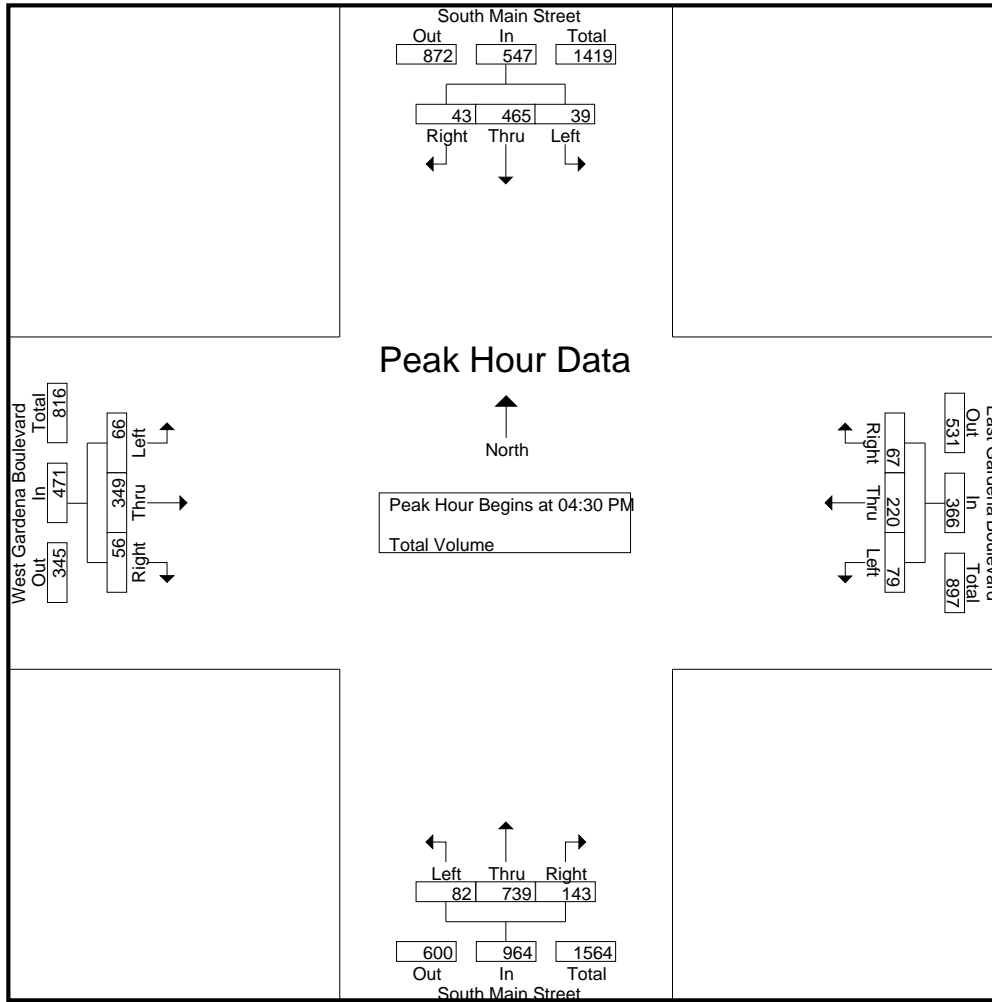
Groups Printed- Total Volume

Start Time	South Main Street Southbound				East Gardena Boulevard Westbound				South Main Street Northbound				West Gardena Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
03:00 PM	11	92	11	114	16	44	12	72	13	130	24	167	11	48	10	69	422
03:15 PM	7	70	13	90	15	28	7	50	19	113	29	161	9	53	11	73	374
03:30 PM	9	132	10	151	16	49	25	90	18	164	27	209	13	47	14	74	524
03:45 PM	9	95	13	117	12	48	15	75	29	160	34	223	9	109	9	127	542
Total	36	389	47	472	59	169	59	287	79	567	114	760	42	257	44	343	1862
04:00 PM	6	137	13	156	20	33	13	66	26	178	38	242	16	86	22	124	588
04:15 PM	12	102	14	128	18	40	16	74	18	147	27	192	11	76	10	97	491
04:30 PM	11	120	9	140	18	52	22	92	19	162	35	216	19	73	16	108	556
04:45 PM	11	84	13	108	20	46	7	73	19	175	41	235	17	74	13	104	520
Total	40	443	49	532	76	171	58	305	82	662	141	885	63	309	61	433	2155
05:00 PM	8	128	4	140	24	71	23	118	19	189	32	240	12	89	18	119	617
05:15 PM	9	133	17	159	17	51	15	83	25	213	35	273	18	113	9	140	655
05:30 PM	8	99	10	117	5	40	11	56	19	161	25	205	17	92	18	127	505
05:45 PM	4	95	4	103	16	37	2	55	17	146	13	176	11	72	7	90	424
Total	29	455	35	519	62	199	51	312	80	709	105	894	58	366	52	476	2201
Grand Total	105	1287	131	1523	197	539	168	904	241	1938	360	2539	163	932	157	1252	6218
Apprch %	6.9	84.5	8.6		21.8	59.6	18.6		9.5	76.3	14.2		13	74.4	12.5		
Total %	1.7	20.7	2.1	24.5	3.2	8.7	2.7	14.5	3.9	31.2	5.8	40.8	2.6	15	2.5	20.1	

Start Time	South Main Street Southbound				East Gardena Boulevard Westbound				South Main Street Northbound				West Gardena Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	11	120	9	140	18	52	22	92	19	162	35	216	19	73	16	108	556
04:45 PM	11	84	13	108	20	46	7	73	19	175	41	235	17	74	13	104	520
05:00 PM	8	128	4	140	24	71	23	118	19	189	32	240	12	89	18	119	617
05:15 PM	9	133	17	159	17	51	15	83	25	213	35	273	18	113	9	140	655
Total Volume	39	465	43	547	79	220	67	366	82	739	143	964	66	349	56	471	2348
% App. Total	7.1	85	7.9		21.6	60.1	18.3		8.5	76.7	14.8		14	74.1	11.9		
PHF	.886	.874	.632	.860	.823	.775	.728	.775	.820	.867	.872	.883	.868	.772	.778	.841	.896

City of Carson
 N/S: South Main Street
 E/W: Gardena Boulevard
 Weather: Clear

File Name : 03_CRS_S Main_Gardena PM
 Site Code : 10519499
 Start Date : 7/18/2019
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Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	03:30 PM				04:30 PM				04:45 PM							
+0 mins.	9	132	10	151	18	52	22	92	19	162	35	216	17	74	13	104
+15 mins.	9	95	13	117	20	46	7	73	19	175	41	235	12	89	18	119
+30 mins.	6	137	13	156	24	71	23	118	19	189	32	240	18	113	9	140
+45 mins.	12	102	14	128	17	51	15	83	25	213	35	273	17	92	18	127
Total Volume	36	466	50	552	79	220	67	366	82	739	143	964	64	368	58	490
% App. Total	6.5	84.4	9.1		21.6	60.1	18.3		8.5	76.7	14.8		13.1	75.1	11.8	
PHF	.750	.850	.893	.885	.823	.775	.728	.775	.820	.867	.872	.883	.889	.814	.806	.875

City of Carson
 N/S: South Broadway
 E/W: West Albertoni Street
 Weather: Clear

File Name : 04_CRS_S Broadway_W Albertoni AM
 Site Code : 10519499
 Start Date : 7/18/2019
 Page No : 1

Groups Printed- Total Volume

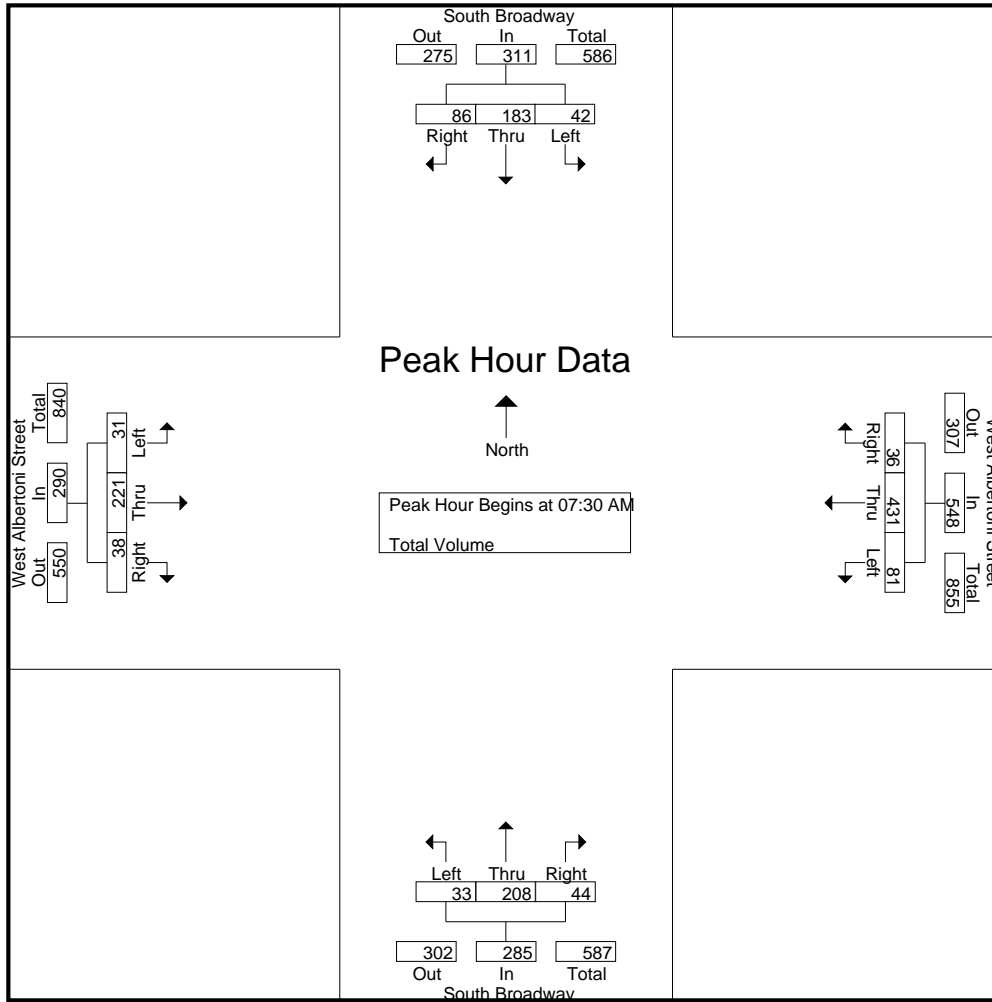
Start Time	South Broadway Southbound				West Albertoni Street Westbound				South Broadway Northbound				West Albertoni Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	12	29	16	57	18	100	9	127	7	45	20	72	3	45	11	59	315
07:15 AM	7	35	22	64	19	114	9	142	4	48	14	66	13	55	8	76	348
07:30 AM	12	48	24	84	17	110	6	133	8	42	11	61	9	47	8	64	342
07:45 AM	10	44	24	78	26	112	5	143	9	71	10	90	8	53	10	71	382
Total	41	156	86	283	80	436	29	545	28	206	55	289	33	200	37	270	1387
08:00 AM	7	49	12	68	17	103	12	132	7	53	12	72	5	56	8	69	341
08:15 AM	13	42	26	81	21	106	13	140	9	42	11	62	9	65	12	86	369
08:30 AM	9	28	18	55	26	94	14	134	16	43	11	70	16	54	8	78	337
08:45 AM	20	27	13	60	32	90	9	131	8	43	8	59	11	54	19	84	334
Total	49	146	69	264	96	393	48	537	40	181	42	263	41	229	47	317	1381
09:00 AM	15	25	17	57	20	88	10	118	10	40	18	68	8	63	15	86	329
09:15 AM	7	34	10	51	15	82	13	110	15	29	9	53	13	51	8	72	286
09:30 AM	13	32	6	51	12	64	5	81	7	26	21	54	10	57	13	80	266
09:45 AM	18	30	10	58	23	80	8	111	2	33	20	55	7	57	8	72	296
Total	53	121	43	217	70	314	36	420	34	128	68	230	38	228	44	310	1177
Grand Total	143	423	198	764	246	1143	113	1502	102	515	165	782	112	657	128	897	3945
Apprch %	18.7	55.4	25.9		16.4	76.1	7.5		13	65.9	21.1		12.5	73.2	14.3		
Total %	3.6	10.7	5	19.4	6.2	29	2.9	38.1	2.6	13.1	4.2	19.8	2.8	16.7	3.2	22.7	

Start Time	South Broadway Southbound				West Albertoni Street Westbound				South Broadway Northbound				West Albertoni Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:30 AM	12	48	24	84	17	110	6	133	8	42	11	61	9	47	8	64	342
07:45 AM	10	44	24	78	26	112	5	143	9	71	10	90	8	53	10	71	382
08:00 AM	7	49	12	68	17	103	12	132	7	53	12	72	5	56	8	69	341
08:15 AM	13	42	26	81	21	106	13	140	9	42	11	62	9	65	12	86	369
Total Volume	42	183	86	311	81	431	36	548	33	208	44	285	31	221	38	290	1434
% App. Total	13.5	58.8	27.7		14.8	78.6	6.6		11.6	73	15.4		10.7	76.2	13.1		
PHF	.808	.934	.827	.926	.779	.962	.692	.958	.917	.732	.917	.792	.861	.850	.792	.843	.938

Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

City of Carson
 N/S: South Broadway
 E/W: West Albertoni Street
 Weather: Clear

File Name : 04_CRS_S Broadway_W Albertoni AM
 Site Code : 10519499
 Start Date : 7/18/2019
 Page No : 2



Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:30 AM				07:15 AM				07:45 AM				08:15 AM			
+0 mins.	12	48	24	84	19	114	9	142	9	71	10	90	9	65	12	86
+15 mins.	10	44	24	78	17	110	6	133	7	53	12	72	16	54	8	78
+30 mins.	7	49	12	68	26	112	5	143	9	42	11	62	11	54	19	84
+45 mins.	13	42	26	81	17	103	12	132	16	43	11	70	8	63	15	86
Total Volume	42	183	86	311	79	439	32	550	41	209	44	294	44	236	54	334
% App. Total	13.5	58.8	27.7		14.4	79.8	5.8		13.9	71.1	15		13.2	70.7	16.2	
PHF	.808	.934	.827	.926	.760	.963	.667	.962	.641	.736	.917	.817	.688	.908	.711	.971

City of Carson
 N/S: South Broadway
 E/W: West Albertoni Street
 Weather: Clear

File Name : 04_CRS_S Broadway_W Albertoni PM
 Site Code : 10519499
 Start Date : 7/18/2019
 Page No : 1

Groups Printed- Total Volume

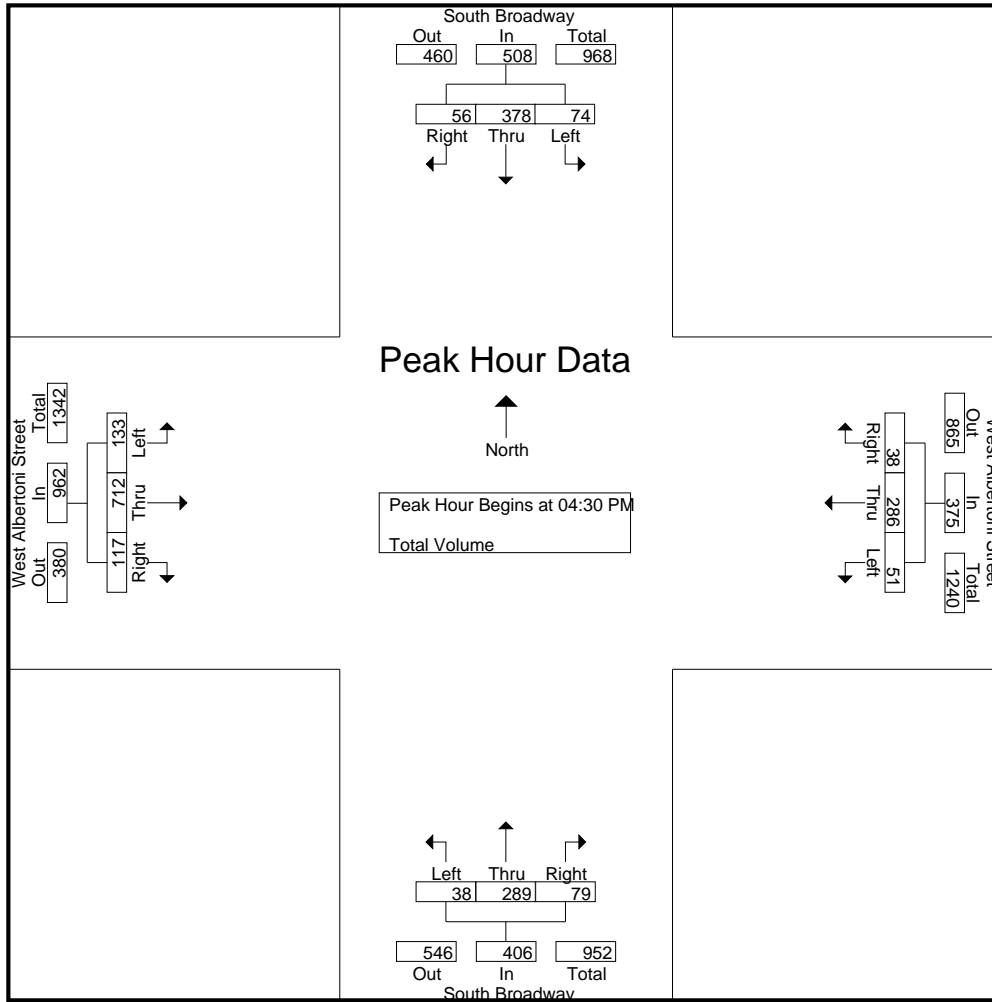
Start Time	South Broadway Southbound				West Albertoni Street Westbound				South Broadway Northbound				West Albertoni Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
03:00 PM	17	72	9	98	12	65	8	85	12	50	40	102	24	123	18	165	450
03:15 PM	20	54	5	79	9	55	10	74	13	50	29	92	24	141	12	177	422
03:30 PM	20	91	24	135	14	74	12	100	9	49	33	91	27	169	16	212	538
03:45 PM	20	78	8	106	11	82	9	102	7	52	16	75	37	158	5	200	483
Total	77	295	46	418	46	276	39	361	41	201	118	360	112	591	51	754	1893
04:00 PM	22	108	23	153	15	77	16	108	17	90	23	130	27	142	21	190	581
04:15 PM	7	61	16	84	7	86	10	103	8	68	11	87	32	163	25	220	494
04:30 PM	22	91	16	129	8	73	11	92	12	62	24	98	32	171	39	242	561
04:45 PM	19	85	17	121	13	61	9	83	4	69	20	93	30	168	27	225	522
Total	70	345	72	487	43	297	46	386	41	289	78	408	121	644	112	877	2158
05:00 PM	18	108	17	143	7	71	14	92	12	68	17	97	34	195	29	258	590
05:15 PM	15	94	6	115	23	81	4	108	10	90	18	118	37	178	22	237	578
05:30 PM	13	94	16	123	8	76	9	93	12	79	10	101	31	186	24	241	558
05:45 PM	13	67	6	86	8	80	7	95	16	64	16	96	24	175	24	223	500
Total	59	363	45	467	46	308	34	388	50	301	61	412	126	734	99	959	2226
Grand Total	206	1003	163	1372	135	881	119	1135	132	791	257	1180	359	1969	262	2590	6277
Apprch %	15	73.1	11.9		11.9	77.6	10.5		11.2	67	21.8		13.9	76	10.1		
Total %	3.3	16	2.6	21.9	2.2	14	1.9	18.1	2.1	12.6	4.1	18.8	5.7	31.4	4.2	41.3	

Start Time	South Broadway Southbound				West Albertoni Street Westbound				South Broadway Northbound				West Albertoni Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:30 PM	22	91	16	129	8	73	11	92	12	62	24	98	32	171	39	242	561
04:45 PM	19	85	17	121	13	61	9	83	4	69	20	93	30	168	27	225	522
05:00 PM	18	108	17	143	7	71	14	92	12	68	17	97	34	195	29	258	590
05:15 PM	15	94	6	115	23	81	4	108	10	90	18	118	37	178	22	237	578
Total Volume	74	378	56	508	51	286	38	375	38	289	79	406	133	712	117	962	2251
% App. Total	14.6	74.4	11		13.6	76.3	10.1		9.4	71.2	19.5		13.8	74	12.2		
PHF	.841	.875	.824	.888	.554	.883	.679	.868	.792	.803	.823	.860	.899	.913	.750	.932	.954

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:30 PM

City of Carson
 N/S: South Broadway
 E/W: West Albertoni Street
 Weather: Clear

File Name : 04_CRS_S Broadway_W Albertoni PM
 Site Code : 10519499
 Start Date : 7/18/2019
 Page No : 2



Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:30 PM				03:30 PM				05:00 PM				04:30 PM			
+0 mins.	22	91	16	129	14	74	12	100	12	68	17	97	32	171	39	242
+15 mins.	19	85	17	121	11	82	9	102	10	90	18	118	30	168	27	225
+30 mins.	18	108	17	143	15	77	16	108	12	79	10	101	34	195	29	258
+45 mins.	15	94	6	115	7	86	10	103	16	64	16	96	37	178	22	237
Total Volume	74	378	56	508	47	319	47	413	50	301	61	412	133	712	117	962
% App. Total	14.6	74.4	11		11.4	77.2	11.4		12.1	73.1	14.8		13.8	74	12.2	
PHF	.841	.875	.824	.888	.783	.927	.734	.956	.781	.836	.847	.873	.899	.913	.750	.932

City of Carson
 N/S: South Main Street
 E/W: SR-91 Westbound Ramps
 Weather: Clear

File Name : 05_CRS_S Main_91W AM
 Site Code : 10519499
 Start Date : 7/18/2019
 Page No : 1

Groups Printed- Total Volume

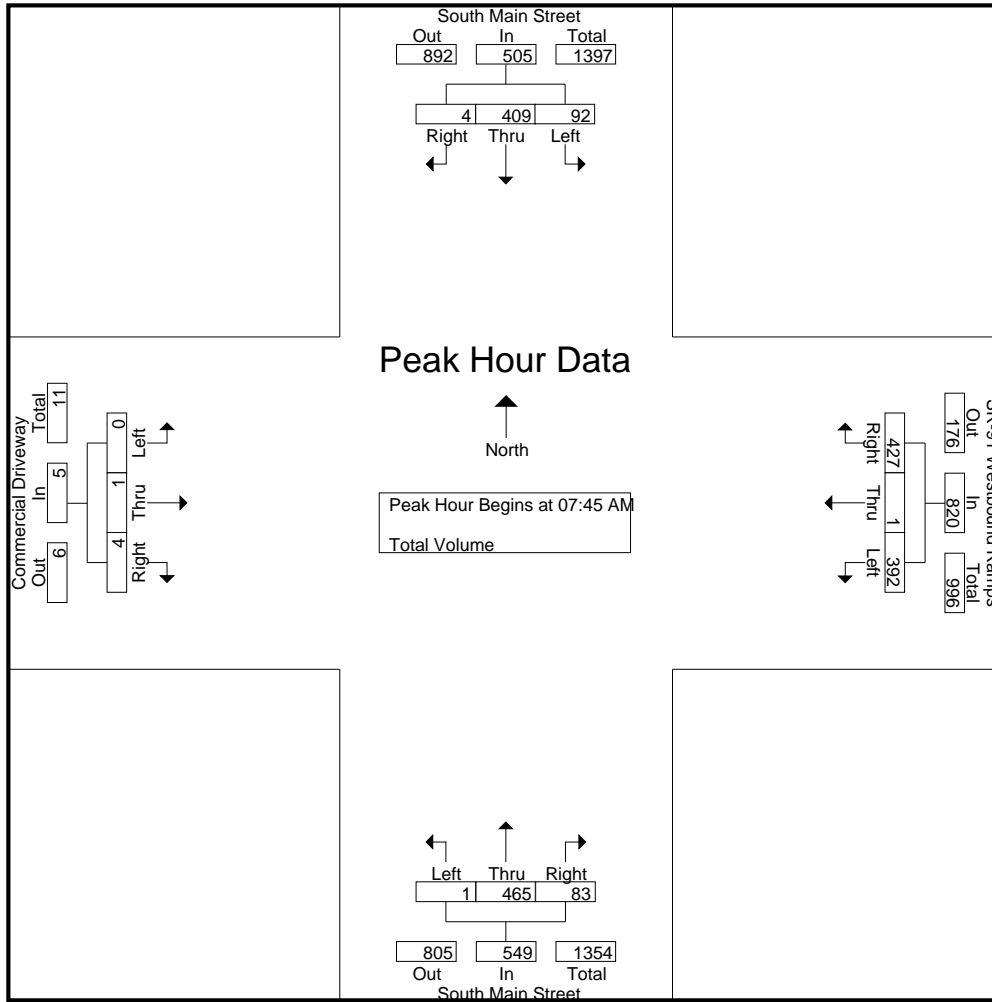
Start Time	South Main Street Southbound				SR-91 Westbound Ramps Westbound				South Main Street Northbound				Commercial Driveway Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	25	80	0	105	78	0	98	176	2	101	17	120	0	0	2	2	403
07:15 AM	16	81	0	97	89	0	94	183	0	89	21	110	0	0	0	0	390
07:30 AM	23	91	1	115	81	0	96	177	0	91	20	111	0	0	3	3	406
07:45 AM	22	104	2	128	123	0	117	240	0	147	19	166	0	0	1	1	535
Total	86	356	3	445	371	0	405	776	2	428	77	507	0	0	6	6	1734
08:00 AM	23	113	0	136	80	0	95	175	1	101	20	122	0	0	1	1	434
08:15 AM	22	101	2	125	102	0	106	208	0	116	19	135	0	1	1	2	470
08:30 AM	25	91	0	116	87	1	109	197	0	101	25	126	0	0	1	1	440
08:45 AM	24	95	0	119	89	1	84	174	1	88	23	112	0	0	0	0	405
Total	94	400	2	496	358	2	394	754	2	406	87	495	0	1	3	4	1749
09:00 AM	22	65	1	88	88	0	70	158	0	90	20	110	0	0	0	0	356
09:15 AM	25	91	0	116	65	0	73	138	0	88	25	113	0	0	0	0	367
09:30 AM	20	69	3	92	55	0	57	112	0	97	26	123	0	0	1	1	328
09:45 AM	17	70	0	87	58	1	74	133	1	66	25	92	0	0	2	2	314
Total	84	295	4	383	266	1	274	541	1	341	96	438	0	0	3	3	1365
Grand Total	264	1051	9	1324	995	3	1073	2071	5	1175	260	1440	0	1	12	13	4848
Apprch %	19.9	79.4	0.7		48	0.1	51.8		0.3	81.6	18.1		0	7.7	92.3		
Total %	5.4	21.7	0.2	27.3	20.5	0.1	22.1	42.7	0.1	24.2	5.4	29.7	0	0	0.2	0.3	

Start Time	South Main Street Southbound				SR-91 Westbound Ramps Westbound				South Main Street Northbound				Commercial Driveway Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:45 AM	22	104	2	128	123	0	117	240	0	147	19	166	0	0	1	1	535
08:00 AM	23	113	0	136	80	0	95	175	1	101	20	122	0	0	1	1	434
08:15 AM	22	101	2	125	102	0	106	208	0	116	19	135	0	1	1	2	470
08:30 AM	25	91	0	116	87	1	109	197	0	101	25	126	0	0	1	1	440
Total Volume	92	409	4	505	392	1	427	820	1	465	83	549	0	1	4	5	1879
% App. Total	18.2	81	0.8		47.8	0.1	52.1		0.2	84.7	15.1		0	20	80		
PHF	.920	.905	.500	.928	.797	.250	.912	.854	.250	.791	.830	.827	.000	.250	1.00	.625	.878

Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:45 AM

City of Carson
 N/S: South Main Street
 E/W: SR-91 Westbound Ramps
 Weather: Clear

File Name : 05_CRS_S Main_91W AM
 Site Code : 10519499
 Start Date : 7/18/2019
 Page No : 2



Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:45 AM				07:45 AM				07:45 AM				07:30 AM				
+0 mins.	22	104	2	128	123	0	117	240	0	147	19	166	0	0	0	3	3
+15 mins.	23	113	0	136	80	0	95	175	1	101	20	122	0	0	0	1	1
+30 mins.	22	101	2	125	102	0	106	208	0	116	19	135	0	0	0	1	1
+45 mins.	25	91	0	116	87	1	109	197	0	101	25	126	0	1	1	1	2
Total Volume	92	409	4	505	392	1	427	820	1	465	83	549	0	1	6	7	7
% App. Total	18.2	81	0.8	18.2	47.8	0.1	52.1	47.8	0.2	84.7	15.1	40.2	0	14.3	85.7	14.3	14.3
PHF	.920	.905	.500	.928	.797	.250	.912	.854	.250	.791	.830	.827	.000	.250	.500	.583	.583

City of Carson
 N/S: South Main Street
 E/W: SR-91 Westbound Ramps
 Weather: Clear

File Name : 05_CRS_S Main_91W PM
 Site Code : 10519499
 Start Date : 7/18/2019
 Page No : 1

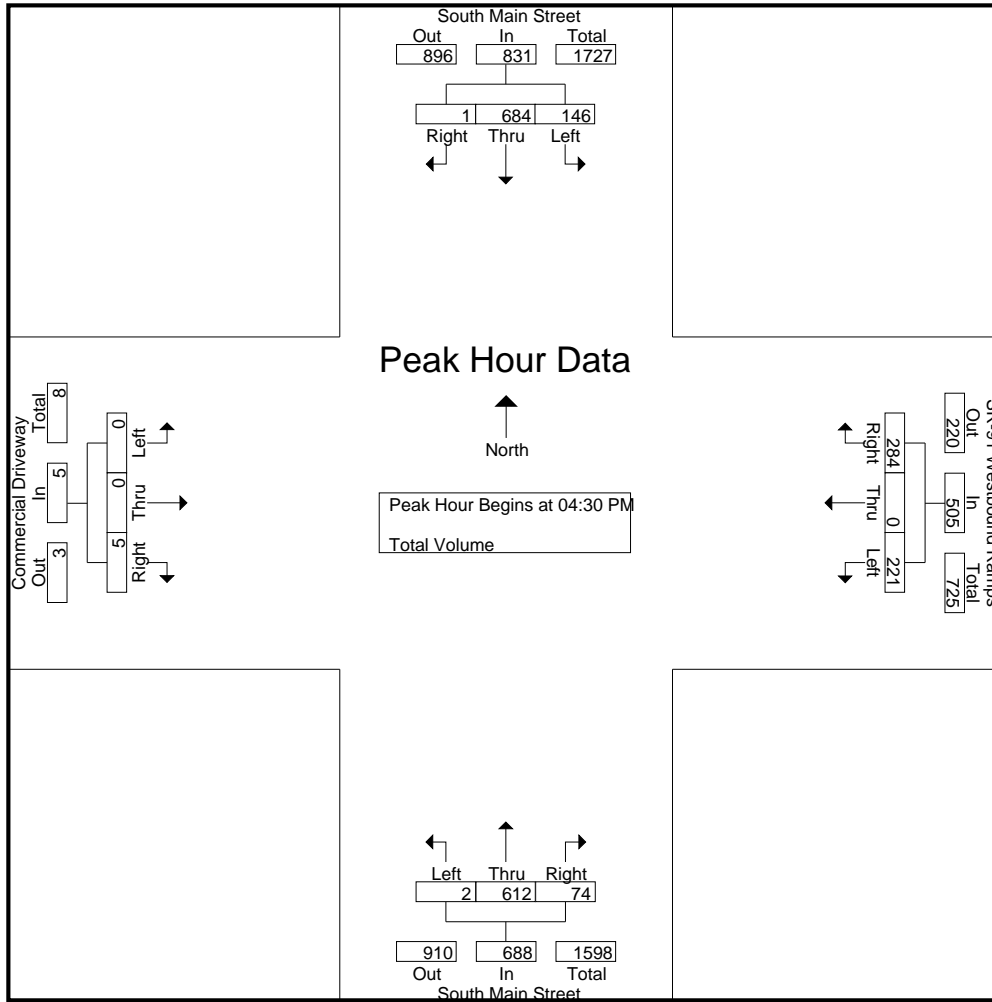
Groups Printed- Total Volume

Start Time	South Main Street Southbound				SR-91 Westbound Ramps Westbound				South Main Street Northbound				Commercial Driveway Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
03:00 PM	21	126	0	147	47	0	61	108	0	134	35	169	0	0	2	2	426
03:15 PM	24	106	0	130	48	0	61	109	2	122	29	153	0	0	1	1	393
03:30 PM	40	185	1	226	49	0	76	125	0	121	23	144	0	0	2	2	497
03:45 PM	20	124	0	144	55	0	84	139	0	166	19	185	0	1	2	3	471
Total	105	541	1	647	199	0	282	481	2	543	106	651	0	1	7	8	1787
04:00 PM	27	184	1	212	50	0	76	126	1	169	32	202	1	0	0	1	541
04:15 PM	24	146	0	170	34	0	63	97	0	136	19	155	0	0	0	0	422
04:30 PM	32	180	0	212	47	0	67	114	0	132	15	147	0	0	1	1	474
04:45 PM	31	133	0	164	47	0	76	123	1	160	21	182	0	0	4	4	473
Total	114	643	1	758	178	0	282	460	2	597	87	686	1	0	5	6	1910
05:00 PM	43	203	1	247	62	0	52	114	1	164	18	183	0	0	0	0	544
05:15 PM	40	168	0	208	65	0	89	154	0	156	20	176	0	0	0	0	538
05:30 PM	18	153	0	171	43	0	63	106	1	144	17	162	0	0	1	1	440
05:45 PM	23	124	0	147	57	0	77	134	0	120	15	135	0	0	0	0	416
Total	124	648	1	773	227	0	281	508	2	584	70	656	0	0	1	1	1938
Grand Total	343	1832	3	2178	604	0	845	1449	6	1724	263	1993	1	1	13	15	5635
Apprch %	15.7	84.1	0.1		41.7	0	58.3		0.3	86.5	13.2		6.7	6.7	86.7		
Total %	6.1	32.5	0.1	38.7	10.7	0	15	25.7	0.1	30.6	4.7	35.4	0	0	0.2	0.3	

Start Time	South Main Street Southbound				SR-91 Westbound Ramps Westbound				South Main Street Northbound				Commercial Driveway Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	32	180	0	212	47	0	67	114	0	132	15	147	0	0	1	1	474
04:45 PM	31	133	0	164	47	0	76	123	1	160	21	182	0	0	4	4	473
05:00 PM	43	203	1	247	62	0	52	114	1	164	18	183	0	0	0	0	544
05:15 PM	40	168	0	208	65	0	89	154	0	156	20	176	0	0	0	0	538
Total Volume	146	684	1	831	221	0	284	505	2	612	74	688	0	0	5	5	2029
% App. Total	17.6	82.3	0.1		43.8	0	56.2		0.3	89	10.8		0	0	100		
PHF	.849	.842	.250	.841	.850	.000	.798	.820	.500	.933	.881	.940	.000	.000	.313	.313	.932

City of Carson
 N/S: South Main Street
 E/W: SR-91 Westbound Ramps
 Weather: Clear

File Name : 05_CRS_S Main_91W PM
 Site Code : 10519499
 Start Date : 7/18/2019
 Page No : 2



Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:30 PM				05:00 PM				04:45 PM				03:00 PM			
+0 mins.	32	180	0	212	62	0	52	114	1	160	21	182	0	0	2	2
+15 mins.	31	133	0	164	65	0	89	154	1	164	18	183	0	0	1	1
+30 mins.	43	203	1	247	43	0	63	106	0	156	20	176	0	0	2	2
+45 mins.	40	168	0	208	57	0	77	134	1	144	17	162	0	1	2	3
Total Volume	146	684	1	831	227	0	281	508	3	624	76	703	0	1	7	8
% App. Total	17.6	82.3	0.1		44.7	0	55.3		0.4	88.8	10.8		0	12.5	87.5	
PHF	.849	.842	.250	.841	.873	.000	.789	.825	.750	.951	.905	.960	.000	.250	.875	.667

City of Carson
 N/S: South Main Street
 E/W: Albertoni Street
 Weather: Clear

File Name : 06_CRS_S Main_Albertoni AM
 Site Code : 10519499
 Start Date : 7/18/2019
 Page No : 1

Groups Printed- Total Volume

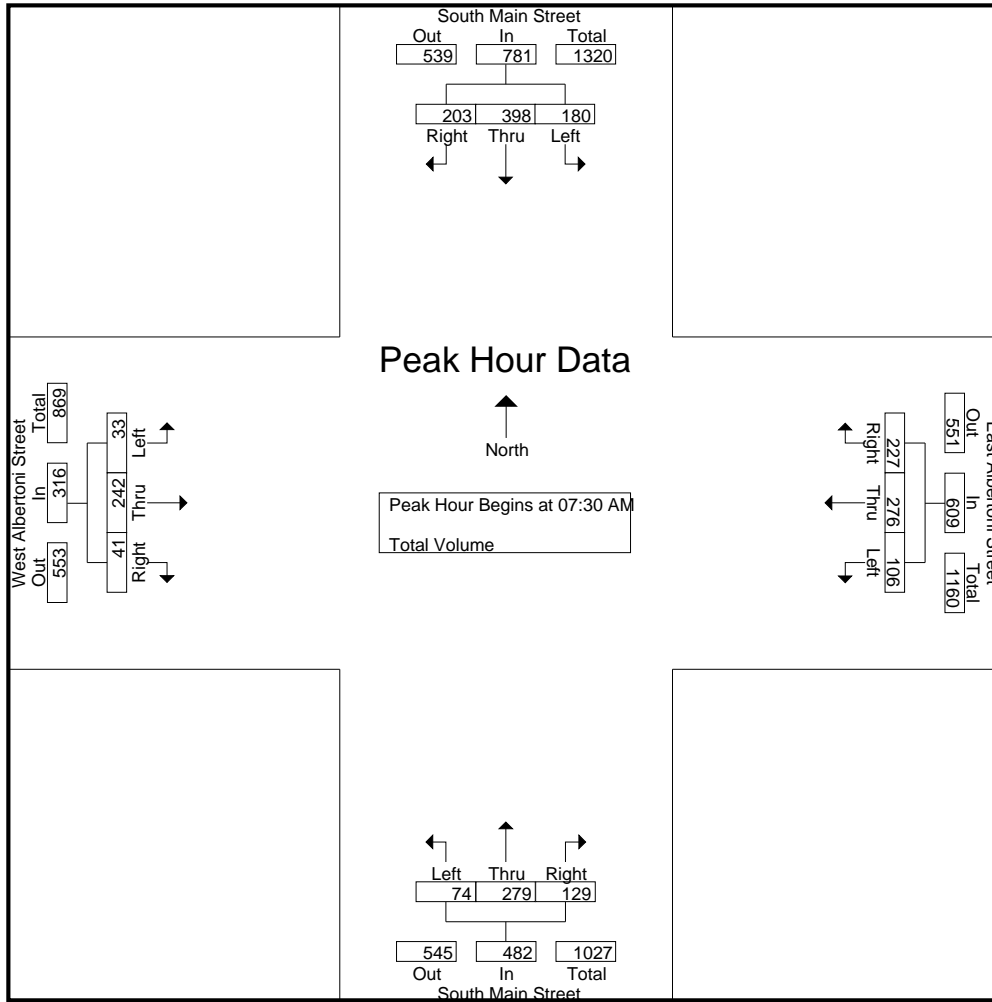
Start Time	South Main Street Southbound				East Albertoni Street Westbound				South Main Street Northbound				West Albertoni Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	33	76	46	155	23	69	43	135	13	65	17	95	10	61	14	85	470
07:15 AM	35	100	49	184	13	72	51	136	18	61	27	106	3	59	8	70	496
07:30 AM	36	86	45	167	31	79	60	170	16	50	26	92	8	65	3	76	505
07:45 AM	47	116	58	221	22	62	68	152	20	97	38	155	8	45	11	64	592
Total	151	378	198	727	89	282	222	593	67	273	108	448	29	230	36	295	2063
08:00 AM	50	101	48	199	29	68	49	146	18	62	29	109	7	68	12	87	541
08:15 AM	47	95	52	194	24	67	50	141	20	70	36	126	10	64	15	89	550
08:30 AM	41	100	40	181	16	84	60	160	15	54	20	89	10	59	6	75	505
08:45 AM	46	87	46	179	25	66	52	143	16	58	23	97	11	62	11	84	503
Total	184	383	186	753	94	285	211	590	69	244	108	421	38	253	44	335	2099
09:00 AM	38	67	37	142	25	61	41	127	12	64	20	96	10	68	14	92	457
09:15 AM	53	55	41	149	20	61	52	133	17	57	24	98	7	53	13	73	453
09:30 AM	26	70	22	118	16	47	47	110	9	66	28	103	7	62	15	84	415
09:45 AM	44	62	29	135	26	72	49	147	17	44	22	83	10	80	11	101	466
Total	161	254	129	544	87	241	189	517	55	231	94	380	34	263	53	350	1791
Grand Total	496	1015	513	2024	270	808	622	1700	191	748	310	1249	101	746	133	980	5953
Apprch %	24.5	50.1	25.3		15.9	47.5	36.6		15.3	59.9	24.8		10.3	76.1	13.6		
Total %	8.3	17.1	8.6	34	4.5	13.6	10.4	28.6	3.2	12.6	5.2	21	1.7	12.5	2.2	16.5	

Start Time	South Main Street Southbound				East Albertoni Street Westbound				South Main Street Northbound				West Albertoni Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:30 AM	36	86	45	167	31	79	60	170	16	50	26	92	8	65	3	76	505
07:45 AM	47	116	58	221	22	62	68	152	20	97	38	155	8	45	11	64	592
08:00 AM	50	101	48	199	29	68	49	146	18	62	29	109	7	68	12	87	541
08:15 AM	47	95	52	194	24	67	50	141	20	70	36	126	10	64	15	89	550
Total Volume	180	398	203	781	106	276	227	609	74	279	129	482	33	242	41	316	2188
% App. Total	23	51	26		17.4	45.3	37.3		15.4	57.9	26.8		10.4	76.6	13		
PHF	.900	.858	.875	.883	.855	.873	.835	.896	.925	.719	.849	.777	.825	.890	.683	.888	.924

Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

City of Carson
 N/S: South Main Street
 E/W: Albertoni Street
 Weather: Clear

File Name : 06_CRS_S Main_Albertoni AM
 Site Code : 10519499
 Start Date : 7/18/2019
 Page No : 2



Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:45 AM				07:30 AM				07:30 AM				09:00 AM			
+0 mins.	47	116	58	221	31	79	60	170	16	50	26	92	10	68	14	92
+15 mins.	50	101	48	199	22	62	68	152	20	97	38	155	7	53	13	73
+30 mins.	47	95	52	194	29	68	49	146	18	62	29	109	7	62	15	84
+45 mins.	41	100	40	181	24	67	50	141	20	70	36	126	10	80	11	101
Total Volume	185	412	198	795	106	276	227	609	74	279	129	482	34	263	53	350
% App. Total	23.3	51.8	24.9		17.4	45.3	37.3		15.4	57.9	26.8		9.7	75.1	15.1	
PHF	.925	.888	.853	.899	.855	.873	.835	.896	.925	.719	.849	.777	.850	.822	.883	.866

City of Carson
 N/S: South Main Street
 E/W: Albertoni Street
 Weather: Clear

File Name : 06_CRS_S Main_Albertoni PM
 Site Code : 10519499
 Start Date : 7/18/2019
 Page No : 1

Groups Printed- Total Volume

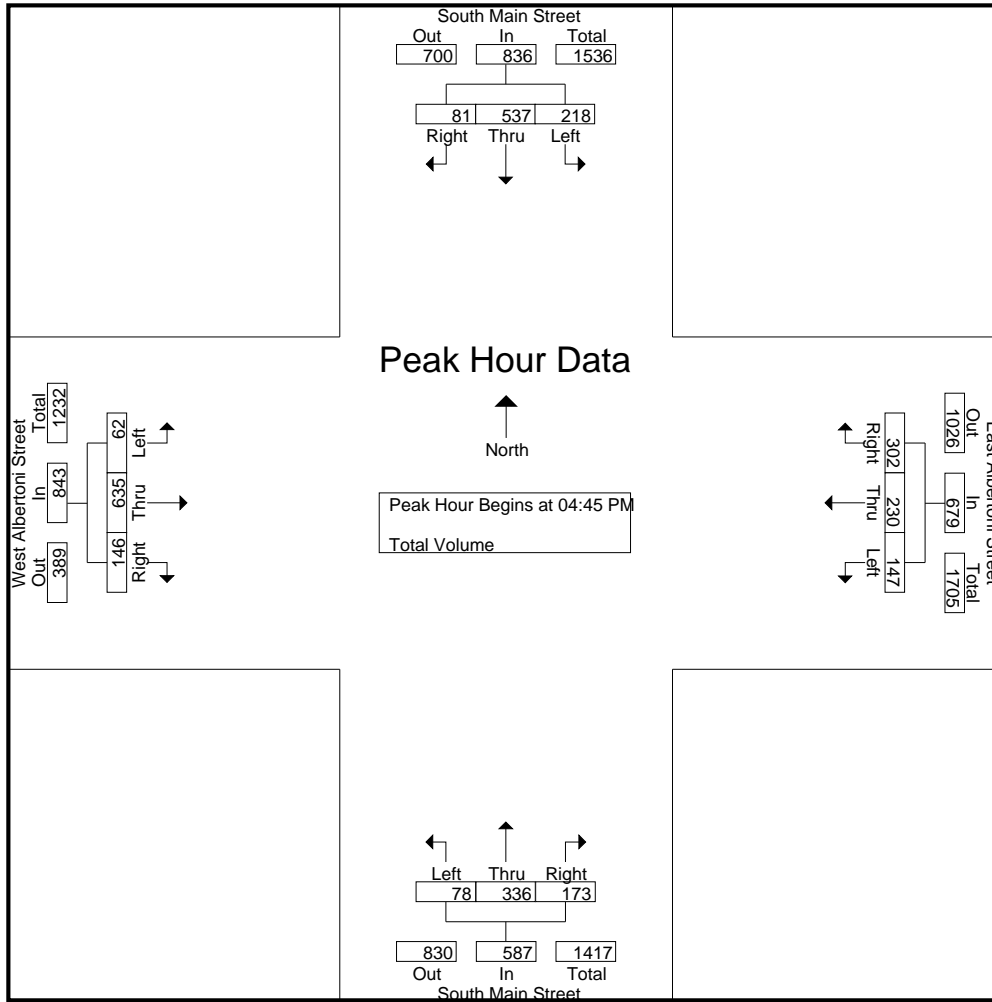
Start Time	South Main Street Southbound				East Albertoni Street Westbound				South Main Street Northbound				West Albertoni Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
03:00 PM	62	88	22	172	28	38	62	128	20	70	53	143	26	139	24	189	632
03:15 PM	38	83	24	145	32	51	71	154	10	62	46	118	15	150	26	191	608
03:30 PM	60	144	22	226	31	56	61	148	14	76	53	143	19	174	23	216	733
03:45 PM	66	97	22	185	34	57	92	183	11	71	37	119	19	166	19	204	691
Total	226	412	90	728	125	202	286	613	55	279	189	523	79	629	92	800	2664
04:00 PM	76	136	21	233	34	54	91	179	25	82	51	158	15	146	26	187	757
04:15 PM	41	110	20	171	27	58	71	156	15	75	45	135	16	141	28	185	647
04:30 PM	55	124	26	205	31	51	64	146	15	60	33	108	10	167	19	196	655
04:45 PM	39	110	25	174	33	52	76	161	14	95	45	154	14	177	23	214	703
Total	211	480	92	783	125	215	302	642	69	312	174	555	55	631	96	782	2762
05:00 PM	66	153	18	237	38	59	82	179	25	84	49	158	13	157	38	208	782
05:15 PM	63	167	22	252	32	66	74	172	25	89	44	158	16	162	37	215	797
05:30 PM	50	107	16	173	44	53	70	167	14	68	35	117	19	139	48	206	663
05:45 PM	53	114	18	185	24	59	42	125	17	84	44	145	12	161	36	209	664
Total	232	541	74	847	138	237	268	643	81	325	172	578	60	619	159	838	2906
Grand Total	669	1433	256	2358	388	654	856	1898	205	916	535	1656	194	1879	347	2420	8332
Apprch %	28.4	60.8	10.9		20.4	34.5	45.1		12.4	55.3	32.3		8	77.6	14.3		
Total %	8	17.2	3.1	28.3	4.7	7.8	10.3	22.8	2.5	11	6.4	19.9	2.3	22.6	4.2	29	

Start Time	South Main Street Southbound				East Albertoni Street Westbound				South Main Street Northbound				West Albertoni Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:45 PM	39	110	25	174	33	52	76	161	14	95	45	154	14	177	23	214	703
05:00 PM	66	153	18	237	38	59	82	179	25	84	49	158	13	157	38	208	782
05:15 PM	63	167	22	252	32	66	74	172	25	89	44	158	16	162	37	215	797
05:30 PM	50	107	16	173	44	53	70	167	14	68	35	117	19	139	48	206	663
Total Volume	218	537	81	836	147	230	302	679	78	336	173	587	62	635	146	843	2945
% App. Total	26.1	64.2	9.7		21.6	33.9	44.5		13.3	57.2	29.5		7.4	75.3	17.3		
PHF	.826	.804	.810	.829	.835	.871	.921	.948	.780	.884	.883	.929	.816	.897	.760	.980	.924

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:45 PM

City of Carson
 N/S: South Main Street
 E/W: Albertoni Street
 Weather: Clear

File Name : 06_CRS_S Main_Albertoni PM
 Site Code : 10519499
 Start Date : 7/18/2019
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Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:30 PM				04:45 PM				04:45 PM				04:45 PM			
+0 mins.	55	124	26	205	33	52	76	161	14	95	45	154	14	177	23	214
+15 mins.	39	110	25	174	38	59	82	179	25	84	49	158	13	157	38	208
+30 mins.	66	153	18	237	32	66	74	172	25	89	44	158	16	162	37	215
+45 mins.	63	167	22	252	44	53	70	167	14	68	35	117	19	139	48	206
Total Volume	223	554	91	868	147	230	302	679	78	336	173	587	62	635	146	843
% App. Total	25.7	63.8	10.5		21.6	33.9	44.5		13.3	57.2	29.5		7.4	75.3	17.3	
PHF	.845	.829	.875	.861	.835	.871	.921	.948	.780	.884	.883	.929	.816	.897	.760	.980

City of Carson
 N/S: SR-91 Eastbound Ramps
 E/W: East Albertoni Street
 Weather: Clear

File Name : 07_CRS_91E_E Albertoni AM
 Site Code : 10519499
 Start Date : 7/18/2019
 Page No : 1

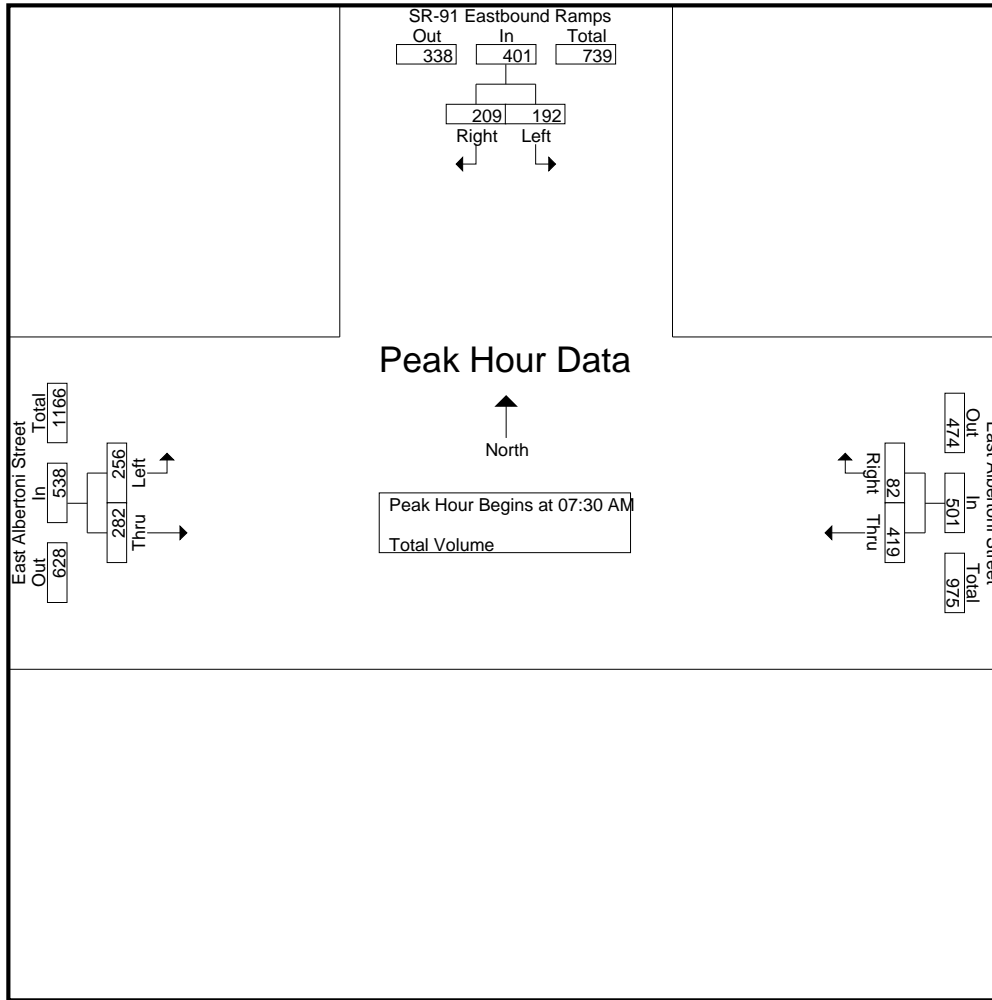
Groups Printed- Total Volume

Start Time	SR-91 Eastbound Ramps Southbound			East Albertoni Street Westbound			East Albertoni Street Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
07:00 AM	35	44	79	98	19	117	55	50	105	301
07:15 AM	34	43	77	112	16	128	57	58	115	320
07:30 AM	43	50	93	114	23	137	59	63	122	352
07:45 AM	56	64	120	101	20	121	72	76	148	389
Total	168	201	369	425	78	503	243	247	490	1362
08:00 AM	49	54	103	100	16	116	49	63	112	331
08:15 AM	44	41	85	104	23	127	76	80	156	368
08:30 AM	50	54	104	111	25	136	54	57	111	351
08:45 AM	69	54	123	95	17	112	62	61	123	358
Total	212	203	415	410	81	491	241	261	502	1408
09:00 AM	47	42	89	90	9	99	70	60	130	318
09:15 AM	46	53	99	93	12	105	66	58	124	328
09:30 AM	46	36	82	83	21	104	48	72	120	306
09:45 AM	42	59	101	93	21	114	69	76	145	360
Total	181	190	371	359	63	422	253	266	519	1312
Grand Total	561	594	1155	1194	222	1416	737	774	1511	4082
Apprch %	48.6	51.4		84.3	15.7		48.8	51.2		
Total %	13.7	14.6	28.3	29.3	5.4	34.7	18.1	19	37	

Start Time	SR-91 Eastbound Ramps Southbound			East Albertoni Street Westbound			East Albertoni Street Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	43	50	93	114	23	137	59	63	122	352
07:45 AM	56	64	120	101	20	121	72	76	148	389
08:00 AM	49	54	103	100	16	116	49	63	112	331
08:15 AM	44	41	85	104	23	127	76	80	156	368
Total Volume	192	209	401	419	82	501	256	282	538	1440
% App. Total	47.9	52.1		83.6	16.4		47.6	52.4		
PHF	.857	.816	.835	.919	.891	.914	.842	.881	.862	.925

City of Carson
 N/S: SR-91 Eastbound Ramps
 E/W: East Albertoni Street
 Weather: Clear

File Name : 07_CRS_91E_E Albertoni AM
 Site Code : 10519499
 Start Date : 7/18/2019
 Page No : 2



Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	08:00 AM			07:00 AM			07:30 AM		
+0 mins.	49	54	103	98	19	117	59	63	122
+15 mins.	44	41	85	112	16	128	72	76	148
+30 mins.	50	54	104	114	23	137	49	63	112
+45 mins.	69	54	123	101	20	121	76	80	156
Total Volume	212	203	415	425	78	503	256	282	538
% App. Total	51.1	48.9		84.5	15.5		47.6	52.4	
PHF	.768	.940	.843	.932	.848	.918	.842	.881	.862

City of Carson
 N/S: SR-91 Eastbound Ramps
 E/W: East Albertoni Street
 Weather: Clear

File Name : 07_CRS_91E_E Albertoni PM
 Site Code : 10519499
 Start Date : 7/18/2019
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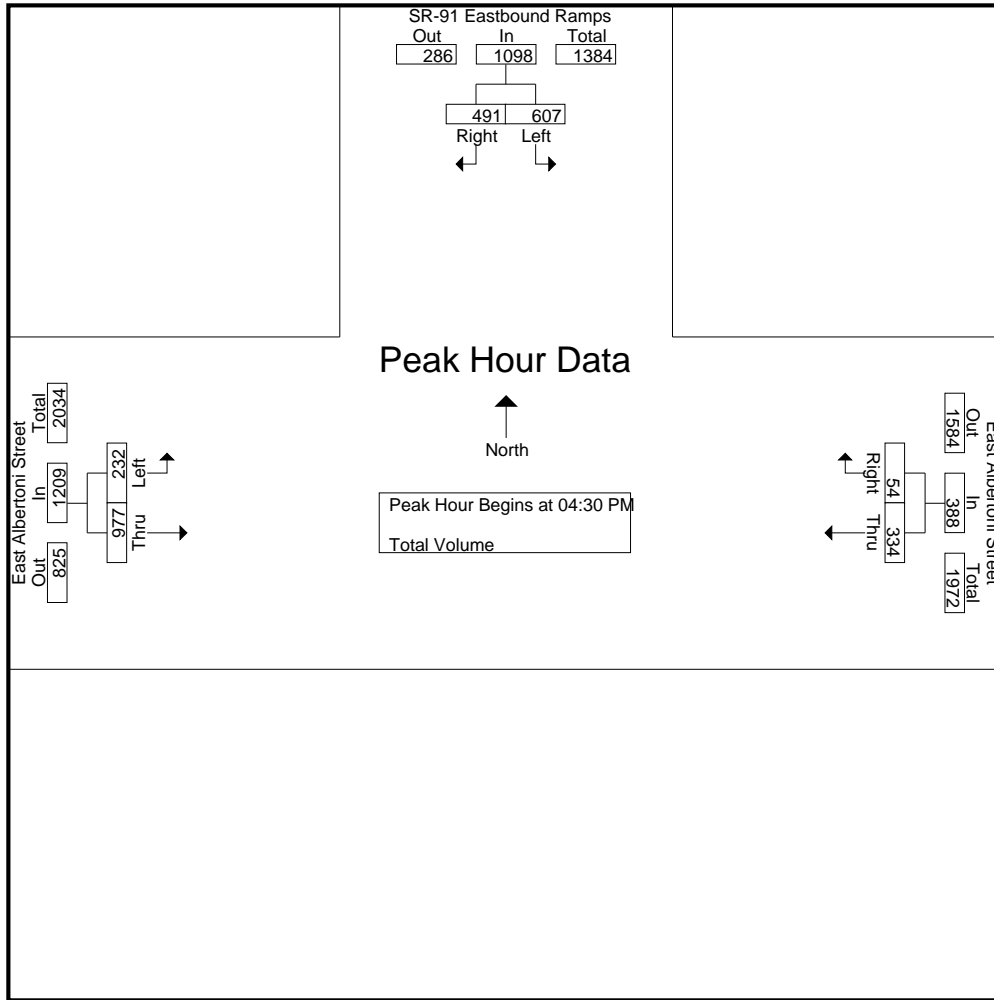
Groups Printed- Total Volume

Start Time	SR-91 Eastbound Ramps Southbound			East Albertoni Street Westbound			East Albertoni Street Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
03:00 PM	116	71	187	91	22	113	70	213	283	583
03:15 PM	115	88	203	93	11	104	55	206	261	568
03:30 PM	123	96	219	86	13	99	84	216	300	618
03:45 PM	127	121	248	94	11	105	53	236	289	642
Total	481	376	857	364	57	421	262	871	1133	2411
04:00 PM	134	131	265	88	20	108	51	256	307	680
04:15 PM	131	87	218	91	22	113	53	214	267	598
04:30 PM	148	100	248	80	22	102	71	204	275	625
04:45 PM	138	128	266	79	6	85	49	256	305	656
Total	551	446	997	338	70	408	224	930	1154	2559
05:00 PM	148	138	286	83	16	99	65	252	317	702
05:15 PM	173	125	298	92	10	102	47	265	312	712
05:30 PM	142	124	266	74	9	83	52	215	267	616
05:45 PM	104	57	161	97	15	112	40	224	264	537
Total	567	444	1011	346	50	396	204	956	1160	2567
Grand Total	1599	1266	2865	1048	177	1225	690	2757	3447	7537
Apprch %	55.8	44.2		85.6	14.4		20	80		
Total %	21.2	16.8	38	13.9	2.3	16.3	9.2	36.6	45.7	

Start Time	SR-91 Eastbound Ramps Southbound			East Albertoni Street Westbound			East Albertoni Street Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	148	100	248	80	22	102	71	204	275	625
04:45 PM	138	128	266	79	6	85	49	256	305	656
05:00 PM	148	138	286	83	16	99	65	252	317	702
05:15 PM	173	125	298	92	10	102	47	265	312	712
Total Volume	607	491	1098	334	54	388	232	977	1209	2695
% App. Total	55.3	44.7		86.1	13.9		19.2	80.8		
PHF	.877	.889	.921	.908	.614	.951	.817	.922	.953	.946

City of Carson
 N/S: SR-91 Eastbound Ramps
 E/W: East Albertoni Street
 Weather: Clear

File Name : 07_CRS_91E_E Albertoni PM
 Site Code : 10519499
 Start Date : 7/18/2019
 Page No : 2



Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:45 PM			03:45 PM			04:30 PM		
+0 mins.	138	128	266	94	11	105	71	204	275
+15 mins.	148	138	286	88	20	108	49	256	305
+30 mins.	173	125	298	91	22	113	65	252	317
+45 mins.	142	124	266	80	22	102	47	265	312
Total Volume	601	515	1116	353	75	428	232	977	1209
% App. Total	53.9	46.1		82.5	17.5		19.2	80.8	
PHF	.868	.933	.936	.939	.852	.947	.817	.922	.953

City of Carson
 N/S: I-110 Southbound Ramps
 E/W: Redondo Beach Boulevard
 Weather: Clear

File Name : 08_CRS_110S_Red Beach AM
 Site Code : 10519499
 Start Date : 7/18/2019
 Page No : 1

Groups Printed- Total Volume

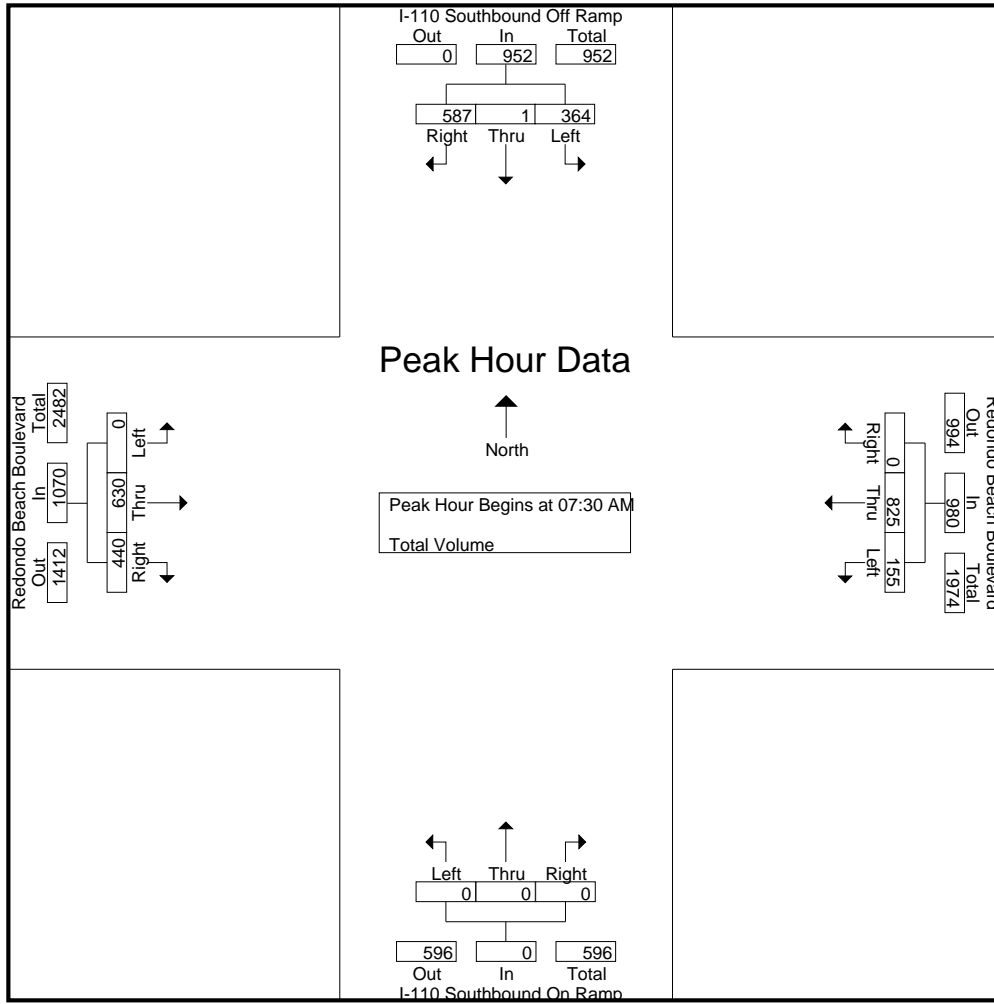
Start Time	I-110 Southbound Off Ramp Southbound				Redondo Beach Boulevard Westbound				I-110 Southbound On Ramp Northbound				Redondo Beach Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	103	0	145	248	53	174	0	227	0	0	0	0	0	115	78	193	668
07:15 AM	102	0	119	221	38	190	0	228	0	0	0	0	0	152	106	258	707
07:30 AM	92	1	139	232	54	224	0	278	0	0	0	0	0	158	124	282	792
07:45 AM	93	0	146	239	30	216	0	246	0	0	0	0	0	153	123	276	761
Total	390	1	549	940	175	804	0	979	0	0	0	0	0	578	431	1009	2928
08:00 AM	106	0	146	252	23	189	0	212	0	0	0	0	0	154	90	244	708
08:15 AM	73	0	156	229	48	196	0	244	0	0	0	0	0	165	103	268	741
08:30 AM	87	0	169	256	56	193	0	249	0	0	0	0	0	133	80	213	718
08:45 AM	91	0	163	254	28	191	0	219	0	0	0	0	0	160	90	250	723
Total	357	0	634	991	155	769	0	924	0	0	0	0	0	612	363	975	2890
09:00 AM	92	0	159	251	36	169	0	205	0	0	0	0	0	132	94	226	682
09:15 AM	75	1	134	210	46	184	0	230	0	0	0	0	0	181	97	278	718
09:30 AM	80	1	145	226	41	158	0	199	0	0	0	0	0	156	84	240	665
09:45 AM	90	0	130	220	35	200	0	235	0	0	0	0	0	153	73	226	681
Total	337	2	568	907	158	711	0	869	0	0	0	0	0	622	348	970	2746
Grand Total	1084	3	1751	2838	488	2284	0	2772	0	0	0	0	0	1812	1142	2954	8564
Apprch %	38.2	0.1	61.7		17.6	82.4	0		0	0	0	0	0	61.3	38.7		
Total %	12.7	0	20.4	33.1	5.7	26.7	0	32.4	0	0	0	0	0	21.2	13.3	34.5	

Start Time	I-110 Southbound Off Ramp Southbound				Redondo Beach Boulevard Westbound				I-110 Southbound On Ramp Northbound				Redondo Beach Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:30 AM	92	1	139	232	54	224	0	278	0	0	0	0	0	158	124	282	792
07:45 AM	93	0	146	239	30	216	0	246	0	0	0	0	0	153	123	276	761
08:00 AM	106	0	146	252	23	189	0	212	0	0	0	0	0	154	90	244	708
08:15 AM	73	0	156	229	48	196	0	244	0	0	0	0	0	165	103	268	741
Total Volume	364	1	587	952	155	825	0	980	0	0	0	0	0	630	440	1070	3002
% App. Total	38.2	0.1	61.7		15.8	84.2	0		0	0	0	0	0	58.9	41.1		
PHF	.858	.250	.941	.944	.718	.921	.000	.881	.000	.000	.000	.000	.000	.955	.887	.949	.948

Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

City of Carson
 N/S: I-110 Southbound Ramps
 E/W: Redondo Beach Boulevard
 Weather: Clear

File Name : 08_CRS_110S_Red Beach AM
 Site Code : 10519499
 Start Date : 7/18/2019
 Page No : 2



Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	08:00 AM				07:30 AM				07:00 AM				07:30 AM			
+0 mins.	106	0	146	252	54	224	0	278	0	0	0	0	0	158	124	282
+15 mins.	73	0	156	229	30	216	0	246	0	0	0	0	0	153	123	276
+30 mins.	87	0	169	256	23	189	0	212	0	0	0	0	0	154	90	244
+45 mins.	91	0	163	254	48	196	0	244	0	0	0	0	0	165	103	268
Total Volume	357	0	634	991	155	825	0	980	0	0	0	0	0	630	440	1070
% App. Total	36	0	64		15.8	84.2	0		0	0	0	0	0	58.9	41.1	
PHF	.842	.000	.938	.968	.718	.921	.000	.881	.000	.000	.000	.000	.000	.955	.887	.949

City of Carson
 N/S: I-110 Southbound Ramps
 E/W: Redondo Beach Boulevard
 Weather: Clear

File Name : 08_CRS_110S_Red Beach PM
 Site Code : 10519499
 Start Date : 7/18/2019
 Page No : 1

Groups Printed- Total Volume

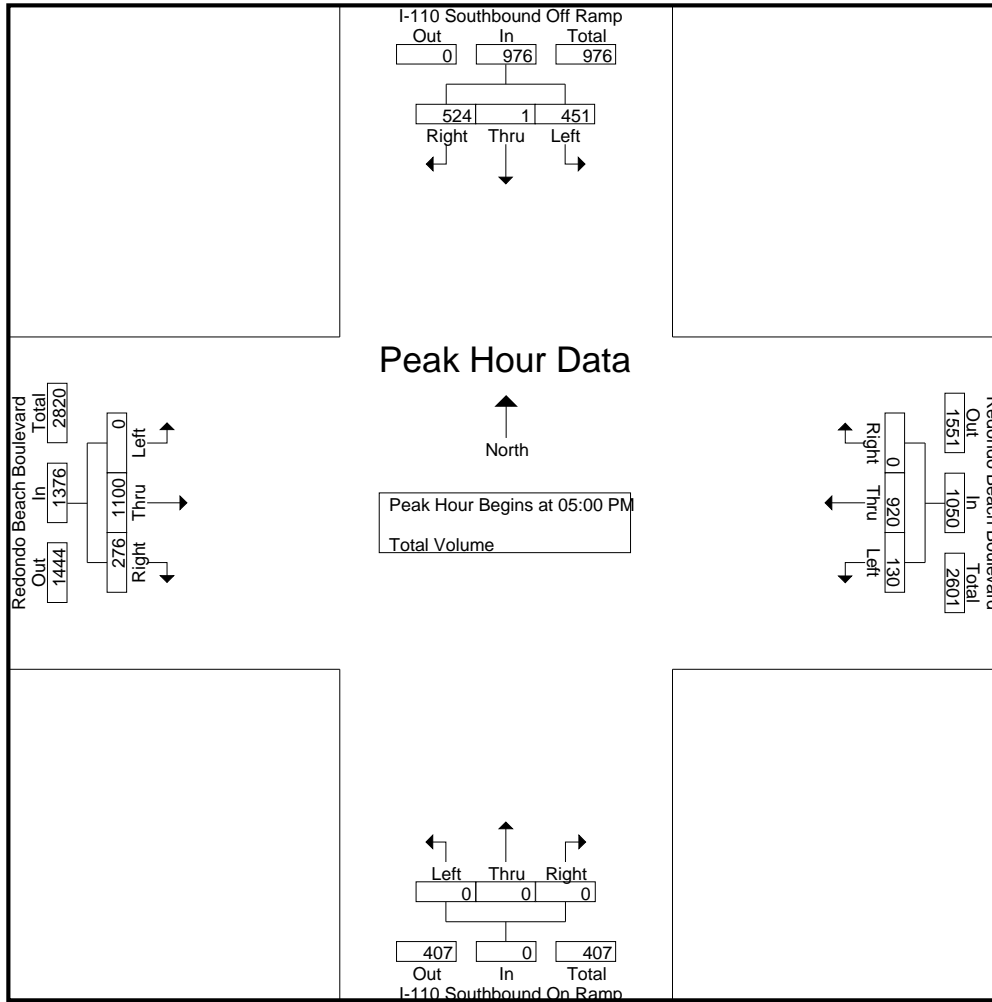
Start Time	I-110 Southbound Off Ramp Southbound				Redondo Beach Boulevard Westbound				I-110 Southbound On Ramp Northbound				Redondo Beach Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
03:00 PM	84	0	86	170	41	197	0	238	0	0	0	0	0	247	82	329	737
03:15 PM	94	0	106	200	25	170	0	195	0	0	0	0	0	253	90	343	738
03:30 PM	134	1	103	238	48	201	0	249	0	0	0	0	0	223	102	325	812
03:45 PM	99	1	131	231	36	200	0	236	0	0	0	0	0	267	76	343	810
Total	411	2	426	839	150	768	0	918	0	0	0	0	0	990	350	1340	3097
04:00 PM	94	1	109	204	33	190	0	223	0	0	0	0	0	219	98	317	744
04:15 PM	104	1	104	209	30	205	0	235	0	0	0	0	0	276	79	355	799
04:30 PM	136	1	128	265	45	222	0	267	0	0	0	0	0	241	69	310	842
04:45 PM	115	0	121	236	33	220	0	253	0	0	0	0	0	278	71	349	838
Total	449	3	462	914	141	837	0	978	0	0	0	0	0	1014	317	1331	3223
05:00 PM	102	0	104	206	47	236	0	283	0	0	0	0	0	273	70	343	832
05:15 PM	107	1	145	253	33	231	0	264	0	0	0	0	0	291	78	369	886
05:30 PM	117	0	133	250	23	234	0	257	0	0	0	0	0	252	54	306	813
05:45 PM	125	0	142	267	27	219	0	246	0	0	0	0	0	284	74	358	871
Total	451	1	524	976	130	920	0	1050	0	0	0	0	0	1100	276	1376	3402
Grand Total	1311	6	1412	2729	421	2525	0	2946	0	0	0	0	0	3104	943	4047	9722
Apprch %	48	0.2	51.7		14.3	85.7	0		0	0	0	0	0	76.7	23.3		
Total %	13.5	0.1	14.5	28.1	4.3	26	0	30.3	0	0	0	0	0	31.9	9.7	41.6	

Start Time	I-110 Southbound Off Ramp Southbound				Redondo Beach Boulevard Westbound				I-110 Southbound On Ramp Northbound				Redondo Beach Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
05:00 PM	102	0	104	206	47	236	0	283	0	0	0	0	0	273	70	343	832
05:15 PM	107	1	145	253	33	231	0	264	0	0	0	0	0	291	78	369	886
05:30 PM	117	0	133	250	23	234	0	257	0	0	0	0	0	252	54	306	813
05:45 PM	125	0	142	267	27	219	0	246	0	0	0	0	0	284	74	358	871
Total Volume	451	1	524	976	130	920	0	1050	0	0	0	0	0	1100	276	1376	3402
% App. Total	46.2	0.1	53.7		12.4	87.6	0		0	0	0	0	0	79.9	20.1		
PHF	.902	.250	.903	.914	.691	.975	.000	.928	.000	.000	.000	.000	.000	.945	.885	.932	.960

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 05:00 PM

City of Carson
 N/S: I-110 Southbound Ramps
 E/W: Redondo Beach Boulevard
 Weather: Clear

File Name : 08_CRS_110S_Red Beach PM
 Site Code : 10519499
 Start Date : 7/18/2019
 Page No : 2



Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM				04:30 PM				03:00 PM				05:00 PM			
+0 mins.	102	0	104	206	45	222	0	267	0	0	0	0	0	273	70	343
+15 mins.	107	1	145	253	33	220	0	253	0	0	0	0	0	291	78	369
+30 mins.	117	0	133	250	47	236	0	283	0	0	0	0	0	252	54	306
+45 mins.	125	0	142	267	33	231	0	264	0	0	0	0	0	284	74	358
Total Volume	451	1	524	976	158	909	0	1067	0	0	0	0	0	1100	276	1376
% App. Total	46.2	0.1	53.7		14.8	85.2	0		0	0	0	0	0	79.9	20.1	
PHF	.902	.250	.903	.914	.840	.963	.000	.943	.000	.000	.000	.000	.000	.945	.885	.932

City of Carson
 N/S: I-110 Northbound Ramps
 E/W: Redondo Beach Boulevard
 Weather: Clear

File Name : 09_CRS_110N_Red Beach AM
 Site Code : 10519499
 Start Date : 7/18/2019
 Page No : 1

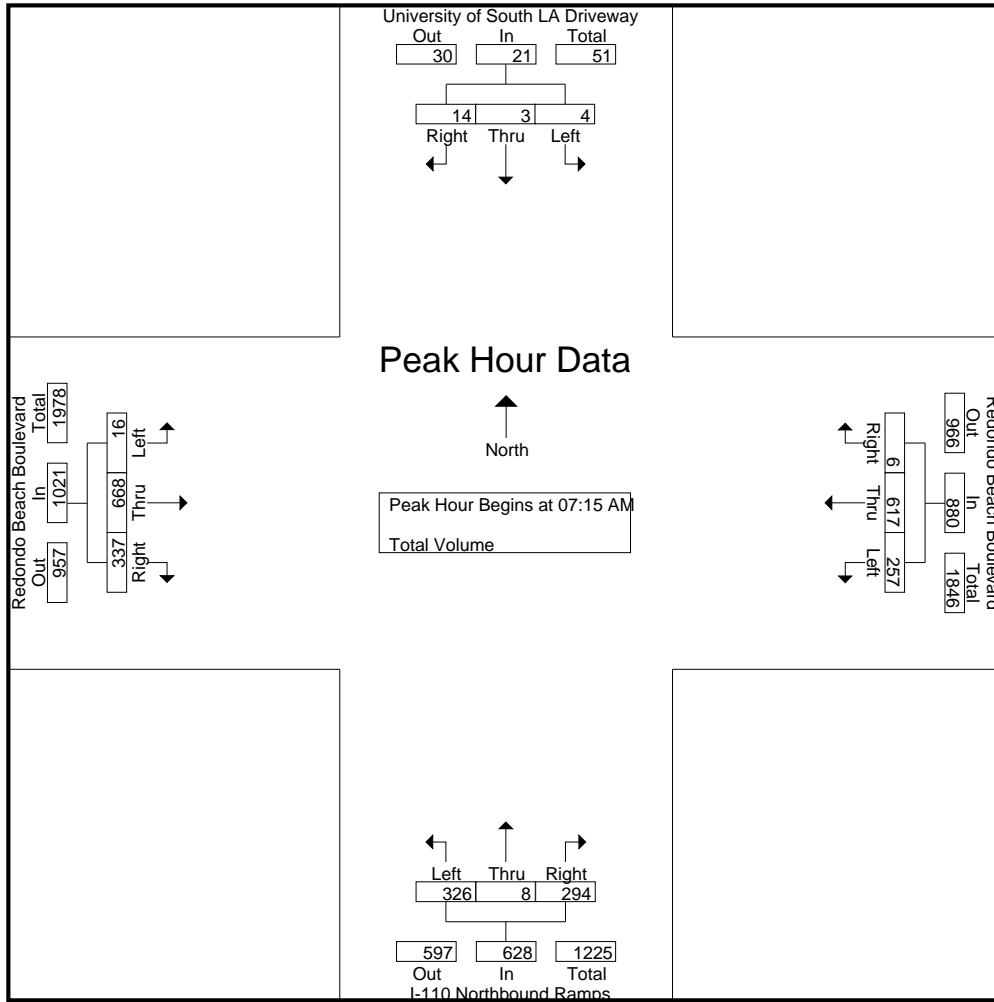
Groups Printed- Total Volume

Start Time	University of South LA Driveway Southbound				Redondo Beach Boulevard Westbound				I-110 Northbound Ramps Northbound				Redondo Beach Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	0	3	3	71	173	1	245	60	2	52	114	2	147	76	225	587
07:15 AM	1	0	4	5	62	142	0	204	80	2	73	155	2	154	93	249	613
07:30 AM	0	1	5	6	75	181	3	259	79	4	56	139	3	172	82	257	661
07:45 AM	1	1	2	4	49	140	1	190	102	1	92	195	5	165	77	247	636
Total	2	2	14	18	257	636	5	898	321	9	273	603	12	638	328	978	2497
08:00 AM	2	1	3	6	71	154	2	227	65	1	73	139	6	177	85	268	640
08:15 AM	1	0	3	4	53	154	1	208	81	3	67	151	8	158	78	244	607
08:30 AM	2	0	2	4	49	158	0	207	83	2	74	159	4	145	73	222	592
08:45 AM	2	1	5	8	52	128	0	180	86	6	90	182	12	169	74	255	625
Total	7	2	13	22	225	594	3	822	315	12	304	631	30	649	310	989	2464
09:00 AM	1	3	4	8	60	127	1	188	79	3	76	158	8	148	71	227	581
09:15 AM	0	0	3	3	57	132	0	189	87	8	71	166	7	151	103	261	619
09:30 AM	0	3	5	8	55	144	1	200	56	1	74	131	5	160	70	235	574
09:45 AM	0	0	4	4	57	133	0	190	87	1	74	162	5	158	85	248	604
Total	1	6	16	23	229	536	2	767	309	13	295	617	25	617	329	971	2378
Grand Total	10	10	43	63	711	1766	10	2487	945	34	872	1851	67	1904	967	2938	7339
Apprch %	15.9	15.9	68.3		28.6	71	0.4		51.1	1.8	47.1		2.3	64.8	32.9		
Total %	0.1	0.1	0.6	0.9	9.7	24.1	0.1	33.9	12.9	0.5	11.9	25.2	0.9	25.9	13.2	40	

Start Time	University of South LA Driveway Southbound				Redondo Beach Boulevard Westbound				I-110 Northbound Ramps Northbound				Redondo Beach Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	1	0	4	5	62	142	0	204	80	2	73	155	2	154	93	249	613
07:30 AM	0	1	5	6	75	181	3	259	79	4	56	139	3	172	82	257	661
07:45 AM	1	1	2	4	49	140	1	190	102	1	92	195	5	165	77	247	636
08:00 AM	2	1	3	6	71	154	2	227	65	1	73	139	6	177	85	268	640
Total Volume	4	3	14	21	257	617	6	880	326	8	294	628	16	668	337	1021	2550
% App. Total	19	14.3	66.7		29.2	70.1	0.7		51.9	1.3	46.8		1.6	65.4	33		
PHF	.500	.750	.700	.875	.857	.852	.500	.849	.799	.500	.799	.805	.667	.944	.906	.952	.964

City of Carson
 N/S: I-110 Northbound Ramps
 E/W: Redondo Beach Boulevard
 Weather: Clear

File Name : 09_CRS_110N_Red Beach AM
 Site Code : 10519499
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Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	08:45 AM				07:00 AM				08:30 AM				07:15 AM			
+0 mins.	2	1	5	8	71	173	1	245	83	2	74	159	2	154	93	249
+15 mins.	1	3	4	8	62	142	0	204	86	6	90	182	3	172	82	257
+30 mins.	0	0	3	3	75	181	3	259	79	3	76	158	5	165	77	247
+45 mins.	0	3	5	8	49	140	1	190	87	8	71	166	6	177	85	268
Total Volume	3	7	17	27	257	636	5	898	335	19	311	665	16	668	337	1021
% App. Total	11.1	25.9	63		28.6	70.8	0.6		50.4	2.9	46.8		1.6	65.4	33	
PHF	.375	.583	.850	.844	.857	.878	.417	.867	.963	.594	.864	.913	.667	.944	.906	.952

City of Carson
 N/S: I-110 Northbound Ramps
 E/W: Redondo Beach Boulevard
 Weather: Clear

File Name : 09_CRS_110N_Red Beach PM
 Site Code : 10519499
 Start Date : 7/18/2019
 Page No : 1

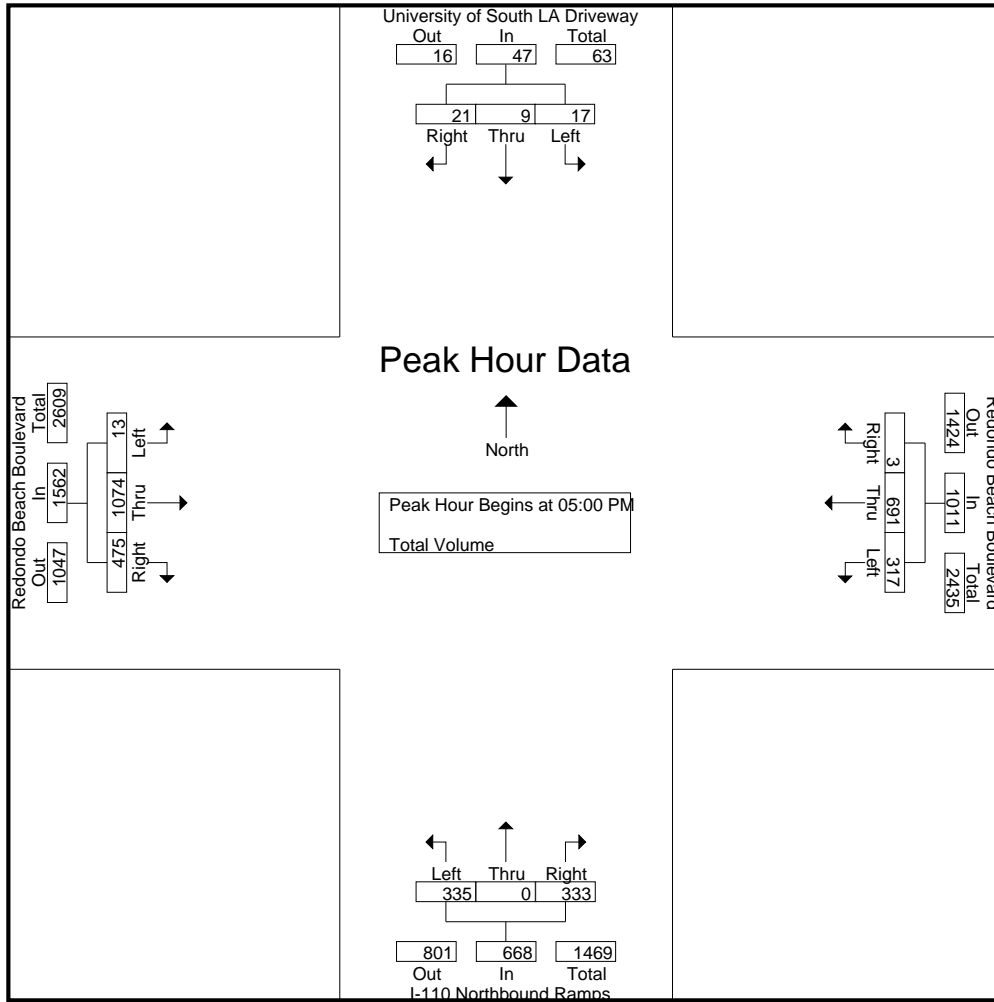
Groups Printed- Total Volume

Start Time	University of South LA Driveway Southbound				Redondo Beach Boulevard Westbound				I-110 Northbound Ramps Northbound				Redondo Beach Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
03:00 PM	1	2	1	4	77	152	0	229	90	0	78	168	1	227	108	336	737
03:15 PM	1	0	8	9	58	98	0	156	76	2	64	142	6	230	111	347	654
03:30 PM	1	3	3	7	110	164	0	274	71	1	59	131	0	257	89	346	758
03:45 PM	3	1	8	12	65	146	1	212	78	0	87	165	2	250	119	371	760
Total	6	6	20	32	310	560	1	871	315	3	288	606	9	964	427	1400	2909
04:00 PM	1	3	3	7	88	150	0	238	64	1	73	138	0	229	88	317	700
04:15 PM	1	0	3	4	74	141	0	215	83	0	74	157	4	267	113	384	760
04:30 PM	3	0	2	5	89	192	0	281	64	0	76	140	5	265	106	376	802
04:45 PM	2	5	6	13	66	164	0	230	77	1	78	156	6	297	99	402	801
Total	7	8	14	29	317	647	0	964	288	2	301	591	15	1058	406	1479	3063
05:00 PM	3	2	8	13	92	183	0	275	89	0	87	176	5	256	121	382	846
05:15 PM	6	1	6	13	64	172	1	237	81	0	71	152	4	271	128	403	805
05:30 PM	3	5	2	10	94	170	1	265	96	0	75	171	0	256	102	358	804
05:45 PM	5	1	5	11	67	166	1	234	69	0	100	169	4	291	124	419	833
Total	17	9	21	47	317	691	3	1011	335	0	333	668	13	1074	475	1562	3288
Grand Total	30	23	55	108	944	1898	4	2846	938	5	922	1865	37	3096	1308	4441	9260
Apprch %	27.8	21.3	50.9		33.2	66.7	0.1		50.3	0.3	49.4		0.8	69.7	29.5		
Total %	0.3	0.2	0.6	1.2	10.2	20.5	0	30.7	10.1	0.1	10	20.1	0.4	33.4	14.1	48	

Start Time	University of South LA Driveway Southbound				Redondo Beach Boulevard Westbound				I-110 Northbound Ramps Northbound				Redondo Beach Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	3	2	8	13	92	183	0	275	89	0	87	176	5	256	121	382	846
05:15 PM	6	1	6	13	64	172	1	237	81	0	71	152	4	271	128	403	805
05:30 PM	3	5	2	10	94	170	1	265	96	0	75	171	0	256	102	358	804
05:45 PM	5	1	5	11	67	166	1	234	69	0	100	169	4	291	124	419	833
Total Volume	17	9	21	47	317	691	3	1011	335	0	333	668	13	1074	475	1562	3288
% App. Total	36.2	19.1	44.7		31.4	68.3	0.3		50.1	0	49.9		0.8	68.8	30.4		
PHF	.708	.450	.656	.904	.843	.944	.750	.919	.872	.000	.833	.949	.650	.923	.928	.932	.972

City of Carson
 N/S: I-110 Northbound Ramps
 E/W: Redondo Beach Boulevard
 Weather: Clear

File Name : 09_CRS_110N_Red Beach PM
 Site Code : 10519499
 Start Date : 7/18/2019
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Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:45 PM				04:30 PM				05:00 PM				04:30 PM			
+0 mins.	2	5	6	13	89	192	0	281	89	0	87	176	5	265	106	376
+15 mins.	3	2	8	13	66	164	0	230	81	0	71	152	6	297	99	402
+30 mins.	6	1	6	13	92	183	0	275	96	0	75	171	5	256	121	382
+45 mins.	3	5	2	10	64	172	1	237	69	0	100	169	4	271	128	403
Total Volume	14	13	22	49	311	711	1	1023	335	0	333	668	20	1089	454	1563
% App. Total	28.6	26.5	44.9		30.4	69.5	0.1		50.1	0	49.9		1.3	69.7	29	
PHF	.583	.650	.688	.942	.845	.926	.250	.910	.872	.000	.833	.949	.833	.917	.887	.970

City of Carson
 N/S: South Figueroa Street
 E/W: Redondo Beach Boulevard
 Weather: Clear

File Name : 10_CRS_Figueroa_Red Beach AM
 Site Code : 10519499
 Start Date : 7/18/2019
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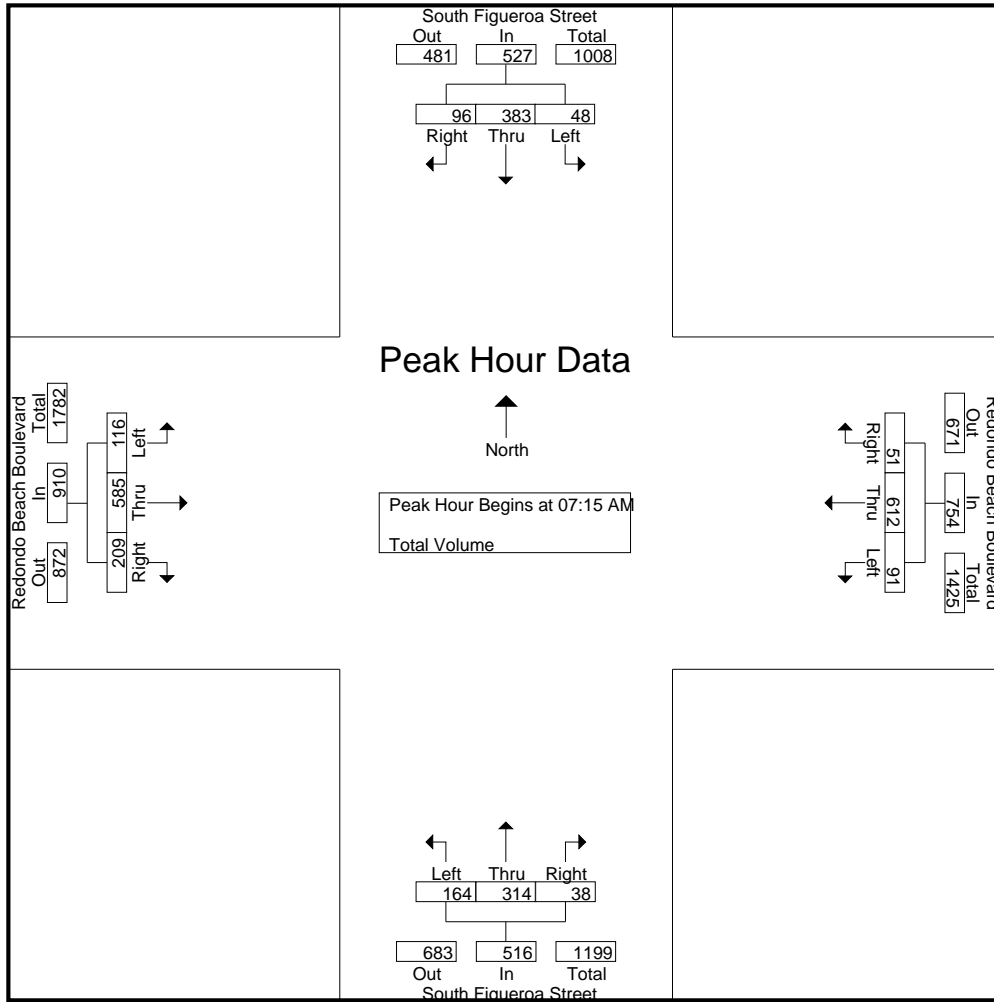
Groups Printed- Total Volume

Start Time	South Figueroa Street Southbound				Redondo Beach Boulevard Westbound				South Figueroa Street Northbound				Redondo Beach Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	11	71	28	110	15	168	16	199	39	60	7	106	14	116	44	174	589
07:15 AM	13	92	19	124	18	150	12	180	44	81	8	133	33	128	52	213	650
07:30 AM	10	72	34	116	34	176	15	225	37	61	6	104	30	144	55	229	674
07:45 AM	16	129	20	165	22	127	16	165	39	86	14	139	28	143	59	230	699
Total	50	364	101	515	89	621	59	769	159	288	35	482	105	531	210	846	2612
08:00 AM	9	90	23	122	17	159	8	184	44	86	10	140	25	170	43	238	684
08:15 AM	15	83	18	116	10	145	11	166	36	77	9	122	19	130	51	200	604
08:30 AM	9	48	20	77	10	153	14	177	35	70	7	112	29	154	32	215	581
08:45 AM	11	72	16	99	13	131	19	163	43	77	7	127	31	156	55	242	631
Total	44	293	77	414	50	588	52	690	158	310	33	501	104	610	181	895	2500
09:00 AM	3	56	21	80	7	122	17	146	27	62	10	99	26	151	36	213	538
09:15 AM	13	70	17	100	13	123	10	146	52	80	13	145	31	130	44	205	596
09:30 AM	14	49	19	82	7	130	10	147	33	66	6	105	26	159	48	233	567
09:45 AM	11	56	19	86	8	131	10	149	40	55	11	106	34	145	39	218	559
Total	41	231	76	348	35	506	47	588	152	263	40	455	117	585	167	869	2260
Grand Total	135	888	254	1277	174	1715	158	2047	469	861	108	1438	326	1726	558	2610	7372
Apprch %	10.6	69.5	19.9		8.5	83.8	7.7		32.6	59.9	7.5		12.5	66.1	21.4		
Total %	1.8	12	3.4	17.3	2.4	23.3	2.1	27.8	6.4	11.7	1.5	19.5	4.4	23.4	7.6	35.4	

Start Time	South Figueroa Street Southbound				Redondo Beach Boulevard Westbound				South Figueroa Street Northbound				Redondo Beach Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	13	92	19	124	18	150	12	180	44	81	8	133	33	128	52	213	650
07:30 AM	10	72	34	116	34	176	15	225	37	61	6	104	30	144	55	229	674
07:45 AM	16	129	20	165	22	127	16	165	39	86	14	139	28	143	59	230	699
08:00 AM	9	90	23	122	17	159	8	184	44	86	10	140	25	170	43	238	684
Total Volume	48	383	96	527	91	612	51	754	164	314	38	516	116	585	209	910	2707
% App. Total	9.1	72.7	18.2		12.1	81.2	6.8		31.8	60.9	7.4		12.7	64.3	23		
PHF	.750	.742	.706	.798	.669	.869	.797	.838	.932	.913	.679	.921	.879	.860	.886	.956	.968

City of Carson
 N/S: South Figueroa Street
 E/W: Redondo Beach Boulevard
 Weather: Clear

File Name : 10_CRS_Figueroa_Red Beach AM
 Site Code : 10519499
 Start Date : 7/18/2019
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Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM				07:00 AM				07:15 AM				07:15 AM			
+0 mins.	13	92	19	124	15	168	16	199	44	81	8	133	33	128	52	213
+15 mins.	10	72	34	116	18	150	12	180	37	61	6	104	30	144	55	229
+30 mins.	16	129	20	165	34	176	15	225	39	86	14	139	28	143	59	230
+45 mins.	9	90	23	122	22	127	16	165	44	86	10	140	25	170	43	238
Total Volume	48	383	96	527	89	621	59	769	164	314	38	516	116	585	209	910
% App. Total	9.1	72.7	18.2		11.6	80.8	7.7		31.8	60.9	7.4		12.7	64.3	23	
PHF	.750	.742	.706	.798	.654	.882	.922	.854	.932	.913	.679	.921	.879	.860	.886	.956

City of Carson
 N/S: South Figueroa Street
 E/W: Redondo Beach Boulevard
 Weather: Clear

File Name : 10_CRS_Figueroa_Red Beach PM
 Site Code : 10519499
 Start Date : 7/18/2019
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Groups Printed- Total Volume

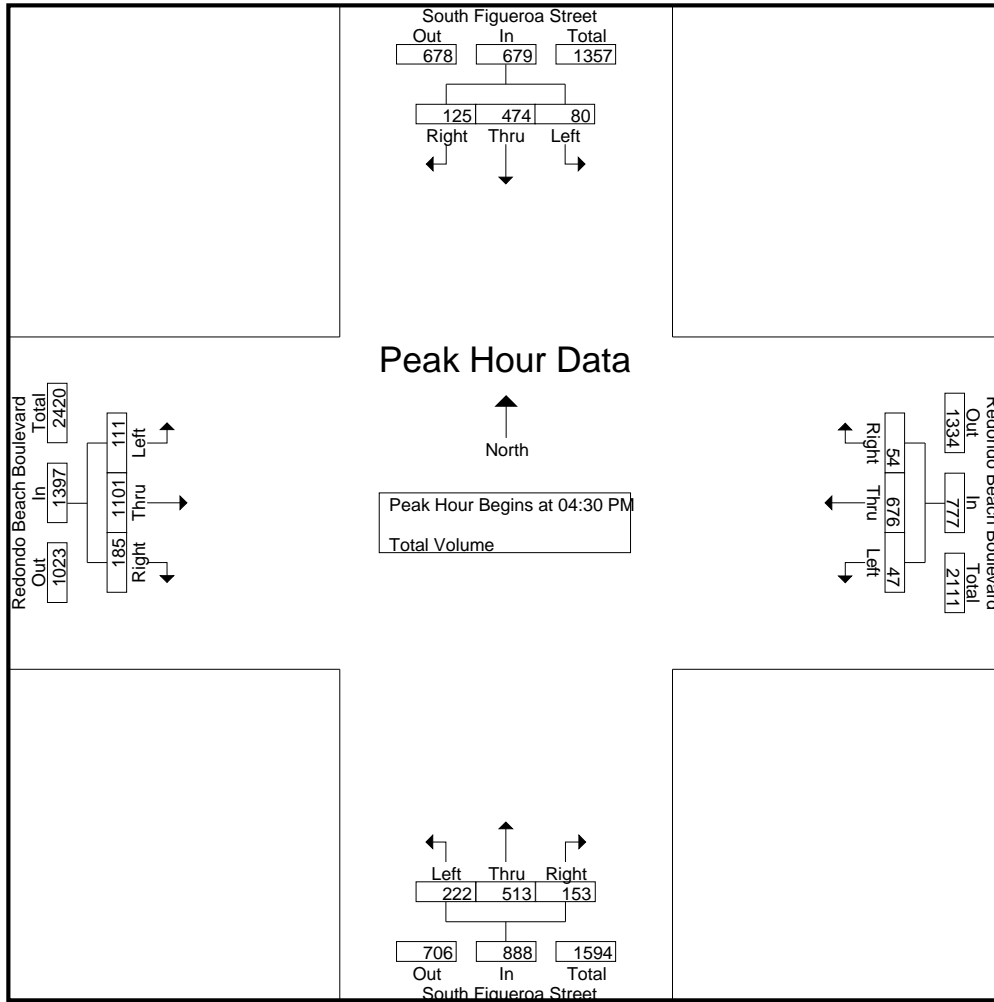
Start Time	South Figueroa Street Southbound				Redondo Beach Boulevard Westbound				South Figueroa Street Northbound				Redondo Beach Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
03:00 PM	11	120	33	164	10	152	9	171	49	99	29	177	34	231	35	300	812
03:15 PM	13	66	14	93	5	105	13	123	31	85	14	130	15	208	47	270	616
03:30 PM	12	107	22	141	18	188	19	225	54	118	28	200	23	240	40	303	869
03:45 PM	23	123	30	176	12	139	8	159	41	119	34	194	28	237	42	307	836
Total	59	416	99	574	45	584	49	678	175	421	105	701	100	916	164	1180	3133
04:00 PM	20	108	24	152	7	159	13	179	45	111	33	189	36	231	32	299	819
04:15 PM	13	112	24	149	16	139	10	165	43	136	31	210	36	228	52	316	840
04:30 PM	22	109	34	165	12	185	12	209	71	125	30	226	27	281	46	354	954
04:45 PM	22	103	29	154	13	144	8	165	40	124	36	200	25	279	40	344	863
Total	77	432	111	620	48	627	43	718	199	496	130	825	124	1019	170	1313	3476
05:00 PM	18	142	39	199	13	190	15	218	57	131	39	227	32	287	48	367	1011
05:15 PM	18	120	23	161	9	157	19	185	54	133	48	235	27	254	51	332	913
05:30 PM	15	122	29	166	11	166	13	190	64	143	36	243	22	255	49	326	925
05:45 PM	23	115	28	166	9	148	6	163	47	125	23	195	29	284	52	365	889
Total	74	499	119	692	42	661	53	756	222	532	146	900	110	1080	200	1390	3738
Grand Total	210	1347	329	1886	135	1872	145	2152	596	1449	381	2426	334	3015	534	3883	10347
Apprch %	11.1	71.4	17.4		6.3	87	6.7		24.6	59.7	15.7		8.6	77.6	13.8		
Total %	2	13	3.2	18.2	1.3	18.1	1.4	20.8	5.8	14	3.7	23.4	3.2	29.1	5.2	37.5	

Start Time	South Figueroa Street Southbound				Redondo Beach Boulevard Westbound				South Figueroa Street Northbound				Redondo Beach Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:30 PM	22	109	34	165	12	185	12	209	71	125	30	226	27	281	46	354	954
04:45 PM	22	103	29	154	13	144	8	165	40	124	36	200	25	279	40	344	863
05:00 PM	18	142	39	199	13	190	15	218	57	131	39	227	32	287	48	367	1011
05:15 PM	18	120	23	161	9	157	19	185	54	133	48	235	27	254	51	332	913
Total Volume	80	474	125	679	47	676	54	777	222	513	153	888	111	1101	185	1397	3741
% App. Total	11.8	69.8	18.4		6	87	6.9		25	57.8	17.2		7.9	78.8	13.2		
PHF	.909	.835	.801	.853	.904	.889	.711	.891	.782	.964	.797	.945	.867	.959	.907	.952	.925

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:30 PM

City of Carson
 N/S: South Figueroa Street
 E/W: Redondo Beach Boulevard
 Weather: Clear

File Name : 10_CRS_Figueroa_Red Beach PM
 Site Code : 10519499
 Start Date : 7/18/2019
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Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM				04:30 PM				04:45 PM				04:30 PM			
+0 mins.	18	142	39	199	12	185	12	209	40	124	36	200	27	281	46	354
+15 mins.	18	120	23	161	13	144	8	165	57	131	39	227	25	279	40	344
+30 mins.	15	122	29	166	13	190	15	218	54	133	48	235	32	287	48	367
+45 mins.	23	115	28	166	9	157	19	185	64	143	36	243	27	254	51	332
Total Volume	74	499	119	692	47	676	54	777	215	531	159	905	111	1101	185	1397
% App. Total	10.7	72.1	17.2		6	87	6.9		23.8	58.7	17.6		7.9	78.8	13.2	
PHF	.804	.879	.763	.869	.904	.889	.711	.891	.840	.928	.828	.931	.867	.959	.907	.952

City of Carson
 N/S: South Figueroa Street
 E/W: West 164th Street
 Weather: Clear

File Name : 11_CRS_Figueroa_164th AM
 Site Code : 10519499
 Start Date : 7/18/2019
 Page No : 1

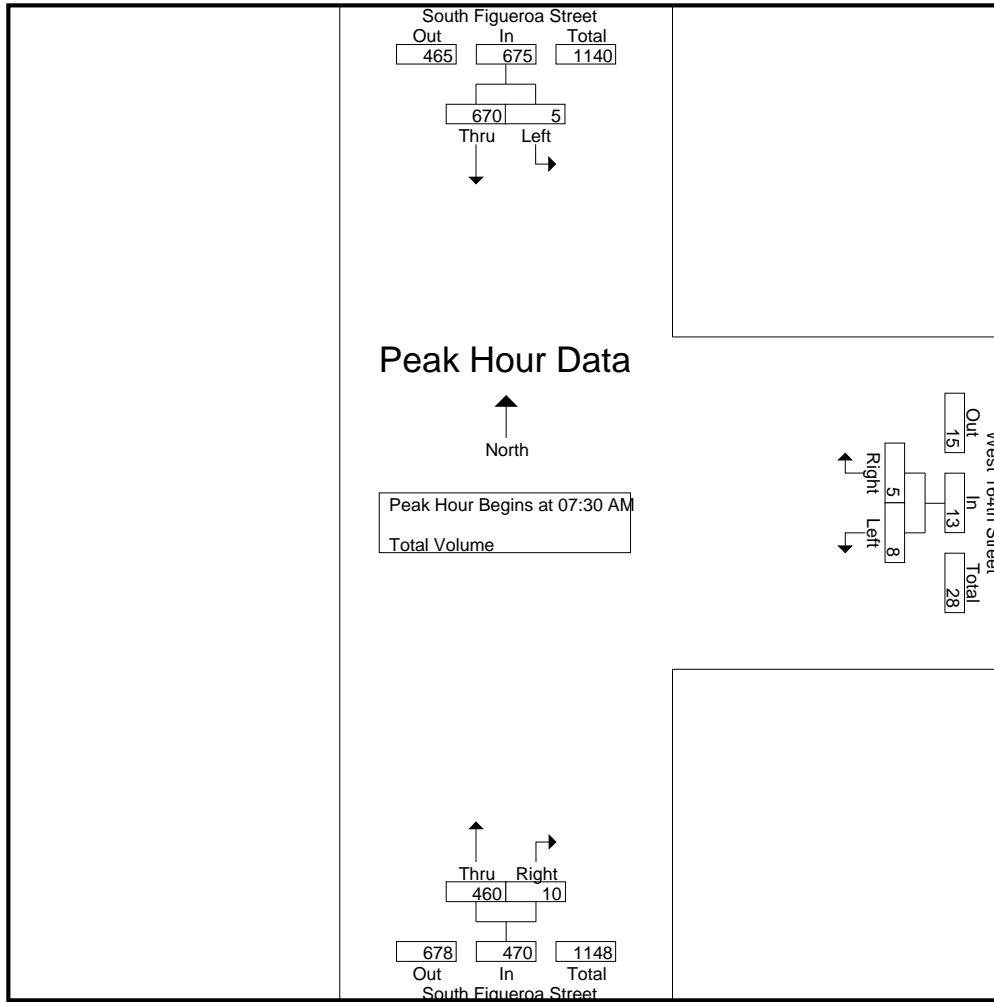
Groups Printed- Total Volume

Start Time	South Figueroa Street Southbound			West 164th Street Westbound			South Figueroa Street Northbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
07:00 AM	0	123	123	0	0	0	95	2	97	220
07:15 AM	2	160	162	1	0	1	90	0	90	253
07:30 AM	2	175	177	6	1	7	106	4	110	294
07:45 AM	2	189	191	0	0	0	126	1	127	318
Total	6	647	653	7	1	8	417	7	424	1085
08:00 AM	0	156	156	2	2	4	115	3	118	278
08:15 AM	1	150	151	0	2	2	113	2	115	268
08:30 AM	0	111	111	2	2	4	119	1	120	235
08:45 AM	1	109	110	0	5	5	125	4	129	244
Total	2	526	528	4	11	15	472	10	482	1025
09:00 AM	2	126	128	1	3	4	124	4	128	260
09:15 AM	0	108	108	0	2	2	114	0	114	224
09:30 AM	0	100	100	1	1	2	96	1	97	199
09:45 AM	2	98	100	1	1	2	97	3	100	202
Total	4	432	436	3	7	10	431	8	439	885
Grand Total	12	1605	1617	14	19	33	1320	25	1345	2995
Apprch %	0.7	99.3		42.4	57.6		98.1	1.9		
Total %	0.4	53.6	54	0.5	0.6	1.1	44.1	0.8	44.9	

Start Time	South Figueroa Street Southbound			West 164th Street Westbound			South Figueroa Street Northbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	2	175	177	6	1	7	106	4	110	294
07:45 AM	2	189	191	0	0	0	126	1	127	318
08:00 AM	0	156	156	2	2	4	115	3	118	278
08:15 AM	1	150	151	0	2	2	113	2	115	268
Total Volume	5	670	675	8	5	13	460	10	470	1158
% App. Total	0.7	99.3		61.5	38.5		97.9	2.1		
PHF	.625	.886	.884	.333	.625	.464	.913	.625	.925	.910

City of Carson
 N/S: South Figueroa Street
 E/W: West 164th Street
 Weather: Clear

File Name : 11_CRS_Figueroa_164th AM
 Site Code : 10519499
 Start Date : 7/18/2019
 Page No : 2



Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM			08:00 AM			08:15 AM		
+0 mins.	2	160	162	2	2	4	113	2	115
+15 mins.	2	175	177	0	2	2	119	1	120
+30 mins.	2	189	191	2	2	4	125	4	129
+45 mins.	0	156	156	0	5	5	124	4	128
Total Volume	6	680	686	4	11	15	481	11	492
% App. Total	0.9	99.1		26.7	73.3		97.8	2.2	
PHF	.750	.899	.898	.500	.550	.750	.962	.688	.953

City of Carson
 N/S: South Figueroa Street
 E/W: West 164th Street
 Weather: Clear

File Name : 11_CRS_Figueroa_164th PM
 Site Code : 10519499
 Start Date : 7/18/2019
 Page No : 1

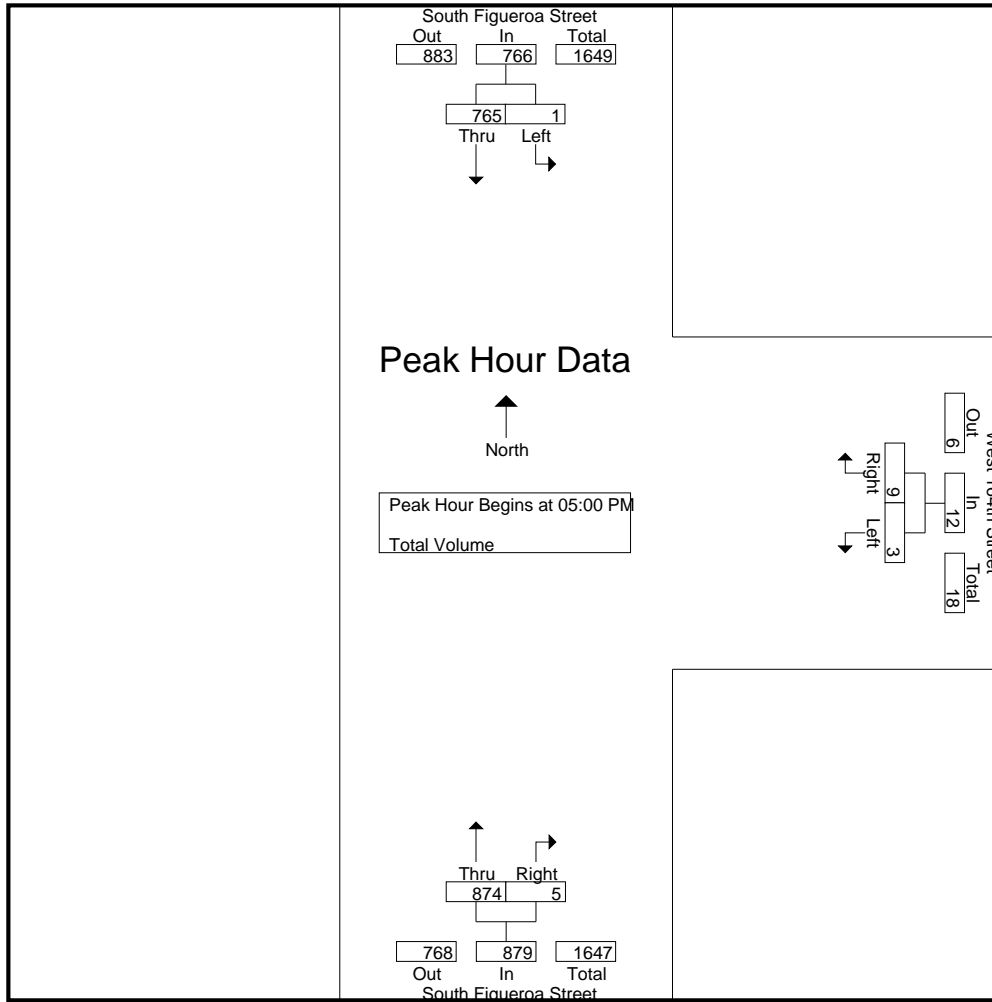
Groups Printed- Total Volume

Start Time	South Figueroa Street Southbound			West 164th Street Westbound			South Figueroa Street Northbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
03:00 PM	2	170	172	2	3	5	186	1	187	364
03:15 PM	0	147	147	2	2	4	158	2	160	311
03:30 PM	1	164	165	0	7	7	191	2	193	365
03:45 PM	0	172	172	1	0	1	200	1	201	374
Total	3	653	656	5	12	17	735	6	741	1414
04:00 PM	2	147	149	1	4	5	209	1	210	364
04:15 PM	1	197	198	1	1	2	194	2	196	396
04:30 PM	0	181	181	1	1	2	203	5	208	391
04:45 PM	0	163	163	2	2	4	212	2	214	381
Total	3	688	691	5	8	13	818	10	828	1532
05:00 PM	0	196	196	1	3	4	249	3	252	452
05:15 PM	1	173	174	1	1	2	214	0	214	390
05:30 PM	0	195	195	0	5	5	215	1	216	416
05:45 PM	0	201	201	1	0	1	196	1	197	399
Total	1	765	766	3	9	12	874	5	879	1657
Grand Total	7	2106	2113	13	29	42	2427	21	2448	4603
Apprch %	0.3	99.7		31	69		99.1	0.9		
Total %	0.2	45.8	45.9	0.3	0.6	0.9	52.7	0.5	53.2	

Start Time	South Figueroa Street Southbound			West 164th Street Westbound			South Figueroa Street Northbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	0	196	196	1	3	4	249	3	252	452
05:15 PM	1	173	174	1	1	2	214	0	214	390
05:30 PM	0	195	195	0	5	5	215	1	216	416
05:45 PM	0	201	201	1	0	1	196	1	197	399
Total Volume	1	765	766	3	9	12	874	5	879	1657
% App. Total	0.1	99.9		25	75		99.4	0.6		
PHF	.250	.951	.953	.750	.450	.600	.878	.417	.872	.916

City of Carson
 N/S: South Figueroa Street
 E/W: West 164th Street
 Weather: Clear

File Name : 11_CRS_Figueroa_164th PM
 Site Code : 10519499
 Start Date : 7/18/2019
 Page No : 2



Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM			03:00 PM			04:45 PM		
+0 mins.	0	196	196	2	3	5	212	2	214
+15 mins.	1	173	174	2	2	4	249	3	252
+30 mins.	0	195	195	0	7	7	214	0	214
+45 mins.	0	201	201	1	0	1	215	1	216
Total Volume	1	765	766	5	12	17	890	6	896
% App. Total	0.1	99.9		29.4	70.6		99.3	0.7	
PHF	.250	.951	.953	.625	.429	.607	.894	.500	.889

Appendix B

Existing Conditions Intersection Analysis Worksheets

333 W. Gardena Blvd Industrial Project Preliminary TIA
Existing Conditions
AM Peak Hour

Scenario Report

Scenario: EX_AM
Command: EX_AM
Volume: EX_AM
Geometry: EX
Impact Fee: Default Impact Fee
Trip Generation: NONE
Trip Distribution: DEFAULT
Paths: Default Path
Routes: Default Route
Configuration: EX

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Existing Conditions
 AM Peak Hour

Turning Movement Report
 NONE

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#1 Figueroa St (NS) / Gardena Blvd (EW)													
Base	24	346	40	59	549	52	53	103	42	59	117	59	1503
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	24	346	40	59	549	52	53	103	42	59	117	59	1503
#2 Broadway (NS) / Gardena Blvd (EW)													
Base	33	208	20	22	284	34	26	137	31	31	215	43	1084
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	33	208	20	22	284	34	26	137	31	31	215	43	1084
#3 Main St (NS) / Gardena Blvd (EW)													
Base	92	454	63	46	397	48	27	109	39	49	156	31	1511
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	92	454	63	46	397	48	27	109	39	49	156	31	1511
#4 Broadway (NS) / Albertoni St (EW)													
Base	33	208	44	42	183	86	31	221	38	81	431	36	1434
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	33	208	44	42	183	86	31	221	38	81	431	36	1434
#5 Main St (NS) / SR-91 WB Ramps (EW)													
Base	1	465	83	92	409	4	0	1	4	392	1	427	1879
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	465	83	92	409	4	0	1	4	392	1	427	1879
#6 Main St (NS) / Albertoni St (EW)													
Base	74	279	129	180	398	203	33	242	41	106	276	227	2188
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	74	279	129	180	398	203	33	242	41	106	276	227	2188
#7 SR-91 EB Ramps (NS) / Albertoni St (EW)													
Base	0	0	0	192	0	209	256	282	0	0	419	82	1440
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	192	0	209	256	282	0	0	419	82	1440
#8 I-110 SB Ramps (NS) / Redondo Beach Blvd (EW)													
Base	0	0	0	364	1	587	0	630	440	155	825	0	3002
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	364	1	587	0	630	440	155	825	0	3002
#9 I-110 NB Ramps (NS) / Redondo Beach Blvd (EW)													
Base	326	8	294	4	3	14	16	668	337	257	617	6	2550
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	326	8	294	4	3	14	16	668	337	257	617	6	2550

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Existing Conditions
 AM Peak Hour

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#10 Figueroa St (NS) / Redondo Beach Blvd (EW)													
Base	164	314	38	48	383	96	116	585	209	91	612	51	2707
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	164	314	38	48	383	96	116	585	209	91	612	51	2707
#11 Figueroa St (NS) / 164th St (EW)													
Base	0	460	10	5	670	0	0	0	0	8	0	5	1158
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	460	10	5	670	0	0	0	0	8	0	5	1158
#12 164th St (NS) / Gardena Blvd (EW)													
Base	0	0	0	7	0	8	0	202	0	0	282	0	499
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	7	0	8	0	202	0	0	282	0	499
#13 Project Dwy 1 (NS) / Gardena Blvd (EW)													
Base	0	0	0	0	0	0	0	202	0	0	282	0	484
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	202	0	0	282	0	484
#14 Project Dwy 2 (NS) / Gardena Blvd (EW)													
Base	0	0	0	0	0	0	0	202	0	0	282	0	484
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	202	0	0	282	0	484

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Existing Conditions
 AM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #1 Figueroa St (NS) / Gardena Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.385
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 28 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	24	346	40	59	549	52	53	103	42	59	117	59
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	24	346	40	59	549	52	53	103	42	59	117	59
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	24	346	40	59	549	52	53	103	42	59	117	59
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	24	346	40	59	549	52	53	103	42	59	117	59
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	24	346	40	59	549	52	53	103	42	59	117	59

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.79	0.21	1.00	1.83	0.17	1.00	1.42	0.58	1.00	1.33	0.67
Final Sat.:	1600	2868	332	1600	2923	277	1600	2273	927	1600	2127	1073

Capacity Analysis Module:

Vol/Sat:	0.02	0.12	0.12	0.04	0.19	0.19	0.03	0.05	0.05	0.04	0.05	0.06
Crit Moves:	****			****			****			****		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Existing Conditions
 AM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 Broadway (NS) / Gardena Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.317
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 26 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	33	208	20	22	284	34	26	137	31	31	215	43
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	33	208	20	22	284	34	26	137	31	31	215	43
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	33	208	20	22	284	34	26	137	31	31	215	43
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	33	208	20	22	284	34	26	137	31	31	215	43
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	33	208	20	22	284	34	26	137	31	31	215	43

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.82	0.18	1.00	1.79	0.21	1.00	1.63	0.37	1.00	1.67	0.33
Final Sat.:	1600	2919	281	1600	2858	342	1600	2610	590	1600	2667	533

Capacity Analysis Module:

Vol/Sat:	0.02	0.07	0.07	0.01	0.10	0.10	0.02	0.05	0.05	0.02	0.08	0.08
Crit Moves:	****			****			****			****		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Existing Conditions
 AM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #3 Main St (NS) / Gardena Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.358
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 27 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	2	0	1	1	0	1	1	0	1	1

Volume Module:

Base Vol:	92	454	63	46	397	48	27	109	39	49	156	31
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	92	454	63	46	397	48	27	109	39	49	156	31
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	92	454	63	46	397	48	27	109	39	49	156	31
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	92	454	63	46	397	48	27	109	39	49	156	31
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	92	454	63	46	397	48	27	109	39	49	156	31

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.47	0.53	1.00	1.67	0.33
Final Sat.:	1600	3200	1600	1600	3200	1600	1600	2357	843	1600	2670	530

Capacity Analysis Module:

Vol/Sat:	0.06	0.14	0.04	0.03	0.12	0.03	0.02	0.05	0.05	0.03	0.06	0.06
Crit Moves:	****			****			****			****		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Existing Conditions
 AM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #4 Broadway (NS) / Albertoni St (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.370
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxxx
 Optimal Cycle: 27 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	33	208	44	42	183	86	31	221	38	81	431	36
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	33	208	44	42	183	86	31	221	38	81	431	36
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	33	208	44	42	183	86	31	221	38	81	431	36
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	33	208	44	42	183	86	31	221	38	81	431	36
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	33	208	44	42	183	86	31	221	38	81	431	36

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.65	0.35	1.00	1.36	0.64	1.00	1.71	0.29	1.00	1.85	0.15
Final Sat.:	1600	2641	559	1600	2177	1023	1600	2731	469	1600	2953	247

Capacity Analysis Module:

Vol/Sat:	0.02	0.08	0.08	0.03	0.08	0.08	0.02	0.08	0.08	0.05	0.15	0.15
Crit Moves:	****			****			****			****		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #5 Main St (NS) / SR-91 WB Ramps (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.570
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 38 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	2	0	1	1	0	0	1	0	1	0

Volume Module:

Base Vol:	1	465	83	92	409	4	0	1	4	392	1	427
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	1	465	83	92	409	4	0	1	4	392	1	427
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	1	465	83	92	409	4	0	1	4	392	1	427
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1	465	83	92	409	4	0	1	4	392	1	427
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	1	465	83	92	409	4	0	1	4	392	1	427

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	1.98	0.02	0.00	0.20	0.80	0.99	0.01	1.00
Final Sat.:	1600	3200	1600	1600	3169	31	0	320	1280	1596	4	1600

Capacity Analysis Module:

Vol/Sat:	0.00	0.15	0.05	0.06	0.13	0.13	0.00	0.00	0.00	0.25	0.25	0.27
Crit Moves:	****			****			****			****		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #6 Main St (NS) / Albertoni St (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.532
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 35 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	74	279	129	180	398	203	33	242	41	106	276	227
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	74	279	129	180	398	203	33	242	41	106	276	227
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	74	279	129	180	398	203	33	242	41	106	276	227
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	74	279	129	180	398	203	33	242	41	106	276	227
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	74	279	129	180	398	203	33	242	41	106	276	227

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.37	0.63	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.10	0.90
Final Sat.:	1600	2188	1012	1600	3200	1600	1600	3200	1600	1600	1756	1444

Capacity Analysis Module:

Vol/Sat:	0.05	0.13	0.13	0.11	0.12	0.13	0.02	0.08	0.03	0.07	0.16	0.16
Crit Moves:	****			****			****			****		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #7 SR-91 EB Ramps (NS) / Albertoni St (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.442
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 30 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	1	0	0	2	0	2	0	0	2

Volume Module:

Base Vol:	0	0	0	192	0	209	256	282	0	0	419	82
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	192	0	209	256	282	0	0	419	82
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	192	0	209	256	282	0	0	419	82
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	192	0	209	256	282	0	0	419	82
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	192	0	209	256	282	0	0	419	82

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	2.00	2.00	0.00	0.00	2.00	1.00
Final Sat.:	0	0	0	1600	0	1600	3200	3200	0	0	3200	1600

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.12	0.00	0.13	0.08	0.09	0.00	0.00	0.13	0.05
Crit Moves:						****	****			****		

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #8 I-110 SB Ramps (NS) / Redondo Beach Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.670
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 47 Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Permitted			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	1	0	1	0	0	2	1	0	3

Volume Module:

Base Vol:	0	0	0	364	1	587	0	630	440	155	825	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	364	1	587	0	630	440	155	825	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	364	1	587	0	630	440	155	825	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	364	1	587	0	630	440	155	825	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	364	1	587	0	630	440	155	825	0

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.14	0.01	1.85	0.00	2.00	1.00	1.00	3.00	0.00
Final Sat.:	0	0	0	1835	5	2960	0	3200	1600	1600	4800	0

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.20	0.20	0.20	0.00	0.20	0.28	0.10	0.17	0.00
Crit Moves:				****					****	****		

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #9 I-110 NB Ramps (NS) / Redondo Beach Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.583
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 39 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound										
Movement:	L	T	R	L	T	R	L	T	R	L	T	R								
Control:	Split Phase			Split Phase			Protected			Protected										
Rights:	Ovl			Include			Ovl			Include										
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0								
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0								
Lanes:	1	1	0	0	1	0	1	0	0	1	1	0	2	0	1	1	0	2	1	0

Volume Module:

Base Vol:	326	8	294	4	3	14	16	668	337	257	617	6
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	326	8	294	4	3	14	16	668	337	257	617	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	326	8	294	4	3	14	16	668	337	257	617	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	326	8	294	4	3	14	16	668	337	257	617	6
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	326	8	294	4	3	14	16	668	337	257	617	6
OvlAdjVol:	37						170					

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.95	0.05	1.00	0.57	0.43	1.00	1.00	2.00	1.00	1.00	2.97	0.03
Final Sat.:	3123	77	1600	914	686	1600	1600	3200	1600	1600	4754	46

Capacity Analysis Module:

Vol/Sat:	0.10	0.10	0.18	0.00	0.00	0.01	0.01	0.21	0.21	0.16	0.13	0.13
OvlAdjV/S:	0.02						0.11					
Crit Moves:	****					****	****		****	****		

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #10 Figueroa St (NS) / Redondo Beach Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.586
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 39 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Prot+Permit			Prot+Permit			Prot+Permit			Prot+Permit		
Rights:	Include			Ovl			Ovl			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	164	314	38	48	383	96	116	585	209	91	612	51
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	164	314	38	48	383	96	116	585	209	91	612	51
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	164	314	38	48	383	96	116	585	209	91	612	51
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	164	314	38	48	383	96	116	585	209	91	612	51
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	164	314	38	48	383	96	116	585	209	91	612	51
OvlAdjVol:						0			45			3

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.78	0.22	1.00	2.00	1.00	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1600	2855	345	1600	3200	1600	1600	3200	1600	1600	3200	1600

Capacity Analysis Module:

Vol/Sat:	0.10	0.11	0.11	0.03	0.12	0.06	0.07	0.18	0.13	0.06	0.19	0.03
OvlAdjV/S:						0.00			0.03			0.00
Crit Moves:	****			****			****			****		

Lanes and Geometrics
5: Main St & SR-91 WB Ramps















Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↔			↕	↗	↖	↕↕	↗	↖	↕↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%				0%
Storage Length (ft)	0		0	0		0	90		50	155		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor												
Frt		0.887				0.850			0.850		0.998	
Flt Protected					0.952		0.950			0.950		
Satd. Flow (prot)	0	1652	0	0	1773	1583	1770	3539	1583	1770	3532	0
Flt Permitted					0.952		0.483			0.950		
Satd. Flow (perm)	0	1652	0	0	1773	1583	900	3539	1583	1770	3532	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				485			143			1
Link Speed (mph)		30			30			30				30
Link Distance (ft)		246			641			875				3052
Travel Time (s)		5.6			14.6			19.9				69.4

Intersection Summary

Area Type: Other

Volume
5: Main St & SR-91 WB Ramps

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	1	4	392	1	427	1	465	83	92	409	4
Future Volume (vph)	0	1	4	392	1	427	1	465	83	92	409	4
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	1	5	445	1	485	1	528	94	105	465	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	6	0	0	446	485	1	528	94	105	470	0
Intersection Summary												

Timings
5: Main St & SR-91 WB Ramps

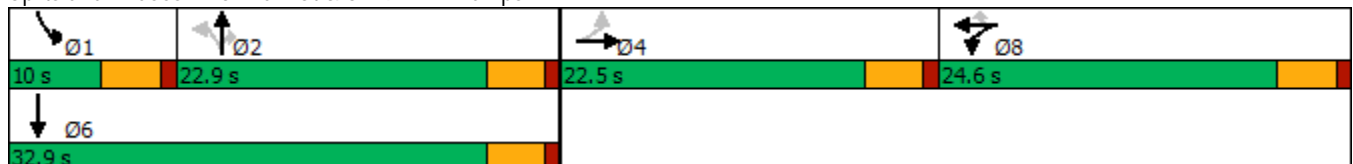


Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↗	↖	↑↑	↗	↖	↕
Traffic Volume (vph)	1	1	427	1	465	83	92	409
Future Volume (vph)	1	1	427	1	465	83	92	409
Turn Type	NA	NA	Perm	Perm	NA	Perm	Prot	NA
Protected Phases	4	8			2		1	6
Permitted Phases			8	2		2		
Detector Phase	4	8	8	2	2	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	9.5	22.5
Total Split (s)	22.5	24.6	24.6	22.9	22.9	22.9	10.0	32.9
Total Split (%)	28.1%	30.8%	30.8%	28.6%	28.6%	28.6%	12.5%	41.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag				Lag	Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	Max	Max	Max	None	Max
Act Effect Green (s)	5.7	20.2	20.2	18.5	18.5	18.5	5.5	28.6
Actuated g/C Ratio	0.10	0.34	0.34	0.31	0.31	0.31	0.09	0.48
v/c Ratio	0.04	0.74	0.57	0.00	0.48	0.16	0.64	0.28
Control Delay	19.4	28.5	5.0	17.0	19.1	2.2	48.5	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.4	28.5	5.0	17.0	19.1	2.2	48.5	10.5
LOS	B	C	A	B	B	A	D	B
Approach Delay	19.4	16.3			16.6			17.5
Approach LOS	B	B			B			B

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 59.7
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay: 16.7
 Intersection Capacity Utilization 57.6%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 5: Main St & SR-91 WB Ramps



Queues
5: Main St & SR-91 WB Ramps
























Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	6	446	485	1	528	94	105	470
v/c Ratio	0.04	0.74	0.57	0.00	0.48	0.16	0.64	0.28
Control Delay	19.4	28.5	5.0	17.0	19.1	2.2	48.5	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.4	28.5	5.0	17.0	19.1	2.2	48.5	10.5
Queue Length 50th (ft)	0	130	0	0	75	0	36	45
Queue Length 95th (ft)	10	#316	57	3	141	13	#115	97
Internal Link Dist (ft)	166	561			795			2972
Turn Bay Length (ft)				90		50	155	
Base Capacity (vph)	504	599	856	279	1096	588	164	1690
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.74	0.57	0.00	0.48	0.16	0.64	0.28

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
5: Main St & SR-91 WB Ramps

333 W. Gardena Blvd Project TIA
01/17/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	4	392	1	427	1	465	83	92	409	4
Future Volume (veh/h)	0	1	4	392	1	427	1	465	83	92	409	4
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	0	1	5	445	1	485	1	528	94	105	465	5
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	2	11	569	1	509	397	1086	486	134	1630	18
Arrive On Green	0.00	0.01	0.01	0.32	0.32	0.32	0.31	0.31	0.31	0.08	0.45	0.45
Sat Flow, veh/h	0	271	1353	1770	4	1583	920	3539	1583	1774	3587	39
Grp Volume(v), veh/h	0	0	6	446	0	485	1	528	94	105	229	241
Grp Sat Flow(s),veh/h/ln	0	0	1624	1774	0	1583	920	1770	1583	1774	1770	1856
Q Serve(g_s), s	0.0	0.0	0.2	14.2	0.0	18.7	0.0	7.6	2.7	3.6	5.1	5.1
Cycle Q Clear(g_c), s	0.0	0.0	0.2	14.2	0.0	18.7	0.0	7.6	2.7	3.6	5.1	5.1
Prop In Lane	0.00		0.83	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	0	0	13	571	0	509	397	1086	486	134	804	843
V/C Ratio(X)	0.00	0.00	0.47	0.78	0.00	0.95	0.00	0.49	0.19	0.78	0.29	0.29
Avail Cap(c_a), veh/h	0	0	468	571	0	509	397	1086	486	156	804	843
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	30.9	19.2	0.0	20.7	15.0	17.6	16.0	28.4	10.7	10.7
Incr Delay (d2), s/veh	0.0	0.0	24.1	6.9	0.0	28.2	0.0	1.6	0.9	19.6	0.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.2	8.0	0.0	12.1	0.0	3.9	1.3	2.5	2.7	2.8
LnGrp Delay(d),s/veh	0.0	0.0	54.9	26.1	0.0	49.0	15.0	19.2	16.8	48.0	11.6	11.5
LnGrp LOS			D	C		D	B	B	B	D	B	B
Approach Vol, veh/h		6			931			623			575	
Approach Delay, s/veh		54.9			38.0			18.8			18.2	
Approach LOS		D			D			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	9.2	23.7		5.0		32.9		24.6				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	5.5	18.4		18.0		28.4		20.1				
Max Q Clear Time (g_c+I1), s	5.6	9.6		2.2		7.1		20.7				
Green Ext Time (p_c), s	0.0	2.5		0.0		2.8		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				27.1								
HCM 2010 LOS				C								

Lanes and Geometrics
7: Albertoni St & SR-91 EB Ramps



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	200			50	0	0
Storage Lanes	2			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor						
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	3539	3539	1583	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				88		225
Link Speed (mph)		30	30		30	
Link Distance (ft)		930	527		334	
Travel Time (s)		21.1	12.0		7.6	

Intersection Summary

Area Type: Other

Volume
7: Albertoni St & SR-91 EB Ramps



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	256	282	419	82	192	209
Future Volume (vph)	256	282	419	82	192	209
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	275	303	451	88	206	225
Shared Lane Traffic (%)						
Lane Group Flow (vph)	275	303	451	88	206	225
Intersection Summary						

Timings
7: Albertoni St & SR-91 EB Ramps

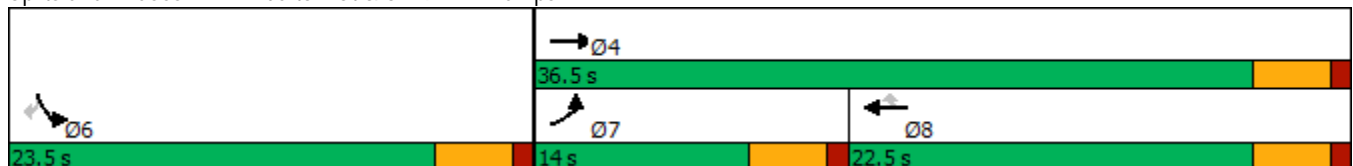


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↗↗	↑↑	↑↑	↖	↘	↘
Traffic Volume (vph)	256	282	419	82	192	209
Future Volume (vph)	256	282	419	82	192	209
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	14.0	36.5	22.5	22.5	23.5	23.5
Total Split (%)	23.3%	60.8%	37.5%	37.5%	39.2%	39.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effect Green (s)	8.7	26.1	12.9	12.9	19.1	19.1
Actuated g/C Ratio	0.16	0.48	0.24	0.24	0.35	0.35
v/c Ratio	0.50	0.18	0.54	0.20	0.33	0.32
Control Delay	25.0	8.0	20.5	5.7	16.1	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.0	8.0	20.5	5.7	16.1	4.1
LOS	C	A	C	A	B	A
Approach Delay		16.1	18.1		9.8	
Approach LOS		B	B		A	

Intersection Summary

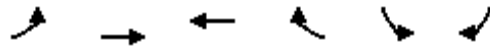
Cycle Length: 60	
Actuated Cycle Length: 54.3	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.54	
Intersection Signal Delay: 15.0	Intersection LOS: B
Intersection Capacity Utilization 40.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 7: Albertoni St & SR-91 EB Ramps



Queues

7: Albertoni St & SR-91 EB Ramps

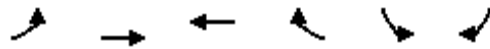


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	275	303	451	88	206	225
v/c Ratio	0.50	0.18	0.54	0.20	0.33	0.32
Control Delay	25.0	8.0	20.5	5.7	16.1	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.0	8.0	20.5	5.7	16.1	4.1
Queue Length 50th (ft)	42	26	67	0	48	0
Queue Length 95th (ft)	79	44	104	26	106	40
Internal Link Dist (ft)		850	447		254	
Turn Bay Length (ft)	200			50		
Base Capacity (vph)	604	2098	1180	586	623	702
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.14	0.38	0.15	0.33	0.32

Intersection Summary

HCM 2010 Signalized Intersection Summary
7: Albertoni St & SR-91 EB Ramps

333 W. Gardena Blvd Project TIA
01/17/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	256	282	419	82	192	209		
Future Volume (veh/h)	256	282	419	82	192	209		
Number	7	4	8	18	1	16		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	275	303	451	88	206	225		
Adj No. of Lanes	2	2	2	1	1	1		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	418	1491	731	327	697	622		
Arrive On Green	0.12	0.42	0.21	0.21	0.39	0.39		
Sat Flow, veh/h	3442	3632	3632	1583	1774	1583		
Grp Volume(v), veh/h	275	303	451	88	206	225		
Grp Sat Flow(s),veh/h/ln	1721	1770	1770	1583	1774	1583		
Q Serve(g_s), s	3.7	2.6	5.6	2.3	3.9	4.9		
Cycle Q Clear(g_c), s	3.7	2.6	5.6	2.3	3.9	4.9		
Prop In Lane	1.00			1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	418	1491	731	327	697	622		
V/C Ratio(X)	0.66	0.20	0.62	0.27	0.30	0.36		
Avail Cap(c_a), veh/h	676	2341	1317	589	697	622		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	20.3	8.9	17.5	16.1	10.1	10.4		
Incr Delay (d2), s/veh	1.8	0.1	0.9	0.4	1.1	1.6		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.9	1.3	2.8	1.0	2.1	2.4		
LnGrp Delay(d),s/veh	22.0	8.9	18.3	16.6	11.2	12.0		
LnGrp LOS	C	A	B	B	B	B		
Approach Vol, veh/h		578	539		431			
Approach Delay, s/veh		15.2	18.0		11.6			
Approach LOS		B	B		B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				24.9		23.5	10.4	14.5
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				32.0		19.0	9.5	18.0
Max Q Clear Time (g_c+I1), s				4.6		6.9	5.7	7.6
Green Ext Time (p_c), s				2.0		1.1	0.3	2.4
Intersection Summary								
HCM 2010 Ctrl Delay			15.2					
HCM 2010 LOS			B					

Lanes and Geometrics
 8: I-110 SB Ramps & Redondo Beach Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↘	↑↑↑					↘	↕	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		310	225		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	1.00	1.00	0.95	0.91	0.95
Ped Bike Factor			0.850								0.868	0.850
Flt Protected				0.950						0.950	0.994	
Satd. Flow (prot)	0	3539	1583	1770	5085	0	0	0	0	1681	1463	1504
Flt Permitted				0.950						0.950	0.994	
Satd. Flow (perm)	0	3539	1583	1770	5085	0	0	0	0	1681	1463	1504
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			463								120	120
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		675			491			369			400	
Travel Time (s)		15.3			11.2			8.4			9.1	

Intersection Summary

Area Type: Other

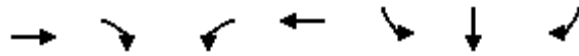
Volume
8: I-110 SB Ramps & Redondo Beach Blvd

333 W. Gardena Blvd Project TIA
01/17/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	630	440	155	825	0	0	0	0	364	1	587
Future Volume (vph)	0	630	440	155	825	0	0	0	0	364	1	587
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	663	463	163	868	0	0	0	0	383	1	618
Shared Lane Traffic (%)										10%		47%
Lane Group Flow (vph)	0	663	463	163	868	0	0	0	0	345	329	328
Intersection Summary												

Timings
8: I-110 SB Ramps & Redondo Beach Blvd

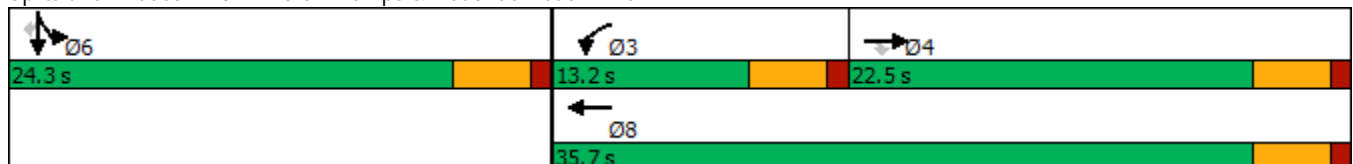


Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Configurations	↑↑	↑	↙	↑↑↑	↙	↕	↑
Traffic Volume (vph)	630	440	155	825	364	1	587
Future Volume (vph)	630	440	155	825	364	1	587
Turn Type	NA	Perm	Prot	NA	Split	NA	Perm
Protected Phases	4		3	8	6	6	
Permitted Phases		4					6
Detector Phase	4	4	3	8	6	6	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5	13.2	35.7	24.3	24.3	24.3
Total Split (%)	37.5%	37.5%	22.0%	59.5%	40.5%	40.5%	40.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Max	Max	Max
Act Effect Green (s)	16.6	16.6	8.3	26.5	20.3	20.3	20.3
Actuated g/C Ratio	0.30	0.30	0.15	0.47	0.36	0.36	0.36
v/c Ratio	0.63	0.58	0.62	0.36	0.57	0.54	0.53
Control Delay	20.8	5.4	36.8	9.3	20.9	14.4	14.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.8	5.4	36.8	9.3	20.9	14.4	14.0
LOS	C	A	D	A	C	B	B
Approach Delay	14.5			13.7		16.5	
Approach LOS	B			B		B	

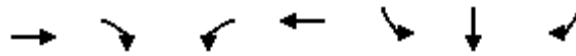
Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 56
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 14.9
 Intersection LOS: B
 Intersection Capacity Utilization 63.2%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 8: I-110 SB Ramps & Redondo Beach Blvd



Queues
8: I-110 SB Ramps & Redondo Beach Blvd















Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	663	463	163	868	345	329	328
v/c Ratio	0.63	0.58	0.62	0.36	0.57	0.54	0.53
Control Delay	20.8	5.4	36.8	9.3	20.9	14.4	14.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.8	5.4	36.8	9.3	20.9	14.4	14.0
Queue Length 50th (ft)	107	0	57	60	108	63	60
Queue Length 95th (ft)	156	57	#128	83	190	145	135
Internal Link Dist (ft)	595			411		320	
Turn Bay Length (ft)		310	225				
Base Capacity (vph)	1166	832	281	2904	609	606	621
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.56	0.58	0.30	0.57	0.54	0.53

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
8: I-110 SB Ramps & Redondo Beach Blvd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑↑					↑	↑	↑
Traffic Volume (veh/h)	0	630	440	155	825	0	0	0	0	364	1	587
Future Volume (veh/h)	0	630	440	155	825	0	0	0	0	364	1	587
Number	7	4	14	3	8	18				1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	663	463	163	868	0				256	0	755
Adj No. of Lanes	0	2	1	1	3	0				1	0	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1098	491	206	2561	0				605	0	1081
Arrive On Green	0.00	0.31	0.31	0.12	0.50	0.00				0.34	0.00	0.34
Sat Flow, veh/h	0	3632	1583	1774	5253	0				1774	0	3167
Grp Volume(v), veh/h	0	663	463	163	868	0				256	0	755
Grp Sat Flow(s),veh/h/ln	0	1770	1583	1774	1695	0				1774	0	1583
Q Serve(g_s), s	0.0	9.2	16.5	5.2	5.9	0.0				6.4	0.0	12.0
Cycle Q Clear(g_c), s	0.0	9.2	16.5	5.2	5.9	0.0				6.4	0.0	12.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1098	491	206	2561	0				605	0	1081
V/C Ratio(X)	0.00	0.60	0.94	0.79	0.34	0.00				0.42	0.00	0.70
Avail Cap(c_a), veh/h	0	1098	491	266	2734	0				605	0	1081
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	17.0	19.5	25.0	8.6	0.0				14.7	0.0	16.5
Incr Delay (d2), s/veh	0.0	0.9	26.9	11.7	0.1	0.0				2.2	0.0	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.7	10.9	3.2	2.8	0.0				3.5	0.0	5.7
LnGrp Delay(d),s/veh	0.0	17.9	46.4	36.6	8.7	0.0				16.9	0.0	20.3
LnGrp LOS		B	D	D	A					B		C
Approach Vol, veh/h		1126			1031						1011	
Approach Delay, s/veh		29.6			13.1						19.4	
Approach LOS		C			B						B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			11.2	22.5		24.3		33.7				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			8.7	18.0		19.8		31.2				
Max Q Clear Time (g_c+I1), s			7.2	18.5		14.0		7.9				
Green Ext Time (p_c), s			0.1	0.0		2.2		6.5				
Intersection Summary												
HCM 2010 Ctrl Delay			21.0									
HCM 2010 LOS			C									
Notes												

Lanes and Geometrics
 9: I-110 SB Ramps & Redondo Beach Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%				0%
Storage Length (ft)	60		290	170		0	0		0	0		0
Storage Lanes	1		1	1		0	1		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850		0.999				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.954			0.972	
Satd. Flow (prot)	1770	3539	1583	1770	5080	0	1681	1688	1583	0	1811	1583
Flt Permitted	0.950			0.950			0.950	0.954			0.879	
Satd. Flow (perm)	1770	3539	1583	1770	5080	0	1681	1688	1583	0	1637	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			351		2				306			182
Link Speed (mph)		30			30			30				30
Link Distance (ft)		491			442			253				82
Travel Time (s)		11.2			10.0			5.8				1.9

Intersection Summary

Area Type: Other

Volume
9: I-110 SB Ramps & Redondo Beach Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	16	668	337	257	617	6	326	8	294	4	3	14
Future Volume (vph)	16	668	337	257	617	6	326	8	294	4	3	14
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	17	696	351	268	643	6	340	8	306	4	3	15
Shared Lane Traffic (%)							49%					
Lane Group Flow (vph)	17	696	351	268	649	0	173	175	306	0	7	15
Intersection Summary												

Timings
9: I-110 SB Ramps & Redondo Beach Blvd

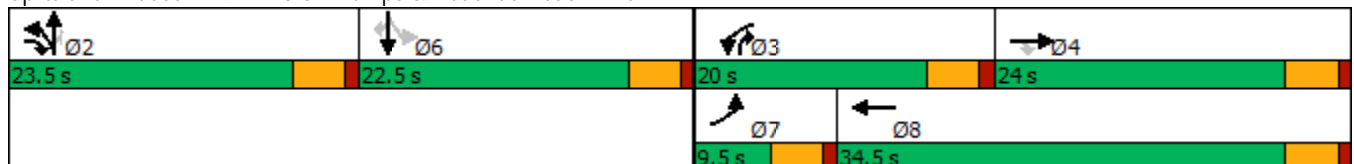


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	16	668	337	257	617	326	8	294	4	3	14
Future Volume (vph)	16	668	337	257	617	326	8	294	4	3	14
Turn Type	Prot	NA	pm+ov	Prot	NA	Split	NA	pm+ov	Perm	NA	Perm
Protected Phases	7	4	2	3	8	2	2	3		6	
Permitted Phases			4					2	6		6
Detector Phase	7	4	2	3	8	2	2	3	6	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	9.5	24.0	23.5	20.0	34.5	23.5	23.5	20.0	22.5	22.5	22.5
Total Split (%)	10.6%	26.7%	26.1%	22.2%	38.3%	26.1%	26.1%	22.2%	25.0%	25.0%	25.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5
Lead/Lag	Lead	Lag		Lead	Lag			Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes			
Recall Mode	None	None	Max	None	None	Max	Max	None	Max	Max	Max
Act Effect Green (s)	5.0	19.5	43.0	15.2	35.4	19.0	19.0	34.2		18.0	18.0
Actuated g/C Ratio	0.06	0.22	0.48	0.17	0.39	0.21	0.21	0.38		0.20	0.20
v/c Ratio	0.17	0.91	0.37	0.90	0.32	0.49	0.49	0.39		0.02	0.03
Control Delay	44.8	51.7	2.8	69.4	20.2	36.6	36.6	2.7		29.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	44.8	51.7	2.8	69.4	20.2	36.6	36.6	2.7		29.3	0.1
LOS	D	D	A	E	C	D	D	A		C	A
Approach Delay		35.5			34.5		20.7			9.4	
Approach LOS		D			C		C			A	

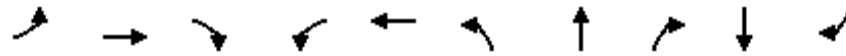
Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 89.7
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 31.3
 Intersection LOS: C
 Intersection Capacity Utilization 59.9%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 9: I-110 SB Ramps & Redondo Beach Blvd



Queues
9: I-110 SB Ramps & Redondo Beach Blvd



























Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	17	696	351	268	649	173	175	306	7	15
v/c Ratio	0.17	0.91	0.37	0.90	0.32	0.49	0.49	0.39	0.02	0.03
Control Delay	44.8	51.7	2.8	69.4	20.2	36.6	36.6	2.7	29.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.8	51.7	2.8	69.4	20.2	36.6	36.6	2.7	29.3	0.1
Queue Length 50th (ft)	9	204	0	150	83	91	92	0	3	0
Queue Length 95th (ft)	31	#307	44	#289	134	158	161	23	15	0
Internal Link Dist (ft)		411			362		173		2	
Turn Bay Length (ft)	60		290	170						
Base Capacity (vph)	98	769	941	305	2005	355	357	797	328	463
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.91	0.37	0.88	0.32	0.49	0.49	0.38	0.02	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 9: I-110 SB Ramps & Redondo Beach Blvd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	668	337	257	617	6	326	8	294	4	3	14
Future Volume (veh/h)	16	668	337	257	617	6	326	8	294	4	3	14
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	17	696	351	268	643	6	346	0	306	4	3	15
Adj No. of Lanes	1	2	1	1	3	0	2	0	1	0	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	34	766	678	302	1908	18	752	0	605	208	156	318
Arrive On Green	0.02	0.22	0.22	0.17	0.37	0.37	0.21	0.00	0.21	0.20	0.20	0.20
Sat Flow, veh/h	1774	3539	1583	1774	5196	48	3548	0	1583	1035	776	1583
Grp Volume(v), veh/h	17	696	351	268	419	230	346	0	306	7	0	15
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1695	1854	1774	0	1583	1811	0	1583
Q Serve(g_s), s	0.9	17.2	14.6	13.2	8.0	8.0	7.6	0.0	13.3	0.3	0.0	0.7
Cycle Q Clear(g_c), s	0.9	17.2	14.6	13.2	8.0	8.0	7.6	0.0	13.3	0.3	0.0	0.7
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	0.57		1.00
Lane Grp Cap(c), veh/h	34	766	678	302	1245	681	752	0	605	364	0	318
V/C Ratio(X)	0.50	0.91	0.52	0.89	0.34	0.34	0.46	0.00	0.51	0.02	0.00	0.05
Avail Cap(c_a), veh/h	99	770	680	307	1245	681	752	0	605	364	0	318
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.5	34.3	18.8	36.4	20.5	20.5	30.8	0.0	21.2	28.7	0.0	28.9
Incr Delay (d2), s/veh	10.8	14.7	0.7	25.3	0.2	0.3	2.0	0.0	3.0	0.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	10.0	8.7	8.6	3.8	4.1	4.0	0.0	6.3	0.1	0.0	0.3
LnGrp Delay(d),s/veh	54.3	49.0	19.5	61.7	20.6	20.8	32.9	0.0	24.2	28.8	0.0	29.2
LnGrp LOS	D	D	B	E	C	C	C		C	C		C
Approach Vol, veh/h		1064			917			652				22
Approach Delay, s/veh		39.3			32.7			28.8				29.1
Approach LOS		D			C			C				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.5	19.7	23.9		22.5	6.2	37.4				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		19.0	15.5	19.5		18.0	5.0	30.0				
Max Q Clear Time (g_c+I1), s		15.3	15.2	19.2		2.7	2.9	10.0				
Green Ext Time (p_c), s		1.0	0.0	0.2		0.0	0.0	4.1				
Intersection Summary												
HCM 2010 Ctrl Delay			34.4									
HCM 2010 LOS			C									
Notes												

Lanes and Geometrics
 11: Figueroa St & 164th St



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	50	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Ped Bike Factor						
Frt	0.952		0.997			
Flt Protected	0.969				0.950	
Satd. Flow (prot)	1718	0	3529	0	1770	3539
Flt Permitted	0.969				0.950	
Satd. Flow (perm)	1718	0	3529	0	1770	3539
Link Speed (mph)	30		30			30
Link Distance (ft)	648		333			3650
Travel Time (s)	14.7		7.6			83.0

Intersection Summary

Area Type: Other

Volume
11: Figueroa St & 164th St



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Volume (vph)	8	5	460	10	5	670
Future Volume (vph)	8	5	460	10	5	670
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	9	5	505	11	5	736
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	0	516	0	5	736
Intersection Summary						

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑↓		↔	↑↑
Traffic Vol, veh/h	8	5	460	10	5	670
Future Vol, veh/h	8	5	460	10	5	670
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	5	505	11	5	736

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	889	258	0	0	516	0
Stage 1	511	-	-	-	-	-
Stage 2	378	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	283	741	-	-	1046	-
Stage 1	567	-	-	-	-	-
Stage 2	663	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	282	741	-	-	1046	-
Mov Cap-2 Maneuver	406	-	-	-	-	-
Stage 1	567	-	-	-	-	-
Stage 2	660	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.6	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	491	1046
HCM Lane V/C Ratio	-	-	0.029	0.005
HCM Control Delay (s)	-	-	12.6	8.5
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Lanes and Geometrics
 12: Gardena Blvd & 164th St

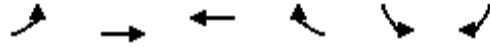


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↕↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt					0.929	
Flt Protected					0.977	
Satd. Flow (prot)	0	3539	3539	0	1691	0
Flt Permitted					0.977	
Satd. Flow (perm)	0	3539	3539	0	1691	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		645	84		308	
Travel Time (s)		14.7	1.9		7.0	

Intersection Summary

Area Type: Other

Volume
12: Gardena Blvd & 164th St



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	0	202	282	0	7	8
Future Volume (vph)	0	202	282	0	7	8
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	220	307	0	8	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	220	307	0	17	0
Intersection Summary						

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑	
Traffic Vol, veh/h	0	202	282	0	7	8
Future Vol, veh/h	0	202	282	0	7	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	220	307	0	8	9

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	307	0	-	0	417 154
Stage 1	-	-	-	-	307 -
Stage 2	-	-	-	-	110 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	1250	-	-	-	564 864
Stage 1	-	-	-	-	719 -
Stage 2	-	-	-	-	902 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1250	-	-	-	564 864
Mov Cap-2 Maneuver	-	-	-	-	564 -
Stage 1	-	-	-	-	719 -
Stage 2	-	-	-	-	902 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1250	-	-	-	692
HCM Lane V/C Ratio	-	-	-	-	0.024
HCM Control Delay (s)	0	-	-	-	10.3
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lanes and Geometrics
 13: Gardena Blvd & Project Dwy 1

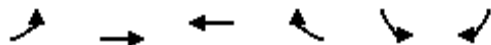


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected						
Satd. Flow (prot)	0	3539	3539	0	1863	0
Flt Permitted						
Satd. Flow (perm)	0	3539	3539	0	1863	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		84	366		132	
Travel Time (s)		1.9	8.3		3.0	

Intersection Summary

Area Type: Other

Volume
13: Gardena Blvd & Project Dwy 1



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	0	202	282	0	0	0
Future Volume (vph)	0	202	282	0	0	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	220	307	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	220	307	0	0	0
Intersection Summary						

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑	
Traffic Vol, veh/h	0	202	282	0	0	0
Future Vol, veh/h	0	202	282	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	220	307	0	0	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	307	0	-	0	417 154
Stage 1	-	-	-	-	307 -
Stage 2	-	-	-	-	110 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	1250	-	-	-	564 864
Stage 1	-	-	-	-	719 -
Stage 2	-	-	-	-	902 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1250	-	-	-	564 864
Mov Cap-2 Maneuver	-	-	-	-	564 -
Stage 1	-	-	-	-	719 -
Stage 2	-	-	-	-	902 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1250	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Lanes and Geometrics
 14: Gardena Blvd & Project Dwy 2

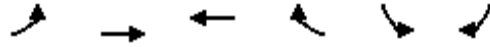


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected						
Satd. Flow (prot)	0	3539	3539	0	1863	0
Flt Permitted						
Satd. Flow (perm)	0	3539	3539	0	1863	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		366	224		428	
Travel Time (s)		8.3	5.1		9.7	

Intersection Summary

Area Type: Other

Volume
14: Gardena Blvd & Project Dwy 2



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	0	202	282	0	0	0
Future Volume (vph)	0	202	282	0	0	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	220	307	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	220	307	0	0	0
Intersection Summary						

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	
Traffic Vol, veh/h	0	202	282	0	0	0
Future Vol, veh/h	0	202	282	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	220	307	0	0	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	307	0	-	0	417 154
Stage 1	-	-	-	-	307 -
Stage 2	-	-	-	-	110 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	1250	-	-	-	564 864
Stage 1	-	-	-	-	719 -
Stage 2	-	-	-	-	902 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1250	-	-	-	564 864
Mov Cap-2 Maneuver	-	-	-	-	564 -
Stage 1	-	-	-	-	719 -
Stage 2	-	-	-	-	902 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1250	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

333 W. Gardena Blvd Industrial Project Preliminary TIA
Existing Conditions
PM Peak Hour

Scenario Report

Scenario: EX_PM
Command: EX_PM
Volume: EX_PM
Geometry: EX
Impact Fee: Default Impact Fee
Trip Generation: NONE
Trip Distribution: DEFAULT
Paths: Default Path
Routes: Default Route
Configuration: EX

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Existing Conditions
 PM Peak Hour

Turning Movement Report
 NONE

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#1 Figueroa St (NS) / Gardena Blvd (EW)													
Base	54	710	86	68	594	53	92	337	66	81	176	91	2408
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	54	710	86	68	594	53	92	337	66	81	176	91	2408
#2 Broadway (NS) / Gardena Blvd (EW)													
Base	55	505	68	25	373	34	56	361	45	31	275	45	1873
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	55	505	68	25	373	34	56	361	45	31	275	45	1873
#3 Main St (NS) / Gardena Blvd (EW)													
Base	82	739	143	39	465	43	66	349	56	79	220	67	2348
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	82	739	143	39	465	43	66	349	56	79	220	67	2348
#4 Broadway (NS) / Albertoni St (EW)													
Base	38	289	79	74	378	56	133	712	117	51	286	38	2251
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	38	289	79	74	378	56	133	712	117	51	286	38	2251
#5 Main St (NS) / SR-91 WB Ramps (EW)													
Base	2	612	74	146	684	1	0	0	5	221	0	284	2029
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2	612	74	146	684	1	0	0	5	221	0	284	2029
#6 Main St (NS) / Albertoni St (EW)													
Base	78	336	173	218	537	81	62	635	146	147	230	302	2945
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	78	336	173	218	537	81	62	635	146	147	230	302	2945
#7 SR-91 EB Ramps (NS) / Albertoni St (EW)													
Base	0	0	0	607	0	491	232	977	0	0	334	54	2695
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	607	0	491	232	977	0	0	334	54	2695
#8 I-110 SB Ramps (NS) / Redondo Beach Blvd (EW)													
Base	0	0	0	451	1	524	0	1100	276	130	920	0	3402
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	451	1	524	0	1100	276	130	920	0	3402
#9 I-110 NB Ramps (NS) / Redondo Beach Blvd (EW)													
Base	335	0	333	17	9	21	13	1074	475	317	691	3	3288
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	335	0	333	17	9	21	13	1074	475	317	691	3	3288

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Existing Conditions
 PM Peak Hour

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#10 Figueroa St (NS) / Redondo Beach Blvd (EW)													
Base	222	513	153	80	474	125	111	1101	185	47	676	54	3741
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	222	513	153	80	474	125	111	1101	185	47	676	54	3741
#11 Figueroa St (NS) / 164th St (EW)													
Base	0	874	5	1	765	0	0	0	0	3	0	9	1657
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	874	5	1	765	0	0	0	0	3	0	9	1657
#12 164th St (NS) / Gardena Blvd (EW)													
Base	0	0	0	3	0	3	0	491	0	0	364	0	861
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	3	0	3	0	491	0	0	364	0	861
#13 Project Dwy 1 (NS) / Gardena Blvd (EW)													
Base	0	0	0	0	0	0	0	491	0	0	364	0	855
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	491	0	0	364	0	855
#14 Project Dwy 2 (NS) / Gardena Blvd (EW)													
Base	0	0	0	0	0	0	0	491	0	0	364	0	855
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	491	0	0	364	0	855

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Existing Conditions
 PM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #1 Figueroa St (NS) / Gardena Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.568
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxxx
 Optimal Cycle: 38 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	54	710	86	68	594	53	92	337	66	81	176	91
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	54	710	86	68	594	53	92	337	66	81	176	91
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	54	710	86	68	594	53	92	337	66	81	176	91
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	54	710	86	68	594	53	92	337	66	81	176	91
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	54	710	86	68	594	53	92	337	66	81	176	91

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.78	0.22	1.00	1.84	0.16	1.00	1.67	0.33	1.00	1.32	0.68
Final Sat.:	1600	2854	346	1600	2938	262	1600	2676	524	1600	2109	1091

Capacity Analysis Module:

Vol/Sat:	0.03	0.25	0.25	0.04	0.20	0.20	0.06	0.13	0.13	0.05	0.08	0.08
Crit Moves:	****			****			****			****		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Existing Conditions
 PM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 Broadway (NS) / Gardena Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.441
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 30 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	55	505	68	25	373	34	56	361	45	31	275	45
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	55	505	68	25	373	34	56	361	45	31	275	45
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	55	505	68	25	373	34	56	361	45	31	275	45
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	55	505	68	25	373	34	56	361	45	31	275	45
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	55	505	68	25	373	34	56	361	45	31	275	45

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.76	0.24	1.00	1.83	0.17	1.00	1.78	0.22	1.00	1.72	0.28
Final Sat.:	1600	2820	380	1600	2933	267	1600	2845	355	1600	2750	450

Capacity Analysis Module:

Vol/Sat:	0.03	0.18	0.18	0.02	0.13	0.13	0.04	0.13	0.13	0.02	0.10	0.10
Crit Moves:	****			****			****			****		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Existing Conditions
 PM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #3 Main St (NS) / Gardena Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.531
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 35 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	2	0	1	1	0	1	1	0	1	1

Volume Module:

Base Vol:	82	739	143	39	465	43	66	349	56	79	220	67
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	82	739	143	39	465	43	66	349	56	79	220	67
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	82	739	143	39	465	43	66	349	56	79	220	67
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	82	739	143	39	465	43	66	349	56	79	220	67
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	82	739	143	39	465	43	66	349	56	79	220	67

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.72	0.28	1.00	1.53	0.47
Final Sat.:	1600	3200	1600	1600	3200	1600	1600	2758	442	1600	2453	747

Capacity Analysis Module:

Vol/Sat:	0.05	0.23	0.09	0.02	0.15	0.03	0.04	0.13	0.13	0.05	0.09	0.09
Crit Moves:	****			****			****			****		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Existing Conditions
 PM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #4 Broadway (NS) / Albertoni St (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.552
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 37 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	38	289	79	74	378	56	133	712	117	51	286	38
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	38	289	79	74	378	56	133	712	117	51	286	38
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	38	289	79	74	378	56	133	712	117	51	286	38
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	38	289	79	74	378	56	133	712	117	51	286	38
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	38	289	79	74	378	56	133	712	117	51	286	38

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.57	0.43	1.00	1.74	0.26	1.00	1.72	0.28	1.00	1.77	0.23
Final Sat.:	1600	2513	687	1600	2787	413	1600	2748	452	1600	2825	375

Capacity Analysis Module:

Vol/Sat:	0.02	0.11	0.12	0.05	0.14	0.14	0.08	0.26	0.26	0.03	0.10	0.10
Crit Moves:			****	****			****			****		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #5 Main St (NS) / SR-91 WB Ramps (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.560
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 37 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	2	0	1	1	0	0	0	0	1	0

Volume Module:

Base Vol:	2	612	74	146	684	1	0	0	5	221	0	284
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	2	612	74	146	684	1	0	0	5	221	0	284
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	2	612	74	146	684	1	0	0	5	221	0	284
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	2	612	74	146	684	1	0	0	5	221	0	284
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	2	612	74	146	684	1	0	0	5	221	0	284

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	1.99	0.01	0.00	0.00	1.00	1.00	0.00	1.00
Final Sat.:	1600	3200	1600	1600	3195	5	0	0	1600	1600	0	1600

Capacity Analysis Module:

Vol/Sat:	0.00	0.19	0.05	0.09	0.21	0.21	0.00	0.00	0.00	0.14	0.00	0.18
Crit Moves:	****			****			****			****		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #6 Main St (NS) / Albertoni St (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.717
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 52 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	78	336	173	218	537	81	62	635	146	147	230	302
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	78	336	173	218	537	81	62	635	146	147	230	302
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	78	336	173	218	537	81	62	635	146	147	230	302
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	78	336	173	218	537	81	62	635	146	147	230	302
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	78	336	173	218	537	81	62	635	146	147	230	302

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.32	0.68	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00
Final Sat.:	1600	2112	1088	1600	3200	1600	1600	3200	1600	1600	1600	1600

Capacity Analysis Module:

Vol/Sat:	0.05	0.16	0.16	0.14	0.17	0.05	0.04	0.20	0.09	0.09	0.14	0.19
Crit Moves:	****			****			****			****		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #7 SR-91 EB Ramps (NS) / Albertoni St (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.785
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 95 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	1	0	0	2	0	2	0	0	2

Volume Module:

Base Vol:	0	0	0	607	0	491	232	977	0	0	334	54
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	607	0	491	232	977	0	0	334	54
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	607	0	491	232	977	0	0	334	54
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	607	0	491	232	977	0	0	334	54
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	607	0	491	232	977	0	0	334	54

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	2.00	2.00	0.00	0.00	2.00	1.00
Final Sat.:	0	0	0	1600	0	1600	3200	3200	0	0	3200	1600

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.38	0.00	0.31	0.07	0.31	0.00	0.00	0.10	0.03
Crit Moves:				****				****				

 333 W. Gardena Blvd Industrial Project Preliminary TIA
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #8 I-110 SB Ramps (NS) / Redondo Beach Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.728
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 54 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Permitted			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	1	0	1	0	0	2	1	0	3

Volume Module:

Base Vol:	0	0	0	451	1	524	0	1100	276	130	920	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	451	1	524	0	1100	276	130	920	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	451	1	524	0	1100	276	130	920	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	451	1	524	0	1100	276	130	920	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	451	1	524	0	1100	276	130	920	0

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.38	0.01	1.61	0.00	2.00	1.00	1.00	3.00	0.00
Final Sat.:	0	0	0	2218	5	2577	0	3200	1600	1600	4800	0

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.20	0.20	0.20	0.00	0.34	0.17	0.08	0.19	0.00
Crit Moves:				****			****			****		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #9 I-110 NB Ramps (NS) / Redondo Beach Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.755
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 58 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound										
Movement:	L	T	R	L	T	R	L	T	R	L	T	R								
Control:	Split Phase			Split Phase			Protected			Protected										
Rights:	Ovl			Include			Ovl			Include										
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0								
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0								
Lanes:	1	1	0	0	1	0	1	0	0	1	1	0	2	0	1	1	0	2	1	0

Volume Module:

Base Vol:	335	0	333	17	9	21	13	1074	475	317	691	3
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	335	0	333	17	9	21	13	1074	475	317	691	3
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	335	0	333	17	9	21	13	1074	475	317	691	3
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	335	0	333	17	9	21	13	1074	475	317	691	3
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	335	0	333	17	9	21	13	1074	475	317	691	3
OvlAdjVol:	16						308					

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	0.00	1.00	0.65	0.35	1.00	1.00	2.00	1.00	1.00	2.99	0.01
Final Sat.:	3200	0	1600	1046	554	1600	1600	3200	1600	1600	4779	21

Capacity Analysis Module:

Vol/Sat:	0.10	0.00	0.21	0.02	0.02	0.01	0.01	0.34	0.30	0.20	0.14	0.14
OvlAdjV/S:	0.01						0.19					
Crit Moves:	****				****				****			

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Existing Conditions
 PM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #10 Figueroa St (NS) / Redondo Beach Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.760
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 59 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Prot+Permit			Prot+Permit			Prot+Permit			Prot+Permit		
Rights:	Include			Ovl			Ovl			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	222	513	153	80	474	125	111	1101	185	47	676	54
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	222	513	153	80	474	125	111	1101	185	47	676	54
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	222	513	153	80	474	125	111	1101	185	47	676	54
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	222	513	153	80	474	125	111	1101	185	47	676	54
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	222	513	153	80	474	125	111	1101	185	47	676	54
OvlAdjVol:					14				0			0

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.54	0.46	1.00	2.00	1.00	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1600	2465	735	1600	3200	1600	1600	3200	1600	1600	3200	1600

Capacity Analysis Module:

Vol/Sat:	0.14	0.21	0.21	0.05	0.15	0.08	0.07	0.34	0.12	0.03	0.21	0.03
OvlAdjV/S:						0.01			0.00			0.00
Crit Moves:	****			****			****			****		

Lanes and Geometrics
5: Main St & SR-91 WB Ramps















Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↔			↕	↗	↖	↕↕	↗	↖	↕↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%				0%
Storage Length (ft)	0		0	0		0	90		50	155		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor												
Frt		0.865				0.850			0.850			
Flt Protected					0.950		0.950			0.950		
Satd. Flow (prot)	0	1611	0	0	1770	1583	1770	3539	1583	1770	3539	0
Flt Permitted					0.950		0.372			0.950		
Satd. Flow (perm)	0	1611	0	0	1770	1583	693	3539	1583	1770	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		162				305			143			
Link Speed (mph)		30			30			30				30
Link Distance (ft)		246			641			875				3052
Travel Time (s)		5.6			14.6			19.9				69.4

Intersection Summary

Area Type: Other

Volume
5: Main St & SR-91 WB Ramps

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	0	5	221	0	284	2	612	74	146	684	1
Future Volume (vph)	0	0	5	221	0	284	2	612	74	146	684	1
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	0	5	238	0	305	2	658	80	157	735	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	5	0	0	238	305	2	658	80	157	736	0
Intersection Summary												

Timings
5: Main St & SR-91 WB Ramps

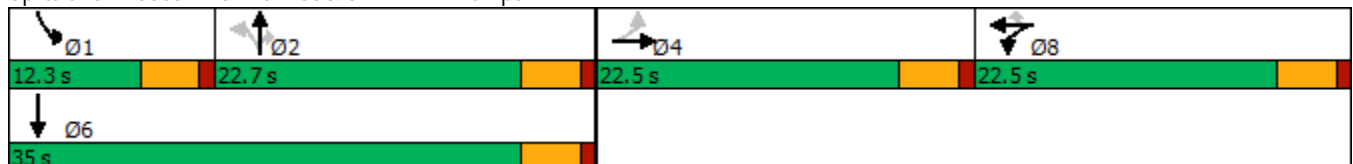


Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↔	←	↗	↖	↑	↘	↖	↗
Traffic Volume (vph)	0	0	284	2	612	74	146	684
Future Volume (vph)	0	0	284	2	612	74	146	684
Turn Type	NA	NA	Perm	Perm	NA	Perm	Prot	NA
Protected Phases	4	8			2		1	6
Permitted Phases			8	2		2		
Detector Phase	4	8	8	2	2	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	9.5	22.5
Total Split (s)	22.5	22.5	22.5	22.7	22.7	22.7	12.3	35.0
Total Split (%)	28.1%	28.1%	28.1%	28.4%	28.4%	28.4%	15.4%	43.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag				Lag	Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	Max	Max	Max	None	Max
Act Effect Green (s)	5.6	12.8	12.8	18.5	18.5	18.5	7.9	30.9
Actuated g/C Ratio	0.10	0.23	0.23	0.34	0.34	0.34	0.14	0.57
v/c Ratio	0.02	0.57	0.50	0.01	0.55	0.13	0.61	0.37
Control Delay	0.0	24.7	6.0	16.0	18.2	1.4	37.5	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	24.7	6.0	16.0	18.2	1.4	37.5	8.4
LOS	A	C	A	B	B	A	D	A
Approach Delay		14.2			16.4			13.5
Approach LOS		B			B			B

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 54.5
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 14.6
 Intersection Capacity Utilization 55.2%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 5: Main St & SR-91 WB Ramps



Queues
5: Main St & SR-91 WB Ramps
























Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	5	238	305	2	658	80	157	736
v/c Ratio	0.02	0.57	0.50	0.01	0.55	0.13	0.61	0.37
Control Delay	0.0	24.7	6.0	16.0	18.2	1.4	37.5	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	24.7	6.0	16.0	18.2	1.4	37.5	8.4
Queue Length 50th (ft)	0	64	0	0	83	0	46	54
Queue Length 95th (ft)	0	147	53	5	182	8	#154	148
Internal Link Dist (ft)	166	561			795			2972
Turn Bay Length (ft)				90		50	155	
Base Capacity (vph)	647	593	733	234	1198	630	257	2009
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.40	0.42	0.01	0.55	0.13	0.61	0.37

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 5: Main St & SR-91 WB Ramps

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	5	221	0	284	2	612	74	146	684	1
Future Volume (veh/h)	0	0	5	221	0	284	2	612	74	146	684	1
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	0	0	5	238	0	305	2	658	80	157	735	1
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	0	11	422	0	376	364	1185	530	198	1899	3
Arrive On Green	0.00	0.00	0.01	0.24	0.00	0.24	0.33	0.33	0.33	0.11	0.52	0.52
Sat Flow, veh/h	0	0	1583	1774	0	1583	719	3539	1583	1774	3627	5
Grp Volume(v), veh/h	0	0	5	238	0	305	2	658	80	157	359	377
Grp Sat Flow(s),veh/h/ln	0	0	1583	1774	0	1583	719	1770	1583	1774	1770	1862
Q Serve(g_s), s	0.0	0.0	0.2	6.9	0.0	10.6	0.1	8.8	2.1	5.0	7.0	7.0
Cycle Q Clear(g_c), s	0.0	0.0	0.2	6.9	0.0	10.6	0.1	8.8	2.1	5.0	7.0	7.0
Prop In Lane	0.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	0	0	11	422	0	376	364	1185	530	198	927	975
V/C Ratio(X)	0.00	0.00	0.47	0.56	0.00	0.81	0.01	0.56	0.15	0.79	0.39	0.39
Avail Cap(c_a), veh/h	0	0	489	548	0	489	364	1185	530	238	927	975
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	28.8	19.5	0.0	21.0	12.9	15.8	13.6	25.2	8.3	8.3
Incr Delay (d2), s/veh	0.0	0.0	29.4	1.2	0.0	7.7	0.0	1.9	0.6	14.2	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.2	3.5	0.0	5.4	0.0	4.6	1.0	3.2	3.7	3.9
LnGrp Delay(d),s/veh	0.0	0.0	58.3	20.7	0.0	28.6	12.9	17.7	14.2	39.4	9.5	9.4
LnGrp LOS			E	C		C	B	B	B	D	A	A
Approach Vol, veh/h		5			543			740			893	
Approach Delay, s/veh		58.3			25.2			17.3			14.7	
Approach LOS		E			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	11.0	24.0		4.9		35.0		18.3				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	7.8	18.2		18.0		30.5		18.0				
Max Q Clear Time (g_c+I1), s	7.0	10.8		2.2		9.0		12.6				
Green Ext Time (p_c), s	0.0	2.8		0.0		4.7		1.3				
Intersection Summary												
HCM 2010 Ctrl Delay			18.3									
HCM 2010 LOS			B									

Lanes and Geometrics
 7: Albertoni St & SR-91 EB Ramps



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	200			50	0	0
Storage Lanes	2			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor						
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	3539	3539	1583	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				57		417
Link Speed (mph)		30	30		30	
Link Distance (ft)		930	527		334	
Travel Time (s)		21.1	12.0		7.6	

Intersection Summary

Area Type: Other

Volume
7: Albertoni St & SR-91 EB Ramps



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	232	977	334	54	607	491
Future Volume (vph)	232	977	334	54	607	491
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	244	1028	352	57	639	517
Shared Lane Traffic (%)						
Lane Group Flow (vph)	244	1028	352	57	639	517
Intersection Summary						

Timings
7: Albertoni St & SR-91 EB Ramps

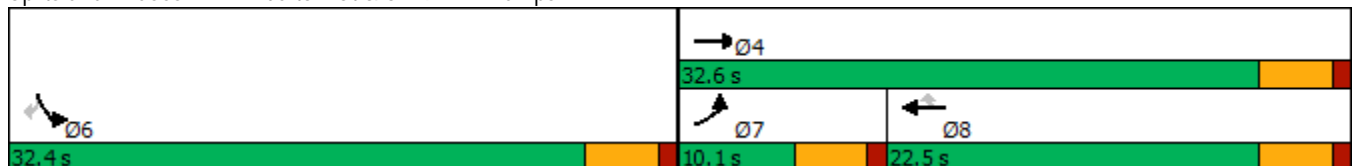


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖↗	↑↑	↑↑	↖	↖	↖
Traffic Volume (vph)	232	977	334	54	607	491
Future Volume (vph)	232	977	334	54	607	491
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	10.1	32.6	22.5	22.5	32.4	32.4
Total Split (%)	15.5%	50.2%	34.6%	34.6%	49.8%	49.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effect Green (s)	5.6	24.6	14.5	14.5	28.0	28.0
Actuated g/C Ratio	0.09	0.40	0.24	0.24	0.45	0.45
v/c Ratio	0.78	0.73	0.42	0.14	0.80	0.55
Control Delay	48.5	19.0	21.3	6.7	25.2	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.5	19.0	21.3	6.7	25.2	5.4
LOS	D	B	C	A	C	A
Approach Delay		24.7	19.3		16.4	
Approach LOS		C	B		B	

Intersection Summary

Cycle Length: 65
 Actuated Cycle Length: 61.7
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 20.5
 Intersection LOS: C
 Intersection Capacity Utilization 68.1%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 7: Albertoni St & SR-91 EB Ramps



Queues
7: Albertoni St & SR-91 EB Ramps



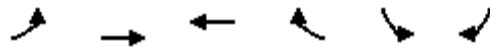
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	244	1028	352	57	639	517
v/c Ratio	0.78	0.73	0.42	0.14	0.80	0.55
Control Delay	48.5	19.0	21.3	6.7	25.2	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.5	19.0	21.3	6.7	25.2	5.4
Queue Length 50th (ft)	48	164	58	0	206	22
Queue Length 95th (ft)	#106	226	92	23	#401	87
Internal Link Dist (ft)		850	447		254	
Turn Bay Length (ft)	200			50		
Base Capacity (vph)	312	1619	1037	504	803	946
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.63	0.34	0.11	0.80	0.55

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
7: Albertoni St & SR-91 EB Ramps

333 W. Gardena Blvd Project TIA
01/17/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	232	977	334	54	607	491		
Future Volume (veh/h)	232	977	334	54	607	491		
Number	7	4	8	18	1	16		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	244	1028	352	57	639	517		
Adj No. of Lanes	2	2	2	1	1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	325	1339	737	330	834	744		
Arrive On Green	0.09	0.38	0.21	0.21	0.47	0.47		
Sat Flow, veh/h	3442	3632	3632	1583	1774	1583		
Grp Volume(v), veh/h	244	1028	352	57	639	517		
Grp Sat Flow(s),veh/h/ln	1721	1770	1770	1583	1774	1583		
Q Serve(g_s), s	4.1	15.1	5.2	1.8	17.7	15.3		
Cycle Q Clear(g_c), s	4.1	15.1	5.2	1.8	17.7	15.3		
Prop In Lane	1.00			1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	325	1339	737	330	834	744		
V/C Ratio(X)	0.75	0.77	0.48	0.17	0.77	0.69		
Avail Cap(c_a), veh/h	325	1675	1073	480	834	744		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	26.2	16.2	20.7	19.3	13.0	12.4		
Incr Delay (d2), s/veh	9.4	1.7	0.5	0.2	6.7	5.3		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.4	7.6	2.6	0.8	10.1	7.7		
LnGrp Delay(d),s/veh	35.7	17.9	21.1	19.5	19.7	17.7		
LnGrp LOS	D	B	C	B	B	B		
Approach Vol, veh/h		1272	409		1156			
Approach Delay, s/veh		21.3	20.9		18.8			
Approach LOS		C	C		B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				27.0		32.4	10.1	16.9
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				28.1		27.9	5.6	18.0
Max Q Clear Time (g_c+I1), s				17.1		19.7	6.1	7.2
Green Ext Time (p_c), s				5.4		3.0	0.0	1.8
Intersection Summary								
HCM 2010 Ctrl Delay			20.2					
HCM 2010 LOS			C					

Lanes and Geometrics
 8: I-110 SB Ramps & Redondo Beach Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↘	↑↑↑					↘	↕	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		310	225		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	1.00	1.00	0.95	0.91	0.95
Ped Bike Factor												
Frt			0.850								0.903	0.850
Flt Protected				0.950						0.950	0.983	
Satd. Flow (prot)	0	3539	1583	1770	5085	0	0	0	0	1681	1505	1504
Flt Permitted				0.950						0.950	0.983	
Satd. Flow (perm)	0	3539	1583	1770	5085	0	0	0	0	1681	1505	1504
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			288								123	123
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		675			491			369			400	
Travel Time (s)		15.3			11.2			8.4			9.1	

Intersection Summary

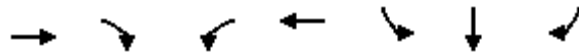
Area Type: Other

Volume
8: I-110 SB Ramps & Redondo Beach Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	1100	276	130	920	0	0	0	0	451	1	524
Future Volume (vph)	0	1100	276	130	920	0	0	0	0	451	1	524
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	1146	288	135	958	0	0	0	0	470	1	546
Shared Lane Traffic (%)										25%		40%
Lane Group Flow (vph)	0	1146	288	135	958	0	0	0	0	352	337	328
Intersection Summary												

Timings
8: I-110 SB Ramps & Redondo Beach Blvd

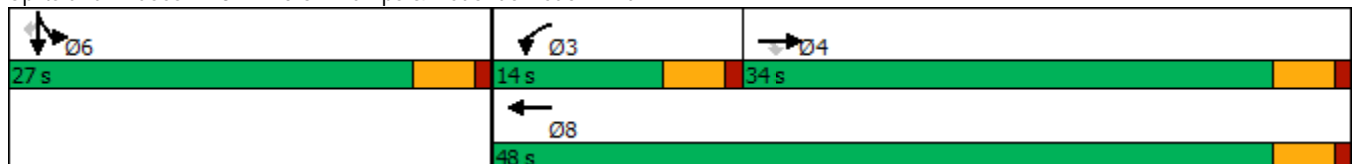


Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Configurations	↑↑	↑	↙	↑↑↑	↙	↕	↙
Traffic Volume (vph)	1100	276	130	920	451	1	524
Future Volume (vph)	1100	276	130	920	451	1	524
Turn Type	NA	Perm	Prot	NA	Split	NA	Perm
Protected Phases	4		3	8	6	6	
Permitted Phases		4					6
Detector Phase	4	4	3	8	6	6	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5	22.5
Total Split (s)	34.0	34.0	14.0	48.0	27.0	27.0	27.0
Total Split (%)	45.3%	45.3%	18.7%	64.0%	36.0%	36.0%	36.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Max	Max	Max
Act Effect Green (s)	27.7	27.7	8.9	38.2	23.0	23.0	23.0
Actuated g/C Ratio	0.39	0.39	0.13	0.54	0.33	0.33	0.33
v/c Ratio	0.82	0.36	0.60	0.35	0.64	0.59	0.57
Control Delay	25.9	3.6	43.6	9.0	29.0	18.8	18.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.9	3.6	43.6	9.0	29.0	18.8	18.2
LOS	C	A	D	A	C	B	B
Approach Delay	21.4			13.3		22.1	
Approach LOS	C			B		C	

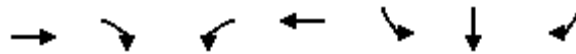
Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 70.4
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 19.1
 Intersection LOS: B
 Intersection Capacity Utilization 66.7%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 8: I-110 SB Ramps & Redondo Beach Blvd



Queues
8: I-110 SB Ramps & Redondo Beach Blvd















Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	1146	288	135	958	352	337	328
v/c Ratio	0.82	0.36	0.60	0.35	0.64	0.59	0.57
Control Delay	25.9	3.6	43.6	9.0	29.0	18.8	18.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.9	3.6	43.6	9.0	29.0	18.8	18.2
Queue Length 50th (ft)	244	0	60	76	151	91	82
Queue Length 95th (ft)	326	44	#126	99	#251	185	170
Internal Link Dist (ft)	595			411		320	
Turn Bay Length (ft)		310	225				
Base Capacity (vph)	1515	842	244	3211	549	574	574
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.34	0.55	0.30	0.64	0.59	0.57

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 8: I-110 SB Ramps & Redondo Beach Blvd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↖	↑↑↑					↖	↔	↗
Traffic Volume (veh/h)	0	1100	276	130	920	0	0	0	0	451	1	524
Future Volume (veh/h)	0	1100	276	130	920	0	0	0	0	451	1	524
Number	7	4	14	3	8	18				1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	1146	288	135	958	0				652	0	352
Adj No. of Lanes	0	2	1	1	3	0				2	0	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1375	615	171	2794	0				1142	0	510
Arrive On Green	0.00	0.39	0.39	0.10	0.55	0.00				0.32	0.00	0.32
Sat Flow, veh/h	0	3632	1583	1774	5253	0				3548	0	1583
Grp Volume(v), veh/h	0	1146	288	135	958	0				652	0	352
Grp Sat Flow(s),veh/h/ln	0	1770	1583	1774	1695	0				1774	0	1583
Q Serve(g_s), s	0.0	20.5	9.5	5.2	7.3	0.0				10.7	0.0	13.5
Cycle Q Clear(g_c), s	0.0	20.5	9.5	5.2	7.3	0.0				10.7	0.0	13.5
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1375	615	171	2794	0				1142	0	510
V/C Ratio(X)	0.00	0.83	0.47	0.79	0.34	0.00				0.57	0.00	0.69
Avail Cap(c_a), veh/h	0	1494	668	241	3165	0				1142	0	510
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	19.3	16.0	30.9	8.7	0.0				19.7	0.0	20.7
Incr Delay (d2), s/veh	0.0	4.0	0.6	10.9	0.1	0.0				2.1	0.0	7.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	10.6	4.3	3.1	3.4	0.0				5.5	0.0	6.9
LnGrp Delay(d),s/veh	0.0	23.3	16.5	41.8	8.8	0.0				21.8	0.0	28.1
LnGrp LOS		C	B	D	A					C		C
Approach Vol, veh/h		1434			1093						1004	
Approach Delay, s/veh		21.9			12.9						24.0	
Approach LOS		C			B						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			11.2	31.7		27.0		42.9				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			9.5	29.5		22.5		43.5				
Max Q Clear Time (g_c+I1), s			7.2	22.5		15.5		9.3				
Green Ext Time (p_c), s			0.1	4.7		2.4		8.2				
Intersection Summary												
HCM 2010 Ctrl Delay			19.7									
HCM 2010 LOS			B									
Notes												

Lanes and Geometrics
 9: I-110 SB Ramps & Redondo Beach Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%				0%
Storage Length (ft)	60		290	170		0	0		0	0		0
Storage Lanes	1		1	1		0	1		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor			0.850		0.999				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.950				0.968
Satd. Flow (prot)	1770	3539	1583	1770	5080	0	1681	1681	1583	0	1803	1583
Flt Permitted	0.950			0.950			0.950	0.950				0.779
Satd. Flow (perm)	1770	3539	1583	1770	5080	0	1681	1681	1583	0	1451	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			490		1				301			136
Link Speed (mph)		30			30			30				30
Link Distance (ft)		491			442			253				82
Travel Time (s)		11.2			10.0			5.8				1.9

Intersection Summary

Area Type: Other

Volume
 9: I-110 SB Ramps & Redondo Beach Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	13	1074	475	317	691	3	335	0	333	17	9	21
Future Volume (vph)	13	1074	475	317	691	3	335	0	333	17	9	21
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	13	1107	490	327	712	3	345	0	343	18	9	22
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	13	1107	490	327	715	0	172	173	343	0	27	22
Intersection Summary												

Timings
9: I-110 SB Ramps & Redondo Beach Blvd

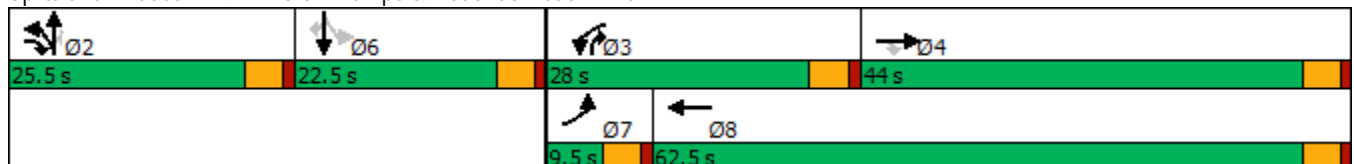


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑↑	↘	↗	↗		↗	↗
Traffic Volume (vph)	13	1074	475	317	691	335	0	333	17	9	21
Future Volume (vph)	13	1074	475	317	691	335	0	333	17	9	21
Turn Type	Prot	NA	pm+ov	Prot	NA	Split	NA	pm+ov	Perm	NA	Perm
Protected Phases	7	4	2	3	8	2	2	3		6	
Permitted Phases			4					2	6		6
Detector Phase	7	4	2	3	8	2	2	3	6	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	9.5	44.0	25.5	28.0	62.5	25.5	25.5	28.0	22.5	22.5	22.5
Total Split (%)	7.9%	36.7%	21.3%	23.3%	52.1%	21.3%	21.3%	23.3%	18.8%	18.8%	18.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5
Lead/Lag	Lead	Lag		Lead	Lag			Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes			
Recall Mode	None	None	Max	None	None	Max	Max	None	Max	Max	Max
Act Effect Green (s)	5.0	39.4	64.9	23.3	63.4	21.0	21.0	44.3		18.0	18.0
Actuated g/C Ratio	0.04	0.33	0.54	0.19	0.53	0.18	0.18	0.37		0.15	0.15
v/c Ratio	0.18	0.95	0.45	0.95	0.27	0.58	0.59	0.44		0.12	0.06
Control Delay	61.2	56.7	2.6	85.4	16.3	54.4	54.5	4.4		45.9	0.3
Queue Delay	0.0	32.5	0.5	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	61.2	89.2	3.1	85.4	16.3	54.4	54.5	4.4		45.9	0.3
LOS	E	F	A	F	B	D	D	A		D	A
Approach Delay		62.8			38.0		29.5			25.5	
Approach LOS		E			D		C			C	

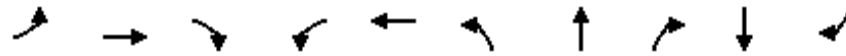
Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 119.7
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 47.9
 Intersection Capacity Utilization 74.4%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service D

Splits and Phases: 9: I-110 SB Ramps & Redondo Beach Blvd



Queues
9: I-110 SB Ramps & Redondo Beach Blvd

























Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	13	1107	490	327	715	172	173	343	27	22
v/c Ratio	0.18	0.95	0.45	0.95	0.27	0.58	0.59	0.44	0.12	0.06
Control Delay	61.2	56.7	2.6	85.4	16.3	54.4	54.5	4.4	45.9	0.3
Queue Delay	0.0	32.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.2	89.2	3.1	85.4	16.3	54.4	54.5	4.4	45.9	0.3
Queue Length 50th (ft)	10	438	0	252	98	130	131	13	18	0
Queue Length 95th (ft)	32	#580	48	#431	147	209	211	52	47	0
Internal Link Dist (ft)		411			362		173		2	
Turn Bay Length (ft)	60		290	170						
Base Capacity (vph)	73	1167	1082	347	2691	295	295	777	218	353
Starvation Cap Reductn	0	135	247	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	1.07	0.59	0.94	0.27	0.58	0.59	0.44	0.12	0.06

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 9: I-110 SB Ramps & Redondo Beach Blvd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	1074	475	317	691	3	335	0	333	17	9	21
Future Volume (veh/h)	13	1074	475	317	691	3	335	0	333	17	9	21
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	13	1107	490	327	712	3	345	0	343	18	9	22
Adj No. of Lanes	1	2	1	1	3	0	2	0	1	0	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	26	1162	797	348	2664	11	622	0	588	181	90	238
Arrive On Green	0.01	0.33	0.33	0.20	0.51	0.51	0.18	0.00	0.18	0.15	0.15	0.15
Sat Flow, veh/h	1774	3539	1583	1774	5227	22	3548	0	1583	1202	601	1583
Grp Volume(v), veh/h	13	1107	490	327	462	253	345	0	343	27	0	22
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1695	1859	1774	0	1583	1803	0	1583
Q Serve(g_s), s	0.9	36.6	26.7	21.8	9.3	9.3	10.6	0.0	20.8	1.5	0.0	1.4
Cycle Q Clear(g_c), s	0.9	36.6	26.7	21.8	9.3	9.3	10.6	0.0	20.8	1.5	0.0	1.4
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.67		1.00
Lane Grp Cap(c), veh/h	26	1162	797	348	1728	947	622	0	588	271	0	238
V/C Ratio(X)	0.50	0.95	0.61	0.94	0.27	0.27	0.55	0.00	0.58	0.10	0.00	0.09
Avail Cap(c_a), veh/h	74	1167	799	348	1728	947	622	0	588	271	0	238
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	58.6	39.3	21.4	47.5	16.7	16.7	45.2	0.0	30.2	43.9	0.0	43.9
Incr Delay (d2), s/veh	14.1	16.3	1.4	33.0	0.1	0.1	3.5	0.0	4.2	0.7	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	20.5	16.1	13.8	4.3	4.8	5.5	0.0	9.8	0.8	0.0	0.7
LnGrp Delay(d),s/veh	72.7	55.6	22.8	80.5	16.8	16.8	48.7	0.0	34.4	44.7	0.0	44.7
LnGrp LOS	E	E	C	F	B	B	D		C	D		D
Approach Vol, veh/h		1610			1042			688			49	
Approach Delay, s/veh		45.8			36.8			41.6			44.7	
Approach LOS		D			D			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		25.5	28.0	43.8		22.5	6.3	65.6				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		21.0	23.5	39.5		18.0	5.0	58.0				
Max Q Clear Time (g_c+I1), s		22.8	23.8	38.6		3.5	2.9	11.3				
Green Ext Time (p_c), s		0.0	0.0	0.7		0.1	0.0	5.4				
Intersection Summary												
HCM 2010 Ctrl Delay			42.1									
HCM 2010 LOS			D									
Notes												

Lanes and Geometrics
 11: Figueroa St & 164th St



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	50	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Ped Bike Factor						
Frt	0.896		0.999			
Flt Protected	0.989				0.950	
Satd. Flow (prot)	1651	0	3536	0	1770	3539
Flt Permitted	0.989				0.950	
Satd. Flow (perm)	1651	0	3536	0	1770	3539
Link Speed (mph)	30		30			30
Link Distance (ft)	648		333			3650
Travel Time (s)	14.7		7.6			83.0

Intersection Summary

Area Type: Other

Volume
11: Figueroa St & 164th St



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Volume (vph)	3	9	874	5	1	765
Future Volume (vph)	3	9	874	5	1	765
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	3	10	950	5	1	832
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	0	955	0	1	832
Intersection Summary						

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑↓		↔	↑↑
Traffic Vol, veh/h	3	9	874	5	1	765
Future Vol, veh/h	3	9	874	5	1	765
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	10	950	5	1	832

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1371	478	0	0	955	0
Stage 1	953	-	-	-	-	-
Stage 2	418	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	137	534	-	-	715	-
Stage 1	335	-	-	-	-	-
Stage 2	632	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	137	534	-	-	715	-
Mov Cap-2 Maneuver	254	-	-	-	-	-
Stage 1	335	-	-	-	-	-
Stage 2	631	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	419	715
HCM Lane V/C Ratio	-	-	0.031	0.002
HCM Control Delay (s)	-	-	13.9	10
HCM Lane LOS	-	-	B	B
HCM 95th %tile Q(veh)	-	-	0.1	0

Lanes and Geometrics
 12: Gardena Blvd & 164th St



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt					0.932	
Flt Protected					0.976	
Satd. Flow (prot)	0	3539	3539	0	1694	0
Flt Permitted					0.976	
Satd. Flow (perm)	0	3539	3539	0	1694	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		645	84		308	
Travel Time (s)		14.7	1.9		7.0	

Intersection Summary

Area Type: Other

Volume
12: Gardena Blvd & 164th St



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	0	491	364	0	3	3
Future Volume (vph)	0	491	364	0	3	3
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	534	396	0	3	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	534	396	0	6	0
Intersection Summary						

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑	
Traffic Vol, veh/h	0	491	364	0	3	3
Future Vol, veh/h	0	491	364	0	3	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	534	396	0	3	3

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	396	0	0	663	198
Stage 1	-	-	-	396	-
Stage 2	-	-	-	267	-
Critical Hdwy	4.14	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	3.52	3.32
Pot Cap-1 Maneuver	1159	-	-	394	810
Stage 1	-	-	-	649	-
Stage 2	-	-	-	754	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1159	-	-	394	810
Mov Cap-2 Maneuver	-	-	-	394	-
Stage 1	-	-	-	649	-
Stage 2	-	-	-	754	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1159	-	-	-	530
HCM Lane V/C Ratio	-	-	-	-	0.012
HCM Control Delay (s)	0	-	-	-	11.9
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Lanes and Geometrics
 13: Gardena Blvd & Project Dwy 1



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected						
Satd. Flow (prot)	0	3539	3539	0	1863	0
Flt Permitted						
Satd. Flow (perm)	0	3539	3539	0	1863	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		84	366		132	
Travel Time (s)		1.9	8.3		3.0	

Intersection Summary

Area Type: Other

Volume
13: Gardena Blvd & Project Dwy 1



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	0	491	364	0	0	0
Future Volume (vph)	0	491	364	0	0	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	534	396	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	534	396	0	0	0
Intersection Summary						

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑	
Traffic Vol, veh/h	0	491	364	0	0	0
Future Vol, veh/h	0	491	364	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	534	396	0	0	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	396	0	-	0	663
Stage 1	-	-	-	-	396
Stage 2	-	-	-	-	267
Critical Hdwy	4.14	-	-	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	2.22	-	-	-	3.52
Pot Cap-1 Maneuver	1159	-	-	-	394
Stage 1	-	-	-	-	649
Stage 2	-	-	-	-	754
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1159	-	-	-	394
Mov Cap-2 Maneuver	-	-	-	-	394
Stage 1	-	-	-	-	649
Stage 2	-	-	-	-	754

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1159	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Lanes and Geometrics
 14: Gardena Blvd & Project Dwy 2



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected						
Satd. Flow (prot)	0	3539	3539	0	1863	0
Flt Permitted						
Satd. Flow (perm)	0	3539	3539	0	1863	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		366	224		428	
Travel Time (s)		8.3	5.1		9.7	

Intersection Summary

Area Type: Other

Volume
14: Gardena Blvd & Project Dwy 2



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	0	491	364	0	0	0
Future Volume (vph)	0	491	364	0	0	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	534	396	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	534	396	0	0	0
Intersection Summary						

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑	
Traffic Vol, veh/h	0	491	364	0	0	0
Future Vol, veh/h	0	491	364	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	534	396	0	0	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	396	0	-	0	663 198
Stage 1	-	-	-	-	396 -
Stage 2	-	-	-	-	267 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	1159	-	-	-	394 810
Stage 1	-	-	-	-	649 -
Stage 2	-	-	-	-	754 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1159	-	-	-	394 810
Mov Cap-2 Maneuver	-	-	-	-	394 -
Stage 1	-	-	-	-	649 -
Stage 2	-	-	-	-	754 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1159	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

#

Appendix C

Forecast Existing Plus Project Conditions
Intersection Analysis Worksheets

333 W. Gardena Blvd Industrial Project Preliminary TIA
Existing Plus Project Conditions
AM Peak Hour

Scenario Report

Scenario: E+P_AM
Command: E+P_AM
Volume: EX_AM
Geometry: EX
Impact Fee: Default Impact Fee
Trip Generation: P_AM
Trip Distribution: DEFAULT
Paths: Default Path
Routes: Default Route
Configuration: EX

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Existing Plus Project Conditions
 AM Peak Hour

Trip Generation Report

Forecast for P_AM

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
1		1.00	PROJECT - PC	71.00	9.00	71	9	80	62.0
	Zone 1 Subtotal					71	9	80	62.0
2		1.00	PROJECT - TRUC	44.00	5.00	44	5	49	38.0
	Zone 2 Subtotal					44	5	49	38.0
TOTAL						115	14	129	100.0

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Existing Plus Project Conditions
 AM Peak Hour

Turning Movement Report
 P_AM

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#1 Figueroa St (NS) / Gardena Blvd (EW)													
Base	24	346	40	59	549	52	53	103	42	59	117	59	1503
Added	0	0	4	37	0	0	0	4	0	0	0	4	49
Total	24	346	44	96	549	52	53	107	42	59	117	63	1552
#2 Broadway (NS) / Gardena Blvd (EW)													
Base	33	208	20	22	284	34	26	137	31	31	215	43	1084
Added	12	0	0	0	0	14	2	6	1	0	45	0	80
Total	45	208	20	22	284	48	28	143	32	31	260	43	1164
#3 Main St (NS) / Gardena Blvd (EW)													
Base	92	454	63	46	397	48	27	109	39	49	156	31	1511
Added	38	0	0	0	0	0	0	1	5	0	7	0	51
Total	130	454	63	46	397	48	27	110	44	49	163	31	1562
#4 Broadway (NS) / Albertoni St (EW)													
Base	33	208	44	42	183	86	31	221	38	81	431	36	1434
Added	0	4	0	1	0	0	0	0	0	0	0	9	14
Total	33	212	44	43	183	86	31	221	38	81	431	45	1448
#5 Main St (NS) / SR-91 WB Ramps (EW)													
Base	1	465	83	92	409	4	0	1	4	392	1	427	1879
Added	0	23	0	2	2	0	0	0	0	9	0	15	51
Total	1	488	83	94	411	4	0	1	4	401	1	442	1930
#6 Main St (NS) / Albertoni St (EW)													
Base	74	279	129	180	398	203	33	242	41	106	276	227	2188
Added	0	4	0	2	0	9	0	1	0	0	0	19	35
Total	74	283	129	182	398	212	33	243	41	106	276	246	2223
#7 SR-91 EB Ramps (NS) / Albertoni St (EW)													
Base	0	0	0	192	0	209	256	282	0	0	419	82	1440
Added	0	0	0	0	0	19	3	0	0	0	0	0	22
Total	0	0	0	192	0	228	259	282	0	0	419	82	1462
#8 I-110 SB Ramps (NS) / Redondo Beach Blvd (EW)													
Base	0	0	0	364	1	587	0	630	440	155	825	0	3002
Added	0	0	0	28	0	0	0	4	0	0	0	0	32
Total	0	0	0	392	1	587	0	634	440	155	825	0	3034
#9 I-110 NB Ramps (NS) / Redondo Beach Blvd (EW)													
Base	326	8	294	4	3	14	16	668	337	257	617	6	2550
Added	0	0	0	0	0	0	0	32	0	3	0	0	35
Total	326	8	294	4	3	14	16	700	337	260	617	6	2585

 333 W. Gardena Blvd Industrial Project Preliminary TIA
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 AM Peak Hour

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#10 Figueroa St (NS) / Redondo Beach Blvd (EW)													
Base	164	314	38	48	383	96	116	585	209	91	612	51	2707
Added	3	0	0	0	4	0	0	7	25	0	1	0	40
Total	167	314	38	48	387	96	116	592	234	91	613	51	2747
#11 Figueroa St (NS) / 164th St (EW)													
Base	0	460	10	5	670	0	0	0	0	8	0	5	1158
Added	0	4	0	0	37	0	0	0	0	0	0	0	41
Total	0	464	10	5	707	0	0	0	0	8	0	5	1199
#12 164th St (NS) / Gardena Blvd (EW)													
Base	0	0	0	7	0	8	0	202	0	0	282	0	499
Added	0	0	0	0	0	0	0	44	0	0	5	0	49
Total	0	0	0	7	0	8	0	246	0	0	287	0	548
#13 Project Dwy 1 (NS) / Gardena Blvd (EW)													
Base	0	0	0	0	0	0	0	202	0	0	282	0	484
Added	0	0	0	5	0	4	28	15	0	0	2	43	97
Total	0	0	0	5	0	4	28	217	0	0	284	43	581
#14 Project Dwy 2 (NS) / Gardena Blvd (EW)													
Base	0	0	0	0	0	0	0	202	0	0	282	0	484
Added	0	0	0	3	0	2	15	5	0	0	43	29	97
Total	0	0	0	3	0	2	15	207	0	0	325	29	581

 333 W. Gardena Blvd Industrial Project Preliminary TIA
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #1 Figueroa St (NS) / Gardena Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.386
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 28 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	24	346	40	59	549	52	53	103	42	59	117	59
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	24	346	40	59	549	52	53	103	42	59	117	59
Added Vol:	0	0	4	37	0	0	0	4	0	0	0	4
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	24	346	44	96	549	52	53	107	42	59	117	63
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	24	346	44	96	549	52	53	107	42	59	117	63
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	24	346	44	96	549	52	53	107	42	59	117	63
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	24	346	44	96	549	52	53	107	42	59	117	63

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.77	0.23	1.00	1.83	0.17	1.00	1.44	0.56	1.00	1.30	0.70
Final Sat.:	1600	2839	361	1600	2923	277	1600	2298	902	1600	2080	1120

Capacity Analysis Module:

Vol/Sat:	0.02	0.12	0.12	0.06	0.19	0.19	0.03	0.05	0.05	0.04	0.06	0.06
Crit Moves:	****			****			****			****		

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #2 Broadway (NS) / Gardena Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.344
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 26 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	33	208	20	22	284	34	26	137	31	31	215	43
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	33	208	20	22	284	34	26	137	31	31	215	43
Added Vol:	12	0	0	0	0	14	2	6	1	0	45	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	45	208	20	22	284	48	28	143	32	31	260	43
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	45	208	20	22	284	48	28	143	32	31	260	43
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	45	208	20	22	284	48	28	143	32	31	260	43
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	45	208	20	22	284	48	28	143	32	31	260	43

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.82	0.18	1.00	1.71	0.29	1.00	1.63	0.37	1.00	1.72	0.28
Final Sat.:	1600	2919	281	1600	2737	463	1600	2615	585	1600	2746	454

Capacity Analysis Module:

Vol/Sat:	0.03	0.07	0.07	0.01	0.10	0.10	0.02	0.05	0.05	0.02	0.09	0.09
Crit Moves:	****			****			****			****		

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #3 Main St (NS) / Gardena Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.384
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxxx
 Optimal Cycle: 28 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	2	0	1	1	1	0	1	1	0	1

Volume Module:

Base Vol:	92	454	63	46	397	48	27	109	39	49	156	31
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	92	454	63	46	397	48	27	109	39	49	156	31
Added Vol:	38	0	0	0	0	0	0	1	5	0	7	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	130	454	63	46	397	48	27	110	44	49	163	31
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	130	454	63	46	397	48	27	110	44	49	163	31
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	130	454	63	46	397	48	27	110	44	49	163	31
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	130	454	63	46	397	48	27	110	44	49	163	31

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.43	0.57	1.00	1.68	0.32
Final Sat.:	1600	3200	1600	1600	3200	1600	1600	2286	914	1600	2689	511

Capacity Analysis Module:

Vol/Sat:	0.08	0.14	0.04	0.03	0.12	0.03	0.02	0.05	0.05	0.03	0.06	0.06
Crit Moves:	****			****			****			****		

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #4 Broadway (NS) / Albertoni St (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.375
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 28 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Permitted				Permitted				Permitted				Permitted							
Rights:	Include				Include				Include				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	0	1	1	0	1	0	1	1	0	1	0	1	1	0

Volume Module:

Base Vol:	33	208	44	42	183	86	31	221	38	81	431	36
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	33	208	44	42	183	86	31	221	38	81	431	36
Added Vol:	0	4	0	1	0	0	0	0	0	0	0	9
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	33	212	44	43	183	86	31	221	38	81	431	45
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	33	212	44	43	183	86	31	221	38	81	431	45
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	33	212	44	43	183	86	31	221	38	81	431	45
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	33	212	44	43	183	86	31	221	38	81	431	45

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.66	0.34	1.00	1.36	0.64	1.00	1.71	0.29	1.00	1.81	0.19
Final Sat.:	1600	2650	550	1600	2177	1023	1600	2731	469	1600	2897	303

Capacity Analysis Module:

Vol/Sat:	0.02	0.08	0.08	0.03	0.08	0.08	0.02	0.08	0.08	0.05	0.15	0.15
Crit Moves:	****			****			****			****		

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #5 Main St (NS) / SR-91 WB Ramps (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.588
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 39 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Permitted				Protected				Permitted				Permitted							
Rights:	Include				Include				Include				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	2	0	1	1	0	1	1	0	0	0	0	1	0	0	1	0	0	1

Volume Module:

Base Vol:	1	465	83	92	409	4	0	1	4	392	1	427
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	1	465	83	92	409	4	0	1	4	392	1	427
Added Vol:	0	23	0	2	2	0	0	0	0	9	0	15
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	1	488	83	94	411	4	0	1	4	401	1	442
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	1	488	83	94	411	4	0	1	4	401	1	442
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1	488	83	94	411	4	0	1	4	401	1	442
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	1	488	83	94	411	4	0	1	4	401	1	442

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	1.98	0.02	0.00	0.20	0.80	0.99	0.01	1.00
Final Sat.:	1600	3200	1600	1600	3169	31	0	320	1280	1596	4	1600

Capacity Analysis Module:

Vol/Sat:	0.00	0.15	0.05	0.06	0.13	0.13	0.00	0.00	0.00	0.25	0.25	0.28
Crit Moves:	****			****			****			****		

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #6 Main St (NS) / Albertoni St (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.545
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxxx
 Optimal Cycle: 36 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	74	279	129	180	398	203	33	242	41	106	276	227
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	74	279	129	180	398	203	33	242	41	106	276	227
Added Vol:	0	4	0	2	0	9	0	1	0	0	0	19
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	74	283	129	182	398	212	33	243	41	106	276	246
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	74	283	129	182	398	212	33	243	41	106	276	246
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	74	283	129	182	398	212	33	243	41	106	276	246
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	74	283	129	182	398	212	33	243	41	106	276	246

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.37	0.63	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.06	0.94
Final Sat.:	1600	2198	1002	1600	3200	1600	1600	3200	1600	1600	1692	1508

Capacity Analysis Module:

Vol/Sat:	0.05	0.13	0.13	0.11	0.12	0.13	0.02	0.08	0.03	0.07	0.16	0.16
Crit Moves:	***			***			***			***		

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #7 SR-91 EB Ramps (NS) / Albertoni St (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.454
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 31 Level Of Service: A

Approach:	North Bound				South Bound				East Bound			West Bound													
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R					
Control:	Permitted				Permitted				Protected			Permitted													
Rights:	Include				Include				Include			Include													
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		
Lanes:	0	0	0	0	0	1	0	0	0	1	2	0	2	0	0	0	0	2	0	1	0	0	2	0	1

Volume Module:

Base Vol:	0	0	0	192	0	209	256	282	0	0	419	82
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	192	0	209	256	282	0	0	419	82
Added Vol:	0	0	0	0	0	19	3	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	192	0	228	259	282	0	0	419	82
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	192	0	228	259	282	0	0	419	82
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	192	0	228	259	282	0	0	419	82
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	192	0	228	259	282	0	0	419	82

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	2.00	2.00	0.00	0.00	2.00	1.00
Final Sat.:	0	0	0	1600	0	1600	3200	3200	0	0	3200	1600

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.12	0.00	0.14	0.08	0.09	0.00	0.00	0.13	0.05
Crit Moves:				****		****				****		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Existing Plus Project Conditions
 AM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #8 I-110 SB Ramps (NS) / Redondo Beach Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.676
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 47 Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Split Phase				Split Phase				Permitted				Protected							
Rights:	Include				Include				Include				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	0	0	1	0	1	0	1	0	0	2	0	1	1	0	3	0	0

Volume Module:

Base Vol:	0	0	0	364	1	587	0	630	440	155	825	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	364	1	587	0	630	440	155	825	0
Added Vol:	0	0	0	28	0	0	0	4	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	392	1	587	0	634	440	155	825	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	392	1	587	0	634	440	155	825	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	392	1	587	0	634	440	155	825	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	392	1	587	0	634	440	155	825	0

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.20	0.01	1.79	0.00	2.00	1.00	1.00	3.00	0.00
Final Sat.:	0	0	0	1920	5	2875	0	3200	1600	1600	4800	0

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.20	0.20	0.20	0.00	0.20	0.28	0.10	0.17	0.00
Crit Moves:				****					****	****		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Existing Plus Project Conditions
 AM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #9 I-110 NB Ramps (NS) / Redondo Beach Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.594
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 40 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound								
Movement:	L	T	R	L	T	R	L	T	R	L	T	R						
Control:	Split Phase			Split Phase			Protected			Protected								
Rights:	Ovl			Include			Ovl			Include								
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0						
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0						
Lanes:	1	1	0	0	1	0	0	1	1	0	2	0	1	1	0	2	1	0

Volume Module:

Base Vol:	326	8	294	4	3	14	16	668	337	257	617	6
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	326	8	294	4	3	14	16	668	337	257	617	6
Added Vol:	0	0	0	0	0	0	0	32	0	3	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	326	8	294	4	3	14	16	700	337	260	617	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	326	8	294	4	3	14	16	700	337	260	617	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	326	8	294	4	3	14	16	700	337	260	617	6
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	326	8	294	4	3	14	16	700	337	260	617	6
OvlAdjVol:			34						170			

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.95	0.05	1.00	0.57	0.43	1.00	1.00	2.00	1.00	1.00	2.97	0.03
Final Sat.:	3123	77	1600	914	686	1600	1600	3200	1600	1600	4754	46

Capacity Analysis Module:

Vol/Sat:	0.10	0.10	0.18	0.00	0.00	0.01	0.01	0.22	0.21	0.16	0.13	0.13
OvlAdjV/S:			0.02						0.11			
Crit Moves:	****					****	****			****		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Existing Plus Project Conditions
 AM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #10 Figueroa St (NS) / Redondo Beach Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.589
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 39 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Prot+Permit			Prot+Permit			Prot+Permit			Prot+Permit		
Rights:	Include			Ovl			Ovl			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	164	314	38	48	383	96	116	585	209	91	612	51
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	164	314	38	48	383	96	116	585	209	91	612	51
Added Vol:	3	0	0	0	4	0	0	7	25	0	1	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	167	314	38	48	387	96	116	592	234	91	613	51
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	167	314	38	48	387	96	116	592	234	91	613	51
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	167	314	38	48	387	96	116	592	234	91	613	51
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	167	314	38	48	387	96	116	592	234	91	613	51
OvlAdjVol:						0			67			3






















Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.78	0.22	1.00	2.00	1.00	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1600	2855	345	1600	3200	1600	1600	3200	1600	1600	3200	1600

Capacity Analysis Module:

Vol/Sat:	0.10	0.11	0.11	0.03	0.12	0.06	0.07	0.19	0.15	0.06	0.19	0.03
OvlAdjV/S:						0.00			0.04			0.00
Crit Moves:	****				****		****			****		

Lanes and Geometrics
5: Main St & SR-91 WB Ramps

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	90		50	155		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		0.887				0.850			0.850		0.998	
Flt Protected					0.952		0.950			0.950		
Satd. Flow (prot)	0	1652	0	0	1773	1583	1770	3539	1583	1770	3532	0
Flt Permitted					0.952		0.482			0.950		
Satd. Flow (perm)	0	1652	0	0	1773	1583	898	3539	1583	1770	3532	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				502			127			1
Link Speed (mph)		30			30			30				30
Link Distance (ft)		246			641			875				3052
Travel Time (s)		5.6			14.6			19.9				69.4

Intersection Summary

Area Type: Other

Volume
5: Main St & SR-91 WB Ramps



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	1	4	401	1	442	1	488	83	94	411	4
Future Volume (vph)	0	1	4	401	1	442	1	488	83	94	411	4
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	1	5	456	1	502	1	555	94	107	467	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	6	0	0	457	502	1	555	94	107	472	0
Intersection Summary												

Timings
5: Main St & SR-91 WB Ramps

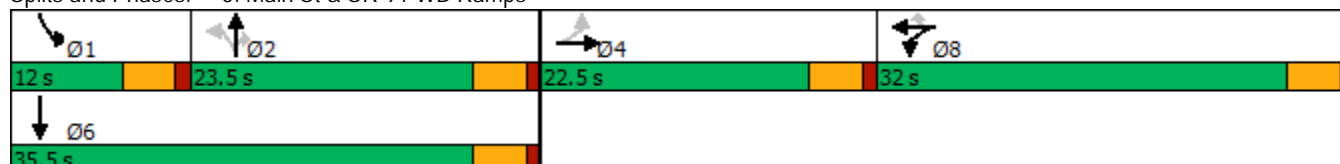


Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↔	↔	↕	↔	↔	↕
Traffic Volume (vph)	1	1	442	1	488	83	94	411
Future Volume (vph)	1	1	442	1	488	83	94	411
Turn Type	NA	NA	Perm	Perm	NA	Perm	Prot	NA
Protected Phases	4	8			2		1	6
Permitted Phases			8	2		2		
Detector Phase	4	8	8	2	2	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	9.5	22.5
Total Split (s)	22.5	32.0	32.0	23.5	23.5	23.5	12.0	35.5
Total Split (%)	25.0%	35.6%	35.6%	26.1%	26.1%	26.1%	13.3%	39.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag				Lag	Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	Max	Max	Max	None	Max
Act Effect Green (s)	5.8	23.7	23.7	22.1	22.1	22.1	7.4	31.4
Actuated g/C Ratio	0.09	0.36	0.36	0.33	0.33	0.33	0.11	0.48
v/c Ratio	0.04	0.72	0.56	0.00	0.47	0.15	0.54	0.28
Control Delay	22.4	26.3	4.6	21.0	21.9	3.3	42.0	12.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.4	26.3	4.6	21.0	21.9	3.3	42.0	12.4
LOS	C	C	A	C	C	A	D	B
Approach Delay	22.4	15.0			19.2			17.9
Approach LOS	C	B			B			B

Intersection Summary

Cycle Length: 90	
Actuated Cycle Length: 66	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 17.0	Intersection LOS: B
Intersection Capacity Utilization 58.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 5: Main St & SR-91 WB Ramps



Queues
5: Main St & SR-91 WB Ramps
























Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	6	457	502	1	555	94	107	472
v/c Ratio	0.04	0.72	0.56	0.00	0.47	0.15	0.54	0.28
Control Delay	22.4	26.3	4.6	21.0	21.9	3.3	42.0	12.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.4	26.3	4.6	21.0	21.9	3.3	42.0	12.4
Queue Length 50th (ft)	0	146	0	0	98	0	41	57
Queue Length 95th (ft)	11	292	56	4	176	20	#114	115
Internal Link Dist (ft)	166	561			795			2972
Turn Bay Length (ft)				90		50	155	
Base Capacity (vph)	459	748	958	300	1183	613	203	1680
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.61	0.52	0.00	0.47	0.15	0.53	0.28

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
5: Main St & SR-91 WB Ramps

333 W. Gardena Blvd Project TIA
01/20/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	4	401	1	442	1	488	83	94	411	4
Future Volume (veh/h)	0	1	4	401	1	442	1	488	83	94	411	4
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	0	1	5	456	1	502	1	555	94	107	467	5
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	2	11	632	1	565	379	1065	477	137	1587	17
Arrive On Green	0.00	0.01	0.01	0.36	0.36	0.36	0.30	0.30	0.30	0.08	0.44	0.44
Sat Flow, veh/h	0	271	1353	1770	4	1583	918	3539	1583	1774	3587	38
Grp Volume(v), veh/h	0	0	6	457	0	502	1	555	94	107	230	242
Grp Sat Flow(s),veh/h/ln	0	0	1624	1774	0	1583	918	1770	1583	1774	1770	1856
Q Serve(g_s), s	0.0	0.0	0.3	15.6	0.0	20.9	0.1	9.1	3.1	4.2	5.8	5.9
Cycle Q Clear(g_c), s	0.0	0.0	0.3	15.6	0.0	20.9	0.1	9.1	3.1	4.2	5.8	5.9
Prop In Lane	0.00		0.83	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	0	0	13	633	0	565	379	1065	477	137	783	821
V/C Ratio(X)	0.00	0.00	0.47	0.72	0.00	0.89	0.00	0.52	0.20	0.78	0.29	0.29
Avail Cap(c_a), veh/h	0	0	417	696	0	621	379	1065	477	190	783	821
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	34.6	19.5	0.0	21.2	17.1	20.3	18.2	31.7	12.5	12.5
Incr Delay (d2), s/veh	0.0	0.0	24.5	3.3	0.0	13.8	0.0	1.8	0.9	13.1	1.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.2	8.2	0.0	11.2	0.0	4.7	1.5	2.5	3.0	3.2
LnGrp Delay(d),s/veh	0.0	0.0	59.1	22.8	0.0	35.0	17.1	22.1	19.1	44.8	13.5	13.4
LnGrp LOS			E	C		D	B	C	B	D	B	B
Approach Vol, veh/h		6			959			650			579	
Approach Delay, s/veh		59.1			29.2			21.7			19.3	
Approach LOS		E			C			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	9.9	25.6		5.1		35.5		29.5				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	7.5	19.0		18.0		31.0		27.5				
Max Q Clear Time (g_c+I1), s	6.2	11.1		2.3		7.9		22.9				
Green Ext Time (p_c), s	0.0	2.5		0.0		2.8		2.1				
Intersection Summary												
HCM 2010 Ctrl Delay			24.4									
HCM 2010 LOS			C									

Lanes and Geometrics
7: Albertoni St & SR-91 EB Ramps

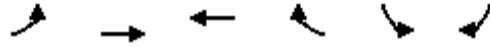


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	200			50	0	0
Storage Lanes	2			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor						
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	3539	3539	1583	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				88		245
Link Speed (mph)		30	30		30	
Link Distance (ft)		930	527		334	
Travel Time (s)		21.1	12.0		7.6	

Intersection Summary

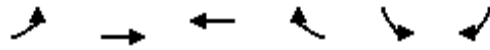
Area Type: Other

Volume
7: Albertoni St & SR-91 EB Ramps



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	259	282	419	82	192	228
Future Volume (vph)	259	282	419	82	192	228
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	278	303	451	88	206	245
Shared Lane Traffic (%)						
Lane Group Flow (vph)	278	303	451	88	206	245
Intersection Summary						

Timings
7: Albertoni St & SR-91 EB Ramps

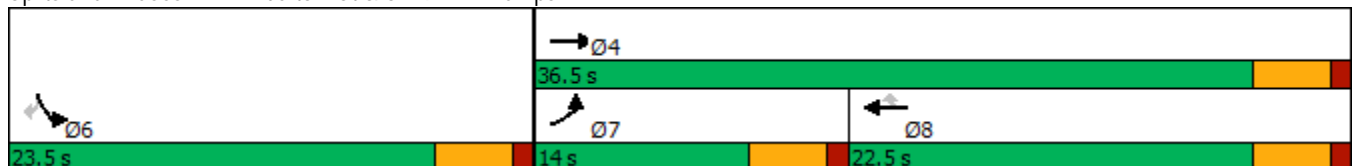


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↗↗	↑↑	↑↑	↖	↘	↘
Traffic Volume (vph)	259	282	419	82	192	228
Future Volume (vph)	259	282	419	82	192	228
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	14.0	36.5	22.5	22.5	23.5	23.5
Total Split (%)	23.3%	60.8%	37.5%	37.5%	39.2%	39.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effect Green (s)	8.7	26.1	12.9	12.9	19.1	19.1
Actuated g/C Ratio	0.16	0.48	0.24	0.24	0.35	0.35
v/c Ratio	0.50	0.18	0.54	0.20	0.33	0.34
Control Delay	25.1	8.0	20.5	5.7	16.1	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.1	8.0	20.5	5.7	16.1	4.1
LOS	C	A	C	A	B	A
Approach Delay		16.2	18.1		9.6	
Approach LOS		B	B		A	

Intersection Summary

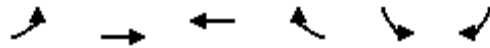
Cycle Length: 60	
Actuated Cycle Length: 54.3	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.54	
Intersection Signal Delay: 14.9	Intersection LOS: B
Intersection Capacity Utilization 40.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 7: Albertoni St & SR-91 EB Ramps



Queues

7: Albertoni St & SR-91 EB Ramps

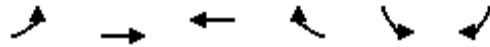


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	278	303	451	88	206	245
v/c Ratio	0.50	0.18	0.54	0.20	0.33	0.34
Control Delay	25.1	8.0	20.5	5.7	16.1	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.1	8.0	20.5	5.7	16.1	4.1
Queue Length 50th (ft)	42	26	67	0	48	0
Queue Length 95th (ft)	80	44	104	26	106	42
Internal Link Dist (ft)		850	447		254	
Turn Bay Length (ft)	200			50		
Base Capacity (vph)	604	2098	1180	586	623	715
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.14	0.38	0.15	0.33	0.34

Intersection Summary

HCM 2010 Signalized Intersection Summary
 7: Albertoni St & SR-91 EB Ramps

333 W. Gardena Blvd Project TIA
 01/20/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	259	282	419	82	192	228		
Future Volume (veh/h)	259	282	419	82	192	228		
Number	7	4	8	18	1	16		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	278	303	451	88	206	245		
Adj No. of Lanes	2	2	2	1	1	1		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	422	1493	731	327	696	621		
Arrive On Green	0.12	0.42	0.21	0.21	0.39	0.39		
Sat Flow, veh/h	3442	3632	3632	1583	1774	1583		
Grp Volume(v), veh/h	278	303	451	88	206	245		
Grp Sat Flow(s),veh/h/ln	1721	1770	1770	1583	1774	1583		
Q Serve(g_s), s	3.7	2.6	5.6	2.3	3.9	5.4		
Cycle Q Clear(g_c), s	3.7	2.6	5.6	2.3	3.9	5.4		
Prop In Lane	1.00			1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	422	1493	731	327	696	621		
V/C Ratio(X)	0.66	0.20	0.62	0.27	0.30	0.39		
Avail Cap(c_a), veh/h	675	2338	1315	588	696	621		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	20.3	8.9	17.5	16.1	10.1	10.6		
Incr Delay (d2), s/veh	1.8	0.1	0.9	0.4	1.1	1.9		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.9	1.3	2.8	1.0	2.1	2.6		
LnGrp Delay(d),s/veh	22.0	8.9	18.3	16.6	11.2	12.5		
LnGrp LOS	C	A	B	B	B	B		
Approach Vol, veh/h		581	539		451			
Approach Delay, s/veh		15.2	18.0		11.9			
Approach LOS		B	B		B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				24.9		23.5	10.4	14.5
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				32.0		19.0	9.5	18.0
Max Q Clear Time (g_c+I1), s				4.6		7.4	5.7	7.6
Green Ext Time (p_c), s				2.0		1.2	0.3	2.4
Intersection Summary								
HCM 2010 Ctrl Delay			15.2					
HCM 2010 LOS			B					

Lanes and Geometrics
 8: I-110 SB Ramps & Redondo Beach Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↘	↑↑↑					↘	↕	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		310	225		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	1.00	1.00	0.95	0.91	0.95
Ped Bike Factor												
Frt			0.850								0.874	0.850
Flt Protected				0.950						0.950	0.992	
Satd. Flow (prot)	0	3539	1583	1770	5085	0	0	0	0	1681	1470	1504
Flt Permitted				0.950						0.950	0.992	
Satd. Flow (perm)	0	3539	1583	1770	5085	0	0	0	0	1681	1470	1504
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			463								119	119
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		675			491			369			400	
Travel Time (s)		15.3			11.2			8.4			9.1	

Intersection Summary

Area Type: Other

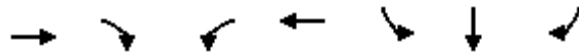
Volume
8: I-110 SB Ramps & Redondo Beach Blvd

333 W. Gardena Blvd Project TIA
01/20/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	634	440	155	825	0	0	0	0	392	1	587
Future Volume (vph)	0	634	440	155	825	0	0	0	0	392	1	587
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	667	463	163	868	0	0	0	0	413	1	618
Shared Lane Traffic (%)										13%		46%
Lane Group Flow (vph)	0	667	463	163	868	0	0	0	0	359	339	334
Intersection Summary												

Timings
8: I-110 SB Ramps & Redondo Beach Blvd

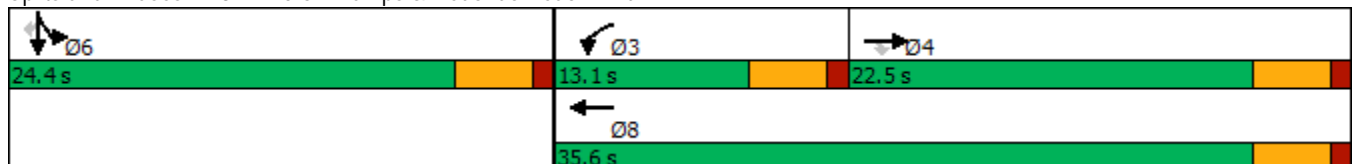


Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Configurations	↑↑	↑	↘	↑↑↑	↘	↔	↑
Traffic Volume (vph)	634	440	155	825	392	1	587
Future Volume (vph)	634	440	155	825	392	1	587
Turn Type	NA	Perm	Prot	NA	Split	NA	Perm
Protected Phases	4		3	8	6	6	
Permitted Phases		4					6
Detector Phase	4	4	3	8	6	6	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5	13.1	35.6	24.4	24.4	24.4
Total Split (%)	37.5%	37.5%	21.8%	59.3%	40.7%	40.7%	40.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Max	Max	Max
Act Effect Green (s)	16.7	16.7	8.3	26.5	20.4	20.4	20.4
Actuated g/C Ratio	0.30	0.30	0.15	0.47	0.36	0.36	0.36
v/c Ratio	0.63	0.58	0.63	0.36	0.59	0.56	0.54
Control Delay	20.9	5.4	37.3	9.4	21.3	14.8	14.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.9	5.4	37.3	9.4	21.3	14.8	14.2
LOS	C	A	D	A	C	B	B
Approach Delay	14.5			13.8		16.9	
Approach LOS	B			B		B	

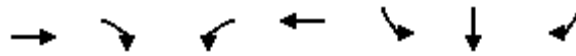
Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 56.1
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 15.0
 Intersection LOS: B
 Intersection Capacity Utilization 63.9%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 8: I-110 SB Ramps & Redondo Beach Blvd



Queues
8: I-110 SB Ramps & Redondo Beach Blvd















Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	667	463	163	868	359	339	334
v/c Ratio	0.63	0.58	0.63	0.36	0.59	0.56	0.54
Control Delay	20.9	5.4	37.3	9.4	21.3	14.8	14.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.9	5.4	37.3	9.4	21.3	14.8	14.2
Queue Length 50th (ft)	107	0	57	61	113	67	62
Queue Length 95th (ft)	157	57	#129	83	197	151	140
Internal Link Dist (ft)	595			411		320	
Turn Bay Length (ft)		310	225				
Base Capacity (vph)	1164	831	278	2890	611	610	622
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.56	0.59	0.30	0.59	0.56	0.54

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
8: I-110 SB Ramps & Redondo Beach Blvd

333 W. Gardena Blvd Project TIA
01/20/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑↑					↑	↑	↑
Traffic Volume (veh/h)	0	634	440	155	825	0	0	0	0	392	1	587
Future Volume (veh/h)	0	634	440	155	825	0	0	0	0	392	1	587
Number	7	4	14	3	8	18				1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	667	463	163	868	0				276	0	766
Adj No. of Lanes	0	2	1	1	3	0				1	0	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1096	490	206	2557	0				607	0	1084
Arrive On Green	0.00	0.31	0.31	0.12	0.50	0.00				0.34	0.00	0.34
Sat Flow, veh/h	0	3632	1583	1774	5253	0				1774	0	3167
Grp Volume(v), veh/h	0	667	463	163	868	0				276	0	766
Grp Sat Flow(s),veh/h/ln	0	1770	1583	1774	1695	0				1774	0	1583
Q Serve(g_s), s	0.0	9.3	16.6	5.2	5.9	0.0				7.0	0.0	12.2
Cycle Q Clear(g_c), s	0.0	9.3	16.6	5.2	5.9	0.0				7.0	0.0	12.2
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1096	490	206	2557	0				607	0	1084
V/C Ratio(X)	0.00	0.61	0.94	0.79	0.34	0.00				0.45	0.00	0.71
Avail Cap(c_a), veh/h	0	1096	490	262	2720	0				607	0	1084
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	17.1	19.6	25.0	8.7	0.0				14.9	0.0	16.6
Incr Delay (d2), s/veh	0.0	1.0	27.3	12.1	0.1	0.0				2.4	0.0	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.7	10.9	3.2	2.8	0.0				3.9	0.0	5.9
LnGrp Delay(d),s/veh	0.0	18.1	46.8	37.1	8.7	0.0				17.3	0.0	20.5
LnGrp LOS		B	D	D	A					B		C
Approach Vol, veh/h		1130			1031						1042	
Approach Delay, s/veh		29.8			13.2						19.6	
Approach LOS		C			B						B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			11.2	22.5		24.4		33.7				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			8.6	18.0		19.9		31.1				
Max Q Clear Time (g_c+I1), s			7.2	18.6		14.2		7.9				
Green Ext Time (p_c), s			0.1	0.0		2.3		6.5				
Intersection Summary												
HCM 2010 Ctrl Delay			21.2									
HCM 2010 LOS			C									
Notes												

Lanes and Geometrics
 9: I-110 SB Ramps & Redondo Beach Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%				0%
Storage Length (ft)	60		290	170		0	0		0	0		0
Storage Lanes	1		1	1		0	1		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850		0.999				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.954			0.972	
Satd. Flow (prot)	1770	3539	1583	1770	5080	0	1681	1688	1583	0	1811	1583
Flt Permitted	0.950			0.950			0.950	0.954			0.879	
Satd. Flow (perm)	1770	3539	1583	1770	5080	0	1681	1688	1583	0	1637	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			351		2				306			182
Link Speed (mph)		30			30			30				30
Link Distance (ft)		491			442			253				82
Travel Time (s)		11.2			10.0			5.8				1.9

Intersection Summary

Area Type: Other

Volume
9: I-110 SB Ramps & Redondo Beach Blvd

333 W. Gardena Blvd Project TIA
01/20/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	16	700	337	260	617	6	326	8	294	4	3	14
Future Volume (vph)	16	700	337	260	617	6	326	8	294	4	3	14
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	17	729	351	271	643	6	340	8	306	4	3	15
Shared Lane Traffic (%)							49%					
Lane Group Flow (vph)	17	729	351	271	649	0	173	175	306	0	7	15
Intersection Summary												

Timings
9: I-110 SB Ramps & Redondo Beach Blvd

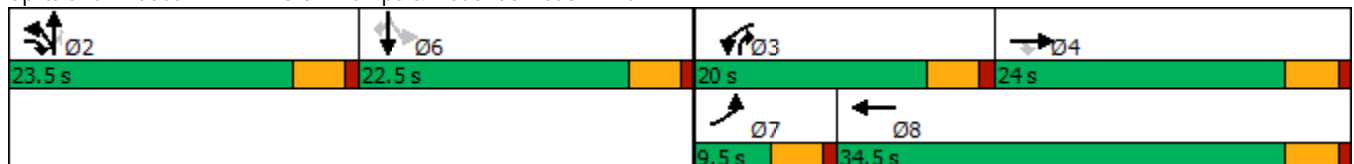


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑↑	↘	↖	↗		↖	↗
Traffic Volume (vph)	16	700	337	260	617	326	8	294	4	3	14
Future Volume (vph)	16	700	337	260	617	326	8	294	4	3	14
Turn Type	Prot	NA	pm+ov	Prot	NA	Split	NA	pm+ov	Perm	NA	Perm
Protected Phases	7	4	2	3	8	2	2	3		6	
Permitted Phases			4					2	6		6
Detector Phase	7	4	2	3	8	2	2	3	6	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	9.5	24.0	23.5	20.0	34.5	23.5	23.5	20.0	22.5	22.5	22.5
Total Split (%)	10.6%	26.7%	26.1%	22.2%	38.3%	26.1%	26.1%	22.2%	25.0%	25.0%	25.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5
Lead/Lag	Lead	Lag		Lead	Lag			Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes			
Recall Mode	None	None	Max	None	None	Max	Max	None	Max	Max	Max
Act Effect Green (s)	5.0	19.5	43.0	15.3	35.5	19.0	19.0	34.3		18.0	18.0
Actuated g/C Ratio	0.06	0.22	0.48	0.17	0.40	0.21	0.21	0.38		0.20	0.20
v/c Ratio	0.17	0.95	0.37	0.90	0.32	0.49	0.49	0.39		0.02	0.03
Control Delay	44.8	58.2	2.8	70.4	20.1	36.6	36.6	2.6		29.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	44.8	58.2	2.8	70.4	20.1	36.6	36.6	2.6		29.3	0.1
LOS	D	E	A	E	C	D	D	A		C	A
Approach Delay		40.2			34.9		20.7			9.4	
Approach LOS		D			C		C			A	

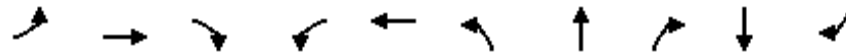
Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 89.8
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 33.4
 Intersection LOS: C
 Intersection Capacity Utilization 60.9%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 9: I-110 SB Ramps & Redondo Beach Blvd



Queues
9: I-110 SB Ramps & Redondo Beach Blvd

























Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	17	729	351	271	649	173	175	306	7	15
v/c Ratio	0.17	0.95	0.37	0.90	0.32	0.49	0.49	0.39	0.02	0.03
Control Delay	44.8	58.2	2.8	70.4	20.1	36.6	36.6	2.6	29.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.8	58.2	2.8	70.4	20.1	36.6	36.6	2.6	29.3	0.1
Queue Length 50th (ft)	9	216	0	152	83	91	92	0	3	0
Queue Length 95th (ft)	31	#330	44	#294	134	158	161	23	15	0
Internal Link Dist (ft)		411			362		173		2	
Turn Bay Length (ft)	60		290	170						
Base Capacity (vph)	98	768	940	305	2009	355	357	796	328	463
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.95	0.37	0.89	0.32	0.49	0.49	0.38	0.02	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 9: I-110 SB Ramps & Redondo Beach Blvd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	700	337	260	617	6	326	8	294	4	3	14
Future Volume (veh/h)	16	700	337	260	617	6	326	8	294	4	3	14
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	17	729	351	271	643	6	346	0	306	4	3	15
Adj No. of Lanes	1	2	1	1	3	0	2	0	1	0	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	34	768	678	304	1918	18	750	0	606	207	155	317
Arrive On Green	0.02	0.22	0.22	0.17	0.37	0.37	0.21	0.00	0.21	0.20	0.20	0.20
Sat Flow, veh/h	1774	3539	1583	1774	5196	48	3548	0	1583	1035	776	1583
Grp Volume(v), veh/h	17	729	351	271	419	230	346	0	306	7	0	15
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1695	1854	1774	0	1583	1811	0	1583
Q Serve(g_s), s	0.9	18.3	14.6	13.4	8.0	8.0	7.7	0.0	13.3	0.3	0.0	0.7
Cycle Q Clear(g_c), s	0.9	18.3	14.6	13.4	8.0	8.0	7.7	0.0	13.3	0.3	0.0	0.7
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	0.57		1.00
Lane Grp Cap(c), veh/h	34	768	678	304	1251	684	750	0	606	363	0	317
V/C Ratio(X)	0.50	0.95	0.52	0.89	0.34	0.34	0.46	0.00	0.50	0.02	0.00	0.05
Avail Cap(c_a), veh/h	99	768	678	306	1251	684	750	0	606	363	0	317
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.7	34.7	18.9	36.4	20.4	20.4	31.0	0.0	21.2	28.9	0.0	29.0
Incr Delay (d2), s/veh	10.8	21.1	0.7	25.9	0.2	0.3	2.0	0.0	3.0	0.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	11.2	8.8	8.7	3.8	4.1	4.0	0.0	6.3	0.1	0.0	0.3
LnGrp Delay(d),s/veh	54.5	55.9	19.6	62.4	20.6	20.7	33.0	0.0	24.2	29.0	0.0	29.3
LnGrp LOS	D	E	B	E	C	C	C		C	C		C
Approach Vol, veh/h		1097			920			652			22	
Approach Delay, s/veh		44.2			32.9			28.9			29.2	
Approach LOS		D			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.5	19.9	24.0		22.5	6.2	37.7				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		19.0	15.5	19.5		18.0	5.0	30.0				
Max Q Clear Time (g_c+I1), s		15.3	15.4	20.3		2.7	2.9	10.0				
Green Ext Time (p_c), s		1.0	0.0	0.0		0.0	0.0	4.1				
Intersection Summary												
HCM 2010 Ctrl Delay			36.5									
HCM 2010 LOS			D									
Notes												

Lanes and Geometrics
11: Figueroa St & 164th St



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	50	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Ped Bike Factor						
Frt	0.952		0.997			
Flt Protected	0.969				0.950	
Satd. Flow (prot)	1718	0	3529	0	1770	3539
Flt Permitted	0.969				0.950	
Satd. Flow (perm)	1718	0	3529	0	1770	3539
Link Speed (mph)	30		30			30
Link Distance (ft)	648		333			3650
Travel Time (s)	14.7		7.6			83.0

Intersection Summary

Area Type: Other

Volume
11: Figueroa St & 164th St



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Volume (vph)	8	5	464	10	5	707
Future Volume (vph)	8	5	464	10	5	707
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	9	5	510	11	5	777
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	0	521	0	5	777
Intersection Summary						

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕		↔	↕
Traffic Vol, veh/h	8	5	464	10	5	707
Future Vol, veh/h	8	5	464	10	5	707
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	5	510	11	5	777

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	915	261	0	0	521	0
Stage 1	516	-	-	-	-	-
Stage 2	399	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	272	738	-	-	1041	-
Stage 1	564	-	-	-	-	-
Stage 2	647	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	271	738	-	-	1041	-
Mov Cap-2 Maneuver	397	-	-	-	-	-
Stage 1	564	-	-	-	-	-
Stage 2	644	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.7	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	483	1041
HCM Lane V/C Ratio	-	-	0.03	0.005
HCM Control Delay (s)	-	-	12.7	8.5
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Lanes and Geometrics
 12: Gardena Blvd & 164th St



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt					0.929	
Flt Protected					0.977	
Satd. Flow (prot)	0	3539	3539	0	1691	0
Flt Permitted					0.977	
Satd. Flow (perm)	0	3539	3539	0	1691	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		645	84		308	
Travel Time (s)		14.7	1.9		7.0	

Intersection Summary

Area Type: Other

Volume
12: Gardena Blvd & 164th St



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	0	246	287	0	7	8
Future Volume (vph)	0	246	287	0	7	8
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	267	312	0	8	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	267	312	0	17	0
Intersection Summary						

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑	
Traffic Vol, veh/h	0	246	287	0	7	8
Future Vol, veh/h	0	246	287	0	7	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	267	312	0	8	9

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	312	0	-	0	446 156
Stage 1	-	-	-	-	312 -
Stage 2	-	-	-	-	134 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	1245	-	-	-	541 862
Stage 1	-	-	-	-	715 -
Stage 2	-	-	-	-	878 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1245	-	-	-	541 862
Mov Cap-2 Maneuver	-	-	-	-	541 -
Stage 1	-	-	-	-	715 -
Stage 2	-	-	-	-	878 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1245	-	-	-	675
HCM Lane V/C Ratio	-	-	-	-	0.024
HCM Control Delay (s)	0	-	-	-	10.5
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lanes and Geometrics
 13: Gardena Blvd & Project Dwy 1



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.980		0.940	
Flt Protected		0.994			0.973	
Satd. Flow (prot)	0	3518	3468	0	1704	0
Flt Permitted		0.994			0.973	
Satd. Flow (perm)	0	3518	3468	0	1704	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		84	366		132	
Travel Time (s)		1.9	8.3		3.0	

Intersection Summary

Area Type: Other

Volume
13: Gardena Blvd & Project Dwy 1



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	28	217	284	43	5	4
Future Volume (vph)	28	217	284	43	5	4
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	30	236	309	47	5	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	266	356	0	9	0
Intersection Summary						

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑	
Traffic Vol, veh/h	28	217	284	43	5	4
Future Vol, veh/h	28	217	284	43	5	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	236	309	47	5	4

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	356	0	-	0	511 178
Stage 1	-	-	-	-	333 -
Stage 2	-	-	-	-	178 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	1199	-	-	-	492 834
Stage 1	-	-	-	-	698 -
Stage 2	-	-	-	-	835 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1199	-	-	-	478 834
Mov Cap-2 Maneuver	-	-	-	-	478 -
Stage 1	-	-	-	-	678 -
Stage 2	-	-	-	-	835 -

Approach	EB	WB	SB
HCM Control Delay, s	1	0	11.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1199	-	-	-	590
HCM Lane V/C Ratio	0.025	-	-	-	0.017
HCM Control Delay (s)	8.1	0.1	-	-	11.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Lanes and Geometrics
 14: Gardena Blvd & Project Dwy 2



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.988		0.946	
Flt Protected		0.997			0.971	
Satd. Flow (prot)	0	3529	3497	0	1711	0
Flt Permitted		0.997			0.971	
Satd. Flow (perm)	0	3529	3497	0	1711	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		366	224		428	
Travel Time (s)		8.3	5.1		9.7	

Intersection Summary

Area Type: Other

Volume
14: Gardena Blvd & Project Dwy 2



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	15	207	325	29	3	2
Future Volume (vph)	15	207	325	29	3	2
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	16	225	353	32	3	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	241	385	0	5	0
Intersection Summary						

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑	
Traffic Vol, veh/h	15	207	325	29	3	2
Future Vol, veh/h	15	207	325	29	3	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	225	353	32	3	2

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	385	0	-	0	514 193
Stage 1	-	-	-	-	369 -
Stage 2	-	-	-	-	145 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	1170	-	-	-	490 816
Stage 1	-	-	-	-	670 -
Stage 2	-	-	-	-	867 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1170	-	-	-	482 816
Mov Cap-2 Maneuver	-	-	-	-	482 -
Stage 1	-	-	-	-	659 -
Stage 2	-	-	-	-	867 -

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1170	-	-	-	576
HCM Lane V/C Ratio	0.014	-	-	-	0.009
HCM Control Delay (s)	8.1	0.1	-	-	11.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

333 W. Gardena Blvd Industrial Project Preliminary TIA
Existing Plus Project Conditions
PM Peak Hour

Scenario Report

Scenario: E+P_PM
Command: E+P_PM
Volume: EX_PM
Geometry: EX
Impact Fee: Default Impact Fee
Trip Generation: P_PM
Trip Distribution: DEFAULT
Paths: Default Path
Routes: Default Route
Configuration: EX

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Existing Plus Project Conditions
 PM Peak Hour

Trip Generation Report

Forecast for P_PM

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
1		1.00	PROJECT - PC	9.00	63.00	9	63	72	62.1
	Zone 1 Subtotal		.....			9	63	72	62.1
2		1.00	PROJECT - TRUC	5.00	39.00	5	39	44	37.9
	Zone 2 Subtotal		.....			5	39	44	37.9
TOTAL						14	102	116	100.0

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Existing Plus Project Conditions
 PM Peak Hour

Turning Movement Report
 P_PM

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#1 Figueroa St (NS) / Gardena Blvd (EW)													
Base	54	710	86	68	594	53	92	337	66	81	176	91	2408
Added	0	0	0	4	0	0	0	0	0	3	3	33	43
Total	54	710	86	72	594	53	92	337	66	84	179	124	2451
#2 Broadway (NS) / Gardena Blvd (EW)													
Base	55	505	68	25	373	34	56	361	45	31	275	45	1873
Added	1	0	0	0	0	2	12	40	11	0	6	0	72
Total	56	505	68	25	373	36	68	401	56	31	281	45	1945
#3 Main St (NS) / Gardena Blvd (EW)													
Base	82	739	143	39	465	43	66	349	56	79	220	67	2348
Added	5	0	0	0	0	0	0	6	34	0	1	0	46
Total	87	739	143	39	465	43	66	355	90	79	221	67	2394
#4 Broadway (NS) / Albertoni St (EW)													
Base	38	289	79	74	378	56	133	712	117	51	286	38	2251
Added	0	0	0	8	3	0	0	0	0	0	0	1	12
Total	38	289	79	82	381	56	133	712	117	51	286	39	2263
#5 Main St (NS) / SR-91 WB Ramps (EW)													
Base	2	612	74	146	684	1	0	0	5	221	0	284	2029
Added	0	3	0	17	16	0	0	0	0	1	0	2	39
Total	2	615	74	163	700	1	0	0	5	222	0	286	2068
#6 Main St (NS) / Albertoni St (EW)													
Base	78	336	173	218	537	81	62	635	146	147	230	302	2945
Added	0	0	0	13	3	1	0	8	0	0	0	2	27
Total	78	336	173	231	540	82	62	643	146	147	230	304	2972
#7 SR-91 EB Ramps (NS) / Albertoni St (EW)													
Base	0	0	0	607	0	491	232	977	0	0	334	54	2695
Added	0	0	0	0	0	2	21	0	0	0	0	0	23
Total	0	0	0	607	0	493	253	977	0	0	334	54	2718
#8 I-110 SB Ramps (NS) / Redondo Beach Blvd (EW)													
Base	0	0	0	451	1	524	0	1100	276	130	920	0	3402
Added	0	0	0	3	0	0	0	0	0	0	3	0	6
Total	0	0	0	454	1	524	0	1100	276	130	923	0	3408
#9 I-110 NB Ramps (NS) / Redondo Beach Blvd (EW)													
Base	335	0	333	17	9	21	13	1074	475	317	691	3	3288
Added	0	0	0	0	0	0	0	4	0	25	3	0	32
Total	335	0	333	17	9	21	13	1078	475	342	694	3	3320

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Existing Plus Project Conditions
 PM Peak Hour

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#10 Figueroa St (NS) / Redondo Beach Blvd (EW)													
Base	222	513	153	80	474	125	111	1101	185	47	676	54	3741
Added	22	3	0	0	0	0	0	1	3	0	6	0	35
Total	244	516	153	80	474	125	111	1102	188	47	682	54	3776
#11 Figueroa St (NS) / 164th St (EW)													
Base	0	874	5	1	765	0	0	0	0	3	0	9	1657
Added	0	33	0	0	4	0	0	0	0	0	0	0	37
Total	0	907	5	1	769	0	0	0	0	3	0	9	1694
#12 164th St (NS) / Gardena Blvd (EW)													
Base	0	0	0	3	0	3	0	491	0	0	364	0	861
Added	0	0	0	0	0	0	0	5	0	0	39	0	44
Total	0	0	0	3	0	3	0	496	0	0	403	0	905
#13 Project Dwy 1 (NS) / Gardena Blvd (EW)													
Base	0	0	0	0	0	0	0	491	0	0	364	0	855
Added	0	0	0	38	0	25	4	2	0	0	14	5	88
Total	0	0	0	38	0	25	4	493	0	0	378	5	943
#14 Project Dwy 2 (NS) / Gardena Blvd (EW)													
Base	0	0	0	0	0	0	0	491	0	0	364	0	855
Added	0	0	0	25	0	14	2	38	0	0	5	3	87
Total	0	0	0	25	0	14	2	529	0	0	369	3	942

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Existing Plus Project Conditions
 PM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #1 Figueroa St (NS) / Gardena Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.572
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 38 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	54	710	86	68	594	53	92	337	66	81	176	91
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	54	710	86	68	594	53	92	337	66	81	176	91
Added Vol:	0	0	0	4	0	0	0	0	0	3	3	33
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	54	710	86	72	594	53	92	337	66	84	179	124
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	54	710	86	72	594	53	92	337	66	84	179	124
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	54	710	86	72	594	53	92	337	66	84	179	124
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	54	710	86	72	594	53	92	337	66	84	179	124

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.78	0.22	1.00	1.84	0.16	1.00	1.67	0.33	1.00	1.18	0.82
Final Sat.:	1600	2854	346	1600	2938	262	1600	2676	524	1600	1890	1310

Capacity Analysis Module:

Vol/Sat:	0.03	0.25	0.25	0.05	0.20	0.20	0.06	0.13	0.13	0.05	0.09	0.09
Crit Moves:	****			****			****			****		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Existing Plus Project Conditions
 PM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #2 Broadway (NS) / Gardena Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.457
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 31 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	55	505	68	25	373	34	56	361	45	31	275	45
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	55	505	68	25	373	34	56	361	45	31	275	45
Added Vol:	1	0	0	0	0	2	12	40	11	0	6	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	56	505	68	25	373	36	68	401	56	31	281	45
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	56	505	68	25	373	36	68	401	56	31	281	45
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	56	505	68	25	373	36	68	401	56	31	281	45
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	56	505	68	25	373	36	68	401	56	31	281	45

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.76	0.24	1.00	1.82	0.18	1.00	1.75	0.25	1.00	1.72	0.28
Final Sat.:	1600	2820	380	1600	2918	282	1600	2808	392	1600	2758	442

Capacity Analysis Module:

Vol/Sat:	0.04	0.18	0.18	0.02	0.13	0.13	0.04	0.14	0.14	0.02	0.10	0.10
Crit Moves:	****			****			****			****		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Existing Plus Project Conditions
 PM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #3 Main St (NS) / Gardena Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.544
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 36 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Permitted				Permitted				Permitted				Permitted							
Rights:	Include				Include				Include				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	2	0	1	1	0	2	0	1	1	0	1	1	0	1	0	1	1	0

Volume Module:

Base Vol:	82	739	143	39	465	43	66	349	56	79	220	67
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	82	739	143	39	465	43	66	349	56	79	220	67
Added Vol:	5	0	0	0	0	0	0	6	34	0	1	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	87	739	143	39	465	43	66	355	90	79	221	67
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	87	739	143	39	465	43	66	355	90	79	221	67
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	87	739	143	39	465	43	66	355	90	79	221	67
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	87	739	143	39	465	43	66	355	90	79	221	67

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.60	0.40	1.00	1.53	0.47
Final Sat.:	1600	3200	1600	1600	3200	1600	1600	2553	647	1600	2456	744

Capacity Analysis Module:

Vol/Sat:	0.05	0.23	0.09	0.02	0.15	0.03	0.04	0.14	0.14	0.05	0.09	0.09
Crit Moves:	****			****			****			****		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
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 PM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #4 Broadway (NS) / Albertoni St (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.557
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 37 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	38	289	79	74	378	56	133	712	117	51	286	38
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	38	289	79	74	378	56	133	712	117	51	286	38
Added Vol:	0	0	0	8	3	0	0	0	0	0	0	1
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	38	289	79	82	381	56	133	712	117	51	286	39
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	38	289	79	82	381	56	133	712	117	51	286	39
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	38	289	79	82	381	56	133	712	117	51	286	39
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	38	289	79	82	381	56	133	712	117	51	286	39

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.57	0.43	1.00	1.74	0.26	1.00	1.72	0.28	1.00	1.76	0.24
Final Sat.:	1600	2513	687	1600	2790	410	1600	2748	452	1600	2816	384

Capacity Analysis Module:

Vol/Sat:	0.02	0.11	0.12	0.05	0.14	0.14	0.08	0.26	0.26	0.03	0.10	0.10
Crit Moves:			****	****			****			****		

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #5 Main St (NS) / SR-91 WB Ramps (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.573
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 38 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Permitted				Protected				Permitted				Permitted							
Rights:	Include				Include				Include				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	2	0	1	1	0	1	1	0	0	0	0	0	1	0	1	0	0	1

Volume Module:

Base Vol:	2	612	74	146	684	1	0	0	5	221	0	284
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	2	612	74	146	684	1	0	0	5	221	0	284
Added Vol:	0	3	0	17	16	0	0	0	0	1	0	2
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	2	615	74	163	700	1	0	0	5	222	0	286
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	2	615	74	163	700	1	0	0	5	222	0	286
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	2	615	74	163	700	1	0	0	5	222	0	286
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	2	615	74	163	700	1	0	0	5	222	0	286

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	1.99	0.01	0.00	0.00	1.00	1.00	0.00	1.00
Final Sat.:	1600	3200	1600	1600	3195	5	0	0	1600	1600	0	1600

Capacity Analysis Module:

Vol/Sat:	0.00	0.19	0.05	0.10	0.22	0.22	0.00	0.00	0.00	0.14	0.00	0.18
Crit Moves:	****			****			****			****		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #6 Main St (NS) / Albertoni St (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.721
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 53 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	78	336	173	218	537	81	62	635	146	147	230	302
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	78	336	173	218	537	81	62	635	146	147	230	302
Added Vol:	0	0	0	13	3	1	0	8	0	0	0	2
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	78	336	173	231	540	82	62	643	146	147	230	304
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	78	336	173	231	540	82	62	643	146	147	230	304
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	78	336	173	231	540	82	62	643	146	147	230	304
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	78	336	173	231	540	82	62	643	146	147	230	304

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.32	0.68	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00
Final Sat.:	1600	2112	1088	1600	3200	1600	1600	3200	1600	1600	1600	1600

Capacity Analysis Module:

Vol/Sat:	0.05	0.16	0.16	0.14	0.17	0.05	0.04	0.20	0.09	0.09	0.14	0.19
Crit Moves:	***			***			***			***		

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #7 SR-91 EB Ramps (NS) / Albertoni St (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.785
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxxx
 Optimal Cycle: 95 Level Of Service: C

Approach:	North Bound				South Bound				East Bound			West Bound													
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R					
Control:	Permitted				Permitted				Protected			Permitted													
Rights:	Include				Include				Include			Include													
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		
Lanes:	0	0	0	0	0	1	0	0	0	1	2	0	2	0	0	0	0	2	0	1	0	0	2	0	1

Volume Module:

Base Vol:	0	0	0	607	0	491	232	977	0	0	334	54
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	607	0	491	232	977	0	0	334	54
Added Vol:	0	0	0	0	0	2	21	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	607	0	493	253	977	0	0	334	54
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	607	0	493	253	977	0	0	334	54
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	607	0	493	253	977	0	0	334	54
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	607	0	493	253	977	0	0	334	54

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	2.00	2.00	0.00	0.00	2.00	1.00
Final Sat.:	0	0	0	1600	0	1600	3200	3200	0	0	3200	1600

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.38	0.00	0.31	0.08	0.31	0.00	0.00	0.10	0.03
Crit Moves:				****				****				

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #8 I-110 SB Ramps (NS) / Redondo Beach Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.729
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 54 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Split Phase				Split Phase				Permitted				Protected							
Rights:	Include				Include				Include				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	0	0	1	0	1	0	1	0	0	2	0	1	1	0	3	0	0

Volume Module:

Base Vol:	0	0	0	451	1	524	0	1100	276	130	920	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	451	1	524	0	1100	276	130	920	0
Added Vol:	0	0	0	3	0	0	0	0	0	0	3	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	454	1	524	0	1100	276	130	923	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	454	1	524	0	1100	276	130	923	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	454	1	524	0	1100	276	130	923	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	454	1	524	0	1100	276	130	923	0

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.39	0.01	1.60	0.00	2.00	1.00	1.00	3.00	0.00
Final Sat.:	0	0	0	2226	5	2569	0	3200	1600	1600	4800	0

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.20	0.20	0.20	0.00	0.34	0.17	0.08	0.19	0.00
Crit Moves:				****			****			****		

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #9 I-110 NB Ramps (NS) / Redondo Beach Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.772
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 61 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Split Phase				Split Phase				Protected				Protected							
Rights:	Ovl				Include				Ovl				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	1	0	0	1	0	1	0	0	1	1	0	2	0	1	1	0	2	1	0

Volume Module:

Base Vol:	335	0	333	17	9	21	13	1074	475	317	691	3
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	335	0	333	17	9	21	13	1074	475	317	691	3
Added Vol:	0	0	0	0	0	0	0	4	0	25	3	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	335	0	333	17	9	21	13	1078	475	342	694	3
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	335	0	333	17	9	21	13	1078	475	342	694	3
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	335	0	333	17	9	21	13	1078	475	342	694	3
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	335	0	333	17	9	21	13	1078	475	342	694	3
OvlAdjVol:										0	308	

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	0.00	1.00	0.65	0.35	1.00	1.00	2.00	1.00	1.00	2.99	0.01
Final Sat.:	3200	0	1600	1046	554	1600	1600	3200	1600	1600	4779	21

Capacity Analysis Module:

Vol/Sat:	0.10	0.00	0.21	0.02	0.02	0.01	0.01	0.34	0.30	0.21	0.15	0.15
OvlAdjV/S:										0.00	0.19	
Crit Moves:	****			****			****			****		

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #10 Figueroa St (NS) / Redondo Beach Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.774
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 61 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Prot+Permit			Prot+Permit			Prot+Permit			Prot+Permit		
Rights:	Include			Ovl			Ovl			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	222	513	153	80	474	125	111	1101	185	47	676	54
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	222	513	153	80	474	125	111	1101	185	47	676	54
Added Vol:	22	3	0	0	0	0	0	1	3	0	6	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	244	516	153	80	474	125	111	1102	188	47	682	54
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	244	516	153	80	474	125	111	1102	188	47	682	54
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	244	516	153	80	474	125	111	1102	188	47	682	54
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	244	516	153	80	474	125	111	1102	188	47	682	54
OvlAdjVol:						14			0			0






















Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.54	0.46	1.00	2.00	1.00	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1600	2468	732	1600	3200	1600	1600	3200	1600	1600	3200	1600

Capacity Analysis Module:

Vol/Sat:	0.15	0.21	0.21	0.05	0.15	0.08	0.07	0.34	0.12	0.03	0.21	0.03
OvlAdjV/S:						0.01			0.00			0.00
Crit Moves:	****			****			****			****		













Lanes and Geometrics
5: Main St & SR-91 WB Ramps

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	90		50	155		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor												
Frt		0.865				0.850			0.850			
Flt Protected					0.950		0.950			0.950		
Satd. Flow (prot)	0	1611	0	0	1770	1583	1770	3539	1583	1770	3539	0
Flt Permitted					0.950		0.366			0.950		
Satd. Flow (perm)	0	1611	0	0	1770	1583	682	3539	1583	1770	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		158				308			143			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		246			641			875			3052	
Travel Time (s)		5.6			14.6			19.9			69.4	

Intersection Summary

Area Type: Other

Volume
5: Main St & SR-91 WB Ramps

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	0	5	222	0	286	2	615	74	163	700	1
Future Volume (vph)	0	0	5	222	0	286	2	615	74	163	700	1
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	0	5	239	0	308	2	661	80	175	753	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	5	0	0	239	308	2	661	80	175	754	0
Intersection Summary												

Timings
5: Main St & SR-91 WB Ramps

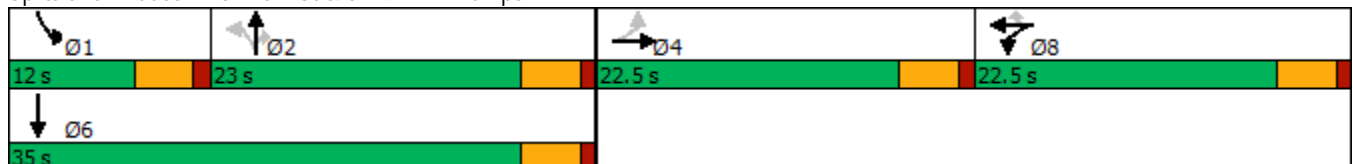


Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↔	↕	↗	↖	↑↑	↗	↖	↕↔
Traffic Volume (vph)	0	0	286	2	615	74	163	700
Future Volume (vph)	0	0	286	2	615	74	163	700
Turn Type	NA	NA	Perm	Perm	NA	Perm	Prot	NA
Protected Phases	4	8			2		1	6
Permitted Phases			8	2		2		
Detector Phase	4	8	8	2	2	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	9.5	22.5
Total Split (s)	22.5	22.5	22.5	23.0	23.0	23.0	12.0	35.0
Total Split (%)	28.1%	28.1%	28.1%	28.8%	28.8%	28.8%	15.0%	43.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag				Lag	Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	Max	Max	Max	None	Max
Act Effect Green (s)	5.6	12.9	12.9	18.8	18.8	18.8	7.6	31.0
Actuated g/C Ratio	0.10	0.24	0.24	0.34	0.34	0.34	0.14	0.57
v/c Ratio	0.02	0.57	0.51	0.01	0.54	0.13	0.71	0.38
Control Delay	0.0	24.7	6.0	16.0	17.9	1.4	44.2	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	24.7	6.0	16.0	17.9	1.4	44.2	8.5
LOS	A	C	A	B	B	A	D	A
Approach Delay		14.2			16.1			15.2
Approach LOS		B			B			B

Intersection Summary

Cycle Length: 80	
Actuated Cycle Length: 54.6	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 15.2	Intersection LOS: B
Intersection Capacity Utilization 56.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 5: Main St & SR-91 WB Ramps



Queues
5: Main St & SR-91 WB Ramps























Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	5	239	308	2	661	80	175	754
v/c Ratio	0.02	0.57	0.51	0.01	0.54	0.13	0.71	0.38
Control Delay	0.0	24.7	6.0	16.0	17.9	1.4	44.2	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	24.7	6.0	16.0	17.9	1.4	44.2	8.5
Queue Length 50th (ft)	0	64	0	0	83	0	53	56
Queue Length 95th (ft)	0	148	53	5	182	8	#179	152
Internal Link Dist (ft)	166	561			795			2972
Turn Bay Length (ft)				90		50	155	
Base Capacity (vph)	644	592	735	234	1217	638	246	2007
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.40	0.42	0.01	0.54	0.13	0.71	0.38

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
5: Main St & SR-91 WB Ramps

333 W. Gardena Blvd Project TIA
01/20/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	5	222	0	286	2	615	74	163	700	1
Future Volume (veh/h)	0	0	5	222	0	286	2	615	74	163	700	1
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	0	0	5	239	0	308	2	661	80	175	753	1
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	0	11	425	0	379	352	1143	511	218	1896	3
Arrive On Green	0.00	0.00	0.01	0.24	0.00	0.24	0.32	0.32	0.32	0.12	0.52	0.52
Sat Flow, veh/h	0	0	1583	1774	0	1583	707	3539	1583	1774	3627	5
Grp Volume(v), veh/h	0	0	5	239	0	308	2	661	80	175	367	387
Grp Sat Flow(s),veh/h/ln	0	0	1583	1774	0	1583	707	1770	1583	1774	1770	1862
Q Serve(g_s), s	0.0	0.0	0.2	6.9	0.0	10.7	0.1	9.1	2.1	5.6	7.3	7.3
Cycle Q Clear(g_c), s	0.0	0.0	0.2	6.9	0.0	10.7	0.1	9.1	2.1	5.6	7.3	7.3
Prop In Lane	0.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	0	0	11	425	0	379	352	1143	511	218	925	973
V/C Ratio(X)	0.00	0.00	0.47	0.56	0.00	0.81	0.01	0.58	0.16	0.80	0.40	0.40
Avail Cap(c_a), veh/h	0	0	488	547	0	488	352	1143	511	228	925	973
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	28.9	19.5	0.0	21.0	13.4	16.4	14.1	24.9	8.4	8.4
Incr Delay (d2), s/veh	0.0	0.0	29.4	1.2	0.0	7.9	0.0	2.1	0.7	17.9	1.3	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.2	3.5	0.0	5.5	0.0	4.7	1.0	3.8	3.8	4.0
LnGrp Delay(d),s/veh	0.0	0.0	58.3	20.7	0.0	28.9	13.4	18.6	14.7	42.9	9.7	9.6
LnGrp LOS			E	C		C	B	B	B	D	A	A
Approach Vol, veh/h		5			547			743			929	
Approach Delay, s/veh		58.3			25.3			18.2			15.9	
Approach LOS		E			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	11.7	23.3		4.9		35.0		18.5				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	7.5	18.5		18.0		30.5		18.0				
Max Q Clear Time (g_c+I1), s	7.6	11.1		2.2		9.3		12.7				
Green Ext Time (p_c), s	0.0	2.8		0.0		4.8		1.2				
Intersection Summary												
HCM 2010 Ctrl Delay			19.1									
HCM 2010 LOS			B									

Lanes and Geometrics
 7: Albertoni St & SR-91 EB Ramps



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	200			50	0	0
Storage Lanes	2			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor						
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	3539	3539	1583	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				57		441
Link Speed (mph)		30	30		30	
Link Distance (ft)		930	527		334	
Travel Time (s)		21.1	12.0		7.6	

Intersection Summary

Area Type: Other

Volume
7: Albertoni St & SR-91 EB Ramps



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	253	977	334	54	607	493
Future Volume (vph)	253	977	334	54	607	493
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	266	1028	352	57	639	519
Shared Lane Traffic (%)						
Lane Group Flow (vph)	266	1028	352	57	639	519
Intersection Summary						

Timings
7: Albertoni St & SR-91 EB Ramps

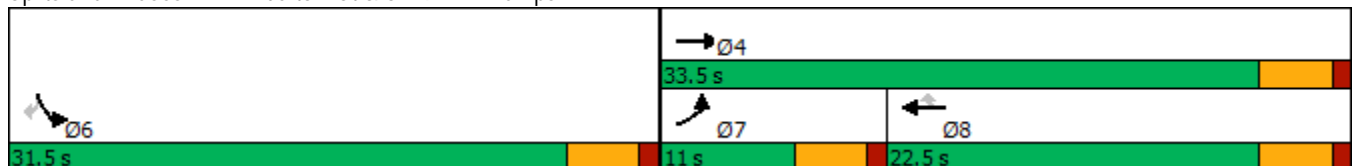


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↗↗	↑↑	↑↑	↖	↘	↘
Traffic Volume (vph)	253	977	334	54	607	493
Future Volume (vph)	253	977	334	54	607	493
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	11.0	33.5	22.5	22.5	31.5	31.5
Total Split (%)	16.9%	51.5%	34.6%	34.6%	48.5%	48.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effect Green (s)	6.5	25.0	14.0	14.0	27.1	27.1
Actuated g/C Ratio	0.11	0.41	0.23	0.23	0.44	0.44
v/c Ratio	0.73	0.71	0.44	0.14	0.82	0.55
Control Delay	41.3	18.0	21.6	6.7	27.0	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.3	18.0	21.6	6.7	27.0	5.2
LOS	D	B	C	A	C	A
Approach Delay		22.8	19.5		17.2	
Approach LOS		C	B		B	

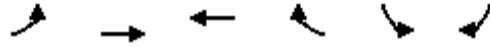
Intersection Summary

Cycle Length: 65
 Actuated Cycle Length: 61.2
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 20.1
 Intersection LOS: C
 Intersection Capacity Utilization 68.1%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 7: Albertoni St & SR-91 EB Ramps



Queues
7: Albertoni St & SR-91 EB Ramps



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	266	1028	352	57	639	519
v/c Ratio	0.73	0.71	0.44	0.14	0.82	0.55
Control Delay	41.3	18.0	21.6	6.7	27.0	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.3	18.0	21.6	6.7	27.0	5.2
Queue Length 50th (ft)	51	158	58	0	203	17
Queue Length 95th (ft)	#108	220	92	23	#412	79
Internal Link Dist (ft)		850	447		254	
Turn Bay Length (ft)	200			50		
Base Capacity (vph)	366	1685	1046	507	784	947
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.61	0.34	0.11	0.82	0.55

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
7: Albertoni St & SR-91 EB Ramps

333 W. Gardena Blvd Project TIA
01/20/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	253	977	334	54	607	493		
Future Volume (veh/h)	253	977	334	54	607	493		
Number	7	4	8	18	1	16		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	266	1028	352	57	639	519		
Adj No. of Lanes	2	2	2	1	1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	371	1361	708	317	819	731		
Arrive On Green	0.11	0.38	0.20	0.20	0.46	0.46		
Sat Flow, veh/h	3442	3632	3632	1583	1774	1583		
Grp Volume(v), veh/h	266	1028	352	57	639	519		
Grp Sat Flow(s),veh/h/ln	1721	1770	1770	1583	1774	1583		
Q Serve(g_s), s	4.4	14.7	5.2	1.7	17.7	15.4		
Cycle Q Clear(g_c), s	4.4	14.7	5.2	1.7	17.7	15.4		
Prop In Lane	1.00			1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	371	1361	708	317	819	731		
V/C Ratio(X)	0.72	0.76	0.50	0.18	0.78	0.71		
Avail Cap(c_a), veh/h	382	1755	1089	487	819	731		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	25.2	15.6	20.8	19.4	13.3	12.6		
Incr Delay (d2), s/veh	6.2	1.4	0.5	0.3	7.3	5.8		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.4	7.4	2.5	0.8	10.2	7.8		
LnGrp Delay(d),s/veh	31.4	17.0	21.3	19.7	20.5	18.4		
LnGrp LOS	C	B	C	B	C	B		
Approach Vol, veh/h		1294	409		1158			
Approach Delay, s/veh		20.0	21.1		19.6			
Approach LOS		B	C		B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				27.0		31.5	10.8	16.2
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				29.0		27.0	6.5	18.0
Max Q Clear Time (g_c+I1), s				16.7		19.7	6.4	7.2
Green Ext Time (p_c), s				5.8		2.8	0.0	1.8
Intersection Summary								
HCM 2010 Ctrl Delay			20.0					
HCM 2010 LOS			B					

Lanes and Geometrics
 8: I-110 SB Ramps & Redondo Beach Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↘	↑↑↑					↘	↕	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		310	225		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	1.00	1.00	0.95	0.91	0.95
Ped Bike Factor												
Frt			0.850								0.903	0.850
Flt Protected				0.950						0.950	0.983	
Satd. Flow (prot)	0	3539	1583	1770	5085	0	0	0	0	1681	1505	1504
Flt Permitted				0.950						0.950	0.983	
Satd. Flow (perm)	0	3539	1583	1770	5085	0	0	0	0	1681	1505	1504
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			288								104	109
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		675			491			369			400	
Travel Time (s)		15.3			11.2			8.4			9.1	

Intersection Summary

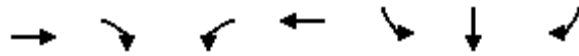
Area Type: Other

Volume
8: I-110 SB Ramps & Redondo Beach Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	1100	276	130	923	0	0	0	0	454	1	524
Future Volume (vph)	0	1100	276	130	923	0	0	0	0	454	1	524
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	1146	288	135	961	0	0	0	0	473	1	546
Shared Lane Traffic (%)										25%		40%
Lane Group Flow (vph)	0	1146	288	135	961	0	0	0	0	355	337	328
Intersection Summary												

Timings
8: I-110 SB Ramps & Redondo Beach Blvd

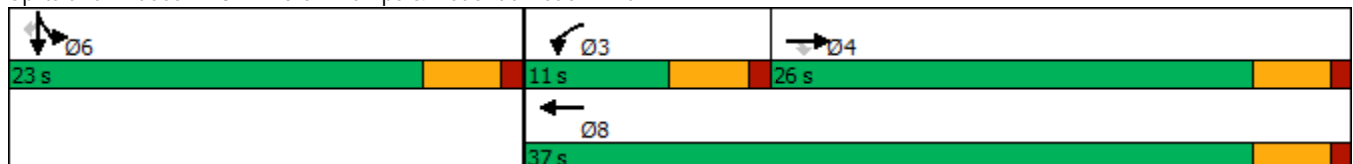


Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Configurations	↑↑	↑	↙	↑↑↑	↙	↔	↑
Traffic Volume (vph)	1100	276	130	923	454	1	524
Future Volume (vph)	1100	276	130	923	454	1	524
Turn Type	NA	Perm	Prot	NA	Split	NA	Perm
Protected Phases	4		3	8	6	6	
Permitted Phases		4					6
Detector Phase	4	4	3	8	6	6	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5	22.5
Total Split (s)	26.0	26.0	11.0	37.0	23.0	23.0	23.0
Total Split (%)	43.3%	43.3%	18.3%	61.7%	38.3%	38.3%	38.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Max	Max	Max
Act Effect Green (s)	21.3	21.3	6.6	29.8	18.7	18.7	18.7
Actuated g/C Ratio	0.37	0.37	0.11	0.52	0.33	0.33	0.33
v/c Ratio	0.87	0.38	0.67	0.37	0.65	0.60	0.58
Control Delay	27.4	3.7	45.6	8.5	24.9	17.4	16.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.4	3.7	45.6	8.5	24.9	17.4	16.5
LOS	C	A	D	A	C	B	B
Approach Delay	22.6			13.1		19.7	
Approach LOS	C			B		B	

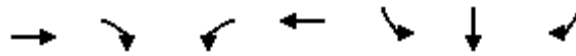
Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 57.5
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 18.8
 Intersection LOS: B
 Intersection Capacity Utilization 66.8%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 8: I-110 SB Ramps & Redondo Beach Blvd



Queues
8: I-110 SB Ramps & Redondo Beach Blvd















Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	1146	288	135	961	355	337	328
v/c Ratio	0.87	0.38	0.67	0.37	0.65	0.60	0.58
Control Delay	27.4	3.7	45.6	8.5	24.9	17.4	16.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.4	3.7	45.6	8.5	24.9	17.4	16.5
Queue Length 50th (ft)	201	0	48	64	116	74	66
Queue Length 95th (ft)	#321	42	#124	87	#214	161	146
Internal Link Dist (ft)	595			411		320	
Turn Bay Length (ft)		310	225				
Base Capacity (vph)	1335	776	201	2899	545	558	562
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.37	0.67	0.33	0.65	0.60	0.58

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 8: I-110 SB Ramps & Redondo Beach Blvd

333 W. Gardena Blvd Project TIA
 01/20/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑↑					↑	↔	↑
Traffic Volume (veh/h)	0	1100	276	130	923	0	0	0	0	454	1	524
Future Volume (veh/h)	0	1100	276	130	923	0	0	0	0	454	1	524
Number	7	4	14	3	8	18				1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	1146	288	135	961	0				655	0	352
Adj No. of Lanes	0	2	1	1	3	0				2	0	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1273	570	171	2709	0				1115	0	498
Arrive On Green	0.00	0.36	0.36	0.10	0.53	0.00				0.31	0.00	0.31
Sat Flow, veh/h	0	3632	1583	1774	5253	0				3548	0	1583
Grp Volume(v), veh/h	0	1146	288	135	961	0				655	0	352
Grp Sat Flow(s),veh/h/ln	0	1770	1583	1774	1695	0				1774	0	1583
Q Serve(g_s), s	0.0	18.0	8.4	4.4	6.4	0.0				9.1	0.0	11.5
Cycle Q Clear(g_c), s	0.0	18.0	8.4	4.4	6.4	0.0				9.1	0.0	11.5
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1273	570	171	2709	0				1115	0	498
V/C Ratio(X)	0.00	0.90	0.51	0.79	0.35	0.00				0.59	0.00	0.71
Avail Cap(c_a), veh/h	0	1293	578	196	2808	0				1115	0	498
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	17.8	14.7	26.0	7.9	0.0				17.0	0.0	17.8
Incr Delay (d2), s/veh	0.0	8.8	0.7	17.0	0.1	0.0				2.3	0.0	8.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	10.3	3.7	2.9	3.0	0.0				4.8	0.0	6.1
LnGrp Delay(d),s/veh	0.0	26.6	15.4	43.0	8.0	0.0				19.2	0.0	26.0
LnGrp LOS		C	B	D	A					B		C
Approach Vol, veh/h		1434			1096						1007	
Approach Delay, s/veh		24.4			12.3						21.6	
Approach LOS		C			B						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			10.2	25.7		23.0		35.9				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			6.5	21.5		18.5		32.5				
Max Q Clear Time (g_c+I1), s			6.4	20.0		13.5		8.4				
Green Ext Time (p_c), s			0.0	1.1		1.9		7.4				
Intersection Summary												
HCM 2010 Ctrl Delay			19.8									
HCM 2010 LOS			B									
Notes												

Lanes and Geometrics
 9: I-110 SB Ramps & Redondo Beach Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	60		290	170		0	0		0	0		0
Storage Lanes	1		1	1		0	1		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850		0.999				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.950			0.968	
Satd. Flow (prot)	1770	3539	1583	1770	5080	0	1681	1681	1583	0	1803	1583
Flt Permitted	0.950			0.950			0.950	0.950			0.784	
Satd. Flow (perm)	1770	3539	1583	1770	5080	0	1681	1681	1583	0	1460	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			490		1				335			149
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		491			442			253			82	
Travel Time (s)		11.2			10.0			5.8			1.9	

Intersection Summary

Area Type: Other

Volume
9: I-110 SB Ramps & Redondo Beach Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	13	1078	475	342	694	3	335	0	333	17	9	21
Future Volume (vph)	13	1078	475	342	694	3	335	0	333	17	9	21
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	13	1111	490	353	715	3	345	0	343	18	9	22
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	13	1111	490	353	718	0	172	173	343	0	27	22
Intersection Summary												

Timings
9: I-110 SB Ramps & Redondo Beach Blvd

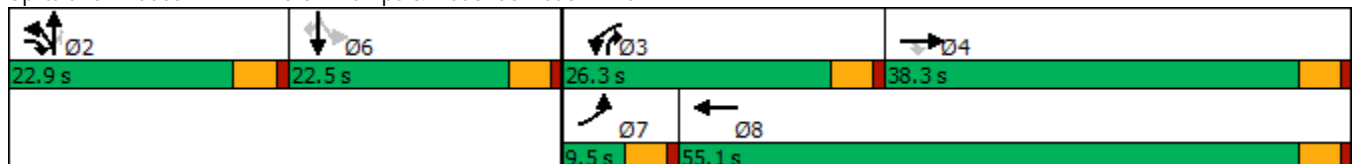


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	13	1078	475	342	694	335	0	333	17	9	21
Future Volume (vph)	13	1078	475	342	694	335	0	333	17	9	21
Turn Type	Prot	NA	pm+ov	Prot	NA	Split	NA	pm+ov	Perm	NA	Perm
Protected Phases	7	4	2	3	8	2	2	3		6	
Permitted Phases			4					2	6		6
Detector Phase	7	4	2	3	8	2	2	3	6	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	9.5	38.3	22.9	26.3	55.1	22.9	22.9	26.3	22.5	22.5	22.5
Total Split (%)	8.6%	34.8%	20.8%	23.9%	50.1%	20.8%	20.8%	23.9%	20.5%	20.5%	20.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5
Lead/Lag	Lead	Lag		Lead	Lag			Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes			
Recall Mode	None	None	Max	None	None	Max	Max	None	Max	Max	Max
Act Effect Green (s)	5.0	33.8	56.7	21.8	56.3	18.4	18.4	40.2		18.0	18.0
Actuated g/C Ratio	0.05	0.31	0.52	0.20	0.51	0.17	0.17	0.37		0.16	0.16
v/c Ratio	0.16	1.02	0.47	1.01	0.28	0.61	0.62	0.43		0.11	0.06
Control Delay	55.2	71.2	2.9	95.0	16.2	52.8	53.0	3.3		40.7	0.3
Queue Delay	0.0	8.1	0.4	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	55.2	79.3	3.2	95.0	16.2	52.8	53.0	3.3		40.7	0.3
LOS	E	E	A	F	B	D	D	A		D	A
Approach Delay		56.0			42.2		28.2			22.6	
Approach LOS		E			D		C			C	

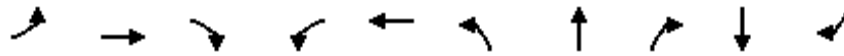
Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 110
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.02
 Intersection Signal Delay: 45.6
 Intersection LOS: D
 Intersection Capacity Utilization 75.9%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 9: I-110 SB Ramps & Redondo Beach Blvd



Queues
9: I-110 SB Ramps & Redondo Beach Blvd



























Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	13	1111	490	353	718	172	173	343	27	22
v/c Ratio	0.16	1.02	0.47	1.01	0.28	0.61	0.62	0.43	0.11	0.06
Control Delay	55.2	71.2	2.9	95.0	16.2	52.8	53.0	3.3	40.7	0.3
Queue Delay	0.0	8.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.2	79.3	3.2	95.0	16.2	52.8	53.0	3.3	40.7	0.3
Queue Length 50th (ft)	9	-440	0	-254	93	120	121	2	16	0
Queue Length 95th (ft)	30	#573	50	#444	143	197	198	36	43	0
Internal Link Dist (ft)		411			362		173		2	
Turn Bay Length (ft)	60		290	170						
Base Capacity (vph)	80	1087	1053	350	2600	281	281	791	238	383
Starvation Cap Reductn	0	25	192	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	1.05	0.57	1.01	0.28	0.61	0.62	0.43	0.11	0.06

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 9: I-110 SB Ramps & Redondo Beach Blvd

333 W. Gardena Blvd Project TIA
 01/20/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	1078	475	342	694	3	335	0	333	17	9	21
Future Volume (veh/h)	13	1078	475	342	694	3	335	0	333	17	9	21
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	13	1111	490	353	715	3	345	0	343	18	9	22
Adj No. of Lanes	1	2	1	1	3	0	2	0	1	0	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	26	1088	751	352	2564	11	593	0	579	197	98	259
Arrive On Green	0.01	0.31	0.31	0.20	0.49	0.49	0.17	0.00	0.17	0.16	0.16	0.16
Sat Flow, veh/h	1774	3539	1583	1774	5227	22	3548	0	1583	1202	601	1583
Grp Volume(v), veh/h	13	1111	490	353	464	254	345	0	343	27	0	22
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1695	1859	1774	0	1583	1803	0	1583
Q Serve(g_s), s	0.8	33.8	25.9	21.8	8.9	8.9	9.9	0.0	18.4	1.4	0.0	1.3
Cycle Q Clear(g_c), s	0.8	33.8	25.9	21.8	8.9	8.9	9.9	0.0	18.4	1.4	0.0	1.3
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.67		1.00
Lane Grp Cap(c), veh/h	26	1088	751	352	1663	912	593	0	579	295	0	259
V/C Ratio(X)	0.49	1.02	0.65	1.00	0.28	0.28	0.58	0.00	0.59	0.09	0.00	0.08
Avail Cap(c_a), veh/h	81	1088	751	352	1663	912	593	0	579	295	0	259
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	53.8	38.1	22.0	44.1	16.5	16.5	42.2	0.0	28.3	39.1	0.0	39.0
Incr Delay (d2), s/veh	13.4	32.9	2.0	49.0	0.1	0.2	4.1	0.0	4.4	0.6	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	21.4	15.3	15.4	4.1	4.6	5.2	0.0	9.2	0.7	0.0	0.6
LnGrp Delay(d),s/veh	67.2	71.0	24.0	93.1	16.6	16.7	46.4	0.0	32.7	39.7	0.0	39.7
LnGrp LOS	E	F	C	F	B	B	D		C	D		D
Approach Vol, veh/h		1614			1071			688			49	
Approach Delay, s/veh		56.7			41.9			39.5			39.7	
Approach LOS		E			D			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		22.9	26.3	38.3		22.5	6.1	58.5				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.4	21.8	33.8		18.0	5.0	50.6				
Max Q Clear Time (g_c+I1), s		20.4	23.8	35.8		3.4	2.8	10.9				
Green Ext Time (p_c), s		0.0	0.0	0.0		0.1	0.0	5.4				
Intersection Summary												
HCM 2010 Ctrl Delay			48.4									
HCM 2010 LOS			D									
Notes												

Lanes and Geometrics
11: Figueroa St & 164th St



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	50	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Ped Bike Factor						
Frt	0.896		0.999			
Flt Protected	0.989				0.950	
Satd. Flow (prot)	1651	0	3536	0	1770	3539
Flt Permitted	0.989				0.950	
Satd. Flow (perm)	1651	0	3536	0	1770	3539
Link Speed (mph)	30		30			30
Link Distance (ft)	648		333			3650
Travel Time (s)	14.7		7.6			83.0

Intersection Summary

Area Type: Other

Volume
11: Figueroa St & 164th St



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Volume (vph)	3	9	907	5	1	769
Future Volume (vph)	3	9	907	5	1	769
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	3	10	986	5	1	836
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	0	991	0	1	836
Intersection Summary						

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑↓		↔	↑↑
Traffic Vol, veh/h	3	9	907	5	1	769
Future Vol, veh/h	3	9	907	5	1	769
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	10	986	5	1	836

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1409	496	0	0	991
Stage 1	989	-	-	-	-
Stage 2	420	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	130	519	-	-	693
Stage 1	321	-	-	-	-
Stage 2	631	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	130	519	-	-	693
Mov Cap-2 Maneuver	245	-	-	-	-
Stage 1	321	-	-	-	-
Stage 2	630	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	406	693
HCM Lane V/C Ratio	-	-	0.032	0.002
HCM Control Delay (s)	-	-	14.2	10.2
HCM Lane LOS	-	-	B	B
HCM 95th %tile Q(veh)	-	-	0.1	0

Lanes and Geometrics
 12: Gardena Blvd & 164th St



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt					0.932	
Flt Protected					0.976	
Satd. Flow (prot)	0	3539	3539	0	1694	0
Flt Permitted					0.976	
Satd. Flow (perm)	0	3539	3539	0	1694	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		645	84		308	
Travel Time (s)		14.7	1.9		7.0	

Intersection Summary

Area Type: Other

Volume
12: Gardena Blvd & 164th St



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	0	496	403	0	3	3
Future Volume (vph)	0	496	403	0	3	3
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	539	438	0	3	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	539	438	0	6	0
Intersection Summary						

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑	
Traffic Vol, veh/h	0	496	403	0	3	3
Future Vol, veh/h	0	496	403	0	3	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	539	438	0	3	3

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	438	0	-	0	708 219
Stage 1	-	-	-	-	438 -
Stage 2	-	-	-	-	270 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	1118	-	-	-	369 785
Stage 1	-	-	-	-	618 -
Stage 2	-	-	-	-	751 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1118	-	-	-	369 785
Mov Cap-2 Maneuver	-	-	-	-	369 -
Stage 1	-	-	-	-	618 -
Stage 2	-	-	-	-	751 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1118	-	-	-	502
HCM Lane V/C Ratio	-	-	-	-	0.013
HCM Control Delay (s)	0	-	-	-	12.3
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Lanes and Geometrics
 13: Gardena Blvd & Project Dwy 1



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.998		0.946	
Flt Protected					0.971	
Satd. Flow (prot)	0	3539	3532	0	1711	0
Flt Permitted					0.971	
Satd. Flow (perm)	0	3539	3532	0	1711	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		84	366		132	
Travel Time (s)		1.9	8.3		3.0	

Intersection Summary

Area Type: Other

Volume
13: Gardena Blvd & Project Dwy 1



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	4	493	378	5	38	25
Future Volume (vph)	4	493	378	5	38	25
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	4	536	411	5	41	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	540	416	0	68	0
Intersection Summary						

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	
Traffic Vol, veh/h	4	493	378	5	38	25
Future Vol, veh/h	4	493	378	5	38	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	536	411	5	41	27

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	416	0	-	0	690 208
Stage 1	-	-	-	-	414 -
Stage 2	-	-	-	-	276 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	1139	-	-	-	379 798
Stage 1	-	-	-	-	635 -
Stage 2	-	-	-	-	746 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1139	-	-	-	377 798
Mov Cap-2 Maneuver	-	-	-	-	377 -
Stage 1	-	-	-	-	632 -
Stage 2	-	-	-	-	746 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	13.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1139	-	-	-	477
HCM Lane V/C Ratio	0.004	-	-	-	0.144
HCM Control Delay (s)	8.2	0	-	-	13.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.5

Lanes and Geometrics
 14: Gardena Blvd & Project Dwy 2



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.999		0.952	
Flt Protected					0.969	
Satd. Flow (prot)	0	3539	3536	0	1718	0
Flt Permitted					0.969	
Satd. Flow (perm)	0	3539	3536	0	1718	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		366	224		428	
Travel Time (s)		8.3	5.1		9.7	

Intersection Summary

Area Type: Other

Volume
14: Gardena Blvd & Project Dwy 2



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	2	529	369	3	25	14
Future Volume (vph)	2	529	369	3	25	14
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	2	575	401	3	27	15
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	577	404	0	42	0
Intersection Summary						

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	
Traffic Vol, veh/h	2	529	369	3	25	14
Future Vol, veh/h	2	529	369	3	25	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	575	401	3	27	15

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	404	0	-	0	695 202
Stage 1	-	-	-	-	403 -
Stage 2	-	-	-	-	292 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	1151	-	-	-	376 805
Stage 1	-	-	-	-	644 -
Stage 2	-	-	-	-	732 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1151	-	-	-	375 805
Mov Cap-2 Maneuver	-	-	-	-	375 -
Stage 1	-	-	-	-	642 -
Stage 2	-	-	-	-	732 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	13.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1151	-	-	-	464
HCM Lane V/C Ratio	0.002	-	-	-	0.091
HCM Control Delay (s)	8.1	0	-	-	13.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Appendix D

Forecast Opening Year (2021) Without Project Conditions
Intersection Analysis Worksheets

333 W. Gardena Blvd Industrial Project Preliminary TIA
Opening Year Conditions
AM Peak Hour

Scenario Report

Scenario: OY+C_AM
Command: OY+C_AM
Volume: EX_AM
Geometry: EX
Impact Fee: Default Impact Fee
Trip Generation: C_AM
Trip Distribution: DEFAULT
Paths: Default Path
Routes: Default Route
Configuration: OY

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Opening Year Conditions
 AM Peak Hour

Trip Generation Report

Forecast for C_AM

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
101		1.00	TAZ 1	22.00	8.00	22	8	30	6.6
	Zone 101 Subtotal					22	8	30	6.6
102		1.00	TAZ 2	32.00	4.00	32	4	36	7.9
	Zone 102 Subtotal					32	4	36	7.9
103		1.00	TAZ 3	0.00	24.00	0	24	24	5.3
	Zone 103 Subtotal					0	24	24	5.3
104		1.00	TAZ 4	178.00	131.00	178	131	309	67.8
	Zone 104 Subtotal					178	131	309	67.8
105		1.00	TAZ 5	46.00	11.00	46	11	57	12.5
	Zone 105 Subtotal					46	11	57	12.5

TOTAL						278	178	456	100.0

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Opening Year Conditions
 AM Peak Hour

Turning Movement Report
 C_AM

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#1 Figueroa St (NS) / Gardena Blvd (EW)													
Base	24	349	40	60	554	53	54	104	42	60	118	60	1518
Added	0	9	0	0	7	7	9	10	0	0	4	0	46
Total	24	358	40	60	561	60	63	114	42	60	122	60	1564
#2 Broadway (NS) / Gardena Blvd (EW)													
Base	33	210	20	22	287	34	26	138	31	31	217	43	1095
Added	0	0	0	0	0	0	0	10	0	0	4	0	14
Total	33	210	20	22	287	34	26	148	31	31	221	43	1109
#3 Main St (NS) / Gardena Blvd (EW)													
Base	93	459	64	46	401	48	27	110	39	49	158	31	1526
Added	1	27	0	0	21	3	8	0	2	1	0	0	63
Total	94	486	64	46	422	51	35	110	41	50	158	31	1589
#4 Broadway (NS) / Albertoni St (EW)													
Base	33	210	44	42	185	87	31	223	38	82	435	36	1448
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	33	210	44	42	185	87	31	223	38	82	435	36	1448
#5 Main St (NS) / SR-91 WB Ramps (EW)													
Base	1	470	84	93	413	4	0	1	4	396	1	431	1898
Added	0	28	0	2	19	0	0	0	0	0	0	10	59
Total	1	498	84	95	432	4	0	1	4	396	1	441	1957
#6 Main St (NS) / Albertoni St (EW)													
Base	75	282	130	182	402	205	33	244	41	107	279	229	2210
Added	0	22	0	3	16	0	0	0	0	0	0	6	47
Total	75	304	130	185	418	205	33	244	41	107	279	235	2257
#7 SR-91 EB Ramps (NS) / Albertoni St (EW)													
Base	0	0	0	194	0	211	259	285	0	0	423	83	1454
Added	0	0	0	0	0	6	3	0	0	0	0	0	9
Total	0	0	0	194	0	217	262	285	0	0	423	83	1463
#8 I-110 SB Ramps (NS) / Redondo Beach Blvd (EW)													
Base	0	0	0	368	1	593	0	636	444	157	833	0	3032
Added	0	0	0	61	0	0	0	14	0	40	10	0	125
Total	0	0	0	429	1	593	0	650	444	197	843	0	3157
#9 I-110 NB Ramps (NS) / Redondo Beach Blvd (EW)													
Base	329	8	297	4	3	14	16	675	340	260	623	6	2575
Added	0	0	51	0	0	0	0	76	0	42	49	0	218
Total	329	8	348	4	3	14	16	751	340	302	672	6	2794

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Opening Year Conditions
 AM Peak Hour

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#10 Figueroa St (NS) / Redondo Beach Blvd (EW)													
Base	166	317	38	48	387	97	117	591	211	92	618	52	2734
Added	2	0	0	0	0	0	0	120	7	0	90	0	219
Total	168	317	38	48	387	97	117	711	218	92	708	52	2953
#11 Figueroa St (NS) / 164th St (EW)													
Base	0	465	10	5	677	0	0	0	0	8	0	5	1170
Added	0	18	0	0	13	0	0	0	0	0	0	0	31
Total	0	483	10	5	690	0	0	0	0	8	0	5	1201
#12 164th St (NS) / Gardena Blvd (EW)													
Base	0	0	0	7	0	8	0	204	0	0	285	0	504
Added	0	0	0	0	0	0	0	10	0	0	4	0	14
Total	0	0	0	7	0	8	0	214	0	0	289	0	518
#13 Project Dwy 1 (NS) / Gardena Blvd (EW)													
Base	0	0	0	0	0	0	0	204	0	0	285	0	489
Added	0	0	0	0	0	0	0	10	0	0	4	0	14
Total	0	0	0	0	0	0	0	214	0	0	289	0	503
#14 Project Dwy 2 (NS) / Gardena Blvd (EW)													
Base	0	0	0	0	0	0	0	204	0	0	285	0	489
Added	0	0	0	0	0	0	0	10	0	0	4	0	14
Total	0	0	0	0	0	0	0	214	0	0	289	0	503

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Opening Year Conditions
 AM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #1 Figueroa St (NS) / Gardena Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.405
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 29 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	24	346	40	59	549	52	53	103	42	59	117	59
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	24	349	40	60	554	53	54	104	42	60	118	60
Added Vol:	0	9	0	0	7	7	9	10	0	0	4	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	24	358	40	60	561	60	63	114	42	60	122	60
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	24	358	40	60	561	60	63	114	42	60	122	60
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	24	358	40	60	561	60	63	114	42	60	122	60
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	24	358	40	60	561	60	63	114	42	60	122	60

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.80	0.20	1.00	1.81	0.19	1.00	1.46	0.54	1.00	1.34	0.66
Final Sat.:	1600	2876	324	1600	2893	307	1600	2332	868	1600	2151	1049

Capacity Analysis Module:

Vol/Sat:	0.02	0.12	0.12	0.04	0.19	0.19	0.04	0.05	0.05	0.04	0.06	0.06
Crit Moves:	****			****			****			****		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
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 AM Peak Hour

Level of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #2 Broadway (NS) / Gardena Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.320
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxxx
 Optimal Cycle: 26 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	33	208	20	22	284	34	26	137	31	31	215	43
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	33	210	20	22	287	34	26	138	31	31	217	43
Added Vol:	0	0	0	0	0	0	0	10	0	0	4	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	33	210	20	22	287	34	26	148	31	31	221	43
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	33	210	20	22	287	34	26	148	31	31	221	43
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	33	210	20	22	287	34	26	148	31	31	221	43
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	33	210	20	22	287	34	26	148	31	31	221	43

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.82	0.18	1.00	1.79	0.21	1.00	1.65	0.35	1.00	1.67	0.33
Final Sat.:	1600	2919	281	1600	2858	342	1600	2642	558	1600	2675	525

Capacity Analysis Module:

Vol/Sat:	0.02	0.07	0.07	0.01	0.10	0.10	0.02	0.06	0.06	0.02	0.08	0.08
Crit Moves:	****			****			****			****		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #3 Main St (NS) / Gardena Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.369
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 27 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Permitted				Permitted				Permitted				Permitted							
Rights:	Include				Include				Include				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	2	0	1	1	0	2	0	1	1	0	1	1	0	1	0	1	1	0

Volume Module:

Base Vol:	92	454	63	46	397	48	27	109	39	49	156	31
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	93	459	64	46	401	48	27	110	39	49	158	31
Added Vol:	1	27	0	0	21	3	8	0	2	1	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	94	486	64	46	422	51	35	110	41	50	158	31
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	94	486	64	46	422	51	35	110	41	50	158	31
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	94	486	64	46	422	51	35	110	41	50	158	31
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	94	486	64	46	422	51	35	110	41	50	158	31

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.45	0.55	1.00	1.67	0.33
Final Sat.:	1600	3200	1600	1600	3200	1600	1600	2326	874	1600	2670	530

Capacity Analysis Module:

Vol/Sat:	0.06	0.15	0.04	0.03	0.13	0.03	0.02	0.05	0.05	0.03	0.06	0.06
Crit Moves:	****			****			****			****		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #4 Broadway (NS) / Albertoni St (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.373
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxxx
 Optimal Cycle: 28 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	33	208	44	42	183	86	31	221	38	81	431	36
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	33	210	44	42	185	87	31	223	38	82	435	36
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	33	210	44	42	185	87	31	223	38	82	435	36
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	33	210	44	42	185	87	31	223	38	82	435	36
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	33	210	44	42	185	87	31	223	38	82	435	36
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	33	210	44	42	185	87	31	223	38	82	435	36

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.65	0.35	1.00	1.36	0.64	1.00	1.71	0.29	1.00	1.85	0.15
Final Sat.:	1600	2641	559	1600	2177	1023	1600	2731	469	1600	2953	247

Capacity Analysis Module:

Vol/Sat:	0.02	0.08	0.08	0.03	0.08	0.08	0.02	0.08	0.08	0.05	0.15	0.15
Crit Moves:	****			****			****			****		

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #5 Main St (NS) / SR-91 WB Ramps (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.591
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 39 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Permitted				Protected				Permitted				Permitted							
Rights:	Include				Include				Include				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	2	0	1	1	0	1	1	0	0	0	0	1	0	0	1	0	0	1

Volume Module:

Base Vol:	1	465	83	92	409	4	0	1	4	392	1	427
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	1	470	84	93	413	4	0	1	4	396	1	431
Added Vol:	0	28	0	2	19	0	0	0	0	0	0	10
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	1	498	84	95	432	4	0	1	4	396	1	441
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	1	498	84	95	432	4	0	1	4	396	1	441
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1	498	84	95	432	4	0	1	4	396	1	441
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	1	498	84	95	432	4	0	1	4	396	1	441

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	1.98	0.02	0.00	0.20	0.80	0.99	0.01	1.00
Final Sat.:	1600	3200	1600	1600	3170	30	0	320	1280	1596	4	1600

Capacity Analysis Module:

Vol/Sat:	0.00	0.16	0.05	0.06	0.14	0.14	0.00	0.00	0.00	0.25	0.25	0.28
Crit Moves:	***			***			***			***		

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #6 Main St (NS) / Albertoni St (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.548
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxxx
 Optimal Cycle: 36 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	74	279	129	180	398	203	33	242	41	106	276	227
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	75	282	130	182	402	205	33	244	41	107	279	229
Added Vol:	0	22	0	3	16	0	0	0	0	0	0	6
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	75	304	130	185	418	205	33	244	41	107	279	235
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	75	304	130	185	418	205	33	244	41	107	279	235
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	75	304	130	185	418	205	33	244	41	107	279	235
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	75	304	130	185	418	205	33	244	41	107	279	235

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.40	0.60	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.08	0.92
Final Sat.:	1600	2240	960	1600	3200	1600	1600	3200	1600	1600	1735	1465

Capacity Analysis Module:

Vol/Sat:	0.05	0.14	0.14	0.12	0.13	0.13	0.02	0.08	0.03	0.07	0.16	0.16
Crit Moves:	***			***			***			***		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #7 SR-91 EB Ramps (NS) / Albertoni St (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.450
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 31 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Permitted				Permitted				Protected				Permitted							
Rights:	Include				Include				Include				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	0	0	1	0	0	0	1	2	0	2	0	0	0	0	2	0	1

Volume Module:

Base Vol:	0	0	0	192	0	209	256	282	0	0	419	82
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	0	0	0	194	0	211	259	285	0	0	423	83
Added Vol:	0	0	0	0	0	6	3	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	194	0	217	262	285	0	0	423	83
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	194	0	217	262	285	0	0	423	83
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	194	0	217	262	285	0	0	423	83
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	194	0	217	262	285	0	0	423	83

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	2.00	2.00	0.00	0.00	2.00	1.00
Final Sat.:	0	0	0	1600	0	1600	3200	3200	0	0	3200	1600

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.12	0.00	0.14	0.08	0.09	0.00	0.00	0.13	0.05
Crit Moves:				****		****	****			****		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Opening Year Conditions
 AM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #8 I-110 SB Ramps (NS) / Redondo Beach Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.714
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 52 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Split Phase				Split Phase				Permitted				Protected							
Rights:	Include				Include				Include				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	0	0	1	0	1	0	1	0	0	2	0	1	1	0	3	0	0

Volume Module:

Base Vol:	0	0	0	364	1	587	0	630	440	155	825	0
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	0	0	0	368	1	593	0	636	444	157	833	0
Added Vol:	0	0	0	61	0	0	0	14	0	40	10	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	429	1	593	0	650	444	197	843	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	429	1	593	0	650	444	197	843	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	429	1	593	0	650	444	197	843	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	429	1	593	0	650	444	197	843	0

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.25	0.01	1.74	0.00	2.00	1.00	1.00	3.00	0.00
Final Sat.:	0	0	0	2012	5	2783	0	3200	1600	1600	4800	0

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.21	0.21	0.21	0.00	0.20	0.28	0.12	0.18	0.00
Crit Moves:				****					****	****		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Opening Year Conditions
 AM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #9 I-110 NB Ramps (NS) / Redondo Beach Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.637
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxxx
 Optimal Cycle: 43 Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Ovl			Include			Ovl			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	1	0 0	1	0	0 1	1	0	2 0	1	0	2 1 0

Volume Module:

Base Vol:	326	8	294	4	3	14	16	668	337	257	617	6
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	329	8	297	4	3	14	16	675	340	260	623	6
Added Vol:	0	0	51	0	0	0	0	76	0	42	49	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	329	8	348	4	3	14	16	751	340	302	672	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	329	8	348	4	3	14	16	751	340	302	672	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	329	8	348	4	3	14	16	751	340	302	672	6
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	329	8	348	4	3	14	16	751	340	302	672	6
OvlAdjVol:			46						172			

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.95	0.05	1.00	0.57	0.43	1.00	1.00	2.00	1.00	1.00	2.97	0.03
Final Sat.:	3123	77	1600	914	686	1600	1600	3200	1600	1600	4757	43

Capacity Analysis Module:

Vol/Sat:	0.11	0.11	0.22	0.00	0.00	0.01	0.01	0.23	0.21	0.19	0.14	0.14
OvlAdjV/S:			0.03						0.11			
Crit Moves:	****					****	****			****		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Opening Year Conditions
 AM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #10 Figueroa St (NS) / Redondo Beach Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.620
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 42 Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Prot+Permit			Prot+Permit			Prot+Permit			Prot+Permit		
Rights:	Include			Ovl			Ovl			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	164	314	38	48	383	96	116	585	209	91	612	51
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	166	317	38	48	387	97	117	591	211	92	618	52
Added Vol:	2	0	0	0	0	0	0	120	7	0	90	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	168	317	38	48	387	97	117	711	218	92	708	52
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	168	317	38	48	387	97	117	711	218	92	708	52
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	168	317	38	48	387	97	117	711	218	92	708	52
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	168	317	38	48	387	97	117	711	218	92	708	52
OvlAdjVol:						0			50			3






















Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.78	0.22	1.00	2.00	1.00	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1600	2855	345	1600	3200	1600	1600	3200	1600	1600	3200	1600

Capacity Analysis Module:

Vol/Sat:	0.10	0.11	0.11	0.03	0.12	0.06	0.07	0.22	0.14	0.06	0.22	0.03
OvlAdjV/S:						0.00			0.03			0.00
Crit Moves:	****			****			****			****		













Lanes and Geometrics
5: Main St & SR-91 WB Ramps

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	90		50	155		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		0.887				0.850			0.850		0.998	
Flt Protected					0.952		0.950			0.950		
Satd. Flow (prot)	0	1652	0	0	1773	1583	1770	3539	1583	1770	3532	0
Flt Permitted					0.952		0.470			0.950		
Satd. Flow (perm)	0	1652	0	0	1773	1583	875	3539	1583	1770	3532	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				501			127			1
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		246			641			875			3052	
Travel Time (s)		5.6			14.6			19.9			69.4	

Intersection Summary

Area Type: Other

Volume
5: Main St & SR-91 WB Ramps

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	1	4	396	1	441	1	498	84	95	432	4
Future Volume (vph)	0	1	4	396	1	441	1	498	84	95	432	4
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	1	5	450	1	501	1	566	95	108	491	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	6	0	0	451	501	1	566	95	108	496	0
Intersection Summary												

Timings
5: Main St & SR-91 WB Ramps

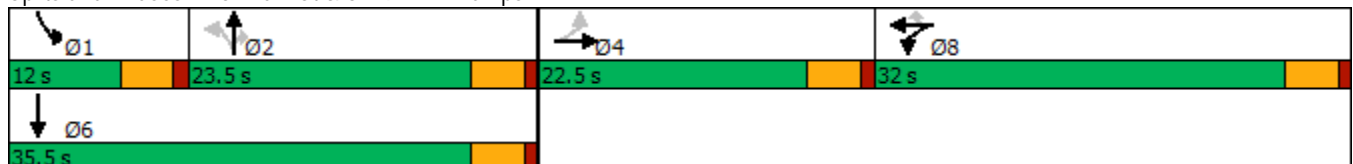


Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↗	↖	↑↑	↗	↖	↕
Traffic Volume (vph)	1	1	441	1	498	84	95	432
Future Volume (vph)	1	1	441	1	498	84	95	432
Turn Type	NA	NA	Perm	Perm	NA	Perm	Prot	NA
Protected Phases	4	8			2		1	6
Permitted Phases			8	2		2		
Detector Phase	4	8	8	2	2	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	9.5	22.5
Total Split (s)	22.5	32.0	32.0	23.5	23.5	23.5	12.0	35.5
Total Split (%)	25.0%	35.6%	35.6%	26.1%	26.1%	26.1%	13.3%	39.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag				Lag	Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	Max	Max	Max	None	Max
Act Effect Green (s)	5.8	23.3	23.3	19.4	19.4	19.4	7.5	31.4
Actuated g/C Ratio	0.09	0.35	0.35	0.30	0.30	0.30	0.11	0.48
v/c Ratio	0.04	0.72	0.57	0.00	0.54	0.17	0.54	0.29
Control Delay	22.2	26.2	4.7	21.0	23.3	3.5	41.9	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.2	26.2	4.7	21.0	23.3	3.5	41.9	12.5
LOS	C	C	A	C	C	A	D	B
Approach Delay	22.2	14.9			20.5			17.7
Approach LOS	C	B			C			B

Intersection Summary

Cycle Length: 90	
Actuated Cycle Length: 65.7	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 17.3	Intersection LOS: B
Intersection Capacity Utilization 58.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 5: Main St & SR-91 WB Ramps



Queues
5: Main St & SR-91 WB Ramps























Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	6	451	501	1	566	95	108	496
v/c Ratio	0.04	0.72	0.57	0.00	0.54	0.17	0.54	0.29
Control Delay	22.2	26.2	4.7	21.0	23.3	3.5	41.9	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.2	26.2	4.7	21.0	23.3	3.5	41.9	12.5
Queue Length 50th (ft)	0	143	0	0	99	0	41	60
Queue Length 95th (ft)	11	286	56	4	180	20	#116	121
Internal Link Dist (ft)	166	561			795			2972
Turn Bay Length (ft)				90		50	155	
Base Capacity (vph)	462	751	959	258	1044	556	204	1688
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.60	0.52	0.00	0.54	0.17	0.53	0.29

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
5: Main St & SR-91 WB Ramps

333 W. Gardena Blvd Project TIA
01/17/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	4	396	1	441	1	498	84	95	432	4
Future Volume (veh/h)	0	1	4	396	1	441	1	498	84	95	432	4
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	0	1	5	450	1	501	1	566	95	108	491	5
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	2	11	631	1	565	373	1064	476	138	1589	16
Arrive On Green	0.00	0.01	0.01	0.36	0.36	0.36	0.30	0.30	0.30	0.08	0.44	0.44
Sat Flow, veh/h	0	271	1353	1770	4	1583	898	3539	1583	1774	3589	37
Grp Volume(v), veh/h	0	0	6	451	0	501	1	566	95	108	242	254
Grp Sat Flow(s),veh/h/ln	0	0	1624	1774	0	1583	898	1770	1583	1774	1770	1856
Q Serve(g_s), s	0.0	0.0	0.3	15.4	0.0	20.9	0.1	9.3	3.1	4.2	6.2	6.2
Cycle Q Clear(g_c), s	0.0	0.0	0.3	15.4	0.0	20.9	0.1	9.3	3.1	4.2	6.2	6.2
Prop In Lane	0.00		0.83	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	0	0	13	633	0	565	373	1064	476	138	784	822
V/C Ratio(X)	0.00	0.00	0.47	0.71	0.00	0.89	0.00	0.53	0.20	0.78	0.31	0.31
Avail Cap(c_a), veh/h	0	0	418	697	0	622	373	1064	476	190	784	822
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	34.6	19.4	0.0	21.2	17.1	20.4	18.2	31.7	12.6	12.6
Incr Delay (d2), s/veh	0.0	0.0	24.5	3.1	0.0	13.8	0.0	1.9	0.9	13.3	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.2	8.1	0.0	11.2	0.0	4.8	1.5	2.5	3.2	3.4
LnGrp Delay(d),s/veh	0.0	0.0	59.0	22.5	0.0	35.0	17.2	22.3	19.2	45.0	13.6	13.6
LnGrp LOS			E	C		C	B	C	B	D	B	B
Approach Vol, veh/h		6			952			662			604	
Approach Delay, s/veh		59.0			29.1			21.8			19.2	
Approach LOS		E			C			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.0	25.5		5.1		35.5		29.5				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	7.5	19.0		18.0		31.0		27.5				
Max Q Clear Time (g_c+I1), s	6.2	11.3		2.3		8.2		22.9				
Green Ext Time (p_c), s	0.0	2.5		0.0		3.0		2.1				
Intersection Summary												
HCM 2010 Ctrl Delay			24.3									
HCM 2010 LOS			C									

Lanes and Geometrics
7: Albertoni St & SR-91 EB Ramps



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	200			50	0	0
Storage Lanes	2			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor						
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	3539	3539	1583	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				89		233
Link Speed (mph)		30	30		30	
Link Distance (ft)		930	527		334	
Travel Time (s)		21.1	12.0		7.6	

Intersection Summary

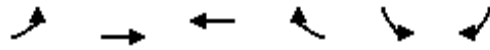
Area Type: Other

Volume
7: Albertoni St & SR-91 EB Ramps



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	262	285	423	83	194	217
Future Volume (vph)	262	285	423	83	194	217
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	282	306	455	89	209	233
Shared Lane Traffic (%)						
Lane Group Flow (vph)	282	306	455	89	209	233
Intersection Summary						

Timings
7: Albertoni St & SR-91 EB Ramps

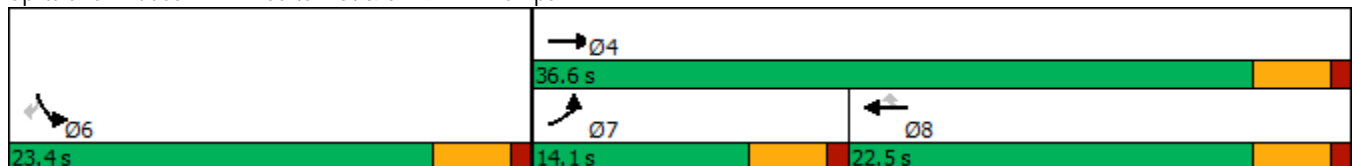


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↗↗	↑↑	↑↑	↖	↘	↘
Traffic Volume (vph)	262	285	423	83	194	217
Future Volume (vph)	262	285	423	83	194	217
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	14.1	36.6	22.5	22.5	23.4	23.4
Total Split (%)	23.5%	61.0%	37.5%	37.5%	39.0%	39.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effect Green (s)	8.8	26.3	12.9	12.9	19.0	19.0
Actuated g/C Ratio	0.16	0.48	0.24	0.24	0.35	0.35
v/c Ratio	0.51	0.18	0.54	0.20	0.34	0.33
Control Delay	25.0	7.9	20.6	5.7	16.3	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.0	7.9	20.6	5.7	16.3	4.1
LOS	C	A	C	A	B	A
Approach Delay		16.1	18.1		9.9	
Approach LOS		B	B		A	

Intersection Summary

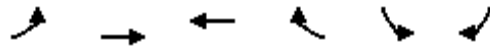
Cycle Length: 60	
Actuated Cycle Length: 54.4	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.54	
Intersection Signal Delay: 15.1	Intersection LOS: B
Intersection Capacity Utilization 41.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 7: Albertoni St & SR-91 EB Ramps



Queues

7: Albertoni St & SR-91 EB Ramps



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	282	306	455	89	209	233
v/c Ratio	0.51	0.18	0.54	0.20	0.34	0.33
Control Delay	25.0	7.9	20.6	5.7	16.3	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.0	7.9	20.6	5.7	16.3	4.1
Queue Length 50th (ft)	43	26	68	0	50	0
Queue Length 95th (ft)	81	44	105	26	108	41
Internal Link Dist (ft)		850	447		254	
Turn Bay Length (ft)	200			50		
Base Capacity (vph)	610	2102	1178	586	618	705
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.15	0.39	0.15	0.34	0.33
Intersection Summary						

HCM 2010 Signalized Intersection Summary
7: Albertoni St & SR-91 EB Ramps

333 W. Gardena Blvd Project TIA
01/17/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	262	285	423	83	194	217		
Future Volume (veh/h)	262	285	423	83	194	217		
Number	7	4	8	18	1	16		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	282	306	455	89	209	233		
Adj No. of Lanes	2	2	2	1	1	1		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	426	1502	735	329	692	617		
Arrive On Green	0.12	0.42	0.21	0.21	0.39	0.39		
Sat Flow, veh/h	3442	3632	3632	1583	1774	1583		
Grp Volume(v), veh/h	282	306	455	89	209	233		
Grp Sat Flow(s),veh/h/ln	1721	1770	1770	1583	1774	1583		
Q Serve(g_s), s	3.8	2.6	5.7	2.3	3.9	5.1		
Cycle Q Clear(g_c), s	3.8	2.6	5.7	2.3	3.9	5.1		
Prop In Lane	1.00			1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	426	1502	735	329	692	617		
V/C Ratio(X)	0.66	0.20	0.62	0.27	0.30	0.38		
Avail Cap(c_a), veh/h	682	2344	1314	588	692	617		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	20.3	8.8	17.5	16.1	10.2	10.6		
Incr Delay (d2), s/veh	1.8	0.1	0.9	0.4	1.1	1.8		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.9	1.3	2.9	1.0	2.1	2.5		
LnGrp Delay(d),s/veh	22.0	8.9	18.3	16.6	11.3	12.3		
LnGrp LOS	C	A	B	B	B	B		
Approach Vol, veh/h		588	544		442			
Approach Delay, s/veh		15.2	18.0		11.9			
Approach LOS		B	B		B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				25.1		23.4	10.5	14.6
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				32.1		18.9	9.6	18.0
Max Q Clear Time (g_c+I1), s				4.6		7.1	5.8	7.7
Green Ext Time (p_c), s				2.0		1.2	0.4	2.4
Intersection Summary								
HCM 2010 Ctrl Delay			15.2					
HCM 2010 LOS			B					

Lanes and Geometrics
 8: I-110 SB Ramps & Redondo Beach Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↘	↑↑↑					↘	↕	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		310	225		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	1.00	1.00	0.95	0.91	0.95
Ped Bike Factor			0.850								0.883	0.850
Flt Protected				0.950						0.950	0.989	
Satd. Flow (prot)	0	3539	1583	1770	5085	0	0	0	0	1681	1480	1504
Flt Permitted				0.950						0.950	0.989	
Satd. Flow (perm)	0	3539	1583	1770	5085	0	0	0	0	1681	1480	1504
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			467								126	126
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		675			491			369			400	
Travel Time (s)		15.3			11.2			8.4			9.1	

Intersection Summary

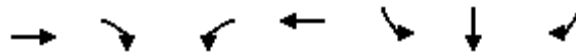
Area Type: Other

Volume
8: I-110 SB Ramps & Redondo Beach Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	650	444	197	843	0	0	0	0	429	1	593
Future Volume (vph)	0	650	444	197	843	0	0	0	0	429	1	593
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	684	467	207	887	0	0	0	0	452	1	624
Shared Lane Traffic (%)										17%		44%
Lane Group Flow (vph)	0	684	467	207	887	0	0	0	0	375	353	349
Intersection Summary												

Timings
8: I-110 SB Ramps & Redondo Beach Blvd

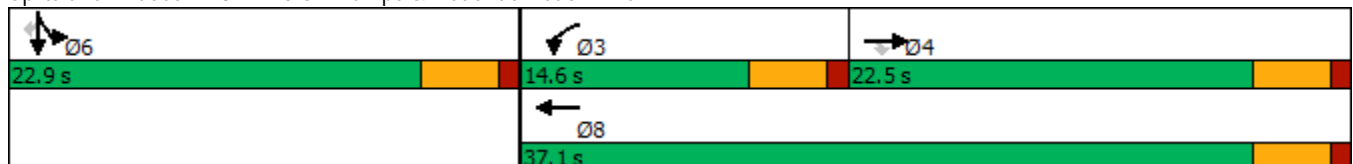


Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Configurations	↑↑	↑	↵	↑↑↑	↵	↕	↑
Traffic Volume (vph)	650	444	197	843	429	1	593
Future Volume (vph)	650	444	197	843	429	1	593
Turn Type	NA	Perm	Prot	NA	Split	NA	Perm
Protected Phases	4		3	8	6	6	
Permitted Phases		4					6
Detector Phase	4	4	3	8	6	6	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5	14.6	37.1	22.9	22.9	22.9
Total Split (%)	37.5%	37.5%	24.3%	61.8%	38.2%	38.2%	38.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Max	Max	Max
Act Effect Green (s)	17.0	17.0	9.6	31.1	18.5	18.5	18.5
Actuated g/C Ratio	0.29	0.29	0.16	0.53	0.32	0.32	0.32
v/c Ratio	0.67	0.59	0.72	0.33	0.71	0.64	0.62
Control Delay	22.0	5.5	39.8	8.1	27.7	17.5	16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.0	5.5	39.8	8.1	27.7	17.5	16.9
LOS	C	A	D	A	C	B	B
Approach Delay	15.3			14.1		20.9	
Approach LOS	B			B		C	

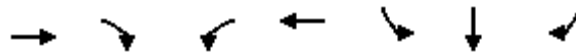
Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 58.6
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.72
 Intersection Signal Delay: 16.7
 Intersection LOS: B
 Intersection Capacity Utilization 67.6%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 8: I-110 SB Ramps & Redondo Beach Blvd



Queues
8: I-110 SB Ramps & Redondo Beach Blvd















Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	684	467	207	887	375	353	349
v/c Ratio	0.67	0.59	0.72	0.33	0.71	0.64	0.62
Control Delay	22.0	5.5	39.8	8.1	27.7	17.5	16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.0	5.5	39.8	8.1	27.7	17.5	16.9
Queue Length 50th (ft)	111	0	72	58	125	73	68
Queue Length 95th (ft)	162	58	#157	80	#247	163	152
Internal Link Dist (ft)	595			411		320	
Turn Bay Length (ft)		310	225				
Base Capacity (vph)	1090	810	305	2837	529	552	560
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.58	0.68	0.31	0.71	0.64	0.62

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 8: I-110 SB Ramps & Redondo Beach Blvd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑↑					↑	↑	↑
Traffic Volume (veh/h)	0	650	444	197	843	0	0	0	0	429	1	593
Future Volume (veh/h)	0	650	444	197	843	0	0	0	0	429	1	593
Number	7	4	14	3	8	18				1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	684	467	207	887	0				673	0	388
Adj No. of Lanes	0	2	1	1	3	0				2	0	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1093	489	255	2694	0				1120	0	500
Arrive On Green	0.00	0.31	0.31	0.14	0.53	0.00				0.32	0.00	0.32
Sat Flow, veh/h	0	3632	1583	1774	5253	0				3548	0	1583
Grp Volume(v), veh/h	0	684	467	207	887	0				673	0	388
Grp Sat Flow(s),veh/h/ln	0	1770	1583	1774	1695	0				1774	0	1583
Q Serve(g_s), s	0.0	9.6	16.8	6.6	5.8	0.0				9.3	0.0	12.9
Cycle Q Clear(g_c), s	0.0	9.6	16.8	6.6	5.8	0.0				9.3	0.0	12.9
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1093	489	255	2694	0				1120	0	500
V/C Ratio(X)	0.00	0.63	0.95	0.81	0.33	0.00				0.60	0.00	0.78
Avail Cap(c_a), veh/h	0	1093	489	307	2845	0				1120	0	500
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	17.3	19.7	24.2	7.8	0.0				16.8	0.0	18.1
Incr Delay (d2), s/veh	0.0	1.1	29.5	12.9	0.1	0.0				2.4	0.0	11.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.8	11.3	4.1	2.7	0.0				5.0	0.0	7.2
LnGrp Delay(d),s/veh	0.0	18.4	49.3	37.1	7.9	0.0				19.2	0.0	29.3
LnGrp LOS		B	D	D	A					B		C
Approach Vol, veh/h		1151			1094						1061	
Approach Delay, s/veh		30.9			13.4						22.9	
Approach LOS		C			B						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			12.9	22.5		22.9		35.4				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			10.1	18.0		18.4		32.6				
Max Q Clear Time (g_c+I1), s			8.6	18.8		14.9		7.8				
Green Ext Time (p_c), s			0.1	0.0		1.5		6.8				
Intersection Summary												
HCM 2010 Ctrl Delay			22.5									
HCM 2010 LOS			C									
Notes												

Lanes and Geometrics
 9: I-110 SB Ramps & Redondo Beach Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%				0%
Storage Length (ft)	60		290	170		0	0		0	0		0
Storage Lanes	1		1	1		0	1		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850		0.999				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.954			0.972	
Satd. Flow (prot)	1770	3539	1583	1770	5080	0	1681	1688	1583	0	1811	1583
Flt Permitted	0.950			0.950			0.950	0.954			0.879	
Satd. Flow (perm)	1770	3539	1583	1770	5080	0	1681	1688	1583	0	1637	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			354		1				363			182
Link Speed (mph)		30			30			30				30
Link Distance (ft)		491			442			253				82
Travel Time (s)		11.2			10.0			5.8				1.9

Intersection Summary

Area Type: Other

Volume
9: I-110 SB Ramps & Redondo Beach Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	16	751	340	302	672	6	329	8	348	4	3	14
Future Volume (vph)	16	751	340	302	672	6	329	8	348	4	3	14
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	17	782	354	315	700	6	343	8	363	4	3	15
Shared Lane Traffic (%)							49%					
Lane Group Flow (vph)	17	782	354	315	706	0	175	176	363	0	7	15
Intersection Summary												

Timings
9: I-110 SB Ramps & Redondo Beach Blvd

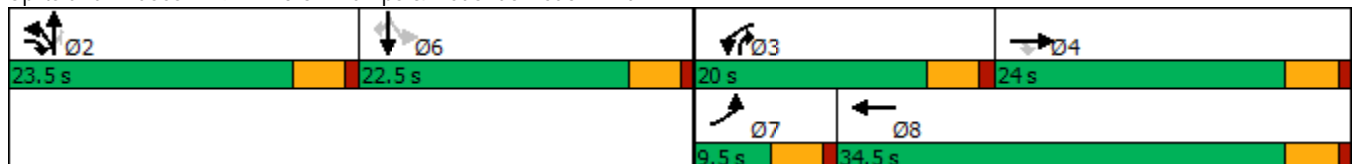


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	16	751	340	302	672	329	8	348	4	3	14
Future Volume (vph)	16	751	340	302	672	329	8	348	4	3	14
Turn Type	Prot	NA	pm+ov	Prot	NA	Split	NA	pm+ov	Perm	NA	Perm
Protected Phases	7	4	2	3	8	2	2	3		6	
Permitted Phases			4					2	6		6
Detector Phase	7	4	2	3	8	2	2	3	6	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	9.5	24.0	23.5	20.0	34.5	23.5	23.5	20.0	22.5	22.5	22.5
Total Split (%)	10.6%	26.7%	26.1%	22.2%	38.3%	26.1%	26.1%	22.2%	25.0%	25.0%	25.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5
Lead/Lag	Lead	Lag		Lead	Lag			Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes			
Recall Mode	None	None	Max	None	None	Max	Max	None	Max	Max	Max
Act Effect Green (s)	5.0	19.5	43.0	15.5	35.7	19.0	19.0	34.5		18.0	18.0
Actuated g/C Ratio	0.06	0.22	0.48	0.17	0.40	0.21	0.21	0.38		0.20	0.20
v/c Ratio	0.17	1.02	0.38	1.04	0.35	0.49	0.49	0.44		0.02	0.03
Control Delay	44.8	74.2	2.8	100.0	20.4	36.8	36.8	2.8		29.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	44.8	74.2	2.8	100.0	20.4	36.8	36.8	2.8		29.3	0.1
LOS	D	E	A	F	C	D	D	A		C	A
Approach Delay		51.8			45.0		19.5			9.4	
Approach LOS		D			D		B			A	

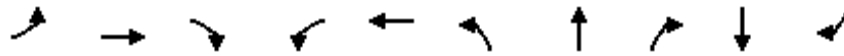
Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.04
 Intersection Signal Delay: 41.2
 Intersection LOS: D
 Intersection Capacity Utilization 64.7%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 9: I-110 SB Ramps & Redondo Beach Blvd



Queues
9: I-110 SB Ramps & Redondo Beach Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	17	782	354	315	706	175	176	363	7	15
v/c Ratio	0.17	1.02	0.38	1.04	0.35	0.49	0.49	0.44	0.02	0.03
Control Delay	44.8	74.2	2.8	100.0	20.4	36.8	36.8	2.8	29.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.8	74.2	2.8	100.0	20.4	36.8	36.8	2.8	29.3	0.1
Queue Length 50th (ft)	9	~242	0	~194	92	92	93	0	3	0
Queue Length 95th (ft)	31	#366	44	#356	146	161	162	24	15	0
Internal Link Dist (ft)		411			362		173		2	
Turn Bay Length (ft)	60		290	170						
Base Capacity (vph)	98	766	941	304	2016	354	356	830	327	462
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	1.02	0.38	1.04	0.35	0.49	0.49	0.44	0.02	0.03

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 9: I-110 SB Ramps & Redondo Beach Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	751	340	302	672	6	329	8	348	4	3	14
Future Volume (veh/h)	16	751	340	302	672	6	329	8	348	4	3	14
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	17	782	354	315	700	6	349	0	362	4	3	15
Adj No. of Lanes	1	2	1	1	3	0	2	0	1	0	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	34	767	677	306	1922	16	749	0	607	207	155	317
Arrive On Green	0.02	0.22	0.22	0.17	0.37	0.37	0.21	0.00	0.21	0.20	0.20	0.20
Sat Flow, veh/h	1774	3539	1583	1774	5201	45	3548	0	1583	1035	776	1583
Grp Volume(v), veh/h	17	782	354	315	456	250	349	0	362	7	0	15
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1695	1855	1774	0	1583	1811	0	1583
Q Serve(g_s), s	0.9	19.5	14.8	15.5	8.8	8.8	7.7	0.0	16.5	0.3	0.0	0.7
Cycle Q Clear(g_c), s	0.9	19.5	14.8	15.5	8.8	8.8	7.7	0.0	16.5	0.3	0.0	0.7
Prop In Lane	1.00		1.00	1.00		0.02	1.00		1.00	0.57		1.00
Lane Grp Cap(c), veh/h	34	767	677	306	1253	686	749	0	607	362	0	317
V/C Ratio(X)	0.50	1.02	0.52	1.03	0.36	0.36	0.47	0.00	0.60	0.02	0.00	0.05
Avail Cap(c_a), veh/h	99	767	677	306	1253	686	749	0	607	362	0	317
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.7	35.3	19.0	37.3	20.7	20.7	31.1	0.0	22.2	28.9	0.0	29.1
Incr Delay (d2), s/veh	10.8	37.6	0.7	59.7	0.2	0.3	2.1	0.0	4.3	0.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	13.5	8.9	12.6	4.1	4.6	4.0	0.0	7.9	0.1	0.0	0.3
LnGrp Delay(d),s/veh	54.5	72.8	19.7	97.0	20.8	21.0	33.1	0.0	26.5	29.0	0.0	29.4
LnGrp LOS	D	F	B	F	C	C	C		C	C		C
Approach Vol, veh/h		1153			1021			711				22
Approach Delay, s/veh		56.2			44.4			29.7				29.2
Approach LOS		E			D			C				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.5	20.0	24.0		22.5	6.2	37.8				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		19.0	15.5	19.5		18.0	5.0	30.0				
Max Q Clear Time (g_c+I1), s		18.5	17.5	21.5		2.7	2.9	10.8				
Green Ext Time (p_c), s		0.2	0.0	0.0		0.0	0.0	4.5				
Intersection Summary												
HCM 2010 Ctrl Delay			45.4									
HCM 2010 LOS			D									
Notes												

Lanes and Geometrics
 11: Figueroa St & 164th St



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	50	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Ped Bike Factor						
Frt	0.952		0.997			
Flt Protected	0.969				0.950	
Satd. Flow (prot)	1718	0	3529	0	1770	3539
Flt Permitted	0.969				0.950	
Satd. Flow (perm)	1718	0	3529	0	1770	3539
Link Speed (mph)	30		30			30
Link Distance (ft)	648		333			3650
Travel Time (s)	14.7		7.6			83.0

Intersection Summary

Area Type: Other

Volume
11: Figueroa St & 164th St



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Volume (vph)	8	5	483	10	5	690
Future Volume (vph)	8	5	483	10	5	690
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	9	5	531	11	5	758
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	0	542	0	5	758
Intersection Summary						

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕		↔	↕
Traffic Vol, veh/h	8	5	483	10	5	690
Future Vol, veh/h	8	5	483	10	5	690
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	5	531	11	5	758

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	926	271	0	0	542	0
Stage 1	537	-	-	-	-	-
Stage 2	389	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	268	727	-	-	1023	-
Stage 1	550	-	-	-	-	-
Stage 2	654	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	267	727	-	-	1023	-
Mov Cap-2 Maneuver	392	-	-	-	-	-
Stage 1	550	-	-	-	-	-
Stage 2	651	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.8	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	476	1023
HCM Lane V/C Ratio	-	-	0.03	0.005
HCM Control Delay (s)	-	-	12.8	8.5
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Lanes and Geometrics
 12: Gardena Blvd & 164th St

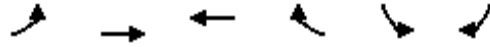


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt					0.929	
Flt Protected					0.977	
Satd. Flow (prot)	0	3539	3539	0	1691	0
Flt Permitted					0.977	
Satd. Flow (perm)	0	3539	3539	0	1691	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		645	84		308	
Travel Time (s)		14.7	1.9		7.0	

Intersection Summary

Area Type: Other

Volume
12: Gardena Blvd & 164th St



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	0	214	289	0	7	8
Future Volume (vph)	0	214	289	0	7	8
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	233	314	0	8	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	233	314	0	17	0
Intersection Summary						

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑	
Traffic Vol, veh/h	0	214	289	0	7	8
Future Vol, veh/h	0	214	289	0	7	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	233	314	0	8	9

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	314	0	-	0	431 157
Stage 1	-	-	-	-	314 -
Stage 2	-	-	-	-	117 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	1243	-	-	-	553 861
Stage 1	-	-	-	-	714 -
Stage 2	-	-	-	-	895 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1243	-	-	-	553 861
Mov Cap-2 Maneuver	-	-	-	-	553 -
Stage 1	-	-	-	-	714 -
Stage 2	-	-	-	-	895 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1243	-	-	-	683
HCM Lane V/C Ratio	-	-	-	-	0.024
HCM Control Delay (s)	0	-	-	-	10.4
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lanes and Geometrics
 13: Gardena Blvd & Project Dwy 1

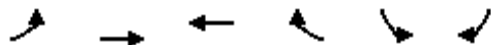


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected						
Satd. Flow (prot)	0	3539	3539	0	1863	0
Flt Permitted						
Satd. Flow (perm)	0	3539	3539	0	1863	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		84	366		132	
Travel Time (s)		1.9	8.3		3.0	

Intersection Summary

Area Type: Other

Volume
13: Gardena Blvd & Project Dwy 1



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	0	214	289	0	0	0
Future Volume (vph)	0	214	289	0	0	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	233	314	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	233	314	0	0	0
Intersection Summary						

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑	
Traffic Vol, veh/h	0	214	289	0	0	0
Future Vol, veh/h	0	214	289	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	233	314	0	0	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	314	0	-	0	431 157
Stage 1	-	-	-	-	314 -
Stage 2	-	-	-	-	117 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	1243	-	-	-	553 861
Stage 1	-	-	-	-	714 -
Stage 2	-	-	-	-	895 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1243	-	-	-	553 861
Mov Cap-2 Maneuver	-	-	-	-	553 -
Stage 1	-	-	-	-	714 -
Stage 2	-	-	-	-	895 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1243	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Lanes and Geometrics
 14: Gardena Blvd & Project Dwy 2



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Flt						
Flt Protected						
Satd. Flow (prot)	0	3539	3539	0	1863	0
Flt Permitted						
Satd. Flow (perm)	0	3539	3539	0	1863	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		366	224		428	
Travel Time (s)		8.3	5.1		9.7	

Intersection Summary

Area Type: Other

Volume
 14: Gardena Blvd & Project Dwy 2



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	0	214	289	0	0	0
Future Volume (vph)	0	214	289	0	0	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	233	314	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	233	314	0	0	0
Intersection Summary						

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑	
Traffic Vol, veh/h	0	214	289	0	0	0
Future Vol, veh/h	0	214	289	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	233	314	0	0	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	314	0	-	0	431 157
Stage 1	-	-	-	-	314 -
Stage 2	-	-	-	-	117 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	1243	-	-	-	553 861
Stage 1	-	-	-	-	714 -
Stage 2	-	-	-	-	895 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1243	-	-	-	553 861
Mov Cap-2 Maneuver	-	-	-	-	553 -
Stage 1	-	-	-	-	714 -
Stage 2	-	-	-	-	895 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1243	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

333 W. Gardena Blvd Industrial Project Preliminary TIA
Opening Year Conditions
PM Peak Hour

Scenario Report

Scenario: OY+C_PM
Command: OY+C_PM
Volume: EX_PM
Geometry: EX
Impact Fee: Default Impact Fee
Trip Generation: C_PM
Trip Distribution: DEFAULT
Paths: Default Path
Routes: Default Route
Configuration: OY

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Opening Year Conditions
 PM Peak Hour

Trip Generation Report

Forecast for C_PM

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
101		1.00	TAZ 1	11.00	22.00	11	22	33	6.3
	Zone 101 Subtotal		.....			11	22	33	6.3
102		1.00	TAZ 2	5.00	34.00	5	34	39	7.5
	Zone 102 Subtotal		.....			5	34	39	7.5
103		1.00	TAZ 3	14.00	0.00	14	0	14	2.7
	Zone 103 Subtotal		.....			14	0	14	2.7
104		1.00	TAZ 4	168.00	208.00	168	208	376	71.9
	Zone 104 Subtotal		.....			168	208	376	71.9
105		1.00	TAZ 5	15.00	46.00	15	46	61	11.7
	Zone 105 Subtotal		.....			15	46	61	11.7

TOTAL						213	310	523	100.0

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Opening Year Conditions
 PM Peak Hour

Turning Movement Report
 C_PM

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#1 Figueroa St (NS) / Gardena Blvd (EW)													
Base	55	717	87	69	600	54	93	340	67	82	178	92	2432
Added	0	8	0	0	10	10	8	4	0	0	10	0	50
Total	55	725	87	69	610	64	101	344	67	82	188	92	2482
#2 Broadway (NS) / Gardena Blvd (EW)													
Base	56	510	69	25	377	34	57	365	45	31	278	45	1892
Added	0	0	0	0	0	0	0	4	0	0	10	0	14
Total	56	510	69	25	377	34	57	369	45	31	288	45	1906
#3 Main St (NS) / Gardena Blvd (EW)													
Base	83	746	144	39	470	43	67	352	57	80	222	68	2371
Added	2	25	1	0	30	8	3	0	1	1	0	0	71
Total	85	771	145	39	500	51	70	352	58	81	222	68	2442
#4 Broadway (NS) / Albertoni St (EW)													
Base	38	292	80	75	382	57	134	719	118	52	289	38	2274
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	38	292	80	75	382	57	134	719	118	52	289	38	2274
#5 Main St (NS) / SR-91 WB Ramps (EW)													
Base	2	618	75	147	691	1	0	0	5	223	0	287	2049
Added	0	22	0	6	35	0	0	0	0	0	0	4	67
Total	2	640	75	153	726	1	0	0	5	223	0	291	2116
#6 Main St (NS) / Albertoni St (EW)													
Base	79	339	175	220	542	82	63	641	147	148	232	305	2974
Added	0	19	0	10	25	0	0	0	0	0	0	3	57
Total	79	358	175	230	567	82	63	641	147	148	232	308	3031
#7 SR-91 EB Ramps (NS) / Albertoni St (EW)													
Base	0	0	0	613	0	496	234	987	0	0	337	55	2722
Added	0	0	0	0	0	3	10	0	0	0	0	0	13
Total	0	0	0	613	0	499	244	987	0	0	337	55	2735
#8 I-110 SB Ramps (NS) / Redondo Beach Blvd (EW)													
Base	0	0	0	456	1	529	0	1111	279	131	929	0	3436
Added	0	0	0	50	0	0	0	11	0	59	16	0	136
Total	0	0	0	506	1	529	0	1122	279	190	945	0	3572
#9 I-110 NB Ramps (NS) / Redondo Beach Blvd (EW)													
Base	338	0	336	17	9	21	13	1085	480	320	698	3	3321
Added	0	0	47	0	0	0	0	61	0	69	75	0	252
Total	338	0	383	17	9	21	13	1146	480	389	773	3	3573

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Opening Year Conditions
 PM Peak Hour

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#10 Figueroa St (NS) / Redondo Beach Blvd (EW)													
Base	224	518	155	81	479	126	112	1112	187	47	683	55	3778
Added	7	0	0	0	0	0	0	105	2	0	137	0	251
Total	231	518	155	81	479	126	112	1217	189	47	820	55	4029
#11 Figueroa St (NS) / 164th St (EW)													
Base	0	883	5	1	773	0	0	0	0	3	0	9	1674
Added	0	17	0	0	21	0	0	0	0	0	0	0	38
Total	0	900	5	1	794	0	0	0	0	3	0	9	1712
#12 164th St (NS) / Gardena Blvd (EW)													
Base	0	0	0	3	0	3	0	496	0	0	368	0	870
Added	0	0	0	0	0	0	0	4	0	0	10	0	14
Total	0	0	0	3	0	3	0	500	0	0	378	0	884
#13 Project Dwy 1 (NS) / Gardena Blvd (EW)													
Base	0	0	0	0	0	0	0	496	0	0	368	0	864
Added	0	0	0	0	0	0	0	4	0	0	10	0	14
Total	0	0	0	0	0	0	0	500	0	0	378	0	878
#14 Project Dwy 2 (NS) / Gardena Blvd (EW)													
Base	0	0	0	0	0	0	0	496	0	0	368	0	864
Added	0	0	0	0	0	0	0	4	0	0	10	0	14
Total	0	0	0	0	0	0	0	500	0	0	378	0	878

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Opening Year Conditions
 PM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #1 Figueroa St (NS) / Gardena Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.576
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxxx
 Optimal Cycle: 38 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	54	710	86	68	594	53	92	337	66	81	176	91
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	55	717	87	69	600	54	93	340	67	82	178	92
Added Vol:	0	8	0	0	10	10	8	4	0	0	10	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	55	725	87	69	610	64	101	344	67	82	188	92
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	55	725	87	69	610	64	101	344	67	82	188	92
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	55	725	87	69	610	64	101	344	67	82	188	92
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	55	725	87	69	610	64	101	344	67	82	188	92

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.79	0.21	1.00	1.81	0.19	1.00	1.68	0.32	1.00	1.34	0.66
Final Sat.:	1600	2858	342	1600	2898	302	1600	2681	519	1600	2148	1052

Capacity Analysis Module:

Vol/Sat:	0.03	0.25	0.25	0.04	0.21	0.21	0.06	0.13	0.13	0.05	0.09	0.09
Crit Moves:	****			****			****			****		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Opening Year Conditions
 PM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #2 Broadway (NS) / Gardena Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.446
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxxx
 Optimal Cycle: 31 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	55	505	68	25	373	34	56	361	45	31	275	45
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	56	510	69	25	377	34	57	365	45	31	278	45
Added Vol:	0	0	0	0	0	0	0	4	0	0	10	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	56	510	69	25	377	34	57	369	45	31	288	45
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	56	510	69	25	377	34	57	369	45	31	288	45
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	56	510	69	25	377	34	57	369	45	31	288	45
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	56	510	69	25	377	34	57	369	45	31	288	45

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.76	0.24	1.00	1.83	0.17	1.00	1.78	0.22	1.00	1.73	0.27
Final Sat.:	1600	2820	380	1600	2933	267	1600	2849	351	1600	2764	436

Capacity Analysis Module:

Vol/Sat:	0.03	0.18	0.18	0.02	0.13	0.13	0.04	0.13	0.13	0.02	0.10	0.10
Crit Moves:	****			****			****			****		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Opening Year Conditions
 PM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #3 Main St (NS) / Gardena Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.544
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 36 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	2	0	1	1	0	1	1	0	1	1

Volume Module:

Base Vol:	82	739	143	39	465	43	66	349	56	79	220	67
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	83	746	144	39	470	43	67	352	57	80	222	68
Added Vol:	2	25	1	0	30	8	3	0	1	1	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	85	771	145	39	500	51	70	352	58	81	222	68
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	85	771	145	39	500	51	70	352	58	81	222	68
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	85	771	145	39	500	51	70	352	58	81	222	68
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	85	771	145	39	500	51	70	352	58	81	222	68

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.72	0.28	1.00	1.53	0.47
Final Sat.:	1600	3200	1600	1600	3200	1600	1600	2751	449	1600	2453	747

Capacity Analysis Module:

Vol/Sat:	0.05	0.24	0.09	0.02	0.16	0.03	0.04	0.13	0.13	0.05	0.09	0.09
Crit Moves:	****			****			****			****		

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #4 Broadway (NS) / Albertoni St (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.557
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 37 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	38	289	79	74	378	56	133	712	117	51	286	38
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	38	292	80	75	382	57	134	719	118	52	289	38
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	38	292	80	75	382	57	134	719	118	52	289	38
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	38	292	80	75	382	57	134	719	118	52	289	38
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	38	292	80	75	382	57	134	719	118	52	289	38
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	38	292	80	75	382	57	134	719	118	52	289	38

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.57	0.43	1.00	1.74	0.26	1.00	1.72	0.28	1.00	1.77	0.23
Final Sat.:	1600	2513	687	1600	2787	413	1600	2748	452	1600	2825	375

Capacity Analysis Module:

Vol/Sat:	0.02	0.12	0.12	0.05	0.14	0.14	0.08	0.26	0.26	0.03	0.10	0.10
Crit Moves:	****			****			****			****		

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #5 Main St (NS) / SR-91 WB Ramps (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.578
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 38 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Permitted				Protected				Permitted				Permitted							
Rights:	Include				Include				Include				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	2	0	1	1	0	1	1	0	0	0	0	0	1	0	1	0	0	1

Volume Module:

Base Vol:	2	612	74	146	684	1	0	0	5	221	0	284
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	2	618	75	147	691	1	0	0	5	223	0	287
Added Vol:	0	22	0	6	35	0	0	0	0	0	0	4
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	2	640	75	153	726	1	0	0	5	223	0	291
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	2	640	75	153	726	1	0	0	5	223	0	291
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	2	640	75	153	726	1	0	0	5	223	0	291
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	2	640	75	153	726	1	0	0	5	223	0	291

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	1.99	0.01	0.00	0.00	1.00	1.00	0.00	1.00
Final Sat.:	1600	3200	1600	1600	3196	4	0	0	1600	1600	0	1600

Capacity Analysis Module:

Vol/Sat:	0.00	0.20	0.05	0.10	0.23	0.23	0.00	0.00	0.00	0.14	0.00	0.18
Crit Moves:	***			***			***			***		

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #6 Main St (NS) / Albertoni St (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.737
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 55 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Split Phase				Split Phase				Permitted				Permitted							
Rights:	Include				Include				Include				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	0	2	0	1	1	0	2	0	1	1	0	1	1	0

Volume Module:

Base Vol:	78	336	173	218	537	81	62	635	146	147	230	302
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	79	339	175	220	542	82	63	641	147	148	232	305
Added Vol:	0	19	0	10	25	0	0	0	0	0	0	3
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	79	358	175	230	567	82	63	641	147	148	232	308
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	79	358	175	230	567	82	63	641	147	148	232	308
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	79	358	175	230	567	82	63	641	147	148	232	308
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	79	358	175	230	567	82	63	641	147	148	232	308

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.34	0.66	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00
Final Sat.:	1600	2151	1049	1600	3200	1600	1600	3200	1600	1600	1600	1600

Capacity Analysis Module:

Vol/Sat:	0.05	0.17	0.17	0.14	0.18	0.05	0.04	0.20	0.09	0.09	0.15	0.19
Crit Moves:			****		****			****		****		

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #7 SR-91 EB Ramps (NS) / Albertoni St (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.792
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxxx
 Optimal Cycle: 98 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Permitted				Permitted				Protected				Permitted							
Rights:	Include				Include				Include				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	0	0	1	0	0	0	1	2	0	2	0	0	0	0	2	0	1

Volume Module:

Base Vol:	0	0	0	607	0	491	232	977	0	0	334	54
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	0	0	0	613	0	496	234	987	0	0	337	55
Added Vol:	0	0	0	0	0	3	10	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	613	0	499	244	987	0	0	337	55
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	613	0	499	244	987	0	0	337	55
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	613	0	499	244	987	0	0	337	55
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	613	0	499	244	987	0	0	337	55

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	2.00	2.00	0.00	0.00	2.00	1.00
Final Sat.:	0	0	0	1600	0	1600	3200	3200	0	0	3200	1600

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.38	0.00	0.31	0.08	0.31	0.00	0.00	0.11	0.03
Crit Moves:				****				****				

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #8 I-110 SB Ramps (NS) / Redondo Beach Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.785
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxxx
 Optimal Cycle: 64 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Split Phase				Split Phase				Permitted				Protected							
Rights:	Include				Include				Include				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	0	0	1	0	1	0	1	0	0	2	0	1	1	0	3	0	0

Volume Module:

Base Vol:	0	0	0	451	1	524	0	1100	276	130	920	0
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	0	0	0	456	1	529	0	1111	279	131	929	0
Added Vol:	0	0	0	50	0	0	0	11	0	59	16	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	506	1	529	0	1122	279	190	945	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	506	1	529	0	1122	279	190	945	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	506	1	529	0	1122	279	190	945	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	506	1	529	0	1122	279	190	945	0

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.46	0.01	1.53	0.00	2.00	1.00	1.00	3.00	0.00
Final Sat.:	0	0	0	2343	5	2453	0	3200	1600	1600	4800	0

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.22	0.22	0.22	0.00	0.35	0.17	0.12	0.20	0.00
Crit Moves:				****			****			****		

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #9 I-110 NB Ramps (NS) / Redondo Beach Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.823
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 72 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound										
Movement:	L	T	R	L	T	R	L	T	R	L	T	R								
Control:	Split Phase			Split Phase			Protected			Protected										
Rights:	Ovl			Include			Ovl			Include										
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0								
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0								
Lanes:	1	1	0	0	1	0	1	0	0	1	1	0	2	0	1	1	0	2	1	0

Volume Module:

Base Vol:	335	0	333	17	9	21	13	1074	475	317	691	3
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	338	0	336	17	9	21	13	1085	480	320	698	3
Added Vol:	0	0	47	0	0	0	0	61	0	69	75	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	338	0	383	17	9	21	13	1146	480	389	773	3
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	338	0	383	17	9	21	13	1146	480	389	773	3
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	338	0	383	17	9	21	13	1146	480	389	773	3
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	338	0	383	17	9	21	13	1146	480	389	773	3
OvlAdjVol:			0						311			

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	0.00	1.00	0.65	0.35	1.00	1.00	2.00	1.00	1.00	2.99	0.01
Final Sat.:	3200	0	1600	1046	554	1600	1600	3200	1600	1600	4781	19

Capacity Analysis Module:

Vol/Sat:	0.11	0.00	0.24	0.02	0.02	0.01	0.01	0.36	0.30	0.24	0.16	0.16
OvlAdjV/S:			0.00						0.19			
Crit Moves:	****			****			****		****			

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ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #10 Figueroa St (NS) / Redondo Beach Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.804
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 68 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Prot+Permit			Prot+Permit			Prot+Permit			Prot+Permit		
Rights:	Include			Ovl			Ovl			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	222	513	153	80	474	125	111	1101	185	47	676	54
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	224	518	155	81	479	126	112	1112	187	47	683	55
Added Vol:	7	0	0	0	0	0	0	105	2	0	137	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	231	518	155	81	479	126	112	1217	189	47	820	55
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	231	518	155	81	479	126	112	1217	189	47	820	55
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	231	518	155	81	479	126	112	1217	189	47	820	55
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	231	518	155	81	479	126	112	1217	189	47	820	55
OvlAdjVol:						14			0			0






















Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.54	0.46	1.00	2.00	1.00	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1600	2465	735	1600	3200	1600	1600	3200	1600	1600	3200	1600

Capacity Analysis Module:

Vol/Sat:	0.14	0.21	0.21	0.05	0.15	0.08	0.07	0.38	0.12	0.03	0.26	0.03
OvlAdjV/S:						0.01			0.00			0.00
Crit Moves:	****			****			****			****		













Lanes and Geometrics
5: Main St & SR-91 WB Ramps

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	90		50	155		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		0.865				0.850			0.850			
Flt Protected					0.950		0.950			0.950		
Satd. Flow (prot)	0	1611	0	0	1770	1583	1770	3539	1583	1770	3539	0
Flt Permitted					0.950		0.356			0.950		
Satd. Flow (perm)	0	1611	0	0	1770	1583	663	3539	1583	1770	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		153				313			143			
Link Speed (mph)		30			30			30				30
Link Distance (ft)		246			641			875				3052
Travel Time (s)		5.6			14.6			19.9				69.4

Intersection Summary

Area Type: Other

Volume
5: Main St & SR-91 WB Ramps

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	0	5	223	0	291	2	640	75	153	726	1
Future Volume (vph)	0	0	5	223	0	291	2	640	75	153	726	1
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	0	5	240	0	313	2	688	81	165	781	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	5	0	0	240	313	2	688	81	165	782	0
Intersection Summary												

Timings
5: Main St & SR-91 WB Ramps

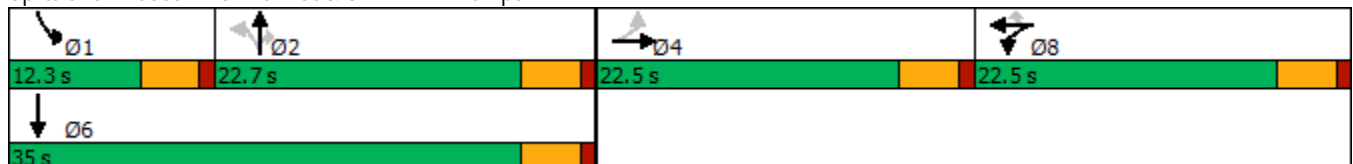


Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↔	↖	↗	↖	↕	↗	↖	↕
Traffic Volume (vph)	0	0	291	2	640	75	153	726
Future Volume (vph)	0	0	291	2	640	75	153	726
Turn Type	NA	NA	Perm	Perm	NA	Perm	Prot	NA
Protected Phases	4	8			2		1	6
Permitted Phases			8	2		2		
Detector Phase	4	8	8	2	2	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	9.5	22.5
Total Split (s)	22.5	22.5	22.5	22.7	22.7	22.7	12.3	35.0
Total Split (%)	28.1%	28.1%	28.1%	28.4%	28.4%	28.4%	15.4%	43.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag				Lag	Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	Max	Max	Max	None	Max
Act Effect Green (s)	5.6	12.9	12.9	18.5	18.5	18.5	7.9	30.9
Actuated g/C Ratio	0.10	0.24	0.24	0.34	0.34	0.34	0.14	0.57
v/c Ratio	0.02	0.57	0.51	0.01	0.58	0.13	0.64	0.39
Control Delay	0.2	24.8	6.0	16.0	18.6	1.4	39.3	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.2	24.8	6.0	16.0	18.6	1.4	39.3	8.6
LOS	A	C	A	B	B	A	D	A
Approach Delay	0.2	14.2			16.8			14.0
Approach LOS	A	B			B			B

Intersection Summary

Cycle Length: 80	
Actuated Cycle Length: 54.6	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.64	
Intersection Signal Delay: 14.9	Intersection LOS: B
Intersection Capacity Utilization 56.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 5: Main St & SR-91 WB Ramps



Queues
5: Main St & SR-91 WB Ramps
























Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	5	240	313	2	688	81	165	782
v/c Ratio	0.02	0.57	0.51	0.01	0.58	0.13	0.64	0.39
Control Delay	0.2	24.8	6.0	16.0	18.6	1.4	39.3	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.2	24.8	6.0	16.0	18.6	1.4	39.3	8.6
Queue Length 50th (ft)	0	65	0	0	88	0	49	58
Queue Length 95th (ft)	0	148	54	5	192	8	#163	158
Internal Link Dist (ft)	166	561			795			2972
Turn Bay Length (ft)				90		50	155	
Base Capacity (vph)	640	592	737	223	1196	630	256	2005
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.41	0.42	0.01	0.58	0.13	0.64	0.39

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
5: Main St & SR-91 WB Ramps

333 W. Gardena Blvd Project TIA
01/17/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	5	223	0	291	2	640	75	153	726	1
Future Volume (veh/h)	0	0	5	223	0	291	2	640	75	153	726	1
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	0	0	5	240	0	313	2	688	81	165	781	1
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	0	11	429	0	383	348	1159	519	207	1889	2
Arrive On Green	0.00	0.00	0.01	0.24	0.00	0.24	0.33	0.33	0.33	0.12	0.52	0.52
Sat Flow, veh/h	0	0	1583	1774	0	1583	688	3539	1583	1774	3627	5
Grp Volume(v), veh/h	0	0	5	240	0	313	2	688	81	165	381	401
Grp Sat Flow(s),veh/h/ln	0	0	1583	1774	0	1583	688	1770	1583	1774	1770	1862
Q Serve(g_s), s	0.0	0.0	0.2	6.9	0.0	10.9	0.1	9.5	2.1	5.3	7.7	7.7
Cycle Q Clear(g_c), s	0.0	0.0	0.2	6.9	0.0	10.9	0.1	9.5	2.1	5.3	7.7	7.7
Prop In Lane	0.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	0	0	11	429	0	383	348	1159	519	207	922	970
V/C Ratio(X)	0.00	0.00	0.47	0.56	0.00	0.82	0.01	0.59	0.16	0.80	0.41	0.41
Avail Cap(c_a), veh/h	0	0	487	545	0	487	348	1159	519	236	922	970
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	29.0	19.5	0.0	21.0	13.3	16.4	14.0	25.2	8.6	8.6
Incr Delay (d2), s/veh	0.0	0.0	29.5	1.1	0.0	8.4	0.0	2.2	0.6	15.5	1.4	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.2	3.5	0.0	5.7	0.0	4.9	1.0	3.5	4.1	4.2
LnGrp Delay(d),s/veh	0.0	0.0	58.4	20.6	0.0	29.4	13.3	18.7	14.6	40.7	9.9	9.9
LnGrp LOS			E	C		C	B	B	B	D	A	A
Approach Vol, veh/h		5			553			771			947	
Approach Delay, s/veh		58.4			25.6			18.2			15.3	
Approach LOS		E			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	11.3	23.7		4.9		35.0		18.7				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	7.8	18.2		18.0		30.5		18.0				
Max Q Clear Time (g_c+I1), s	7.3	11.5		2.2		9.7		12.9				
Green Ext Time (p_c), s	0.0	2.7		0.0		5.0		1.2				
Intersection Summary												
HCM 2010 Ctrl Delay			18.9									
HCM 2010 LOS			B									

Lanes and Geometrics
7: Albertoni St & SR-91 EB Ramps

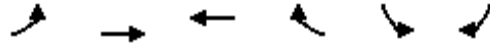


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	200			50	0	0
Storage Lanes	2			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor						
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	3539	3539	1583	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				58		439
Link Speed (mph)		30	30		30	
Link Distance (ft)		930	527		334	
Travel Time (s)		21.1	12.0		7.6	

Intersection Summary

Area Type: Other

Volume
7: Albertoni St & SR-91 EB Ramps



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	244	987	337	55	613	499
Future Volume (vph)	244	987	337	55	613	499
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	257	1039	355	58	645	525
Shared Lane Traffic (%)						
Lane Group Flow (vph)	257	1039	355	58	645	525
Intersection Summary						

Timings
7: Albertoni St & SR-91 EB Ramps

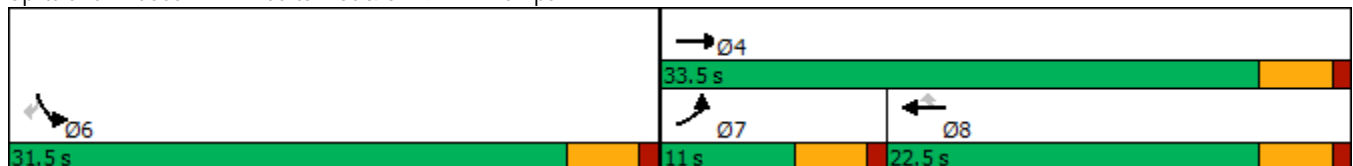


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖↖	↑↑	↑↑	↗	↘	↘
Traffic Volume (vph)	244	987	337	55	613	499
Future Volume (vph)	244	987	337	55	613	499
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	11.0	33.5	22.5	22.5	31.5	31.5
Total Split (%)	16.9%	51.5%	34.6%	34.6%	48.5%	48.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effect Green (s)	6.5	25.1	14.1	14.1	27.1	27.1
Actuated g/C Ratio	0.11	0.41	0.23	0.23	0.44	0.44
v/c Ratio	0.70	0.72	0.44	0.14	0.82	0.56
Control Delay	40.0	18.2	21.6	6.7	27.7	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.0	18.2	21.6	6.7	27.7	5.4
LOS	D	B	C	A	C	A
Approach Delay		22.5	19.5		17.7	
Approach LOS		C	B		B	

Intersection Summary

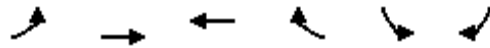
Cycle Length: 65
 Actuated Cycle Length: 61.3
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 20.1
 Intersection LOS: C
 Intersection Capacity Utilization 68.7%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 7: Albertoni St & SR-91 EB Ramps



Queues

7: Albertoni St & SR-91 EB Ramps



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	257	1039	355	58	645	525
v/c Ratio	0.70	0.72	0.44	0.14	0.82	0.56
Control Delay	40.0	18.2	21.6	6.7	27.7	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.0	18.2	21.6	6.7	27.7	5.4
Queue Length 50th (ft)	50	161	58	0	208	19
Queue Length 95th (ft)	#103	223	93	23	#418	84
Internal Link Dist (ft)		850	447		254	
Turn Bay Length (ft)	200			50		
Base Capacity (vph)	365	1682	1044	508	783	945
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.62	0.34	0.11	0.82	0.56

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
7: Albertoni St & SR-91 EB Ramps

333 W. Gardena Blvd Project TIA
01/17/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations	↶↷	↶↶	↶↶	↷	↶	↷		
Traffic Volume (veh/h)	244	987	337	55	613	499		
Future Volume (veh/h)	244	987	337	55	613	499		
Number	7	4	8	18	1	16		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	257	1039	355	58	645	525		
Adj No. of Lanes	2	2	2	1	1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	362	1369	726	325	816	728		
Arrive On Green	0.11	0.39	0.21	0.21	0.46	0.46		
Sat Flow, veh/h	3442	3632	3632	1583	1774	1583		
Grp Volume(v), veh/h	257	1039	355	58	645	525		
Grp Sat Flow(s),veh/h/ln	1721	1770	1770	1583	1774	1583		
Q Serve(g_s), s	4.2	15.0	5.2	1.8	18.1	15.7		
Cycle Q Clear(g_c), s	4.2	15.0	5.2	1.8	18.1	15.7		
Prop In Lane	1.00			1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	362	1369	726	325	816	728		
V/C Ratio(X)	0.71	0.76	0.49	0.18	0.79	0.72		
Avail Cap(c_a), veh/h	381	1748	1085	485	816	728		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	25.4	15.6	20.6	19.3	13.5	12.8		
Incr Delay (d2), s/veh	5.7	1.5	0.5	0.3	7.7	6.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.3	7.5	2.6	0.8	10.5	8.1		
LnGrp Delay(d),s/veh	31.1	17.1	21.1	19.5	21.2	18.9		
LnGrp LOS	C	B	C	B	C	B		
Approach Vol, veh/h		1296	413		1170			
Approach Delay, s/veh		19.9	20.9		20.1			
Approach LOS		B	C		C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				27.2		31.5	10.7	16.5
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				29.0		27.0	6.5	18.0
Max Q Clear Time (g_c+I1), s				17.0		20.1	6.2	7.2
Green Ext Time (p_c), s				5.8		2.7	0.0	1.8
Intersection Summary								
HCM 2010 Ctrl Delay			20.1					
HCM 2010 LOS			C					

Lanes and Geometrics
 8: I-110 SB Ramps & Redondo Beach Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↘	↑↑↑					↘	↕	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		310	225		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	1.00	1.00	0.95	0.91	0.95
Ped Bike Factor			0.850								0.914	0.850
Flt Protected				0.950						0.950	0.979	
Satd. Flow (prot)	0	3539	1583	1770	5085	0	0	0	0	1681	1517	1504
Flt Permitted				0.950						0.950	0.979	
Satd. Flow (perm)	0	3539	1583	1770	5085	0	0	0	0	1681	1517	1504
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			291								91	122
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		675			491			369			400	
Travel Time (s)		15.3			11.2			8.4			9.1	

Intersection Summary

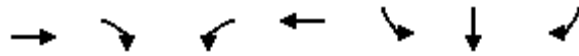
Area Type: Other

Volume
8: I-110 SB Ramps & Redondo Beach Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	1122	279	190	945	0	0	0	0	506	1	529
Future Volume (vph)	0	1122	279	190	945	0	0	0	0	506	1	529
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	1169	291	198	984	0	0	0	0	527	1	551
Shared Lane Traffic (%)										29%		38%
Lane Group Flow (vph)	0	1169	291	198	984	0	0	0	0	374	363	342
Intersection Summary												

Timings
8: I-110 SB Ramps & Redondo Beach Blvd



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Configurations	↑↑	↑	↙	↑↑↑	↙	↕	↙
Traffic Volume (vph)	1122	279	190	945	506	1	529
Future Volume (vph)	1122	279	190	945	506	1	529
Turn Type	NA	Perm	Prot	NA	Split	NA	Perm
Protected Phases	4		3	8	6	6	
Permitted Phases		4					6
Detector Phase	4	4	3	8	6	6	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5	22.5
Total Split (s)	33.0	33.0	16.0	49.0	26.0	26.0	26.0
Total Split (%)	44.0%	44.0%	21.3%	65.3%	34.7%	34.7%	34.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Max	Max	Max
Act Effect Green (s)	28.1	28.1	10.9	43.5	21.5	21.5	21.5
Actuated g/C Ratio	0.38	0.38	0.15	0.59	0.29	0.29	0.29
v/c Ratio	0.87	0.37	0.76	0.33	0.77	0.72	0.65
Control Delay	30.3	3.7	50.7	8.1	36.9	27.4	21.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.3	3.7	50.7	8.1	36.9	27.4	21.6
LOS	C	A	D	A	D	C	C
Approach Delay	25.0			15.3		28.9	
Approach LOS	C			B		C	

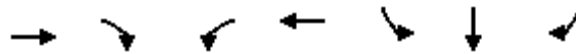
Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 74
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 23.0
 Intersection LOS: C
 Intersection Capacity Utilization 72.2%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 8: I-110 SB Ramps & Redondo Beach Blvd



Queues
8: I-110 SB Ramps & Redondo Beach Blvd



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	1169	291	198	984	374	363	342
v/c Ratio	0.87	0.37	0.76	0.33	0.77	0.72	0.65
Control Delay	30.3	3.7	50.7	8.1	36.9	27.4	21.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.3	3.7	50.7	8.1	36.9	27.4	21.6
Queue Length 50th (ft)	258	0	89	76	167	124	91
Queue Length 95th (ft)	#379	45	#184	99	#305	#258	187
Internal Link Dist (ft)	595			411		320	
Turn Bay Length (ft)		310	225				
Base Capacity (vph)	1362	788	275	3058	488	505	523
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.37	0.72	0.32	0.77	0.72	0.65

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 8: I-110 SB Ramps & Redondo Beach Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↖	↑↑↑					↖	↔	↗
Traffic Volume (veh/h)	0	1122	279	190	945	0	0	0	0	506	1	529
Future Volume (veh/h)	0	1122	279	190	945	0	0	0	0	506	1	529
Number	7	4	14	3	8	18				1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	1169	291	198	984	0				703	0	364
Adj No. of Lanes	0	2	1	1	3	0				2	0	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1341	600	240	2931	0				1060	0	473
Arrive On Green	0.00	0.38	0.38	0.14	0.58	0.00				0.30	0.00	0.30
Sat Flow, veh/h	0	3632	1583	1774	5253	0				3548	0	1583
Grp Volume(v), veh/h	0	1169	291	198	984	0				703	0	364
Grp Sat Flow(s),veh/h/ln	0	1770	1583	1774	1695	0				1774	0	1583
Q Serve(g_s), s	0.0	22.1	10.1	7.8	7.3	0.0				12.5	0.0	15.1
Cycle Q Clear(g_c), s	0.0	22.1	10.1	7.8	7.3	0.0				12.5	0.0	15.1
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1341	600	240	2931	0				1060	0	473
V/C Ratio(X)	0.00	0.87	0.49	0.83	0.34	0.00				0.66	0.00	0.77
Avail Cap(c_a), veh/h	0	1401	627	283	3143	0				1060	0	473
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	20.7	17.0	30.3	8.0	0.0				22.1	0.0	23.0
Incr Delay (d2), s/veh	0.0	6.1	0.6	15.7	0.1	0.0				3.3	0.0	11.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	11.9	4.5	4.9	3.4	0.0				6.5	0.0	8.1
LnGrp Delay(d),s/veh	0.0	26.9	17.6	46.0	8.1	0.0				25.4	0.0	34.5
LnGrp LOS		C	B	D	A					C		C
Approach Vol, veh/h		1460			1182						1067	
Approach Delay, s/veh		25.0			14.4						28.5	
Approach LOS		C			B						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			14.2	31.8		26.0		46.0				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			11.5	28.5		21.5		44.5				
Max Q Clear Time (g_c+I1), s			9.8	24.1		17.1		9.3				
Green Ext Time (p_c), s			0.1	3.2		1.9		8.5				
Intersection Summary												
HCM 2010 Ctrl Delay			22.6									
HCM 2010 LOS			C									
Notes												

Lanes and Geometrics
 9: I-110 SB Ramps & Redondo Beach Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%				0%
Storage Length (ft)	60		290	170		0	0		0	0		0
Storage Lanes	1		1	1		0	1		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850		0.999				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.950			0.968	
Satd. Flow (prot)	1770	3539	1583	1770	5080	0	1681	1681	1583	0	1803	1583
Flt Permitted	0.950			0.950			0.950	0.950			0.778	
Satd. Flow (perm)	1770	3539	1583	1770	5080	0	1681	1681	1583	0	1449	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			495		1				301			136
Link Speed (mph)		30			30			30				30
Link Distance (ft)		491			442			253				82
Travel Time (s)		11.2			10.0			5.8				1.9

Intersection Summary

Area Type: Other

Volume
9: I-110 SB Ramps & Redondo Beach Blvd

333 W. Gardena Blvd Project TIA
01/17/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	13	1146	480	389	773	3	338	0	383	17	9	21
Future Volume (vph)	13	1146	480	389	773	3	338	0	383	17	9	21
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	13	1181	495	401	797	3	348	0	395	18	9	22
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	13	1181	495	401	800	0	174	174	395	0	27	22
Intersection Summary												

Timings
9: I-110 SB Ramps & Redondo Beach Blvd

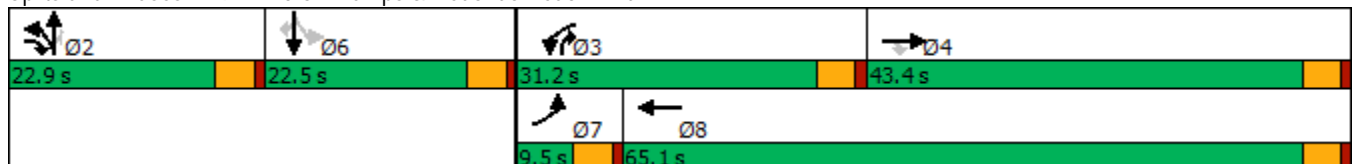


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑↑	↘	↗	↗		↗	↗
Traffic Volume (vph)	13	1146	480	389	773	338	0	383	17	9	21
Future Volume (vph)	13	1146	480	389	773	338	0	383	17	9	21
Turn Type	Prot	NA	pm+ov	Prot	NA	Split	NA	pm+ov	Perm	NA	Perm
Protected Phases	7	4	2	3	8	2	2	3		6	
Permitted Phases			4					2	6		6
Detector Phase	7	4	2	3	8	2	2	3	6	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	9.5	43.4	22.9	31.2	65.1	22.9	22.9	31.2	22.5	22.5	22.5
Total Split (%)	7.9%	36.2%	19.1%	26.0%	54.3%	19.1%	19.1%	26.0%	18.8%	18.8%	18.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5
Lead/Lag	Lead	Lag		Lead	Lag			Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes			
Recall Mode	None	None	Max	None	None	Max	Max	None	Max	Max	Max
Act Effect Green (s)	5.0	38.9	61.8	26.7	66.3	18.4	18.4	45.1		18.0	18.0
Actuated g/C Ratio	0.04	0.32	0.52	0.22	0.55	0.15	0.15	0.38		0.15	0.15
v/c Ratio	0.18	1.03	0.47	1.02	0.29	0.68	0.68	0.51		0.12	0.06
Control Delay	61.2	74.5	2.9	97.0	15.1	62.2	62.2	6.1		45.9	0.3
Queue Delay	0.0	27.3	0.5	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	61.2	101.8	3.4	97.0	15.1	62.2	62.2	6.1		45.9	0.3
LOS	E	F	A	F	B	E	E	A		D	A
Approach Delay		72.7			42.5		32.4			25.5	
Approach LOS		E			D		C			C	

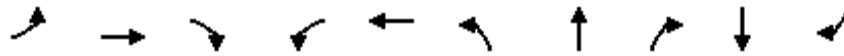
Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Natural Cycle: 120
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.03
 Intersection Signal Delay: 54.1
 Intersection LOS: D
 Intersection Capacity Utilization 80.5%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 9: I-110 SB Ramps & Redondo Beach Blvd



Queues
9: I-110 SB Ramps & Redondo Beach Blvd

























Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	13	1181	495	401	800	174	174	395	27	22
v/c Ratio	0.18	1.03	0.47	1.02	0.29	0.68	0.68	0.51	0.12	0.06
Control Delay	61.2	74.5	2.9	97.0	15.1	62.2	62.2	6.1	45.9	0.3
Queue Delay	0.0	27.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.2	101.8	3.4	97.0	15.1	62.2	62.2	6.1	45.9	0.3
Queue Length 50th (ft)	10	~515	0	~322	105	135	135	29	18	0
Queue Length 95th (ft)	32	#651	52	#526	158	#229	#229	75	47	0
Internal Link Dist (ft)		411			362		173		2	
Turn Bay Length (ft)	60		290	170						
Base Capacity (vph)	73	1147	1055	393	2806	257	257	782	217	353
Starvation Cap Reductn	0	119	220	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	1.15	0.59	1.02	0.29	0.68	0.68	0.51	0.12	0.06

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 9: I-110 SB Ramps & Redondo Beach Blvd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	1146	480	389	773	3	338	0	383	17	9	21
Future Volume (veh/h)	13	1146	480	389	773	3	338	0	383	17	9	21
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	13	1181	495	401	797	3	348	0	395	18	9	22
Adj No. of Lanes	1	2	1	1	3	0	2	0	1	0	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	26	1147	756	395	2782	10	544	0	595	180	90	237
Arrive On Green	0.01	0.32	0.32	0.22	0.53	0.53	0.15	0.00	0.15	0.15	0.15	0.15
Sat Flow, veh/h	1774	3539	1583	1774	5230	20	3548	0	1583	1202	601	1583
Grp Volume(v), veh/h	13	1181	495	401	517	283	348	0	395	27	0	22
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1695	1859	1774	0	1583	1803	0	1583
Q Serve(g_s), s	0.9	38.9	28.5	26.7	10.1	10.1	11.0	0.0	18.4	1.6	0.0	1.4
Cycle Q Clear(g_c), s	0.9	38.9	28.5	26.7	10.1	10.1	11.0	0.0	18.4	1.6	0.0	1.4
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.67		1.00
Lane Grp Cap(c), veh/h	26	1147	756	395	1804	989	544	0	595	270	0	237
V/C Ratio(X)	0.50	1.03	0.65	1.02	0.29	0.29	0.64	0.00	0.66	0.10	0.00	0.09
Avail Cap(c_a), veh/h	74	1147	756	395	1804	989	544	0	595	270	0	237
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	58.7	40.6	23.8	46.7	15.5	15.5	47.7	0.0	31.1	44.0	0.0	44.0
Incr Delay (d2), s/veh	14.1	34.4	2.0	49.4	0.1	0.2	5.7	0.0	5.8	0.7	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	24.4	16.5	18.5	4.8	5.2	5.8	0.0	11.8	0.8	0.0	0.7
LnGrp Delay(d),s/veh	72.8	74.9	25.9	96.1	15.6	15.7	53.4	0.0	36.9	44.7	0.0	44.7
LnGrp LOS	E	F	C	F	B	B	D		D	D		D
Approach Vol, veh/h		1689			1201			743				49
Approach Delay, s/veh		60.5			42.5			44.6				44.7
Approach LOS		E			D			D				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		22.9	31.2	43.4		22.5	6.3	68.3				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.4	26.7	38.9		18.0	5.0	60.6				
Max Q Clear Time (g_c+I1), s		20.4	28.7	40.9		3.6	2.9	12.1				
Green Ext Time (p_c), s		0.0	0.0	0.0		0.1	0.0	6.2				
Intersection Summary												
HCM 2010 Ctrl Delay			51.2									
HCM 2010 LOS			D									
Notes												

Lanes and Geometrics
 11: Figueroa St & 164th St



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	50	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Ped Bike Factor						
Frt	0.896		0.999			
Flt Protected	0.989				0.950	
Satd. Flow (prot)	1651	0	3536	0	1770	3539
Flt Permitted	0.989				0.950	
Satd. Flow (perm)	1651	0	3536	0	1770	3539
Link Speed (mph)	30		30			30
Link Distance (ft)	648		333			3650
Travel Time (s)	14.7		7.6			83.0

Intersection Summary

Area Type: Other

Volume
11: Figueroa St & 164th St



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Volume (vph)	3	9	900	5	1	794
Future Volume (vph)	3	9	900	5	1	794
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	3	10	978	5	1	863
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	0	983	0	1	863
Intersection Summary						

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕↔		↕	↕↕
Traffic Vol, veh/h	3	9	900	5	1	794
Future Vol, veh/h	3	9	900	5	1	794
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	10	978	5	1	863

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1415	492	0	0	983	0
Stage 1	981	-	-	-	-	-
Stage 2	434	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	128	522	-	-	698	-
Stage 1	324	-	-	-	-	-
Stage 2	621	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	128	522	-	-	698	-
Mov Cap-2 Maneuver	245	-	-	-	-	-
Stage 1	324	-	-	-	-	-
Stage 2	620	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	407	698
HCM Lane V/C Ratio	-	-	0.032	0.002
HCM Control Delay (s)	-	-	14.1	10.2
HCM Lane LOS	-	-	B	B
HCM 95th %tile Q(veh)	-	-	0.1	0

Lanes and Geometrics
 12: Gardena Blvd & 164th St



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt					0.932	
Flt Protected					0.976	
Satd. Flow (prot)	0	3539	3539	0	1694	0
Flt Permitted					0.976	
Satd. Flow (perm)	0	3539	3539	0	1694	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		645	84		308	
Travel Time (s)		14.7	1.9		7.0	

Intersection Summary

Area Type: Other

Volume
12: Gardena Blvd & 164th St



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	0	500	378	0	3	3
Future Volume (vph)	0	500	378	0	3	3
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	543	411	0	3	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	543	411	0	6	0
Intersection Summary						

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	
Traffic Vol, veh/h	0	500	378	0	3	3
Future Vol, veh/h	0	500	378	0	3	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	543	411	0	3	3

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	411	0	-	0	683 206
Stage 1	-	-	-	-	411 -
Stage 2	-	-	-	-	272 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	1144	-	-	-	383 800
Stage 1	-	-	-	-	638 -
Stage 2	-	-	-	-	749 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1144	-	-	-	383 800
Mov Cap-2 Maneuver	-	-	-	-	383 -
Stage 1	-	-	-	-	638 -
Stage 2	-	-	-	-	749 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1144	-	-	-	518
HCM Lane V/C Ratio	-	-	-	-	0.013
HCM Control Delay (s)	0	-	-	-	12
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Lanes and Geometrics
 13: Gardena Blvd & Project Dwy 1



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected						
Satd. Flow (prot)	0	3539	3539	0	1863	0
Flt Permitted						
Satd. Flow (perm)	0	3539	3539	0	1863	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		84	366		132	
Travel Time (s)		1.9	8.3		3.0	

Intersection Summary

Area Type: Other

Volume
13: Gardena Blvd & Project Dwy 1



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	0	500	378	0	0	0
Future Volume (vph)	0	500	378	0	0	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	543	411	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	543	411	0	0	0
Intersection Summary						

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑	
Traffic Vol, veh/h	0	500	378	0	0	0
Future Vol, veh/h	0	500	378	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	543	411	0	0	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	411	0	-	0	683
Stage 1	-	-	-	-	411
Stage 2	-	-	-	-	272
Critical Hdwy	4.14	-	-	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	2.22	-	-	-	3.52
Pot Cap-1 Maneuver	1144	-	-	-	383
Stage 1	-	-	-	-	638
Stage 2	-	-	-	-	749
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1144	-	-	-	383
Mov Cap-2 Maneuver	-	-	-	-	383
Stage 1	-	-	-	-	638
Stage 2	-	-	-	-	749

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1144	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Lanes and Geometrics
 14: Gardena Blvd & Project Dwy 2

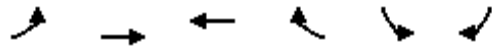


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected						
Satd. Flow (prot)	0	3539	3539	0	1863	0
Flt Permitted						
Satd. Flow (perm)	0	3539	3539	0	1863	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		366	224		428	
Travel Time (s)		8.3	5.1		9.7	

Intersection Summary

Area Type: Other

Volume
14: Gardena Blvd & Project Dwy 2



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	0	500	378	0	0	0
Future Volume (vph)	0	500	378	0	0	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	543	411	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	543	411	0	0	0
Intersection Summary						

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑	
Traffic Vol, veh/h	0	500	378	0	0	0
Future Vol, veh/h	0	500	378	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	543	411	0	0	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	411	0	-	0	683
Stage 1	-	-	-	-	411
Stage 2	-	-	-	-	272
Critical Hdwy	4.14	-	-	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	2.22	-	-	-	3.52
Pot Cap-1 Maneuver	1144	-	-	-	383
Stage 1	-	-	-	-	638
Stage 2	-	-	-	-	749
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1144	-	-	-	383
Mov Cap-2 Maneuver	-	-	-	-	383
Stage 1	-	-	-	-	638
Stage 2	-	-	-	-	749

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1144	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Appendix E

Forecast Opening Year (2021) With Project Conditions
Intersection Analysis Worksheets

333 W. Gardena Blvd Industrial Project Preliminary TIA
Opening Year Plus Project Conditions
AM Peak Hour

Scenario Report

Scenario: OY+C+P_AM
Command: OY+C+P_AM
Volume: EX_AM
Geometry: EX
Impact Fee: Default Impact Fee
Trip Generation: C+P_AM
Trip Distribution: DEFAULT
Paths: Default Path
Routes: Default Route
Configuration: OY

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Opening Year Plus Project Conditions
 AM Peak Hour

Trip Generation Report

Forecast for P_AM

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
1		1.00	PROJECT - PC	71.00	9.00	71	9	80	13.7
	Zone 1 Subtotal					71	9	80	13.7
2		1.00	PROJECT - TRUC	44.00	5.00	44	5	49	8.4
	Zone 2 Subtotal					44	5	49	8.4
TOTAL						115	14	129	22.1

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Opening Year Plus Project Conditions
 AM Peak Hour

Trip Generation Report

Forecast for C_AM

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
101		1.00	TAZ 1	22.00	8.00	22	8	30	5.1
	Zone 101 Subtotal					22	8	30	5.1
102		1.00	TAZ 2	32.00	4.00	32	4	36	6.2
	Zone 102 Subtotal					32	4	36	6.2
103		1.00	TAZ 3	0.00	24.00	0	24	24	4.1
	Zone 103 Subtotal					0	24	24	4.1
104		1.00	TAZ 4	178.00	131.00	178	131	309	52.8
	Zone 104 Subtotal					178	131	309	52.8
105		1.00	TAZ 5	46.00	11.00	46	11	57	9.7
	Zone 105 Subtotal					46	11	57	9.7
TOTAL						278	178	456	77.9

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Opening Year Plus Project Conditions
 AM Peak Hour

Turning Movement Report
 P_AM + C_AM

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#1 Figueroa St (NS) / Gardena Blvd (EW)													
Base	24	349	40	60	554	53	54	104	42	60	118	60	1518
Added	0	9	4	37	7	7	9	14	0	0	4	4	95
Total	24	358	44	97	561	60	63	118	42	60	122	64	1613
#2 Broadway (NS) / Gardena Blvd (EW)													
Base	33	210	20	22	287	34	26	138	31	31	217	43	1095
Added	12	0	0	0	0	14	2	16	1	0	49	0	94
Total	45	210	20	22	287	48	28	154	32	31	266	43	1189
#3 Main St (NS) / Gardena Blvd (EW)													
Base	93	459	64	46	401	48	27	110	39	49	158	31	1526
Added	39	27	0	0	21	3	8	1	7	1	7	0	114
Total	132	486	64	46	422	51	35	111	46	50	165	31	1640
#4 Broadway (NS) / Albertoni St (EW)													
Base	33	210	44	42	185	87	31	223	38	82	435	36	1448
Added	0	4	0	1	0	0	0	0	0	0	0	9	14
Total	33	214	44	43	185	87	31	223	38	82	435	45	1462
#5 Main St (NS) / SR-91 WB Ramps (EW)													
Base	1	470	84	93	413	4	0	1	4	396	1	431	1898
Added	0	51	0	4	21	0	0	0	0	9	0	25	110
Total	1	521	84	97	434	4	0	1	4	405	1	456	2008
#6 Main St (NS) / Albertoni St (EW)													
Base	75	282	130	182	402	205	33	244	41	107	279	229	2210
Added	0	26	0	5	16	9	0	1	0	0	0	25	82
Total	75	308	130	187	418	214	33	245	41	107	279	254	2292
#7 SR-91 EB Ramps (NS) / Albertoni St (EW)													
Base	0	0	0	194	0	211	259	285	0	0	423	83	1454
Added	0	0	0	0	0	25	6	0	0	0	0	0	31
Total	0	0	0	194	0	236	265	285	0	0	423	83	1485
#8 I-110 SB Ramps (NS) / Redondo Beach Blvd (EW)													
Base	0	0	0	368	1	593	0	636	444	157	833	0	3032
Added	0	0	0	89	0	0	0	18	0	40	10	0	157
Total	0	0	0	457	1	593	0	654	444	197	843	0	3189
#9 I-110 NB Ramps (NS) / Redondo Beach Blvd (EW)													
Base	329	8	297	4	3	14	16	675	340	260	623	6	2575
Added	0	0	51	0	0	0	0	107	0	46	50	0	254
Total	329	8	348	4	3	14	16	782	340	306	673	6	2830

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Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#10 Figueroa St (NS) / Redondo Beach Blvd (EW)													
Base	166	317	38	48	387	97	117	591	211	92	618	52	2734
Added	5	0	0	0	4	0	0	126	32	0	91	0	258
Total	171	317	38	48	391	97	117	717	243	92	709	52	2992
#11 Figueroa St (NS) / 164th St (EW)													
Base	0	465	10	5	677	0	0	0	0	8	0	5	1170
Added	0	22	0	0	50	0	0	0	0	0	0	0	72
Total	0	487	10	5	727	0	0	0	0	8	0	5	1242
#12 164th St (NS) / Gardena Blvd (EW)													
Base	0	0	0	7	0	8	0	204	0	0	285	0	504
Added	0	0	0	0	0	0	0	54	0	0	9	0	63
Total	0	0	0	7	0	8	0	258	0	0	294	0	567
#13 Project Dwy 1 (NS) / Gardena Blvd (EW)													
Base	0	0	0	0	0	0	0	204	0	0	285	0	489
Added	0	0	0	5	0	4	28	25	0	0	5	43	110
Total	0	0	0	5	0	4	28	229	0	0	290	43	599
#14 Project Dwy 2 (NS) / Gardena Blvd (EW)													
Base	0	0	0	0	0	0	0	204	0	0	285	0	489
Added	0	0	0	3	0	2	15	15	0	0	46	29	110
Total	0	0	0	3	0	2	15	219	0	0	331	29	599

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 AM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #1 Figueroa St (NS) / Gardena Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.406
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxxx
 Optimal Cycle: 29 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	24	346	40	59	549	52	53	103	42	59	117	59
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	24	349	40	60	554	53	54	104	42	60	118	60
Added Vol:	0	9	4	37	7	7	9	14	0	0	4	4
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	24	358	44	97	561	60	63	118	42	60	122	64
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	24	358	44	97	561	60	63	118	42	60	122	64
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	24	358	44	97	561	60	63	118	42	60	122	64
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	24	358	44	97	561	60	63	118	42	60	122	64

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.78	0.22	1.00	1.81	0.19	1.00	1.47	0.53	1.00	1.32	0.68
Final Sat.:	1600	2847	353	1600	2893	307	1600	2354	846	1600	2105	1095

Capacity Analysis Module:

Vol/Sat:	0.02	0.13	0.13	0.06	0.19	0.19	0.04	0.05	0.05	0.04	0.06	0.06
Crit Moves:	****			****			****			****		

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #2 Broadway (NS) / Gardena Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.347
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 27 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	33	208	20	22	284	34	26	137	31	31	215	43
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	33	210	20	22	287	34	26	138	31	31	217	43
Added Vol:	12	0	0	0	0	14	2	16	1	0	49	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	45	210	20	22	287	48	28	154	32	31	266	43
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	45	210	20	22	287	48	28	154	32	31	266	43
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	45	210	20	22	287	48	28	154	32	31	266	43
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	45	210	20	22	287	48	28	154	32	31	266	43

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.82	0.18	1.00	1.71	0.29	1.00	1.65	0.35	1.00	1.72	0.28
Final Sat.:	1600	2919	281	1600	2738	462	1600	2646	554	1600	2751	449

Capacity Analysis Module:

Vol/Sat:	0.03	0.07	0.07	0.01	0.10	0.10	0.02	0.06	0.06	0.02	0.10	0.10
Crit Moves:	***			***			***			***		

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #3 Main St (NS) / Gardena Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.395
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 28 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Permitted				Permitted				Permitted				Permitted							
Rights:	Include				Include				Include				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	2	0	1	1	0	2	0	1	1	0	1	1	0	1	0	1	1	0

Volume Module:

Base Vol:	92	454	63	46	397	48	27	109	39	49	156	31
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	93	459	64	46	401	48	27	110	39	49	158	31
Added Vol:	39	27	0	0	21	3	8	1	7	1	7	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	132	486	64	46	422	51	35	111	46	50	165	31
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	132	486	64	46	422	51	35	111	46	50	165	31
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	132	486	64	46	422	51	35	111	46	50	165	31
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	132	486	64	46	422	51	35	111	46	50	165	31

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.41	0.59	1.00	1.68	0.32
Final Sat.:	1600	3200	1600	1600	3200	1600	1600	2257	943	1600	2688	512

Capacity Analysis Module:

Vol/Sat:	0.08	0.15	0.04	0.03	0.13	0.03	0.02	0.05	0.05	0.03	0.06	0.06
Crit Moves:	****			****			****			****		

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #4 Broadway (NS) / Albertoni St (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.378
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxxx
 Optimal Cycle: 28 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	33	208	44	42	183	86	31	221	38	81	431	36
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	33	210	44	42	185	87	31	223	38	82	435	36
Added Vol:	0	4	0	1	0	0	0	0	0	0	0	9
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	33	214	44	43	185	87	31	223	38	82	435	45
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	33	214	44	43	185	87	31	223	38	82	435	45
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	33	214	44	43	185	87	31	223	38	82	435	45
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	33	214	44	43	185	87	31	223	38	82	435	45

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.66	0.34	1.00	1.36	0.64	1.00	1.71	0.29	1.00	1.81	0.19
Final Sat.:	1600	2650	550	1600	2177	1023	1600	2731	469	1600	2898	302

Capacity Analysis Module:

Vol/Sat:	0.02	0.08	0.08	0.03	0.08	0.08	0.02	0.08	0.08	0.05	0.15	0.15
Crit Moves:	****			****			****			****		

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #5 Main St (NS) / SR-91 WB Ramps (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.608
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 41 Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Permitted				Protected				Permitted				Permitted							
Rights:	Include				Include				Include				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	2	0	1	1	0	1	1	0	0	0	0	1	0	0	1	0	0	1

Volume Module:

Base Vol:	1	465	83	92	409	4	0	1	4	392	1	427
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	1	470	84	93	413	4	0	1	4	396	1	431
Added Vol:	0	51	0	4	21	0	0	0	0	9	0	25
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	1	521	84	97	434	4	0	1	4	405	1	456
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	1	521	84	97	434	4	0	1	4	405	1	456
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1	521	84	97	434	4	0	1	4	405	1	456
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	1	521	84	97	434	4	0	1	4	405	1	456

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	1.98	0.02	0.00	0.20	0.80	0.99	0.01	1.00
Final Sat.:	1600	3200	1600	1600	3170	30	0	320	1280	1596	4	1600

Capacity Analysis Module:

Vol/Sat:	0.00	0.16	0.05	0.06	0.14	0.14	0.00	0.00	0.00	0.25	0.25	0.29
Crit Moves:	****			****			****			****		

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #6 Main St (NS) / Albertoni St (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.558
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxxx
 Optimal Cycle: 37 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	74	279	129	180	398	203	33	242	41	106	276	227
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	75	282	130	182	402	205	33	244	41	107	279	229
Added Vol:	0	26	0	5	16	9	0	1	0	0	0	25
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	75	308	130	187	418	214	33	245	41	107	279	254
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	75	308	130	187	418	214	33	245	41	107	279	254
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	75	308	130	187	418	214	33	245	41	107	279	254
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	75	308	130	187	418	214	33	245	41	107	279	254

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.41	0.59	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.05	0.95
Final Sat.:	1600	2248	952	1600	3200	1600	1600	3200	1600	1600	1674	1526

Capacity Analysis Module:

Vol/Sat:	0.05	0.14	0.14	0.12	0.13	0.13	0.02	0.08	0.03	0.07	0.17	0.17
Crit Moves:			****			****	****				****	

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #7 SR-91 EB Ramps (NS) / Albertoni St (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.462
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 31 Level Of Service: A

Approach:	North Bound				South Bound				East Bound			West Bound													
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R					
Control:	Permitted				Permitted				Protected			Permitted													
Rights:	Include				Include				Include			Include													
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		
Lanes:	0	0	0	0	0	1	0	0	0	1	2	0	2	0	0	0	0	2	0	1	0	0	2	0	1

Volume Module:

Base Vol:	0	0	0	192	0	209	256	282	0	0	419	82
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	0	0	0	194	0	211	259	285	0	0	423	83
Added Vol:	0	0	0	0	0	25	6	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	194	0	236	265	285	0	0	423	83
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	194	0	236	265	285	0	0	423	83
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	194	0	236	265	285	0	0	423	83
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	194	0	236	265	285	0	0	423	83

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	2.00	2.00	0.00	0.00	2.00	1.00
Final Sat.:	0	0	0	1600	0	1600	3200	3200	0	0	3200	1600

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.12	0.00	0.15	0.08	0.09	0.00	0.00	0.13	0.05
Crit Moves:						****	****				****	

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Opening Year Plus Project Conditions
 AM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #8 I-110 SB Ramps (NS) / Redondo Beach Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.719
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxxx
 Optimal Cycle: 53 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Split Phase				Split Phase				Permitted				Protected							
Rights:	Include				Include				Include				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	0	0	1	0	1	0	1	0	0	2	0	1	1	0	3	0	0

Volume Module:

Base Vol:	0	0	0	364	1	587	0	630	440	155	825	0
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	0	0	0	368	1	593	0	636	444	157	833	0
Added Vol:	0	0	0	89	0	0	0	18	0	40	10	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	457	1	593	0	654	444	197	843	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	457	1	593	0	654	444	197	843	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	457	1	593	0	654	444	197	843	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	457	1	593	0	654	444	197	843	0

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.30	0.01	1.69	0.00	2.00	1.00	1.00	3.00	0.00
Final Sat.:	0	0	0	2086	5	2709	0	3200	1600	1600	4800	0

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.22	0.22	0.22	0.00	0.20	0.28	0.12	0.18	0.00
Crit Moves:						****			****	****		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Opening Year Plus Project Conditions
 AM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #9 I-110 NB Ramps (NS) / Redondo Beach Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.650
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxxx
 Optimal Cycle: 44 Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Ovl			Include			Ovl			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	1	0 0 1	0	1	0 0 1	1	0	2 0 1	1	0	2 1 0

Volume Module:

Base Vol:	326	8	294	4	3	14	16	668	337	257	617	6
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	329	8	297	4	3	14	16	675	340	260	623	6
Added Vol:	0	0	51	0	0	0	0	107	0	46	50	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	329	8	348	4	3	14	16	782	340	306	673	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	329	8	348	4	3	14	16	782	340	306	673	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	329	8	348	4	3	14	16	782	340	306	673	6
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	329	8	348	4	3	14	16	782	340	306	673	6
OvlAdjVol:			42						172			

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.95	0.05	1.00	0.57	0.43	1.00	1.00	2.00	1.00	1.00	2.97	0.03
Final Sat.:	3123	77	1600	914	686	1600	1600	3200	1600	1600	4757	43

Capacity Analysis Module:

Vol/Sat:	0.11	0.11	0.22	0.00	0.00	0.01	0.01	0.24	0.21	0.19	0.14	0.14
OvlAdjV/S:			0.03						0.11			
Crit Moves:	****					****	****			****		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Opening Year Plus Project Conditions
 AM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #10 Figueroa St (NS) / Redondo Beach Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.624
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 42 Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Prot+Permit			Prot+Permit			Prot+Permit			Prot+Permit		
Rights:	Include			Ovl			Ovl			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	164	314	38	48	383	96	116	585	209	91	612	51
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	166	317	38	48	387	97	117	591	211	92	618	52
Added Vol:	5	0	0	0	4	0	0	126	32	0	91	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	171	317	38	48	391	97	117	717	243	92	709	52
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	171	317	38	48	391	97	117	717	243	92	709	52
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	171	317	38	48	391	97	117	717	243	92	709	52
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	171	317	38	48	391	97	117	717	243	92	709	52
OvlAdjVol:						0			72			3






















Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.78	0.22	1.00	2.00	1.00	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1600	2855	345	1600	3200	1600	1600	3200	1600	1600	3200	1600

Capacity Analysis Module:

Vol/Sat:	0.11	0.11	0.11	0.03	0.12	0.06	0.07	0.22	0.15	0.06	0.22	0.03
OvlAdjV/S:						0.00			0.05			0.00
Crit Moves:	****			****			****			****		

Lanes and Geometrics
5: Main St & SR-91 WB Ramps

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	90		50	155		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		0.887				0.850			0.850		0.998	
Flt Protected					0.952		0.950			0.950		
Satd. Flow (prot)	0	1652	0	0	1773	1583	1770	3539	1583	1770	3532	0
Flt Permitted					0.952		0.470			0.950		
Satd. Flow (perm)	0	1652	0	0	1773	1583	875	3539	1583	1770	3532	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				518			127			1
Link Speed (mph)		30			30			30				30
Link Distance (ft)		246			641			875				3052
Travel Time (s)		5.6			14.6			19.9				69.4

Intersection Summary

Area Type: Other

Volume
5: Main St & SR-91 WB Ramps



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	1	4	405	1	456	1	521	84	97	434	4
Future Volume (vph)	0	1	4	405	1	456	1	521	84	97	434	4
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	1	5	460	1	518	1	592	95	110	493	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	6	0	0	461	518	1	592	95	110	498	0
Intersection Summary												

Timings
5: Main St & SR-91 WB Ramps

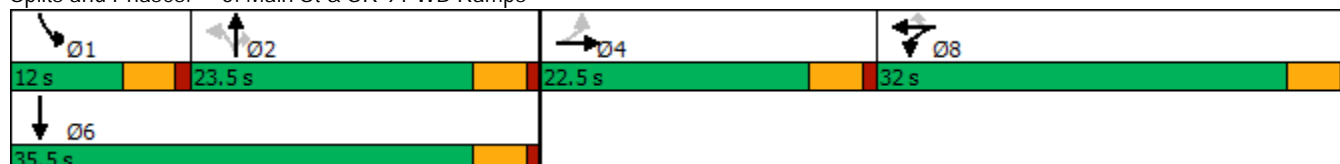


Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↗	↖	↑↑	↗	↖	↕
Traffic Volume (vph)	1	1	456	1	521	84	97	434
Future Volume (vph)	1	1	456	1	521	84	97	434
Turn Type	NA	NA	Perm	Perm	NA	Perm	Prot	NA
Protected Phases	4	8			2		1	6
Permitted Phases			8	2		2		
Detector Phase	4	8	8	2	2	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	9.5	22.5
Total Split (s)	22.5	32.0	32.0	23.5	23.5	23.5	12.0	35.5
Total Split (%)	25.0%	35.6%	35.6%	26.1%	26.1%	26.1%	13.3%	39.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag				Lag	Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	Max	Max	Max	None	Max
Act Effect Green (s)	5.8	23.9	23.9	19.3	19.3	19.3	7.5	31.4
Actuated g/C Ratio	0.09	0.36	0.36	0.29	0.29	0.29	0.11	0.47
v/c Ratio	0.04	0.72	0.57	0.00	0.57	0.17	0.55	0.30
Control Delay	22.4	26.4	4.7	21.0	24.0	3.5	42.7	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.4	26.4	4.7	21.0	24.0	3.5	42.7	12.6
LOS	C	C	A	C	C	A	D	B
Approach Delay	22.4	14.9			21.2			18.1
Approach LOS	C	B			C			B

Intersection Summary

Cycle Length: 90	
Actuated Cycle Length: 66.2	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 17.7	Intersection LOS: B
Intersection Capacity Utilization 60.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 5: Main St & SR-91 WB Ramps



Queues
5: Main St & SR-91 WB Ramps
























Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	6	461	518	1	592	95	110	498
v/c Ratio	0.04	0.72	0.57	0.00	0.57	0.17	0.55	0.30
Control Delay	22.4	26.4	4.7	21.0	24.0	3.5	42.7	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.4	26.4	4.7	21.0	24.0	3.5	42.7	12.6
Queue Length 50th (ft)	0	147	0	0	107	0	43	62
Queue Length 95th (ft)	11	294	56	4	188	20	#119	122
Internal Link Dist (ft)	166	561			795			2972
Turn Bay Length (ft)				90		50	155	
Base Capacity (vph)	458	745	965	255	1034	552	203	1674
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.62	0.54	0.00	0.57	0.17	0.54	0.30

Intersection Summary

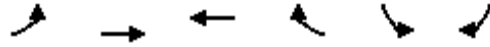
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
5: Main St & SR-91 WB Ramps

333 W. Gardena Blvd Project TIA
01/20/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	4	405	1	456	1	521	84	97	434	4
Future Volume (veh/h)	0	1	4	405	1	456	1	521	84	97	434	4
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	0	1	5	460	1	518	1	592	95	110	493	5
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	2	11	642	1	575	367	1046	468	141	1573	16
Arrive On Green	0.00	0.01	0.01	0.36	0.36	0.36	0.30	0.30	0.30	0.08	0.44	0.44
Sat Flow, veh/h	0	271	1353	1770	4	1583	896	3539	1583	1774	3590	36
Grp Volume(v), veh/h	0	0	6	461	0	518	1	592	95	110	243	255
Grp Sat Flow(s),veh/h/ln	0	0	1624	1774	0	1583	896	1770	1583	1774	1770	1856
Q Serve(g_s), s	0.0	0.0	0.3	15.8	0.0	21.9	0.1	10.0	3.2	4.3	6.3	6.3
Cycle Q Clear(g_c), s	0.0	0.0	0.3	15.8	0.0	21.9	0.1	10.0	3.2	4.3	6.3	6.3
Prop In Lane	0.00		0.83	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	0	0	13	644	0	575	367	1046	468	141	776	814
V/C Ratio(X)	0.00	0.00	0.47	0.72	0.00	0.90	0.00	0.57	0.20	0.78	0.31	0.31
Avail Cap(c_a), veh/h	0	0	413	690	0	616	367	1046	468	188	776	814
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	34.9	19.4	0.0	21.3	17.6	21.1	18.7	32.0	12.9	12.9
Incr Delay (d2), s/veh	0.0	0.0	24.5	3.3	0.0	15.9	0.0	2.2	1.0	14.1	1.1	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.2	8.3	0.0	12.0	0.0	5.2	1.5	2.7	3.3	3.4
LnGrp Delay(d),s/veh	0.0	0.0	59.4	22.7	0.0	37.2	17.6	23.3	19.6	46.0	14.0	13.9
LnGrp LOS			E	C		D	B	C	B	D	B	B
Approach Vol, veh/h		6			979			688			608	
Approach Delay, s/veh		59.4			30.4			22.8			19.8	
Approach LOS		E			C			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.1	25.4		5.1		35.5		30.2				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	7.5	19.0		18.0		31.0		27.5				
Max Q Clear Time (g_c+I1), s	6.3	12.0		2.3		8.3		23.9				
Green Ext Time (p_c), s	0.0	2.4		0.0		3.0		1.8				
Intersection Summary												
HCM 2010 Ctrl Delay			25.3									
HCM 2010 LOS			C									

Lanes and Geometrics
7: Albertoni St & SR-91 EB Ramps

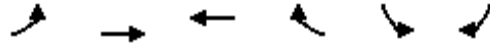


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	200			50	0	0
Storage Lanes	2			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor						
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	3539	3539	1583	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				89		254
Link Speed (mph)		30	30		30	
Link Distance (ft)		930	527		334	
Travel Time (s)		21.1	12.0		7.6	

Intersection Summary

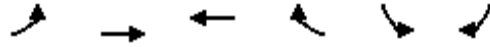
Area Type: Other

Volume
7: Albertoni St & SR-91 EB Ramps



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	265	285	423	83	194	236
Future Volume (vph)	265	285	423	83	194	236
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	285	306	455	89	209	254
Shared Lane Traffic (%)						
Lane Group Flow (vph)	285	306	455	89	209	254
Intersection Summary						

Timings
7: Albertoni St & SR-91 EB Ramps

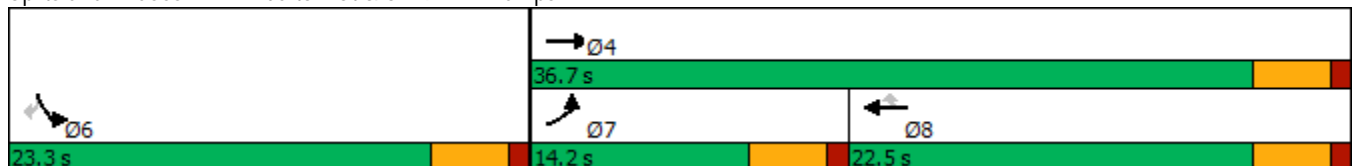


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↗↗	↑↑	↑↑	↖	↘	↘
Traffic Volume (vph)	265	285	423	83	194	236
Future Volume (vph)	265	285	423	83	194	236
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	14.2	36.7	22.5	22.5	23.3	23.3
Total Split (%)	23.7%	61.2%	37.5%	37.5%	38.8%	38.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effect Green (s)	8.9	26.3	12.9	12.9	18.9	18.9
Actuated g/C Ratio	0.16	0.48	0.24	0.24	0.35	0.35
v/c Ratio	0.51	0.18	0.54	0.20	0.34	0.35
Control Delay	25.0	7.9	20.5	5.7	16.4	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.0	7.9	20.5	5.7	16.4	4.1
LOS	C	A	C	A	B	A
Approach Delay		16.1	18.1		9.7	
Approach LOS		B	B		A	

Intersection Summary

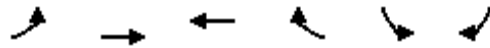
Cycle Length: 60
 Actuated Cycle Length: 54.3
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.54
 Intersection Signal Delay: 14.9
 Intersection LOS: B
 Intersection Capacity Utilization 41.3%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 7: Albertoni St & SR-91 EB Ramps



Queues

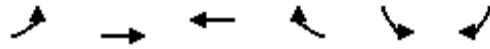
7: Albertoni St & SR-91 EB Ramps



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	285	306	455	89	209	254
v/c Ratio	0.51	0.18	0.54	0.20	0.34	0.35
Control Delay	25.0	7.9	20.5	5.7	16.4	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.0	7.9	20.5	5.7	16.4	4.1
Queue Length 50th (ft)	43	26	68	0	50	0
Queue Length 95th (ft)	81	43	105	26	108	43
Internal Link Dist (ft)		850	447		254	
Turn Bay Length (ft)	200			50		
Base Capacity (vph)	617	2110	1179	587	616	716
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.15	0.39	0.15	0.34	0.35

Intersection Summary

HCM 2010 Signalized Intersection Summary
 7: Albertoni St & SR-91 EB Ramps



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations	↖↖	↗↗	↖↖	↗	↖	↗		
Traffic Volume (veh/h)	265	285	423	83	194	236		
Future Volume (veh/h)	265	285	423	83	194	236		
Number	7	4	8	18	1	16		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	285	306	455	89	209	254		
Adj No. of Lanes	2	2	2	1	1	1		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	430	1507	735	329	689	615		
Arrive On Green	0.13	0.43	0.21	0.21	0.39	0.39		
Sat Flow, veh/h	3442	3632	3632	1583	1774	1583		
Grp Volume(v), veh/h	285	306	455	89	209	254		
Grp Sat Flow(s),veh/h/ln	1721	1770	1770	1583	1774	1583		
Q Serve(g_s), s	3.8	2.6	5.7	2.3	4.0	5.7		
Cycle Q Clear(g_c), s	3.8	2.6	5.7	2.3	4.0	5.7		
Prop In Lane	1.00			1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	430	1507	735	329	689	615		
V/C Ratio(X)	0.66	0.20	0.62	0.27	0.30	0.41		
Avail Cap(c_a), veh/h	690	2354	1316	589	689	615		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	20.2	8.7	17.4	16.1	10.3	10.8		
Incr Delay (d2), s/veh	1.8	0.1	0.9	0.4	1.1	2.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.9	1.3	2.8	1.0	2.1	2.8		
LnGrp Delay(d),s/veh	22.0	8.8	18.3	16.5	11.4	12.8		
LnGrp LOS	C	A	B	B	B	B		
Approach Vol, veh/h		591	544		463			
Approach Delay, s/veh		15.1	18.0		12.2			
Approach LOS		B	B		B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				25.1		23.3	10.6	14.6
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				32.2		18.8	9.7	18.0
Max Q Clear Time (g_c+I1), s				4.6		7.7	5.8	7.7
Green Ext Time (p_c), s				2.0		1.2	0.4	2.4
Intersection Summary								
HCM 2010 Ctrl Delay			15.3					
HCM 2010 LOS			B					

Lanes and Geometrics
8: I-110 SB Ramps & Redondo Beach Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑↑					↑	↑↓	↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		310	225		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	1.00	1.00	0.95	0.91	0.95
Ped Bike Factor												
Frt			0.850								0.890	0.850
Flt Protected				0.950						0.950	0.987	
Satd. Flow (prot)	0	3539	1583	1770	5085	0	0	0	0	1681	1489	1504
Flt Permitted				0.950						0.950	0.987	
Satd. Flow (perm)	0	3539	1583	1770	5085	0	0	0	0	1681	1489	1504
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			467								126	126
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		675			491			369			400	
Travel Time (s)		15.3			11.2			8.4			9.1	

Intersection Summary

Area Type: Other

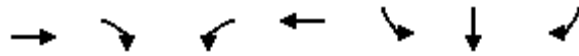
Volume
8: I-110 SB Ramps & Redondo Beach Blvd

333 W. Gardena Blvd Project TIA
01/20/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	654	444	197	843	0	0	0	0	457	1	593
Future Volume (vph)	0	654	444	197	843	0	0	0	0	457	1	593
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	688	467	207	887	0	0	0	0	481	1	624
Shared Lane Traffic (%)										20%		43%
Lane Group Flow (vph)	0	688	467	207	887	0	0	0	0	385	365	356
Intersection Summary												

Timings
8: I-110 SB Ramps & Redondo Beach Blvd

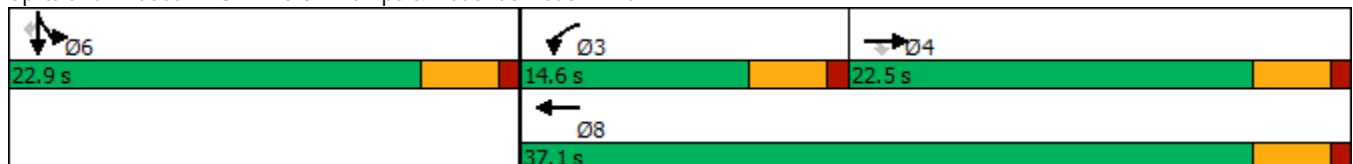


Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Configurations	↑↑	↑	↵	↑↑↑	↵	↕	↑
Traffic Volume (vph)	654	444	197	843	457	1	593
Future Volume (vph)	654	444	197	843	457	1	593
Turn Type	NA	Perm	Prot	NA	Split	NA	Perm
Protected Phases	4		3	8	6	6	
Permitted Phases		4					6
Detector Phase	4	4	3	8	6	6	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5	14.6	37.1	22.9	22.9	22.9
Total Split (%)	37.5%	37.5%	24.3%	61.8%	38.2%	38.2%	38.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Max	Max	Max
Act Effect Green (s)	17.0	17.0	9.6	31.1	18.5	18.5	18.5
Actuated g/C Ratio	0.29	0.29	0.16	0.53	0.32	0.32	0.32
v/c Ratio	0.67	0.59	0.72	0.33	0.73	0.66	0.64
Control Delay	22.1	5.5	39.9	8.1	28.7	18.5	17.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.1	5.5	39.9	8.1	28.7	18.5	17.4
LOS	C	A	D	A	C	B	B
Approach Delay	15.4			14.1		21.7	
Approach LOS	B			B		C	

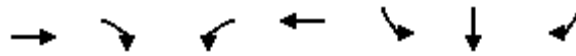
Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 58.6
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 17.1
 Intersection LOS: B
 Intersection Capacity Utilization 68.4%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 8: I-110 SB Ramps & Redondo Beach Blvd



Queues
8: I-110 SB Ramps & Redondo Beach Blvd















Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	688	467	207	887	385	365	356
v/c Ratio	0.67	0.59	0.72	0.33	0.73	0.66	0.64
Control Delay	22.1	5.5	39.9	8.1	28.7	18.5	17.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.1	5.5	39.9	8.1	28.7	18.5	17.4
Queue Length 50th (ft)	112	0	72	58	130	78	71
Queue Length 95th (ft)	163	58	#157	80	#257	#174	157
Internal Link Dist (ft)	595			411		320	
Turn Bay Length (ft)		310	225				
Base Capacity (vph)	1090	810	305	2836	529	554	559
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.58	0.68	0.31	0.73	0.66	0.64

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
8: I-110 SB Ramps & Redondo Beach Blvd

333 W. Gardena Blvd Project TIA
01/20/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑↑					↑	↑	↑
Traffic Volume (veh/h)	0	654	444	197	843	0	0	0	0	457	1	593
Future Volume (veh/h)	0	654	444	197	843	0	0	0	0	457	1	593
Number	7	4	14	3	8	18				1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	688	467	207	887	0				698	0	392
Adj No. of Lanes	0	2	1	1	3	0				2	0	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1093	489	255	2694	0				1120	0	500
Arrive On Green	0.00	0.31	0.31	0.14	0.53	0.00				0.32	0.00	0.32
Sat Flow, veh/h	0	3632	1583	1774	5253	0				3548	0	1583
Grp Volume(v), veh/h	0	688	467	207	887	0				698	0	392
Grp Sat Flow(s),veh/h/ln	0	1770	1583	1774	1695	0				1774	0	1583
Q Serve(g_s), s	0.0	9.7	16.8	6.6	5.8	0.0				9.8	0.0	13.1
Cycle Q Clear(g_c), s	0.0	9.7	16.8	6.6	5.8	0.0				9.8	0.0	13.1
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1093	489	255	2694	0				1120	0	500
V/C Ratio(X)	0.00	0.63	0.95	0.81	0.33	0.00				0.62	0.00	0.78
Avail Cap(c_a), veh/h	0	1093	489	307	2845	0				1120	0	500
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	17.3	19.7	24.2	7.8	0.0				17.0	0.0	18.1
Incr Delay (d2), s/veh	0.0	1.2	29.5	12.9	0.1	0.0				2.6	0.0	11.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.9	11.3	4.1	2.7	0.0				5.2	0.0	7.3
LnGrp Delay(d),s/veh	0.0	18.4	49.3	37.1	7.9	0.0				19.6	0.0	29.8
LnGrp LOS		B	D	D	A					B		C
Approach Vol, veh/h		1155			1094						1090	
Approach Delay, s/veh		30.9			13.4						23.3	
Approach LOS		C			B						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			12.9	22.5		22.9		35.4				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			10.1	18.0		18.4		32.6				
Max Q Clear Time (g_c+I1), s			8.6	18.8		15.1		7.8				
Green Ext Time (p_c), s			0.1	0.0		1.5		6.8				
Intersection Summary												
HCM 2010 Ctrl Delay			22.7									
HCM 2010 LOS			C									
Notes												

Lanes and Geometrics
 9: I-110 SB Ramps & Redondo Beach Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	60		290	170		0	0		0	0		0
Storage Lanes	1		1	1		0	1		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor			0.850		0.999				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.954			0.972	
Satd. Flow (prot)	1770	3539	1583	1770	5080	0	1681	1688	1583	0	1811	1583
Flt Permitted	0.950			0.950			0.950	0.954			0.879	
Satd. Flow (perm)	1770	3539	1583	1770	5080	0	1681	1688	1583	0	1637	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			354		1				363			182
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		491			442			253			82	
Travel Time (s)		11.2			10.0			5.8			1.9	

Intersection Summary

Area Type: Other

Volume
9: I-110 SB Ramps & Redondo Beach Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	16	782	340	306	673	6	329	8	348	4	3	14
Future Volume (vph)	16	782	340	306	673	6	329	8	348	4	3	14
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	17	815	354	319	701	6	343	8	363	4	3	15
Shared Lane Traffic (%)							49%					
Lane Group Flow (vph)	17	815	354	319	707	0	175	176	363	0	7	15
Intersection Summary												

Timings
9: I-110 SB Ramps & Redondo Beach Blvd

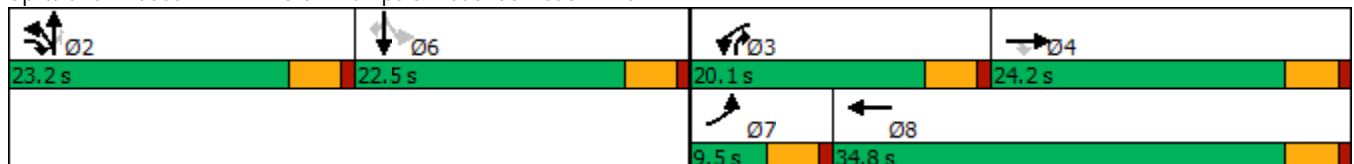


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	16	782	340	306	673	329	8	348	4	3	14
Future Volume (vph)	16	782	340	306	673	329	8	348	4	3	14
Turn Type	Prot	NA	pm+ov	Prot	NA	Split	NA	pm+ov	Perm	NA	Perm
Protected Phases	7	4	2	3	8	2	2	3		6	
Permitted Phases			4					2	6		6
Detector Phase	7	4	2	3	8	2	2	3	6	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	9.5	24.2	23.2	20.1	34.8	23.2	23.2	20.1	22.5	22.5	22.5
Total Split (%)	10.6%	26.9%	25.8%	22.3%	38.7%	25.8%	25.8%	22.3%	25.0%	25.0%	25.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5
Lead/Lag	Lead	Lag		Lead	Lag			Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes			
Recall Mode	None	None	Max	None	None	Max	Max	None	Max	Max	Max
Act Effect Green (s)	5.0	19.7	42.9	15.6	36.0	18.7	18.7	34.3		18.0	18.0
Actuated g/C Ratio	0.06	0.22	0.48	0.17	0.40	0.21	0.21	0.38		0.20	0.20
v/c Ratio	0.17	1.05	0.38	1.04	0.35	0.50	0.50	0.44		0.02	0.03
Control Delay	44.8	82.7	2.8	101.4	20.2	37.3	37.3	2.8		29.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	44.8	82.7	2.8	101.4	20.2	37.3	37.3	2.8		29.3	0.1
LOS	D	F	A	F	C	D	D	A		C	A
Approach Delay		58.3			45.5		19.8			9.4	
Approach LOS		E			D		B			A	

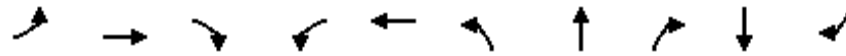
Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.05
 Intersection Signal Delay: 44.2
 Intersection LOS: D
 Intersection Capacity Utilization 65.8%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 9: I-110 SB Ramps & Redondo Beach Blvd



Queues
9: I-110 SB Ramps & Redondo Beach Blvd

























Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	17	815	354	319	707	175	176	363	7	15
v/c Ratio	0.17	1.05	0.38	1.04	0.35	0.50	0.50	0.44	0.02	0.03
Control Delay	44.8	82.7	2.8	101.4	20.2	37.3	37.3	2.8	29.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.8	82.7	2.8	101.4	20.2	37.3	37.3	2.8	29.3	0.1
Queue Length 50th (ft)	9	~268	0	~198	92	93	93	0	3	0
Queue Length 95th (ft)	31	#385	44	#360	146	162	162	25	15	0
Internal Link Dist (ft)		411			362		173		2	
Turn Bay Length (ft)	60		290	170						
Base Capacity (vph)	98	774	939	306	2032	349	350	827	327	462
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	1.05	0.38	1.04	0.35	0.50	0.50	0.44	0.02	0.03

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
9: I-110 SB Ramps & Redondo Beach Blvd

333 W. Gardena Blvd Project TIA
01/20/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	782	340	306	673	6	329	8	348	4	3	14
Future Volume (veh/h)	16	782	340	306	673	6	329	8	348	4	3	14
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	17	815	354	319	701	6	349	0	362	4	3	15
Adj No. of Lanes	1	2	1	1	3	0	2	0	1	0	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	34	775	676	308	1940	17	737	0	603	207	155	317
Arrive On Green	0.02	0.22	0.22	0.17	0.37	0.37	0.21	0.00	0.21	0.20	0.20	0.20
Sat Flow, veh/h	1774	3539	1583	1774	5201	44	3548	0	1583	1035	776	1583
Grp Volume(v), veh/h	17	815	354	319	457	250	349	0	362	7	0	15
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1695	1855	1774	0	1583	1811	0	1583
Q Serve(g_s), s	0.9	19.7	14.9	15.6	8.8	8.8	7.8	0.0	16.5	0.3	0.0	0.7
Cycle Q Clear(g_c), s	0.9	19.7	14.9	15.6	8.8	8.8	7.8	0.0	16.5	0.3	0.0	0.7
Prop In Lane	1.00		1.00	1.00		0.02	1.00		1.00	0.57		1.00
Lane Grp Cap(c), veh/h	34	775	676	308	1264	692	737	0	603	362	0	317
V/C Ratio(X)	0.50	1.05	0.52	1.04	0.36	0.36	0.47	0.00	0.60	0.02	0.00	0.05
Avail Cap(c_a), veh/h	99	775	676	308	1264	692	737	0	603	362	0	317
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.7	35.2	19.1	37.2	20.4	20.5	31.3	0.0	22.3	28.9	0.0	29.1
Incr Delay (d2), s/veh	10.8	46.9	0.7	61.4	0.2	0.3	2.2	0.0	4.4	0.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	14.6	8.9	12.8	4.2	4.6	4.0	0.0	7.9	0.1	0.0	0.3
LnGrp Delay(d),s/veh	54.5	82.0	19.8	98.6	20.6	20.8	33.5	0.0	26.7	29.0	0.0	29.4
LnGrp LOS	D	F	B	F	C	C	C		C	C		C
Approach Vol, veh/h		1186			1026			711				22
Approach Delay, s/veh		63.1			44.9			30.0				29.2
Approach LOS		E			D			C				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.2	20.1	24.2		22.5	6.2	38.1				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.7	15.6	19.7		18.0	5.0	30.3				
Max Q Clear Time (g_c+I1), s		18.5	17.6	21.7		2.7	2.9	10.8				
Green Ext Time (p_c), s		0.1	0.0	0.0		0.0	0.0	4.5				
Intersection Summary												
HCM 2010 Ctrl Delay			48.5									
HCM 2010 LOS			D									
Notes												

Lanes and Geometrics
11: Figueroa St & 164th St



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	50	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Ped Bike Factor						
Frt	0.952		0.997			
Flt Protected	0.969				0.950	
Satd. Flow (prot)	1718	0	3529	0	1770	3539
Flt Permitted	0.969				0.950	
Satd. Flow (perm)	1718	0	3529	0	1770	3539
Link Speed (mph)	30		30			30
Link Distance (ft)	648		333			3650
Travel Time (s)	14.7		7.6			83.0

Intersection Summary

Area Type: Other

Volume
11: Figueroa St & 164th St



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Volume (vph)	8	5	487	10	5	727
Future Volume (vph)	8	5	487	10	5	727
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	9	5	535	11	5	799
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	0	546	0	5	799
Intersection Summary						

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕		↔	↕
Traffic Vol, veh/h	8	5	487	10	5	727
Future Vol, veh/h	8	5	487	10	5	727
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	5	535	11	5	799

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	951	273	0	0	546	0
Stage 1	541	-	-	-	-	-
Stage 2	410	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	258	725	-	-	1019	-
Stage 1	548	-	-	-	-	-
Stage 2	638	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	257	725	-	-	1019	-
Mov Cap-2 Maneuver	385	-	-	-	-	-
Stage 1	548	-	-	-	-	-
Stage 2	635	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.9	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	470	1019
HCM Lane V/C Ratio	-	-	0.03	0.005
HCM Control Delay (s)	-	-	12.9	8.6
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Lanes and Geometrics
 12: Gardena Blvd & 164th St



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt					0.929	
Flt Protected					0.977	
Satd. Flow (prot)	0	3539	3539	0	1691	0
Flt Permitted					0.977	
Satd. Flow (perm)	0	3539	3539	0	1691	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		645	84		308	
Travel Time (s)		14.7	1.9		7.0	

Intersection Summary

Area Type: Other

Volume
12: Gardena Blvd & 164th St



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	0	258	294	0	7	8
Future Volume (vph)	0	258	294	0	7	8
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	280	320	0	8	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	280	320	0	17	0
Intersection Summary						

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	
Traffic Vol, veh/h	0	258	294	0	7	8
Future Vol, veh/h	0	258	294	0	7	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	280	320	0	8	9

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	320	0	-	0	460 160
Stage 1	-	-	-	-	320 -
Stage 2	-	-	-	-	140 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	1237	-	-	-	530 857
Stage 1	-	-	-	-	709 -
Stage 2	-	-	-	-	872 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1237	-	-	-	530 857
Mov Cap-2 Maneuver	-	-	-	-	530 -
Stage 1	-	-	-	-	709 -
Stage 2	-	-	-	-	872 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1237	-	-	-	665
HCM Lane V/C Ratio	-	-	-	-	0.025
HCM Control Delay (s)	0	-	-	-	10.6
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lanes and Geometrics
 13: Gardena Blvd & Project Dwy 1



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.981		0.940	
Flt Protected		0.995			0.973	
Satd. Flow (prot)	0	3522	3472	0	1704	0
Flt Permitted		0.995			0.973	
Satd. Flow (perm)	0	3522	3472	0	1704	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		84	366		132	
Travel Time (s)		1.9	8.3		3.0	

Intersection Summary

Area Type: Other

Volume
13: Gardena Blvd & Project Dwy 1



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	28	229	290	43	5	4
Future Volume (vph)	28	229	290	43	5	4
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	30	249	315	47	5	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	279	362	0	9	0
Intersection Summary						

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑	
Traffic Vol, veh/h	28	229	290	43	5	4
Future Vol, veh/h	28	229	290	43	5	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	249	315	47	5	4

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	362	0	-	0	524 181
Stage 1	-	-	-	-	339 -
Stage 2	-	-	-	-	185 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	1193	-	-	-	483 831
Stage 1	-	-	-	-	693 -
Stage 2	-	-	-	-	828 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1193	-	-	-	469 831
Mov Cap-2 Maneuver	-	-	-	-	469 -
Stage 1	-	-	-	-	673 -
Stage 2	-	-	-	-	828 -

Approach	EB	WB	SB
HCM Control Delay, s	1	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1193	-	-	-	582
HCM Lane V/C Ratio	0.026	-	-	-	0.017
HCM Control Delay (s)	8.1	0.1	-	-	11.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Lanes and Geometrics
 14: Gardena Blvd & Project Dwy 2



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↕↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.988		0.946	
Flt Protected		0.997			0.971	
Satd. Flow (prot)	0	3529	3497	0	1711	0
Flt Permitted		0.997			0.971	
Satd. Flow (perm)	0	3529	3497	0	1711	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		366	224		428	
Travel Time (s)		8.3	5.1		9.7	

Intersection Summary

Area Type: Other

Volume
14: Gardena Blvd & Project Dwy 2



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	15	219	331	29	3	2
Future Volume (vph)	15	219	331	29	3	2
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	16	238	360	32	3	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	254	392	0	5	0
Intersection Summary						

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	
Traffic Vol, veh/h	15	219	331	29	3	2
Future Vol, veh/h	15	219	331	29	3	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	238	360	32	3	2

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	392	0	-	0	527 196
Stage 1	-	-	-	-	376 -
Stage 2	-	-	-	-	151 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	1163	-	-	-	481 812
Stage 1	-	-	-	-	664 -
Stage 2	-	-	-	-	861 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1163	-	-	-	473 812
Mov Cap-2 Maneuver	-	-	-	-	473 -
Stage 1	-	-	-	-	653 -
Stage 2	-	-	-	-	861 -

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	11.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1163	-	-	-	568
HCM Lane V/C Ratio	0.014	-	-	-	0.01
HCM Control Delay (s)	8.1	0.1	-	-	11.4
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

333 W. Gardena Blvd Industrial Project Preliminary TIA
Opening Year Plus Project Conditions
PM Peak Hour

Scenario Report

Scenario: OY+C+P_PM
Command: OY+C+P_PM
Volume: EX_PM
Geometry: EX
Impact Fee: Default Impact Fee
Trip Generation: C+P_PM
Trip Distribution: DEFAULT
Paths: Default Path
Routes: Default Route
Configuration: OY

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Opening Year Plus Project Conditions
 PM Peak Hour

Trip Generation Report

Forecast for P_PM

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
1		1.00	PROJECT - PC	9.00	63.00	9	63	72	11.3
	Zone 1 Subtotal					9	63	72	11.3
2		1.00	PROJECT - TRUC	5.00	39.00	5	39	44	6.9
	Zone 2 Subtotal					5	39	44	6.9
TOTAL						14	102	116	18.2

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Opening Year Plus Project Conditions
 PM Peak Hour

Trip Generation Report

Forecast for C_PM

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
101		1.00	TAZ 1	11.00	22.00	11	22	33	5.2
	Zone 101 Subtotal					11	22	33	5.2
102		1.00	TAZ 2	5.00	34.00	5	34	39	6.1
	Zone 102 Subtotal					5	34	39	6.1
103		1.00	TAZ 3	14.00	0.00	14	0	14	2.2
	Zone 103 Subtotal					14	0	14	2.2
104		1.00	TAZ 4	168.00	208.00	168	208	376	58.8
	Zone 104 Subtotal					168	208	376	58.8
105		1.00	TAZ 5	15.00	46.00	15	46	61	9.5
	Zone 105 Subtotal					15	46	61	9.5
TOTAL						213	310	523	81.8

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Opening Year Plus Project Conditions
 PM Peak Hour

Turning Movement Report
 P_PM + C_PM

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#1 Figueroa St (NS) / Gardena Blvd (EW)													
Base	55	717	87	69	600	54	93	340	67	82	178	92	2432
Added	0	8	0	4	10	10	8	4	0	3	13	33	93
Total	55	725	87	73	610	64	101	344	67	85	191	125	2525
#2 Broadway (NS) / Gardena Blvd (EW)													
Base	56	510	69	25	377	34	57	365	45	31	278	45	1892
Added	1	0	0	0	0	2	12	44	11	0	16	0	86
Total	57	510	69	25	377	36	69	409	56	31	294	45	1978
#3 Main St (NS) / Gardena Blvd (EW)													
Base	83	746	144	39	470	43	67	352	57	80	222	68	2371
Added	7	25	1	0	30	8	3	6	35	1	1	0	117
Total	90	771	145	39	500	51	70	358	92	81	223	68	2488
#4 Broadway (NS) / Albertoni St (EW)													
Base	38	292	80	75	382	57	134	719	118	52	289	38	2274
Added	0	0	0	8	3	0	0	0	0	0	0	1	12
Total	38	292	80	83	385	57	134	719	118	52	289	39	2286
#5 Main St (NS) / SR-91 WB Ramps (EW)													
Base	2	618	75	147	691	1	0	0	5	223	0	287	2049
Added	0	25	0	23	52	0	0	0	0	1	0	6	107
Total	2	643	75	170	743	1	0	0	5	224	0	293	2156
#6 Main St (NS) / Albertoni St (EW)													
Base	79	339	175	220	542	82	63	641	147	148	232	305	2974
Added	0	20	0	23	28	1	0	8	0	0	0	5	85
Total	79	359	175	243	570	83	63	649	147	148	232	310	3059
#7 SR-91 EB Ramps (NS) / Albertoni St (EW)													
Base	0	0	0	613	0	496	234	987	0	0	337	55	2722
Added	0	0	0	0	0	5	31	0	0	0	0	0	36
Total	0	0	0	613	0	501	265	987	0	0	337	55	2758
#8 I-110 SB Ramps (NS) / Redondo Beach Blvd (EW)													
Base	0	0	0	456	1	529	0	1111	279	131	929	0	3436
Added	0	0	0	53	0	0	0	12	0	59	19	0	143
Total	0	0	0	509	1	529	0	1123	279	190	948	0	3579
#9 I-110 NB Ramps (NS) / Redondo Beach Blvd (EW)													
Base	338	0	336	17	9	21	13	1085	480	320	698	3	3321
Added	0	0	47	0	0	0	0	65	0	94	78	0	284
Total	338	0	383	17	9	21	13	1150	480	414	776	3	3605

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Opening Year Plus Project Conditions
 PM Peak Hour

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#10 Figueroa St (NS) / Redondo Beach Blvd (EW)													
Base	224	518	155	81	479	126	112	1112	187	47	683	55	3778
Added	29	3	0	0	0	0	0	106	5	0	143	0	286
Total	253	521	155	81	479	126	112	1218	192	47	826	55	4064
#11 Figueroa St (NS) / 164th St (EW)													
Base	0	883	5	1	773	0	0	0	0	3	0	9	1674
Added	0	49	0	0	25	0	0	0	0	0	0	0	74
Total	0	932	5	1	798	0	0	0	0	3	0	9	1748
#12 164th St (NS) / Gardena Blvd (EW)													
Base	0	0	0	3	0	3	0	496	0	0	368	0	870
Added	0	0	0	0	0	0	0	9	0	0	49	0	58
Total	0	0	0	3	0	3	0	505	0	0	417	0	928
#13 Project Dwy 1 (NS) / Gardena Blvd (EW)													
Base	0	0	0	0	0	0	0	496	0	0	368	0	864
Added	0	0	0	38	0	25	4	6	0	0	24	5	102
Total	0	0	0	38	0	25	4	502	0	0	392	5	966
#14 Project Dwy 2 (NS) / Gardena Blvd (EW)													
Base	0	0	0	0	0	0	0	496	0	0	368	0	864
Added	0	0	0	25	0	14	2	42	0	0	16	3	102
Total	0	0	0	25	0	14	2	538	0	0	384	3	966

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Opening Year Plus Project Conditions
 PM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #1 Figueroa St (NS) / Gardena Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.581
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxxx
 Optimal Cycle: 39 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	54	710	86	68	594	53	92	337	66	81	176	91
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	55	717	87	69	600	54	93	340	67	82	178	92
Added Vol:	0	8	0	4	10	10	8	4	0	3	13	33
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	55	725	87	73	610	64	101	344	67	85	191	125
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	55	725	87	73	610	64	101	344	67	85	191	125
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	55	725	87	73	610	64	101	344	67	85	191	125
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	55	725	87	73	610	64	101	344	67	85	191	125

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.79	0.21	1.00	1.81	0.19	1.00	1.68	0.32	1.00	1.21	0.79
Final Sat.:	1600	2858	342	1600	2898	302	1600	2681	519	1600	1934	1266

Capacity Analysis Module:

Vol/Sat:	0.03	0.25	0.25	0.05	0.21	0.21	0.06	0.13	0.13	0.05	0.10	0.10
Crit Moves:	****			****			****			****		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Opening Year Plus Project Conditions
 PM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #2 Broadway (NS) / Gardena Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.462
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxxx
 Optimal Cycle: 31 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	55	505	68	25	373	34	56	361	45	31	275	45
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	56	510	69	25	377	34	57	365	45	31	278	45
Added Vol:	1	0	0	0	0	2	12	44	11	0	16	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	57	510	69	25	377	36	69	409	56	31	294	45
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	57	510	69	25	377	36	69	409	56	31	294	45
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	57	510	69	25	377	36	69	409	56	31	294	45
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	57	510	69	25	377	36	69	409	56	31	294	45

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.76	0.24	1.00	1.82	0.18	1.00	1.76	0.24	1.00	1.73	0.27
Final Sat.:	1600	2820	380	1600	2918	282	1600	2812	388	1600	2771	429

Capacity Analysis Module:

Vol/Sat:	0.04	0.18	0.18	0.02	0.13	0.13	0.04	0.15	0.15	0.02	0.11	0.11
Crit Moves:	****			****			****			****		

 333 W. Gardena Blvd Industrial Project Preliminary TIA
 Opening Year Plus Project Conditions
 PM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #3 Main St (NS) / Gardena Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.557
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 37 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	2	0	1	1	0	1	1	0	1	1

Volume Module:

Base Vol:	82	739	143	39	465	43	66	349	56	79	220	67
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	83	746	144	39	470	43	67	352	57	80	222	68
Added Vol:	7	25	1	0	30	8	3	6	35	1	1	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	90	771	145	39	500	51	70	358	92	81	223	68
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	90	771	145	39	500	51	70	358	92	81	223	68
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	90	771	145	39	500	51	70	358	92	81	223	68
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	90	771	145	39	500	51	70	358	92	81	223	68

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.59	0.41	1.00	1.53	0.47
Final Sat.:	1600	3200	1600	1600	3200	1600	1600	2549	651	1600	2456	744

Capacity Analysis Module:

Vol/Sat:	0.06	0.24	0.09	0.02	0.16	0.03	0.04	0.14	0.14	0.05	0.09	0.09
Crit Moves:	****			****			****			****		

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #4 Broadway (NS) / Albertoni St (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.562
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 37 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	38	289	79	74	378	56	133	712	117	51	286	38
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	38	292	80	75	382	57	134	719	118	52	289	38
Added Vol:	0	0	0	8	3	0	0	0	0	0	0	1
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	38	292	80	83	385	57	134	719	118	52	289	39
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	38	292	80	83	385	57	134	719	118	52	289	39
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	38	292	80	83	385	57	134	719	118	52	289	39
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	38	292	80	83	385	57	134	719	118	52	289	39

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.57	0.43	1.00	1.74	0.26	1.00	1.72	0.28	1.00	1.76	0.24
Final Sat.:	1600	2513	687	1600	2790	410	1600	2748	452	1600	2816	384

Capacity Analysis Module:

Vol/Sat:	0.02	0.12	0.12	0.05	0.14	0.14	0.08	0.26	0.26	0.03	0.10	0.10
Crit Moves:	****			****			****			****		

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #5 Main St (NS) / SR-91 WB Ramps (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.591
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 39 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Permitted				Protected				Permitted				Permitted							
Rights:	Include				Include				Include				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	2	0	1	1	0	1	1	0	0	0	0	0	1	0	1	0	0	1

Volume Module:

Base Vol:	2	612	74	146	684	1	0	0	5	221	0	284
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	2	618	75	147	691	1	0	0	5	223	0	287
Added Vol:	0	25	0	23	52	0	0	0	0	1	0	6
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	2	643	75	170	743	1	0	0	5	224	0	293
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	2	643	75	170	743	1	0	0	5	224	0	293
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	2	643	75	170	743	1	0	0	5	224	0	293
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	2	643	75	170	743	1	0	0	5	224	0	293

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	1.99	0.01	0.00	0.00	1.00	1.00	0.00	1.00
Final Sat.:	1600	3200	1600	1600	3196	4	0	0	1600	1600	0	1600

Capacity Analysis Module:

Vol/Sat:	0.00	0.20	0.05	0.11	0.23	0.23	0.00	0.00	0.00	0.14	0.00	0.18
Crit Moves:	***			***			***			***		

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #6 Main St (NS) / Albertoni St (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.741
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 56 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	78	336	173	218	537	81	62	635	146	147	230	302
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	79	339	175	220	542	82	63	641	147	148	232	305
Added Vol:	0	20	0	23	28	1	0	8	0	0	0	5
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	79	359	175	243	570	83	63	649	147	148	232	310
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	79	359	175	243	570	83	63	649	147	148	232	310
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	79	359	175	243	570	83	63	649	147	148	232	310
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	79	359	175	243	570	83	63	649	147	148	232	310

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.35	0.65	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00
Final Sat.:	1600	2153	1047	1600	3200	1600	1600	3200	1600	1600	1600	1600

Capacity Analysis Module:

Vol/Sat:	0.05	0.17	0.17	0.15	0.18	0.05	0.04	0.20	0.09	0.09	0.15	0.19
Crit Moves:	***			***			***			***		

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #7 SR-91 EB Ramps (NS) / Albertoni St (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.792
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxxx
 Optimal Cycle: 98 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Permitted				Permitted				Protected				Permitted							
Rights:	Include				Include				Include				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	0	0	1	0	0	0	1	2	0	2	0	0	0	0	2	0	1

Volume Module:

Base Vol:	0	0	0	607	0	491	232	977	0	0	334	54
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	0	0	0	613	0	496	234	987	0	0	337	55
Added Vol:	0	0	0	0	0	5	31	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	613	0	501	265	987	0	0	337	55
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	613	0	501	265	987	0	0	337	55
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	613	0	501	265	987	0	0	337	55
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	613	0	501	265	987	0	0	337	55

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	2.00	2.00	0.00	0.00	2.00	1.00
Final Sat.:	0	0	0	1600	0	1600	3200	3200	0	0	3200	1600

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.38	0.00	0.31	0.08	0.31	0.00	0.00	0.11	0.03
Crit Moves:				****				****				

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #8 I-110 SB Ramps (NS) / Redondo Beach Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.786
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 64 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Split Phase				Split Phase				Permitted				Protected							
Rights:	Include				Include				Include				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	0	0	1	0	1	0	1	0	0	2	0	1	1	0	3	0	0

Volume Module:

Base Vol:	0	0	0	451	1	524	0	1100	276	130	920	0
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	0	0	0	456	1	529	0	1111	279	131	929	0
Added Vol:	0	0	0	53	0	0	0	12	0	59	19	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	509	1	529	0	1123	279	190	948	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	509	1	529	0	1123	279	190	948	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	509	1	529	0	1123	279	190	948	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	509	1	529	0	1123	279	190	948	0

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.47	0.01	1.52	0.00	2.00	1.00	1.00	3.00	0.00
Final Sat.:	0	0	0	2350	5	2446	0	3200	1600	1600	4800	0

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.22	0.22	0.22	0.00	0.35	0.17	0.12	0.20	0.00
Crit Moves:				****			****			****		

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ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #9 I-110 NB Ramps (NS) / Redondo Beach Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.840
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 77 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Ovl			Include			Ovl			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	1	0 0 1	0	1	0 0 1	1	0	2 0 1	1	0	2 1 0

Volume Module:

Base Vol:	335	0	333	17	9	21	13	1074	475	317	691	3
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	338	0	336	17	9	21	13	1085	480	320	698	3
Added Vol:	0	0	47	0	0	0	0	65	0	94	78	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	338	0	383	17	9	21	13	1150	480	414	776	3
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	338	0	383	17	9	21	13	1150	480	414	776	3
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	338	0	383	17	9	21	13	1150	480	414	776	3
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	338	0	383	17	9	21	13	1150	480	414	776	3
OvlAdjVol:	0						311					

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	0.00	1.00	0.65	0.35	1.00	1.00	2.00	1.00	1.00	2.99	0.01
Final Sat.:	3200	0	1600	1046	554	1600	1600	3200	1600	1600	4781	19

Capacity Analysis Module:

Vol/Sat:	0.11	0.00	0.24	0.02	0.02	0.01	0.01	0.36	0.30	0.26	0.16	0.16
OvlAdjV/S:	0.00						0.19					
Crit Moves:	****			****			****			****		

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ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #10 Figueroa St (NS) / Redondo Beach Blvd (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.818
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
 Optimal Cycle: 71 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Prot+Permit			Prot+Permit			Prot+Permit			Prot+Permit		
Rights:	Include			Ovl			Ovl			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	222	513	153	80	474	125	111	1101	185	47	676	54
Growth Adj:	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Initial Bse:	224	518	155	81	479	126	112	1112	187	47	683	55
Added Vol:	29	3	0	0	0	0	0	106	5	0	143	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	253	521	155	81	479	126	112	1218	192	47	826	55
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	253	521	155	81	479	126	112	1218	192	47	826	55
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	253	521	155	81	479	126	112	1218	192	47	826	55
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	253	521	155	81	479	126	112	1218	192	47	826	55
OvlAdjVol:					14				0			0






















Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.54	0.46	1.00	2.00	1.00	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1600	2468	732	1600	3200	1600	1600	3200	1600	1600	3200	1600

Capacity Analysis Module:

Vol/Sat:	0.16	0.21	0.21	0.05	0.15	0.08	0.07	0.38	0.12	0.03	0.26	0.03
OvlAdjV/S:					0.01				0.00			0.00
Crit Moves:	****			****			****			****		













Lanes and Geometrics
5: Main St & SR-91 WB Ramps

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	90		50	155		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor												
Frt		0.865				0.850			0.850			
Flt Protected					0.950		0.950			0.950		
Satd. Flow (prot)	0	1611	0	0	1770	1583	1770	3539	1583	1770	3539	0
Flt Permitted					0.950		0.349			0.950		
Satd. Flow (perm)	0	1611	0	0	1770	1583	650	3539	1583	1770	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		150				315			143			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		246			641			875			3052	
Travel Time (s)		5.6			14.6			19.9			69.4	

Intersection Summary

Area Type: Other

Volume
5: Main St & SR-91 WB Ramps

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	0	5	224	0	293	2	643	75	170	743	1
Future Volume (vph)	0	0	5	224	0	293	2	643	75	170	743	1
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	0	5	241	0	315	2	691	81	183	799	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	5	0	0	241	315	2	691	81	183	800	0
Intersection Summary												

Timings
5: Main St & SR-91 WB Ramps

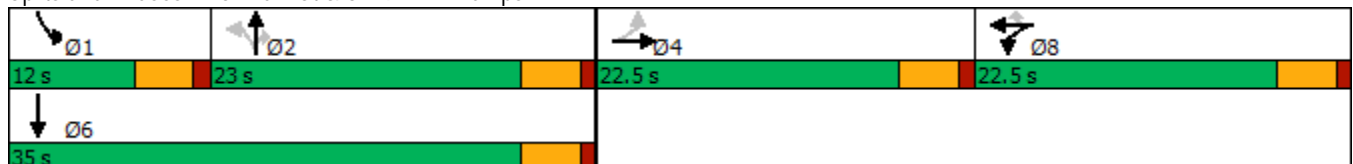


Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↗	↖	↑↑	↗	↖	↕
Traffic Volume (vph)	0	0	293	2	643	75	170	743
Future Volume (vph)	0	0	293	2	643	75	170	743
Turn Type	NA	NA	Perm	Perm	NA	Perm	Prot	NA
Protected Phases	4	8			2		1	6
Permitted Phases			8	2		2		
Detector Phase	4	8	8	2	2	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	9.5	22.5
Total Split (s)	22.5	22.5	22.5	23.0	23.0	23.0	12.0	35.0
Total Split (%)	28.1%	28.1%	28.1%	28.8%	28.8%	28.8%	15.0%	43.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag				Lag	Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	Max	Max	Max	None	Max
Act Effect Green (s)	5.6	12.9	12.9	18.8	18.8	18.8	7.6	30.9
Actuated g/C Ratio	0.10	0.24	0.24	0.34	0.34	0.34	0.14	0.57
v/c Ratio	0.02	0.58	0.51	0.01	0.57	0.13	0.74	0.40
Control Delay	0.2	24.8	6.0	16.0	18.3	1.4	46.8	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.2	24.8	6.0	16.0	18.3	1.4	46.8	8.7
LOS	A	C	A	B	B	A	D	A
Approach Delay	0.2	14.2			16.5			15.8
Approach LOS	A	B			B			B

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 54.6
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay: 15.6
 Intersection Capacity Utilization 57.5%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 5: Main St & SR-91 WB Ramps



Queues
5: Main St & SR-91 WB Ramps
























Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	5	241	315	2	691	81	183	800
v/c Ratio	0.02	0.58	0.51	0.01	0.57	0.13	0.74	0.40
Control Delay	0.2	24.8	6.0	16.0	18.3	1.4	46.8	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.2	24.8	6.0	16.0	18.3	1.4	46.8	8.7
Queue Length 50th (ft)	0	65	0	0	88	0	56	61
Queue Length 95th (ft)	0	148	54	5	191	8	#188	164
Internal Link Dist (ft)	166	561			795			2972
Turn Bay Length (ft)				90		50	155	
Base Capacity (vph)	638	591	738	223	1216	637	246	2005
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.41	0.43	0.01	0.57	0.13	0.74	0.40

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
5: Main St & SR-91 WB Ramps

333 W. Gardena Blvd Project TIA
01/20/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	5	224	0	293	2	643	75	170	743	1
Future Volume (veh/h)	0	0	5	224	0	293	2	643	75	170	743	1
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	0	0	5	241	0	315	2	691	81	183	799	1
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	0	11	431	0	384	337	1118	500	226	1887	2
Arrive On Green	0.00	0.00	0.01	0.24	0.00	0.24	0.32	0.32	0.32	0.13	0.52	0.52
Sat Flow, veh/h	0	0	1583	1774	0	1583	677	3539	1583	1774	3627	5
Grp Volume(v), veh/h	0	0	5	241	0	315	2	691	81	183	390	410
Grp Sat Flow(s),veh/h/ln	0	0	1583	1774	0	1583	677	1770	1583	1774	1770	1862
Q Serve(g_s), s	0.0	0.0	0.2	7.0	0.0	11.0	0.1	9.7	2.2	5.9	7.9	7.9
Cycle Q Clear(g_c), s	0.0	0.0	0.2	7.0	0.0	11.0	0.1	9.7	2.2	5.9	7.9	7.9
Prop In Lane	0.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	0	0	11	431	0	384	337	1118	500	226	921	969
V/C Ratio(X)	0.00	0.00	0.47	0.56	0.00	0.82	0.01	0.62	0.16	0.81	0.42	0.42
Avail Cap(c_a), veh/h	0	0	486	545	0	486	337	1118	500	227	921	969
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	29.0	19.4	0.0	21.0	13.8	17.0	14.5	24.9	8.7	8.7
Incr Delay (d2), s/veh	0.0	0.0	29.5	1.1	0.0	8.6	0.0	2.6	0.7	19.1	1.4	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.2	3.6	0.0	5.7	0.0	5.1	1.0	4.0	4.2	4.4
LnGrp Delay(d),s/veh	0.0	0.0	58.5	20.6	0.0	29.6	13.8	19.6	15.2	44.0	10.1	10.0
LnGrp LOS			E	C		C	B	B	B	D	B	B
Approach Vol, veh/h		5			556			774			983	
Approach Delay, s/veh		58.5			25.7			19.1			16.4	
Approach LOS		E			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	12.0	23.0		4.9		35.0		18.7				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	7.5	18.5		18.0		30.5		18.0				
Max Q Clear Time (g_c+I1), s	7.9	11.7		2.2		9.9		13.0				
Green Ext Time (p_c), s	0.0	2.7		0.0		5.1		1.2				
Intersection Summary												
HCM 2010 Ctrl Delay			19.6									
HCM 2010 LOS			B									

Lanes and Geometrics
7: Albertoni St & SR-91 EB Ramps

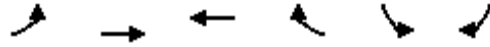


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	200			50	0	0
Storage Lanes	2			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor						
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	3539	3539	1583	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				58		447
Link Speed (mph)		30	30		30	
Link Distance (ft)		930	527		334	
Travel Time (s)		21.1	12.0		7.6	

Intersection Summary

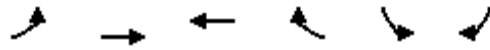
Area Type: Other

Volume
7: Albertoni St & SR-91 EB Ramps



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	265	987	337	55	613	501
Future Volume (vph)	265	987	337	55	613	501
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	279	1039	355	58	645	527
Shared Lane Traffic (%)						
Lane Group Flow (vph)	279	1039	355	58	645	527
Intersection Summary						

Timings
7: Albertoni St & SR-91 EB Ramps

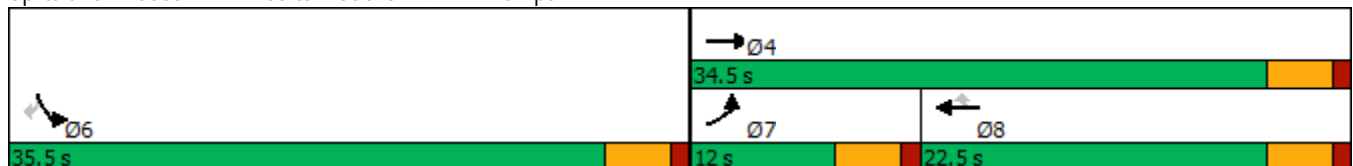


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↗↗	↑↑	↑↑	↖	↖	↖
Traffic Volume (vph)	265	987	337	55	613	501
Future Volume (vph)	265	987	337	55	613	501
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	12.0	34.5	22.5	22.5	35.5	35.5
Total Split (%)	17.1%	49.3%	32.1%	32.1%	50.7%	50.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effect Green (s)	7.5	26.4	14.4	14.4	31.1	31.1
Actuated g/C Ratio	0.11	0.40	0.22	0.22	0.47	0.47
v/c Ratio	0.72	0.74	0.46	0.15	0.78	0.54
Control Delay	41.8	20.7	24.5	7.4	24.5	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.8	20.7	24.5	7.4	24.5	4.9
LOS	D	C	C	A	C	A
Approach Delay		25.2	22.1		15.7	
Approach LOS		C	C		B	

Intersection Summary

Cycle Length: 70
 Actuated Cycle Length: 66.6
 Natural Cycle: 70
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 20.9
 Intersection LOS: C
 Intersection Capacity Utilization 68.7%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 7: Albertoni St & SR-91 EB Ramps



Queues
7: Albertoni St & SR-91 EB Ramps



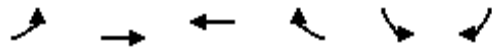
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	279	1039	355	58	645	527
v/c Ratio	0.72	0.74	0.46	0.15	0.78	0.54
Control Delay	41.8	20.7	24.5	7.4	24.5	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.8	20.7	24.5	7.4	24.5	4.9
Queue Length 50th (ft)	59	182	66	0	219	18
Queue Length 95th (ft)	#115	248	102	25	#421	80
Internal Link Dist (ft)		850	447		254	
Turn Bay Length (ft)	200			50		
Base Capacity (vph)	388	1600	960	471	826	978
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.65	0.37	0.12	0.78	0.54

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
7: Albertoni St & SR-91 EB Ramps

333 W. Gardena Blvd Project TIA
01/20/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations	↶↷	↶↷	↶↷	↷	↶	↷		
Traffic Volume (veh/h)	265	987	337	55	613	501		
Future Volume (veh/h)	265	987	337	55	613	501		
Number	7	4	8	18	1	16		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	279	1039	355	58	645	527		
Adj No. of Lanes	2	2	2	1	1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	378	1333	696	312	857	765		
Arrive On Green	0.11	0.38	0.20	0.20	0.48	0.48		
Sat Flow, veh/h	3442	3632	3632	1583	1774	1583		
Grp Volume(v), veh/h	279	1039	355	58	645	527		
Grp Sat Flow(s),veh/h/ln	1721	1770	1770	1583	1774	1583		
Q Serve(g_s), s	5.0	16.6	5.7	2.0	18.9	16.5		
Cycle Q Clear(g_c), s	5.0	16.6	5.7	2.0	18.9	16.5		
Prop In Lane	1.00			1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	378	1333	696	312	857	765		
V/C Ratio(X)	0.74	0.78	0.51	0.19	0.75	0.69		
Avail Cap(c_a), veh/h	402	1655	993	444	857	765		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	27.7	17.6	23.0	21.5	13.5	12.8		
Incr Delay (d2), s/veh	6.6	2.0	0.6	0.3	6.1	5.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.8	8.4	2.9	0.9	10.6	8.2		
LnGrp Delay(d),s/veh	34.3	19.6	23.6	21.8	19.5	17.9		
LnGrp LOS	C	B	C	C	B	B		
Approach Vol, veh/h		1318	413		1172			
Approach Delay, s/veh		22.7	23.3		18.8			
Approach LOS		C	C		B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				28.7		35.5	11.5	17.1
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				30.0		31.0	7.5	18.0
Max Q Clear Time (g_c+I1), s				18.6		20.9	7.0	7.7
Green Ext Time (p_c), s				5.5		3.4	0.1	1.8
Intersection Summary								
HCM 2010 Ctrl Delay			21.2					
HCM 2010 LOS			C					

Lanes and Geometrics
8: I-110 SB Ramps & Redondo Beach Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↘	↑↑↑					↘	↕	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		310	225		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	1.00	1.00	0.95	0.91	0.95
Ped Bike Factor			0.850								0.916	0.850
Flt Protected				0.950						0.950	0.979	
Satd. Flow (prot)	0	3539	1583	1770	5085	0	0	0	0	1681	1520	1504
Flt Permitted				0.950						0.950	0.979	
Satd. Flow (perm)	0	3539	1583	1770	5085	0	0	0	0	1681	1520	1504
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			291								86	121
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		675			491			369			400	
Travel Time (s)		15.3			11.2			8.4			9.1	

Intersection Summary

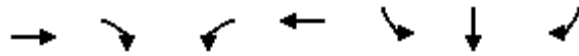
Area Type: Other

Volume
8: I-110 SB Ramps & Redondo Beach Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	1123	279	190	948	0	0	0	0	509	1	529
Future Volume (vph)	0	1123	279	190	948	0	0	0	0	509	1	529
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	1170	291	198	988	0	0	0	0	530	1	551
Shared Lane Traffic (%)										30%		37%
Lane Group Flow (vph)	0	1170	291	198	988	0	0	0	0	371	364	347
Intersection Summary												

Timings
8: I-110 SB Ramps & Redondo Beach Blvd



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Configurations	↑↑	↑	↙	↑↑↑	↙	↕	↙
Traffic Volume (vph)	1123	279	190	948	509	1	529
Future Volume (vph)	1123	279	190	948	509	1	529
Turn Type	NA	Perm	Prot	NA	Split	NA	Perm
Protected Phases	4		3	8	6	6	
Permitted Phases		4					6
Detector Phase	4	4	3	8	6	6	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5	22.5
Total Split (s)	33.0	33.0	16.0	49.0	26.0	26.0	26.0
Total Split (%)	44.0%	44.0%	21.3%	65.3%	34.7%	34.7%	34.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Max	Max	Max
Act Effect Green (s)	28.1	28.1	10.9	43.5	21.5	21.5	21.5
Actuated g/C Ratio	0.38	0.38	0.15	0.59	0.29	0.29	0.29
v/c Ratio	0.87	0.37	0.76	0.33	0.76	0.72	0.66
Control Delay	30.4	3.7	50.7	8.1	36.5	28.1	22.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.4	3.7	50.7	8.1	36.5	28.1	22.2
LOS	C	A	D	A	D	C	C
Approach Delay	25.1			15.2		29.1	
Approach LOS	C			B		C	

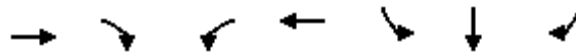
Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 74
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 23.1
 Intersection LOS: C
 Intersection Capacity Utilization 72.3%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 8: I-110 SB Ramps & Redondo Beach Blvd



Queues
8: I-110 SB Ramps & Redondo Beach Blvd















Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	1170	291	198	988	371	364	347
v/c Ratio	0.87	0.37	0.76	0.33	0.76	0.72	0.66
Control Delay	30.4	3.7	50.7	8.1	36.5	28.1	22.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.4	3.7	50.7	8.1	36.5	28.1	22.2
Queue Length 50th (ft)	258	0	89	76	165	127	94
Queue Length 95th (ft)	#380	45	#184	99	#302	#263	191
Internal Link Dist (ft)	595			411		320	
Turn Bay Length (ft)		310	225				
Base Capacity (vph)	1362	788	275	3058	488	503	522
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.37	0.72	0.32	0.76	0.72	0.66

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 8: I-110 SB Ramps & Redondo Beach Blvd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑↑					↑	↔	↑
Traffic Volume (veh/h)	0	1123	279	190	948	0	0	0	0	509	1	529
Future Volume (veh/h)	0	1123	279	190	948	0	0	0	0	509	1	529
Number	7	4	14	3	8	18				1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	1170	291	198	988	0				705	0	364
Adj No. of Lanes	0	2	1	1	3	0				2	0	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1341	600	240	2931	0				1059	0	473
Arrive On Green	0.00	0.38	0.38	0.14	0.58	0.00				0.30	0.00	0.30
Sat Flow, veh/h	0	3632	1583	1774	5253	0				3548	0	1583
Grp Volume(v), veh/h	0	1170	291	198	988	0				705	0	364
Grp Sat Flow(s),veh/h/ln	0	1770	1583	1774	1695	0				1774	0	1583
Q Serve(g_s), s	0.0	22.1	10.1	7.8	7.4	0.0				12.5	0.0	15.1
Cycle Q Clear(g_c), s	0.0	22.1	10.1	7.8	7.4	0.0				12.5	0.0	15.1
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1341	600	240	2931	0				1059	0	473
V/C Ratio(X)	0.00	0.87	0.49	0.83	0.34	0.00				0.67	0.00	0.77
Avail Cap(c_a), veh/h	0	1401	627	283	3142	0				1059	0	473
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	20.7	17.0	30.3	8.0	0.0				22.1	0.0	23.0
Incr Delay (d2), s/veh	0.0	6.2	0.6	15.7	0.1	0.0				3.3	0.0	11.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	11.9	4.5	4.9	3.4	0.0				6.6	0.0	8.1
LnGrp Delay(d),s/veh	0.0	26.9	17.6	46.0	8.1	0.0				25.4	0.0	34.5
LnGrp LOS		C	B	D	A					C		C
Approach Vol, veh/h		1461			1186						1069	
Approach Delay, s/veh		25.1			14.4						28.5	
Approach LOS		C			B						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			14.2	31.8		26.0		46.0				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			11.5	28.5		21.5		44.5				
Max Q Clear Time (g_c+I1), s			9.8	24.1		17.1		9.4				
Green Ext Time (p_c), s			0.1	3.2		1.9		8.5				
Intersection Summary												
HCM 2010 Ctrl Delay			22.7									
HCM 2010 LOS			C									
Notes												

Lanes and Geometrics
 9: I-110 SB Ramps & Redondo Beach Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%				0%
Storage Length (ft)	60		290	170		0	0		0	0		0
Storage Lanes	1		1	1		0	1		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850		0.999				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.950			0.968	
Satd. Flow (prot)	1770	3539	1583	1770	5080	0	1681	1681	1583	0	1803	1583
Flt Permitted	0.950			0.950			0.950	0.950			0.778	
Satd. Flow (perm)	1770	3539	1583	1770	5080	0	1681	1681	1583	0	1449	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			495		1				294			136
Link Speed (mph)		30			30			30				30
Link Distance (ft)		491			442			253				82
Travel Time (s)		11.2			10.0			5.8				1.9

Intersection Summary

Area Type: Other

Volume
9: I-110 SB Ramps & Redondo Beach Blvd

333 W. Gardena Blvd Project TIA
01/20/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	13	1150	480	414	776	3	338	0	383	17	9	21
Future Volume (vph)	13	1150	480	414	776	3	338	0	383	17	9	21
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	13	1186	495	427	800	3	348	0	395	18	9	22
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	13	1186	495	427	803	0	174	174	395	0	27	22
Intersection Summary												

Timings
9: I-110 SB Ramps & Redondo Beach Blvd

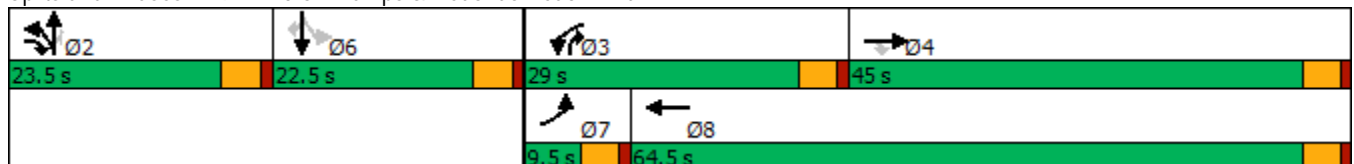


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	13	1150	480	414	776	338	0	383	17	9	21
Future Volume (vph)	13	1150	480	414	776	338	0	383	17	9	21
Turn Type	Prot	NA	pm+ov	Prot	NA	Split	NA	pm+ov	Perm	NA	Perm
Protected Phases	7	4	2	3	8	2	2	3		6	
Permitted Phases			4					2	6		6
Detector Phase	7	4	2	3	8	2	2	3	6	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	9.5	45.0	23.5	29.0	64.5	23.5	23.5	29.0	22.5	22.5	22.5
Total Split (%)	7.9%	37.5%	19.6%	24.2%	53.8%	19.6%	19.6%	24.2%	18.8%	18.8%	18.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5
Lead/Lag	Lead	Lag		Lead	Lag			Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes			
Recall Mode	None	None	Max	None	None	Max	Max	None	Max	Max	Max
Act Effect Green (s)	5.0	40.5	64.0	24.5	65.7	19.0	19.0	43.5		18.0	18.0
Actuated g/C Ratio	0.04	0.34	0.53	0.20	0.55	0.16	0.16	0.36		0.15	0.15
v/c Ratio	0.18	0.99	0.46	1.18	0.29	0.65	0.65	0.52		0.12	0.06
Control Delay	61.2	64.4	2.7	149.1	15.5	60.1	60.1	6.8		45.9	0.3
Queue Delay	0.0	37.3	0.5	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	61.2	101.7	3.2	149.1	15.5	60.1	60.1	6.8		45.9	0.3
LOS	E	F	A	F	B	E	E	A		D	A
Approach Delay		72.6			61.9		31.7			25.5	
Approach LOS		E			E		C			C	

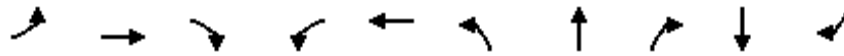
Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Natural Cycle: 130
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.18
 Intersection Signal Delay: 60.3
 Intersection LOS: E
 Intersection Capacity Utilization 82.0%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 9: I-110 SB Ramps & Redondo Beach Blvd



Queues
9: I-110 SB Ramps & Redondo Beach Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	13	1186	495	427	803	174	174	395	27	22
v/c Ratio	0.18	0.99	0.46	1.18	0.29	0.65	0.65	0.52	0.12	0.06
Control Delay	61.2	64.4	2.7	149.1	15.5	60.1	60.1	6.8	45.9	0.3
Queue Delay	0.0	37.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.2	101.7	3.2	149.1	15.5	60.1	60.1	6.8	45.9	0.3
Queue Length 50th (ft)	10	479	0	~397	107	134	134	33	18	0
Queue Length 95th (ft)	32	#635	50	#599	160	217	217	82	47	0
Internal Link Dist (ft)		411			362		173		2	
Turn Bay Length (ft)	60		290	170						
Base Capacity (vph)	73	1194	1075	361	2781	266	266	761	217	353
Starvation Cap Reductn	0	148	239	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	1.13	0.59	1.18	0.29	0.65	0.65	0.52	0.12	0.06

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 9: I-110 SB Ramps & Redondo Beach Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	1150	480	414	776	3	338	0	383	17	9	21
Future Volume (veh/h)	13	1150	480	414	776	3	338	0	383	17	9	21
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	13	1186	495	427	800	3	348	0	395	18	9	22
Adj No. of Lanes	1	2	1	1	3	0	2	0	1	0	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	26	1194	785	362	2756	10	562	0	574	180	90	237
Arrive On Green	0.01	0.34	0.34	0.20	0.53	0.53	0.16	0.00	0.16	0.15	0.15	0.15
Sat Flow, veh/h	1774	3539	1583	1774	5230	20	3548	0	1583	1202	601	1583
Grp Volume(v), veh/h	13	1186	495	427	519	284	348	0	395	27	0	22
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1695	1859	1774	0	1583	1803	0	1583
Q Serve(g_s), s	0.9	40.1	27.5	24.5	10.2	10.3	11.0	0.0	19.0	1.6	0.0	1.4
Cycle Q Clear(g_c), s	0.9	40.1	27.5	24.5	10.2	10.3	11.0	0.0	19.0	1.6	0.0	1.4
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.67		1.00
Lane Grp Cap(c), veh/h	26	1194	785	362	1787	980	562	0	574	270	0	237
V/C Ratio(X)	0.50	0.99	0.63	1.18	0.29	0.29	0.62	0.00	0.69	0.10	0.00	0.09
Avail Cap(c_a), veh/h	74	1194	785	362	1787	980	562	0	574	270	0	237
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	58.7	39.6	22.2	47.8	15.8	15.8	47.1	0.0	32.5	44.0	0.0	44.0
Incr Delay (d2), s/veh	14.1	24.3	1.6	105.5	0.1	0.2	5.1	0.0	6.6	0.7	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	23.6	16.2	22.6	4.8	5.3	5.8	0.0	12.2	0.8	0.0	0.7
LnGrp Delay(d),s/veh	72.8	63.9	23.8	153.2	15.9	16.0	52.2	0.0	39.1	44.7	0.0	44.7
LnGrp LOS	E	E	C	F	B	B	D		D	D		D
Approach Vol, veh/h		1694			1230			743				49
Approach Delay, s/veh		52.2			63.6			45.2				44.7
Approach LOS		D			E			D				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.5	29.0	45.0		22.5	6.3	67.7				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		19.0	24.5	40.5		18.0	5.0	60.0				
Max Q Clear Time (g_c+I1), s		21.0	26.5	42.1		3.6	2.9	12.3				
Green Ext Time (p_c), s		0.0	0.0	0.0		0.1	0.0	6.3				
Intersection Summary												
HCM 2010 Ctrl Delay			54.5									
HCM 2010 LOS			D									
Notes												

Lanes and Geometrics
 11: Figueroa St & 164th St



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	50	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Ped Bike Factor						
Frt	0.896		0.999			
Flt Protected	0.989				0.950	
Satd. Flow (prot)	1651	0	3536	0	1770	3539
Flt Permitted	0.989				0.950	
Satd. Flow (perm)	1651	0	3536	0	1770	3539
Link Speed (mph)	30		30			30
Link Distance (ft)	648		333			3650
Travel Time (s)	14.7		7.6			83.0

Intersection Summary

Area Type: Other

Volume
11: Figueroa St & 164th St



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Volume (vph)	3	9	932	5	1	798
Future Volume (vph)	3	9	932	5	1	798
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	3	10	1013	5	1	867
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	0	1018	0	1	867
Intersection Summary						

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑↓		↔	↑↑
Traffic Vol, veh/h	3	9	932	5	1	798
Future Vol, veh/h	3	9	932	5	1	798
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	10	1013	5	1	867

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1452	509	0	0	1018
Stage 1	1016	-	-	-	-
Stage 2	436	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	121	509	-	-	677
Stage 1	310	-	-	-	-
Stage 2	619	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	121	509	-	-	677
Mov Cap-2 Maneuver	235	-	-	-	-
Stage 1	310	-	-	-	-
Stage 2	618	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	394	677
HCM Lane V/C Ratio	-	-	0.033	0.002
HCM Control Delay (s)	-	-	14.5	10.3
HCM Lane LOS	-	-	B	B
HCM 95th %tile Q(veh)	-	-	0.1	0

Lanes and Geometrics
 12: Gardena Blvd & 164th St

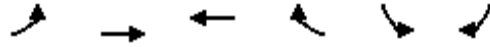


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt					0.932	
Flt Protected					0.976	
Satd. Flow (prot)	0	3539	3539	0	1694	0
Flt Permitted					0.976	
Satd. Flow (perm)	0	3539	3539	0	1694	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		645	84		308	
Travel Time (s)		14.7	1.9		7.0	

Intersection Summary

Area Type: Other

Volume
12: Gardena Blvd & 164th St



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	0	505	417	0	3	3
Future Volume (vph)	0	505	417	0	3	3
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	549	453	0	3	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	549	453	0	6	0
Intersection Summary						

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑	
Traffic Vol, veh/h	0	505	417	0	3	3
Future Vol, veh/h	0	505	417	0	3	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	549	453	0	3	3

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	453	0	-	0	728 227
Stage 1	-	-	-	-	453 -
Stage 2	-	-	-	-	275 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	1104	-	-	-	358 776
Stage 1	-	-	-	-	607 -
Stage 2	-	-	-	-	747 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1104	-	-	-	358 776
Mov Cap-2 Maneuver	-	-	-	-	358 -
Stage 1	-	-	-	-	607 -
Stage 2	-	-	-	-	747 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1104	-	-	-	490
HCM Lane V/C Ratio	-	-	-	-	0.013
HCM Control Delay (s)	0	-	-	-	12.4
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Lanes and Geometrics
 13: Gardena Blvd & Project Dwy 1

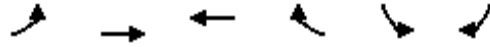


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.998		0.946	
Flt Protected					0.971	
Satd. Flow (prot)	0	3539	3532	0	1711	0
Flt Permitted					0.971	
Satd. Flow (perm)	0	3539	3532	0	1711	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		84	366		132	
Travel Time (s)		1.9	8.3		3.0	

Intersection Summary

Area Type: Other

Volume
13: Gardena Blvd & Project Dwy 1



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	4	502	392	5	38	25
Future Volume (vph)	4	502	392	5	38	25
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	4	546	426	5	41	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	550	431	0	68	0
Intersection Summary						

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	
Traffic Vol, veh/h	4	502	392	5	38	25
Future Vol, veh/h	4	502	392	5	38	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	546	426	5	41	27

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	431	0	-	0	710
Stage 1	-	-	-	-	429
Stage 2	-	-	-	-	281
Critical Hdwy	4.14	-	-	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	2.22	-	-	-	3.52
Pot Cap-1 Maneuver	1125	-	-	-	368
Stage 1	-	-	-	-	624
Stage 2	-	-	-	-	741
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1125	-	-	-	366
Mov Cap-2 Maneuver	-	-	-	-	366
Stage 1	-	-	-	-	621
Stage 2	-	-	-	-	741

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	14.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1125	-	-	-	465
HCM Lane V/C Ratio	0.004	-	-	-	0.147
HCM Control Delay (s)	8.2	0	-	-	14.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.5

Lanes and Geometrics
 14: Gardena Blvd & Project Dwy 2

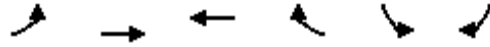


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.999		0.952	
Flt Protected					0.969	
Satd. Flow (prot)	0	3539	3536	0	1718	0
Flt Permitted					0.969	
Satd. Flow (perm)	0	3539	3536	0	1718	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		366	224		428	
Travel Time (s)		8.3	5.1		9.7	

Intersection Summary

Area Type: Other

Volume
14: Gardena Blvd & Project Dwy 2



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	2	538	384	3	25	14
Future Volume (vph)	2	538	384	3	25	14
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	2	585	417	3	27	15
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	587	420	0	42	0
Intersection Summary						

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	
Traffic Vol, veh/h	2	538	384	3	25	14
Future Vol, veh/h	2	538	384	3	25	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	585	417	3	27	15

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	420	0	-	0	716 210
Stage 1	-	-	-	-	419 -
Stage 2	-	-	-	-	297 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	1136	-	-	-	365 796
Stage 1	-	-	-	-	632 -
Stage 2	-	-	-	-	728 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1136	-	-	-	364 796
Mov Cap-2 Maneuver	-	-	-	-	364 -
Stage 1	-	-	-	-	630 -
Stage 2	-	-	-	-	728 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	13.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1136	-	-	-	452
HCM Lane V/C Ratio	0.002	-	-	-	0.094
HCM Control Delay (s)	8.2	0	-	-	13.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3