Appendix J

Transportation Impact Analysis

The Riverwalk

Transportation Impact Analysis

Final Report

Prepared for:
Integral Communities

March 26, 2015

OC13-0271

FEHR PEERS

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VERSION CONTROL

Fehr & Peers submitted a final report that was submitted to the City of Long Beach on April 7, 2014. LLG Engineers performed a peer review of that report and submitted comments in a technical memorandum dated September 5, 2014. A summary of the comments and how this report has been updated is described below:

Comment 1 – Comment requested an update to the clearance intervals based on City guidelines.	Response 1 – The analysis and report have been updated based on this comment.
Comment 2 – Comment requested an update to the travel demand forecasts (opening year and cumulative year) to incorporate known approved and pending projects in the study area.	Response 2 – The analysis and report have been updated based on this comment and information received from City staff related to approved and pending developments in the City of Long Beach.
Comment 3- Comment questions why study intersection #5 traffic volumes on the graphics and on the technical assessment do not match the intersection counts in the technical appendix	Response 3 – This intersection has two approaches/departures to/from the west. As such, the count vendor split volumes to/from each roadway separately. The technical appendix inadvertently left out the second count sheet. The appendix has been updated to include the additional count information.
Comment 4 – Comment discusses typos on Page 12.	Response 4 – This report has been updated to address the comment.
Comment 5 – Comment discusses traffic distribution and recommends that 20% of the project traffic be distributed to the Long Beach Boulevard/Arbor Street intersection and 80% be distributed to the Daisy Avenue/Del Amo Boulevard intersection based on traffic counts.	Response 5 – Fehr & Peers has updated the assessment to assume 20% distribution to the south along Long Beach Boulevard south of the project site. Fehr & Peers also assigned some of the inbound traffic from the north/east of the site to the Long Beach Boulevard/Arbor Street intersection.
Comment 6 – Comment notes a typo in the documented growth rate.	Response 6 – Typo has been corrected.
Comment 7 – Comment notes a typo on how Table 7-1 is introduced.	Response 7 – Typo has been corrected.

Comment 8 – Comment requests modifications as follows: • Susana Road/I-710 Ramps – Code the southbound left-turn lane as protected/permissive. • Susana Road/Del Amo Boulevard – Code the westbound right-turn lane as an overlap phase. • Daisy Avenue/Del Amo Boulevard – change westbound left-turn phasing as permitted.	Response 8 – Please see below: • Susana/I-710 Ramps – This modification does not change the number of critical phases at the intersection and, as such, does not affect the assessment (although the lost time was percentage was updated). • Susana Road/Del Amo Boulevard – This modification does not change the number of critical phases or capacity of the intersection and, as such, does not affect the results of the technical assessment. • Daisy Avenue/Del Amo Boulevard – Analysis and results updated to reflect the requested modification.
Comment 9 – The project team should consider updating the projected opening year of the project.	Response 9 – The project applicant would like to begin construction as soon as possible and, as such, the project opening year has not been changed.
Comment 10 – A construction assessment should be included.	Response 10 – The City notified Fehr & Peers that LLG will be preparing the construction assessment. As such, that has not been included in this report.

After completing the updates referenced above, Fehr & Peers met with City staff, LLG staff, and Al Grover & Associates (AGA) staff to review the study and LLG work related to construction assessment and neighborhood intrusion assessment on February 10, 2015. At that time, the traffic report was "approved" by all reviewers for use in the CEQA assessment. However, Fehr & Peers was asked to update and incorporate the LLG findings into this updated report. This report includes all of the updates referenced above, plus it incorporates the update to LLG's findings related to construction and neighborhood intrusion.

1. EXECUTIVE SUMMARY

Fehr & Peers has completed an assessment for the proposed Riverwalk project in Long Beach, California. The proposed project consists of 131 homes in a gated community to be constructed at the end of Daisy Avenue, between the Los Angeles River, existing rail tracks, and West 48th Street.

As part of Fehr & Peers' assessment and consistent with Los Angeles County Congestion Management Program (CMP) requirements, the following scenarios were evaluated:

- Existing (2013) Conditions – Consists of existing (October 2013) counts collected at study intersections.

- Project Opening Year (2015) No Project Conditions – Consists of Existing (2013) Conditions traffic volumes plus an annual growth rate factor of 1.52 percent per year over the two-year period between the existing counts and the project opening year.

- Project Opening Year (2015) Plus Project Conditions – Consists of the Project Opening Year (2015) No Project Conditions traffic volumes plus traffic generated from the proposed project.

- Cumulative (Year 2030) No Project Conditions – Consists of traffic forecasts utilizing growth rates from the Los Angeles CMP, which assumes a 0.84% per year growth rate through Year 2030.

- Cumulative (Year 2030) Plus Project Conditions – Consists of Cumulative No Project Conditions traffic volumes plus traffic generated from the proposed project.

No significant impacts were identified at any analyzed intersections based on the City of Long Beach Mobility Element level of service standards and application of the Los Angeles CMP guidelines. Additionally, the project impacts to transit are considered less-than-significant.

Fehr & Peers also reviewed parking, site access, and on-site circulation for the project. There is more than sufficient parking provided on-site; however, the following site access and on-site circulation recommendations were made:

- The project sponsor should consider working with the City and the adjacent neighborhood to consider potential traffic calming techniques in the adjacent neighborhood to calm project traffic through the residential neighborhood
- The project sponsor should provide direct and safe access from the project site to the Los Angeles bicycle trail located adjacent to the site
- The project sponsor should consider bicycle parking racks at the community center and at the tot lot park
- The project sponsor should limit access to the rail tracks located south of the project site

2. INTRODUCTION AND ANALYSIS METHODOLOGIES

This chapter outlines the geographic scope of the traffic impact analysis, including the study area, analysis methodologies, and significance criteria employed in the study.

PROPOSED PROJECT

Project Description

The proposed Riverwalk project consists of 131 residential lots on 10.58 acres in the City of Long Beach. The project site is located south of Del Amo Boulevard and west of Long Beach Boulevard, bound by railroad tracks to the south, the Los Angeles River to the west and residential lots to the north and east. The proposed development is shown on Figure 2-1.

PROJECT STUDY AREA

Five study intersections were selected for evaluation for this effort. The following study intersections were identified for inclusion in the study, and are shown on Figure 2-2.

1. Susana Road at Del Amo Boulevard
2. I-710 Southbound Ramps at Del Amo Boulevard
3. Daisy Avenue at Del Amo Boulevard
4. Long Beach Boulevard at Del Amo Boulevard
5. Long Beach Boulevard at Arbor Street/48th Street

ANALYSIS SCENARIOS

The following analysis scenarios were evaluated consistent with the Los Angeles County Congestion Management Program (CMP) guidelines:

- Existing (2013) Conditions – Consists of existing (October 2013) counts collected at study intersections.

- Opening Year (2015) Conditions – Consists of Existing (2013) Conditions traffic volumes plus an annual growth rate factor of 1.52% based on recommended growth rates from the CMP guidelines plus traffic from approved and pending projects in the study area.

- Opening Year (2015) Plus Project Conditions – Consists of the Project Horizon Year (2015) No Project Conditions traffic volumes plus traffic generated from the proposed project.

- Cumulative Year (2030) Conditions – Consists of Existing (2013) Conditions traffic volumes plus an annual growth rate factor of 0.84% based on recommended growth rates from the CMP guidelines plus traffic from approved and pending projects in the study area.

- Cumulative Year (2030) Plus Project Conditions – Consists of the Project Cumulative Year (2030) No Project Conditions traffic volumes plus traffic generated from the proposed project.

Figure 2-1

Project Site Plan

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Date: March, 2014

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Figure 2-2

Project Area and Study Intersections

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Date: November, 2013

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ANALYSIS METHODOLOGIES

Traffic Analysis

For signalized intersections, the traffic analysis of this project was evaluated in accordance with the CMP guidelines using the Intersection Capacity Utilization (ICU) methodology. For unsignalized intersections, methodologies consistent with the *Highway Capacity Manual (HCM)* (Transportation Research Board, 2000) were applied

The ICU methodology is considered a standard approach for evaluating signalized intersection operations in Los Angeles County and in the City of Long Beach. It reports the volume-to-capacity (V/C) ratio at the intersection for signalized intersections, which evaluates the critical movements for each signal and compares that to the critical movement capacity of the intersection. Four of the five study intersections are currently signalized.

After the quantitative V/C and delay estimates are complete, the methodologies assign a qualitative letter grade that represents the operations of the intersection. These grades range from level of service (LOS) A (minimal delay) to LOS F (excessive congestion). LOS E represents at-capacity operations. Descriptions of the LOS letter grades for intersections are provided in Table 2-1.

The following parameters, based on the Los Angeles CMP guidelines, were used in this traffic analysis:

- Through lane capacities of 1,600 vehicles per hour per lane, turn lane capacities of 1,600 vehicles per hour per lane (2,880 vehicles per hour was used for dual left-turn lanes).
- A clearance interval was applied consistent with City requirements, as noted below:
    - 2 critical phases – 10%
    - 3 critical phases (Protected-Permitted) – 12%
    - 3 critical phases (Protected) – 15%
    - 4 critical phases (Protected-Permitted) – 14%
    - 4 critical phases (Protected) – 18%
- A peak hour factor (PHF) of 1.00 is used for the ICU analysis.
- A peak hour truck percentage of 2% was applied to represent heavy truck and general traffic characteristics in our study area based on our field visit and knowledge of the study area.

For the one unsignalized study intersection, the HCM methodology estimates user delay for all turning movements at the intersection. For side-street stop-controlled intersections, the weighted average for longest-delayed turning movement is reported. In cases where there are shared lanes, the average delay in that lane is reported. Please note that, because weighted average delay is utilized, the weighted average delay at intersections can be reduced when a project adds traffic to movements with lower delay. Table 2-1 also summarizes the LOS letter grades for unsignalized intersections.

Transit Assessment

Consistent with the CMP guidelines, transit assessment has been completed. This includes:

- A summary of existing transit services in the project area
- Estimate of potential transit ridership in the area

- This is estimated by multiplying the vehicle trip generation by 1.4 to convert vehicle trips to person trips, and assigning 3.5% of the person trips to transit

- Analysis of expected project impacts on current transit services and proposed project mitigation measures by estimating if the transit share percentage during peak hours would significantly impact transit vehicles

TABLE 2-1 – INTERSECTION LEVEL OF SERVICE CRITERIA

Level of Service	Description	Volume-to-Capacity (V/C) Ratio	Delay (Seconds)
A	Signalized: Operations with very low delay occurring with favorable progression and/or short cycle length. Unsignalized: Little or no delay.	0.000-0.600	≤ 10.0
B	Signalized: Operations with low delay occurring with good progression and/or short cycle lengths. Unsignalized: Short traffic delays.	0.601-0.700	>10.0 to 15.0
C	Signalized: Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear. Unsignalized: Average traffic delays.	0.701-0.800	>15.0 to 25.0
D	Signalized: Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable. Unsignalized: Long traffic delays.	0.801-0.900	>25.0 to 35.0
E	Signalized: Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. Unsignalized: Very long traffic delays.	0.901-1.000	>35.0 to 50.0
F	Signalized: Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths. Unsignalized: Extreme traffic delays with intersection capacity exceeded.	Greater than 1.000	Greater than 50.0

FUTURE FORECASTING

Project Opening Year (2015) Conditions

Future volumes for Project Opening Year (2015) Conditions were developed by applying a 1.52% per year growth rate to existing volumes. This includes trips from approved and pending development projects (as provided from City Staff in 2015) that would add traffic to study intersections that were provided by City staff as noted below:

- Oregon Park – Local neighborhood park
- Douglas Park – three industrial buildings totaling 502,076 sq. ft.
- Lot D (Pacific Pointe East) – 91,560 sq. ft. of medical office buildings
- Weiland Brewery Restaurant
- Dutch's Brewery Restaurant
- Chick-fil-A – Located at 3290 Atlantic Avenue

Cumulative Year (2030) Conditions

Future volumes for Cumulative Year (2030) Conditions were developed using a 0.84% per year growth rate consistent with the Los Angeles County CMP guidelines.

SIGNIFICANCE CRITERIA

The following level of service (LOS) significance criteria was employed to determine if the project causes significant traffic impacts to the study area. The criteria are consistent with the City of Long Beach's Mobility Element's level of service policy and the Los Angeles County CMP guidelines.

Traffic Impacts

A significant impact would occur at a signalized study intersection when the project-related traffic causes:

- A signalized intersection to degrade from an acceptable LOS D or better to LOS E or LOS F, or
- The V/C ratio to increase by 0.02 or more at a signalized intersection operate at LOS E or LOS F, or
- Causes an unsignalized intersection operating at LOS D or better to degrade to LOS E or LOS F and the intersection satisfies the Manual for Uniform Traffic Control Devices (MUTCD) Peak Hour Volume Warrant for Traffic Signal Installation, or
- Adds traffic to an unsignalized intersection operate at an unacceptable LOS E or LOS F such that it satisfies the MUTCD Peak Hour Volume Warrant for traffic signal installation.

3. EXISTING (2013) CONDITIONS

This chapter discusses the existing transportation conditions in the project study area. This discussion addresses the roadway, transit, and pedestrian networks.

Existing Roadway Facilities

Primary regional access to the project site is provided by the Long Beach Freeway (I-710), the San Diego Freeway (I-405), and the Artesia Freeway (SR-91). I-710 runs in the north/south direction west of the project site, I-405 runs in the east/west direction south of the project site, and SR-91 runs in the east/west direction north of the project site. Local access to the project site is provided by Del Amo Boulevard, Long Beach Boulevard, Atlantic Avenue, and Daisy Avenue. These roadways are classified in the City's General Plan and described in detail below.

Regional Roads

- Interstate 710 (I-710) Freeway – The I-710 Freeway is a north-south freeway that extends from Los Angeles to Long Beach. Within the study area the freeway has a north-south orientation and generally provides four travel lanes in each direction. Access to the project site is provided via the Del Amo Blvd and Long Beach Blvd ramps.

- State Route 405 (I-405) Freeway – The I-405 Freeway is a north-south freeway that extends from the I-5 Freeway in North Los Angeles to where it reconnects with the I-5 Freeway in Irvine. Within the study area the freeway has an east-west orientation and provides five travel lanes in each direction. Access to the project site is provided via the Long Beach Boulevard ramps.

- State Route 91 (SR-91) Freeway – SR-91 is an east-west freeway that extends from I-110 in Gardena to SR-60 in San Bernardino where it turns into I-215. Within the study area, SR-91 has an east-west orientation and generally provides five travel lanes in each direction. Access to the project site is provided via the Atlantic Avenue ramps

Local Access Roads

- Del Amo Boulevard – Del Amo Boulevard is classified in the City of Long Beach Mobility Element as a Major Avenue. This roadway runs in the east-west direction north of the project site, providing direct access to I-710. Within the study area, Del Amo has three lanes in each direction, and is divided by a raised, landscaped median. On-street parking is generally permitted along Del Amo Blvd and the posted speed limit varies between 40-45 miles per hour (MPH).

- Long Beach Boulevard – Long Beach Boulevard is classified in the City of Long Beach Mobility Element as a Boulevard. The roadway runs in the north-south direction east of the project site providing direct access to I-710 and I-405 Freeway. Within the study area, Long Beach Blvd provides two lanes in each direction and is generally divided by either a raised median or two-way left turn median. On-street parking is permitted along some portions of Long Beach Blvd. The posted speed limit varies between 30-35 MPH.

- Atlantic Avenue – Atlantic Avenue is classified in the City of Long Beach Mobility Element as a Major Avenue. The roadway runs in the north-south direction east of the project site providing direct access to SR-91. Within the study area, Atlantic Ave provides two lanes in each direction and is divided by a two-way left turn median. On-street parking is permitted along some portions of Atlantic Ave. The posted speed limit is 30-35 MPH.

- Daisy Avenue – Daisy Avenue is classified in the City of Long Beach Mobility Element as a Local Street. It runs in the north-south direction providing direct access to the project site. Daisy Ave has one lane in each direction, and is undivided. On-street parking is generally permitted along Daisy Ave. The posted speed limit is 25 MPH.

- Susana Road – Susana Road is classified in the City of Long Beach Mobility Element as a Local Road. The roadway runs in the north-south direction west of the project site providing direct access to SR-91 and I-710. Within the study area, Susana Road provides two lanes in each direction and is divided by either a raised median or a two-way left turn median. On-street parking is not permitted along Susana Rd and the posted speed limit is 45 MPH.

Existing Transit Facilities

There are five transit lines that currently operate in the study area. The lines, operated by Long Beach Transit and METRO, are described in detail below:

Long Beach

- Route 191 (Santa Fe/Del Amo Blvd) – This route travels north-south from the Long Beach Downtown Civic Center stop to the Del Amo Station on Del Amo Boulevard where it turns into an east-west route, ending at Artesia High School. Near the project site, this route travels along Del Amo Boulevard with stops a quarter mile from the project site and peak period headways ranging between 30 and 60 minutes.

- Route 192 (Santa Fe/South St) – This route travels north-south from the Long Beach Downtown Civic Center stop to the Del Amo Station on Del Amo Boulevard and then becomes an east-west route traveling along South Street until the Los Cerritos Center. Near the project site, this route travels along Del Amo Boulevard with stops a quarter mile from the project site and peak period headways ranging between 30 and 60 minutes.

- Route 51 (Long Beach Boulevard to Artesia Station) – This route travels north-south from the Transit Mall Station near Downtown Civic Center to Artesia Station via Long Beach Boulevard. Near the project site, this route travels along Long Beach Boulevard with stops a half mile from the project site and peak period headways ranging between 10 and 30 minutes.

METRO

- Metro Blue Line (Downtown LA to Long Beach) - This light rail route travels north-south from Downtown Long Beach to Downtown Los Angeles, running parallel to Long Beach Boulevard and Willowbrook Avenue. Near the project site, the Blue Line stops at Del Amo Boulevard at Santa Fe Avenue about a mile from the project site. Peak period headways range between 6-12 minutes and weekend service headways ranging from 10-12 minutes.

- Local Bus Route 202 (Willowbrook-Compton-Wilmington via Alameda St) – This route travels north-south from Wilmington to Willowbrook on Del Amo Boulevard along Alameda Street, Santa Fe Street, and Willowbrook Avenue parallel to the Metro Blue line. Near the project site, this route travels briefly along Del Amo Boulevard and north on Susana Road with stops a half mile from the project site and headways ranging between 50-60 minutes during peak periods. There is no mid-day or weekend service for this route.

- Local Bus Route 60 (Downtown LA-Artesia Station via Long Beach Bl - Owl Service to Downtown Long Beach) – This route travels north-south from the Transit Mall Station near Downtown Civic Center in Long Beach to Downtown Los Angeles via Long Beach Boulevard. This bus only services Long Beach Boulevard south of Artesia during its owl service. Near the project site, this route travels along Long Beach Boulevard with stops a half mile from the project site and headways ranging between 25 and 60 minutes between 10PM and 5AM.

There are no planned transit improvements within the study area.

Bicycle Network

The bicycle network in the study area consists of dedicated bicycle facilities. The City of Long Beach has two bikeway classifications.

- Class I Path – Dedicated travel-way for bicyclists. Most common applications of Class I Bikeways are along rivers, canals, and utility right-of-ways, college campuses or within and between parks.

- Class II Lane – Delineated right-of-way assigned to bicyclists along roadways. Signs and pavement markings help define bike lanes.

Existing bikeways within the study area can be found at the following location:

- A Class I Bike Lane exists on along the Los Angeles River that passes directly west of the project site

Pedestrian Network

The pedestrian network in the study area consists of sidewalks, pedestrian crosswalks, and pedestrian crossing controls. Sidewalks are generally provided throughout the study area along with crosswalks at signalized intersections.

Traffic Volumes and Lane Configurations

Existing morning (7:00 AM to 9:00 AM) and evening (4:00 PM to 6:00 PM) peak period intersection counts were conducted at the five study intersections the first week of October 2013. These time periods generally correspond to peak period traffic conditions on typical roadways.

Existing peak traffic volumes for study intersections are shown on Figure 3-1. Lane configurations and existing traffic counts are provided in Appendix B.

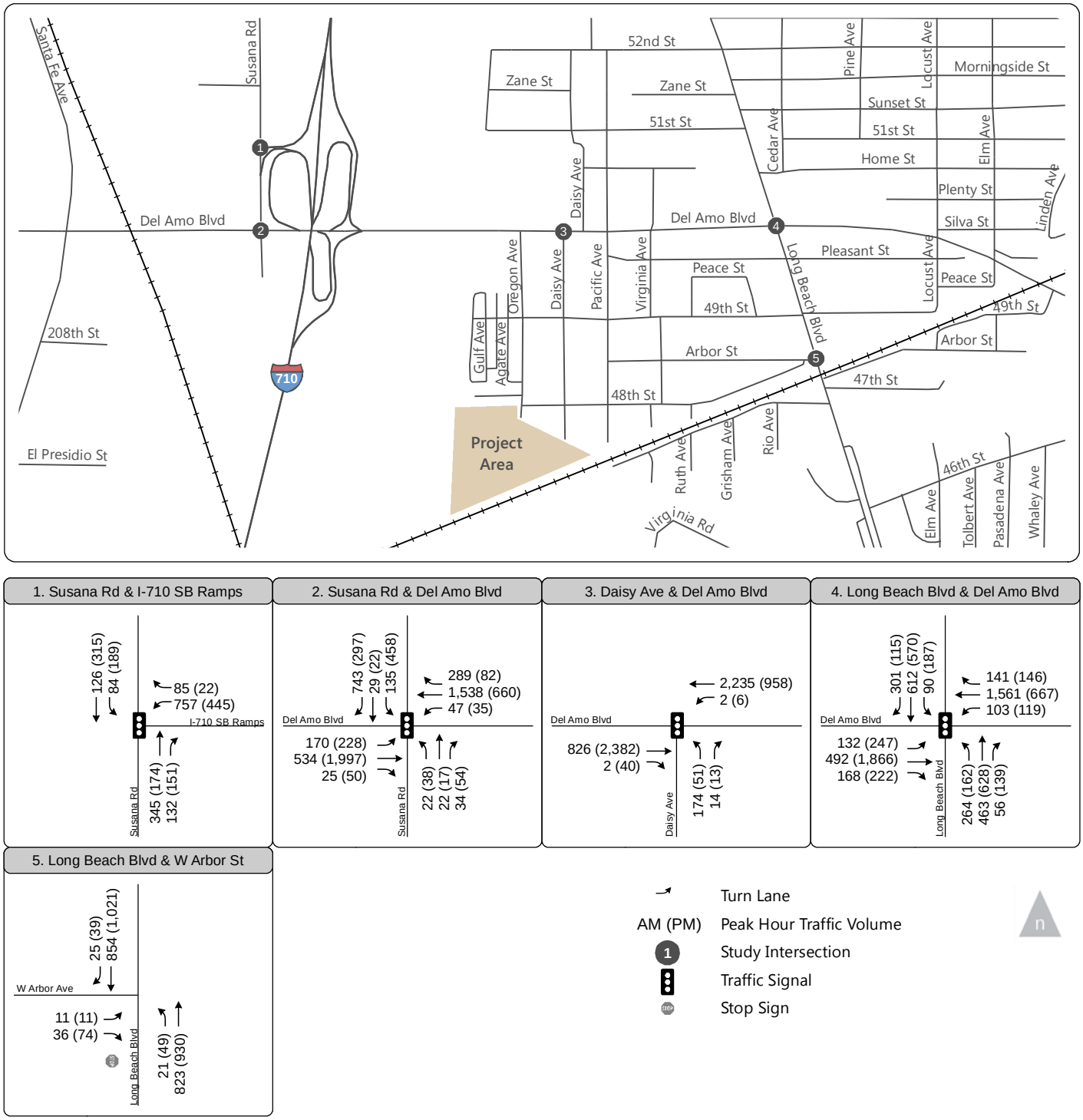

Figure 3-1

Peak Hour Traffic Volumes - Existing (2013) Conditions

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As part of the field inventory, Fehr & Peers also collected the following information:

- Lane configurations
- Signal phasing
- Land uses in the study area
- Existing pedestrian and bicycle facilities (sidewalks, crosswalks and bike lanes)
- On-street parking conditions
- Public transit service

Existing Intersection Operations

Fehr & Peers utilized the existing traffic volumes, lane configurations, and signal phasing information collected in the field to evaluate traffic operations at study intersections for the AM and PM peak hours. The results are summarized in Table 3-1. The technical calculations are presented in Appendix C.

As shown in Table 3-1, the five analyzed intersections currently operate at an LOS of D or better except for the following:

- Susana Road at Del Amo Boulevard – LOS E during the AM peak hour
- Long Beach Boulevard at Del Amo Boulevard – LOS E during the AM and PM peak hours

TABLE 3-1 – INTERSECTION LEVEL OF SERVICE
EXISTING (2013) CONDITIONS

Intersection	Control	AM Peak		PM Peak	
		V/C[1] or Delay[2]	LOS	V/C[1] or Delay[2]	LOS
1. Susana Road at I-710 SB Ramps	Signal	0.543	A	0.478	A
2. Susana Road at Del Amo Boulevard	Signal	0.967	E	0.846	D
3. Daisy Avenue at Del Amo Boulevard	Signal	0.683	B	0.648	B
4. Long Beach Boulevard at Del Amo Boulevard	Signal	0.907	E	0.923	E
5. Long Beach Boulevard at Arbor Avenue/48th Avenue	Side-Street Stop	17.2	C	20.4	C

Notes:
1- V/C for signalized intersections based on application of Intersection Capacity Utilization methodology using Traffix software. V/C = Volume / Capacity Ratio.
2- Delay for unsignalized intersections based on application of Highway Capacity Methodology using Traffix software. Delay reported is the worst-case approach delay.

Source: Fehr & Peers, 2013

4. PROJECT OPENING YEAR (2015) NO PROJECT TRAFFIC CONDITIONS

This chapter evaluates the Project Opening Year (2015) No Project Conditions as outlined in Chapter 2. This scenario includes the addition of ambient growth from Existing (2013) volumes to Year 2015, as well as traffic generated from pending and approved development projects.

Traffic Volumes

Traffic was estimated using a 1.52% per year growth rate, consistent with growth recommendations outlined in the CMP, plus traffic from approved and pending projects as noted earlier in Chapter 2 of this report. Project Opening Year (2015) No Project peak traffic volumes for study intersections are shown on Figure 4-1.

Roadway Improvements

There are no roadway improvements scheduled to take place by 2015 in the study area that would affect operations at the study intersections.

Intersection Operations

Intersection level of service analysis results for Project Opening Year (2015) No Project Conditions are summarized in Table 4-1. Level of service analysis sheets are provided in Appendix C. As shown in Table 4-1, most of the study intersections will continue to operate at LOS D both peak hours except for the following locations:

- Susana Road at Del Amo Boulevard – LOS E during the AM peak hour
- Long Beach Boulevard at Del Amo Boulevard – LOS E during the AM and PM peak hours

TABLE 4-1 – INTERSECTION LEVEL OF SERVICE
OPENING YEAR (2015) NO PROJECT CONDITIONS

Intersection	Control	AM Peak		PM Peak	
		V/C[1] or Delay[2]	LOS	V/C[1] or Delay[2]	LOS
1. Susana Road at I-710 SB Ramps	Signal	0.563	A	0.492	A
2. Susana Road at Del Amo Boulevard	Signal	0.994	E	0.872	D
3. Daisy Avenue at Del Amo Boulevard	Signal	0.704	C	0.669	B
4. Long Beach Boulevard at Del Amo Boulevard	Signal	0.935	E	0.951	E
5. Long Beach Boulevard at Arbor Avenue/48th Avenue	Side-Street Stop	17.8	C	21.6	C

Notes:

1- V/C for signalized intersections based on application of Intersection Capacity Utilization methodology using Traffix software. V/C = Volume / Capacity Ratio.

2- Delay for unsignalized intersections based on application of Highway Capacity Methodology using Traffix software. Delay reported is the worst-case approach delay.

Source: Fehr & Peers, 2013

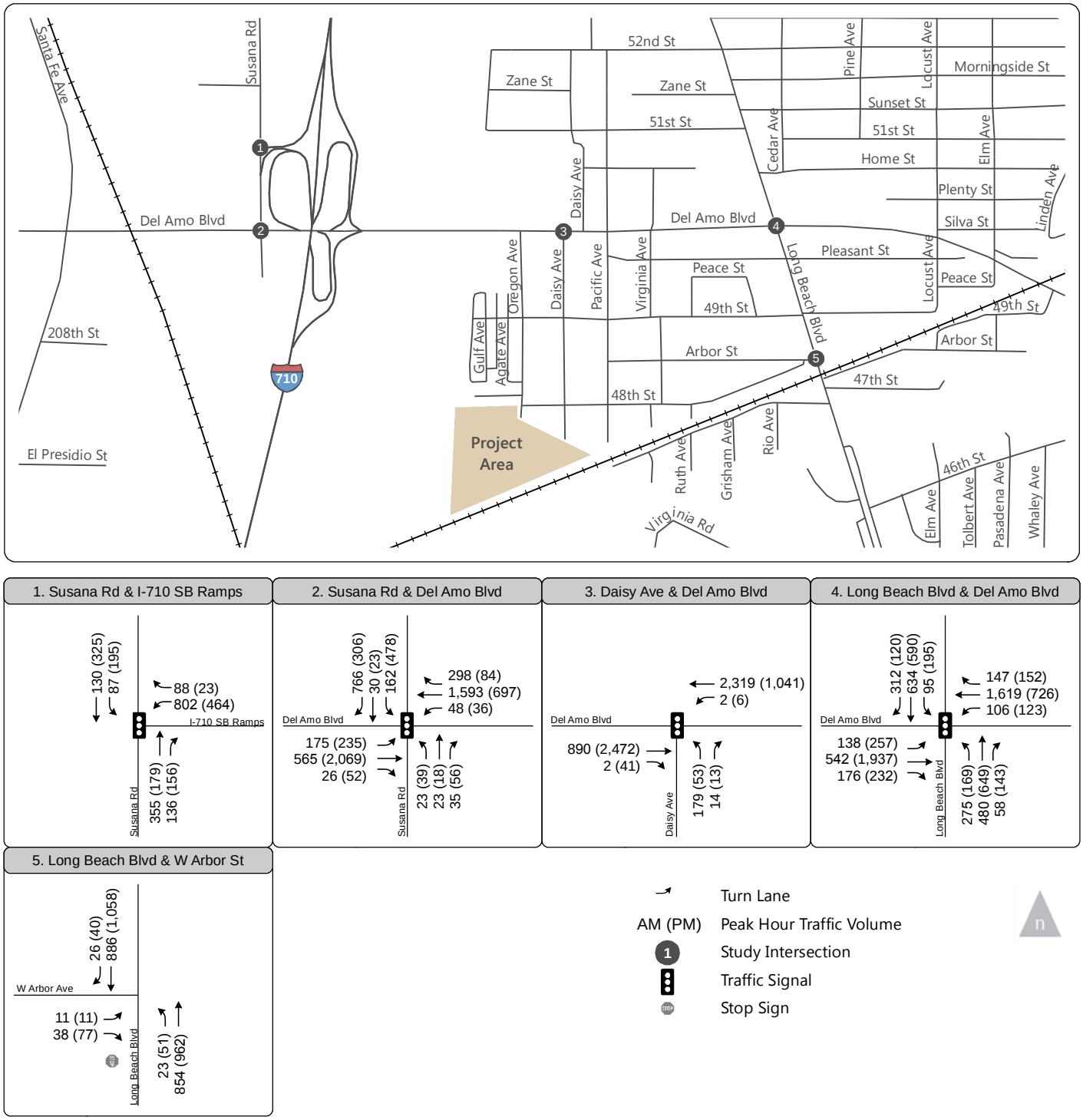

Figure 4-1

Peak Hour Traffic Volumes - Opening Year (2015) No Project

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5. PROJECT OPENING YEAR (2015) PLUS PROJECT TRAFFIC CONDITIONS

This chapter evaluates the Project Opening Year (2015) Plus Project Conditions as outlined in Chapter 1. This scenario analyzes the intersection conditions with the addition of ambient growth (1.52% per year) from Existing (2013) to Opening Year 2015 plus traffic associated with approved and pending projects in the study area plus traffic generated from the proposed project.

This condition is used to evaluate the net change in traffic conditions and to identify potential traffic impacts associated with the proposed project.

Traffic Volumes

Traffic was estimated for the proposed project using a three step process. First, the numbers of project trips were estimated using the Institute of Transportation Engineers' (ITE) *Trip Generation*. Next the distribution of those trips to the broader network was estimated. Finally, the trips were assigned the study network based on the distribution of those trips. This process is described in detail below.

Trip Generation

The proposed project consists of 131 single family homes. The estimated trip generation is summarized below. As shown, the project is estimated to generate 1,247 daily trips, 98 peak hour trips (24 inbound and 74 outbound), and 131 PM peak hour trips (83 inbound and 48 outbound).

TABLE 5-1 - TRIP GENERATION RATES AND ESTIMATES

Unit Count	ITE Reference	Daily	AM Peak Hour			PM Peak Hour		
			Inbound	Outbound	Total	Inbound	Outbound	Total
ITE (9th Edition) Trip Generation Rates								
Single Family Detached Housing		9.52	25%	75%	0.75	63%	37%	1.00
Trip Generation Estimates								
131	Single Family	1,247	24	74	98	83	48	131

Trip Distribution

Fehr & Peers estimated the trip distribution in the study area based on our knowledge of the area, existing traffic patterns in the study area, and the locations of complimentary land uses. Our estimated trip distribution is shown on Figure 5-3 and is summarized below:

- 15% to the north on I-710
- 10% to the south on I-710
- 15% to the west on I-405
- 20% to the east on I-405
- 5% to the north on Long Beach Boulevard
- 10% to the south on Long Beach Boulevard
- 5% to the west on Del Amo Boulevard
- 5% to the east on Del Amo Boulevard
- 5% to the north on Atlantic
- 10% to the south on Atlantic

Trip Assignment

Fehr & Peers used the trip generation and trip distribution information to assign project trips to the study intersections. The project trip assignment volumes are presented on Figure 5-1. The project trips were added to the Project Opening Year No Project traffic volumes to develop Project Opening Year Plus Project traffic volumes presented on Figure 5-2.

Intersection Operations

Intersection LOS results for Project Opening Year (2015) Plus Project Conditions are summarized in Table 5-2. Level of service analysis sheets are provided in Appendix C. As shown in Table 5-2, most of the study intersections will continue to operate at LOS D or better, an acceptable level, except for:

- Susana Road/De Amo Road intersection (LOS E during the AM peak hour)
- Long Beach Boulevard/De Amo Boulevard (LOS E during the AM and PM peak hours)

Intersection Impact Assessment

Based on the significance criteria described in Chapter 2, a significant impact would occur if the project increased the V/C ratio by more than 0.02 at an intersection operating at an unacceptable level. As such, the changes in the V/C ratio at the two study intersection that operate at an unacceptable level are summarized below:

- Susana Road/De Amo Road (AM peak hour) – +0.002 in the AM peak hour
- Long Beach Boulevard/De Amo Boulevard (AM and PM peak hours) – +0.002 in the AM peak hour and +0.002 in the PM peak hour

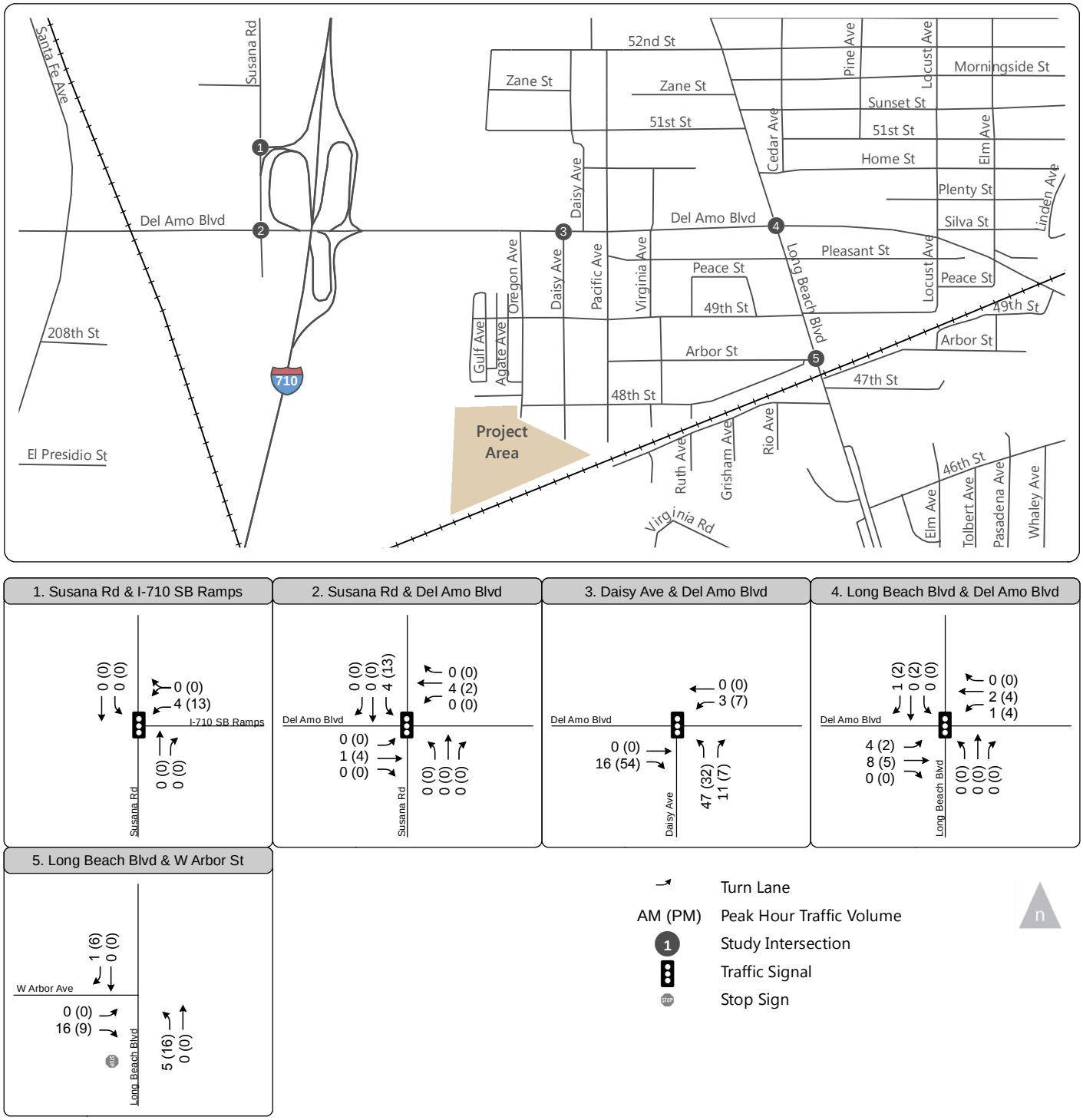

Figure 5-1

Peak Hour Traffic Volumes - Project Only Conditions

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Date: April, 2014

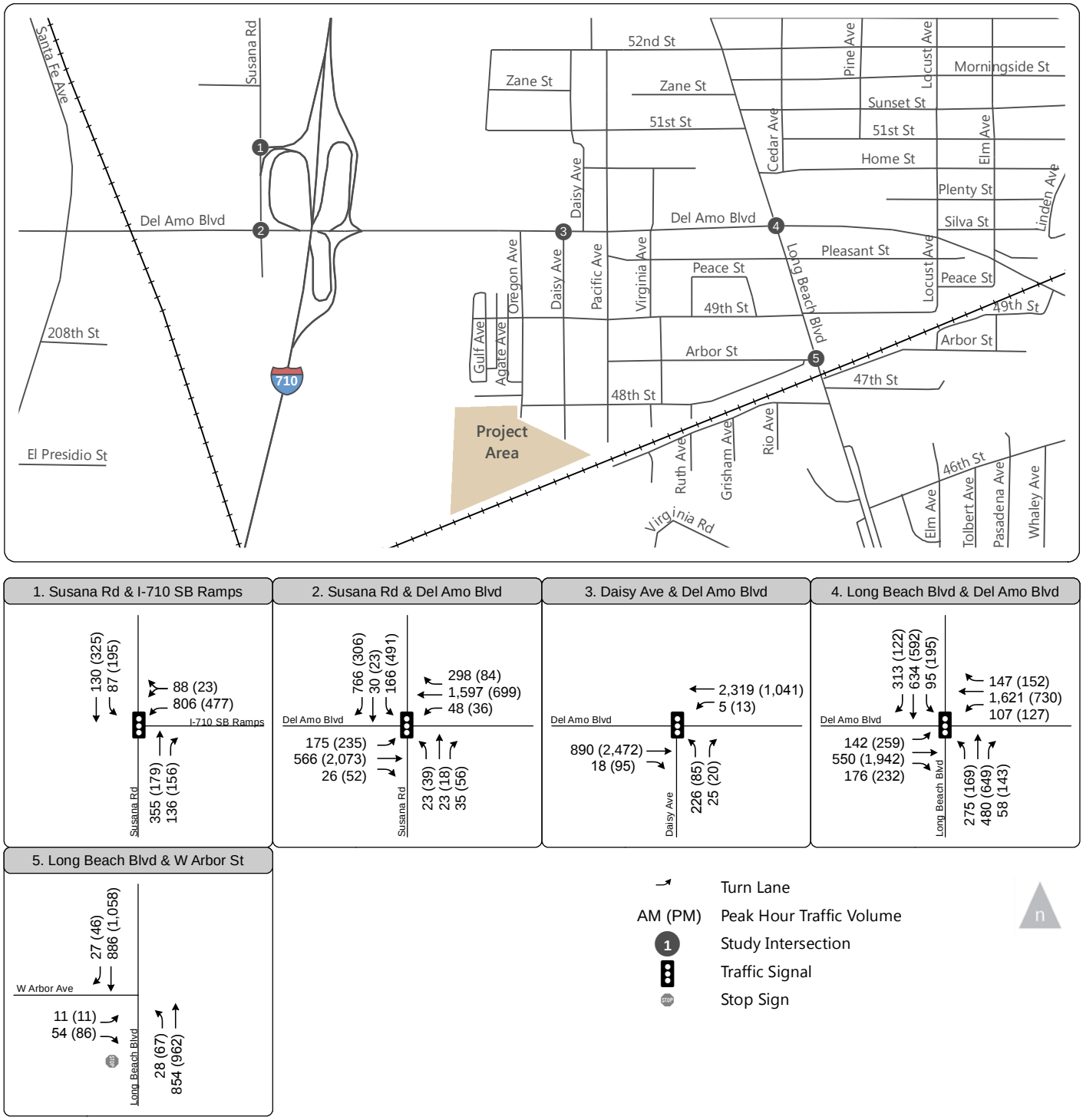

Figure 5-2

Peak Hour Traffic Volumes -
Project Opening Year (2015) Plus Project

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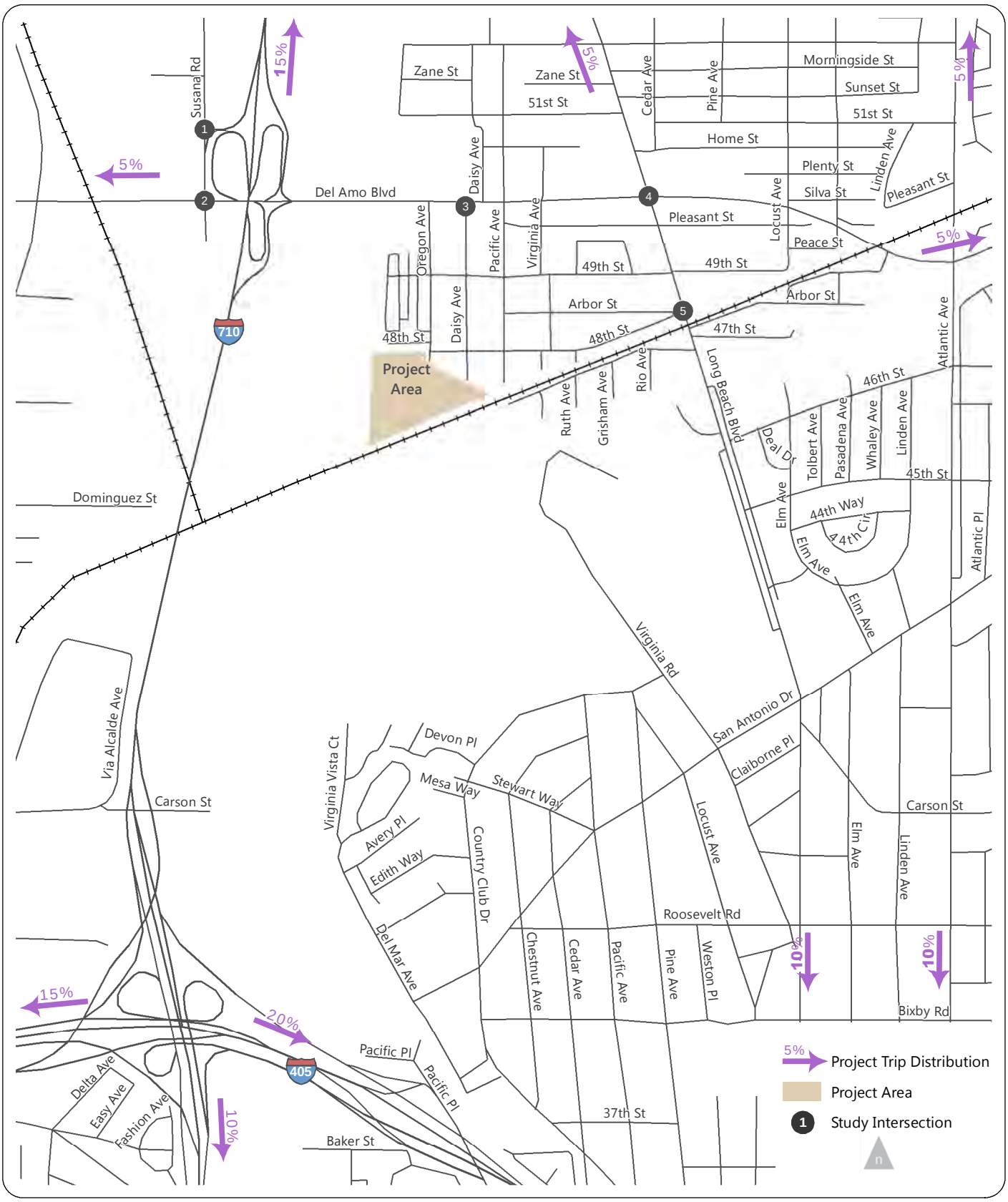

Figure 5-3

Trip Distribution

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Date: November, 2013

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TABLE 5-2 – INTERSECTION LEVEL OF SERVICE OPENING YEAR (2015) PLUS PROJECT CONDITIONS					
		AM Peak		PM Peak	
Intersection	Control	V/C[1] or Delay[2]	LOS	V/C[1] or Delay[2]	LOS
1. Susana Road at I-710 SB Ramps	Signal	0.565	A	0.496	A
2. Susana Road at Del Amo Boulevard	Signal	0.996	E	0.876	D
3. Daisy Avenue at Del Amo Boulevard	Signal	0.740	C	0.709	C
4. Long Beach Boulevard at Del Amo Boulevard	Signal	0.937	E	0.953	E
5. Long Beach Boulevard at Arbor Avenue/48th Avenue	Side-Street Stop	17.1	C	22.2	C

Notes:

1- V/C for signalized intersections based on application of Intersection Capacity Utilization methodology using Traffix software. V/C = Volume / Capacity Ratio.

2- Delay for unsignalized intersections based on application of Highway Capacity Methodology using Traffix software. Delay reported is the worst-case approach delay.

Source: Fehr & Peers, 2013

Since the project does not increase the V/C ratio by more than 0.02, the project impacts to these locations is considered ***less-than-significant***.

TRANSIT ANALYSIS

As described previously, the number of transit trips generated by the project was estimated by taking the peak hour trip generation (131 PM peak hour trips), multiplying it by 1.4 to convert auto trips to person trips (183 person trips), and assuming that up-to 3.5% of those trips could be transit trips. This results in a total potential of six PM peak hour transit trips generated by the site. With five transit routes (excluding the Blue Line) serving the study area, this would equate to just over one trip per bus route. Also, with multiple buses operating on most of the routes during the peak hours, this would result in less than one additional rider per transit vehicle.

The CMP does not have a threshold for determining the significance of impacts on the transit system; however, at these levels (less than one trip per transit vehicle in the peak hour) project-related impacts on the regional transit system would not be considered significant.

6. CUMULATIVE (YEAR 2030) NO PROJECT TRAFFIC CONDITIONS

This chapter evaluates the Cumulative (Year 2030) No Project Conditions as outlined in Chapter 1.

TRAFFIC VOLUMES

Future volumes for Cumulative No Project Conditions were developed by applying a 0.84% per year growth rate to the existing Year 2013 traffic volumes and adding traffic from approved and pending projects in the study area. The resulting Cumulative No Project Conditions volumes are shown on Figure 6-1.

Please note that, for this assessment, no intersection capacity enhancement projects are assumed.

Intersection Operations

Intersection level of service analysis results for Cumulative No Project Conditions are summarized in Table 6-1. Level of service analysis sheets are provided in Appendix C. As shown in Table 6-1, the Susana Road/Del Amo Blvd and Long Beach Boulevard/Del Amo Blvd intersections are projected to operate at LOS E or LOS F during both of the peak hours.

TABLE 6-1 – INTERSECTION LEVEL OF SERVICE CUMULATIVE NO PROJECT CONDITIONS

Intersection	Control	AM Peak		PM Peak	
		V/C[1] or Delay[2]	LOS	V/C[1] or Delay[2]	LOS
1. Susana Road at I-710 SB Ramps	Signal	0.611	B	0.532	A
2. Susana Road at Del Amo Boulevard	Signal	1.082	F	0.945	E
3. Daisy Avenue at Del Amo Boulevard	Signal	0.770	C	0.730	C
4. Long Beach Boulevard at Del Amo Boulevard	Signal	1.017	F	1.034	F
5. Long Beach Boulevard at Arbor Avenue/48th Avenue	Side-Street Stop	21.4	C	29.0	D

Notes:
1- V/C for signalized intersections based on application of Intersection Capacity Utilization methodology using Traffix software. V/C = Volume / Capacity Ratio.
2- Delay for unsignalized intersections based on application of Highway Capacity Methodology using Traffix software. Delay reported is the worst-case approach delay.

Source: Fehr & Peers, 2013

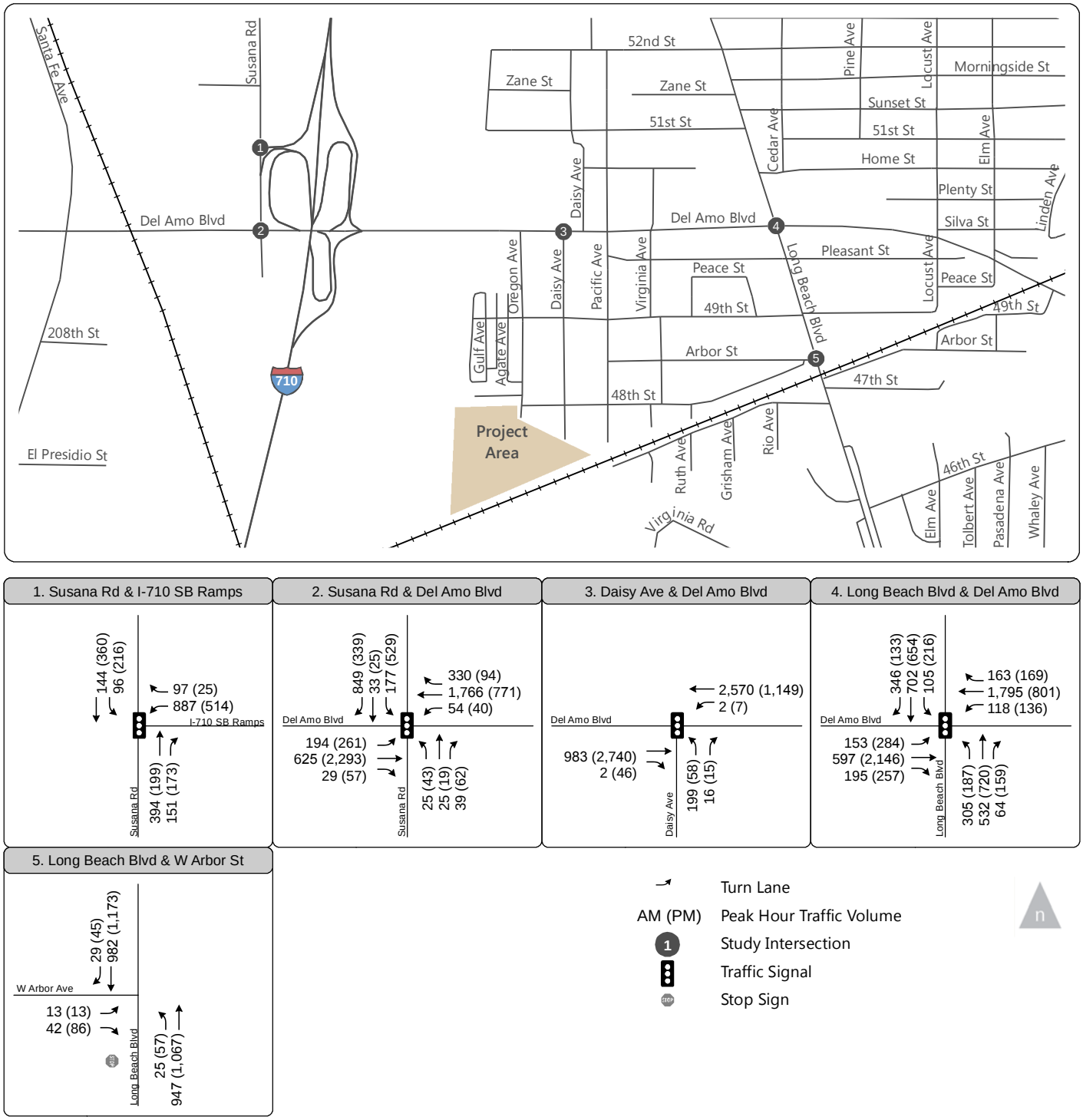

Figure 6-1

Peak Hour Traffic Volumes - Cumulative Year (2030) No Project

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Date: November, 2013

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7. CUMULATIVE (YEAR 2030) PLUS PROJECT TRAFFIC CONDITIONS

This chapter evaluates the Cumulative (Year 2030) Plus Project Conditions as outlined in Chapter 1. This scenario analyzes the intersection conditions with the addition of traffic generated from the proposed project under the Cumulative Condition.

Traffic Volumes

To estimate Cumulative Plus Project traffic volumes, the project-only traffic volumes shown on Figure 5-1 was added to the Cumulative No Project traffic volumes shown on Figure 6-1. The resulting Cumulative Plus Project traffic volumes are shown on Figure 7-1.

Please note that, for this assessment, no additional lane capacity is assumed at the study intersections.

Intersection Operations

Intersection LOS results for Cumulative Plus Project Conditions are summarized in Table 7-1 and the corresponding level of service analysis sheets are provided in Appendix C.

TABLE 7-1 – INTERSECTION LEVEL OF SERVICE
CUMULATIVE YEAR (2030) PLUS PROJECT CONDITIONS

Intersection	Control	AM Peak		PM Peak	
		V/C[1] or Delay[2]	LOS	V/C[1] or Delay[2]	LOS
1. Susana Road at I-710 SB Ramps	Signal	0.612	B	0.534	A
2. Susana Road at Del Amo Boulevard	Signal	1.084	F	0.949	E
3. Daisy Avenue at Del Amo Boulevard	Signal	0.806	D	0.768	C
4. Long Beach Boulevard at Del Amo Boulevard	Signal	1.019	F	1.037	F
5. Long Beach Boulevard at Arbor Avenue/48th Avenue	Side-Street Stop	20.5	C	30.6	D

Notes:
1- V/C for signalized intersections based on application of Intersection Capacity Utilization methodology using Traffix software. V/C = Volume / Capacity Ratio.
2- Delay for unsignalized intersections based on application of Highway Capacity Methodology using Traffix software. Delay reported is the worst-case approach delay.

Source: Fehr & Peers, 2013

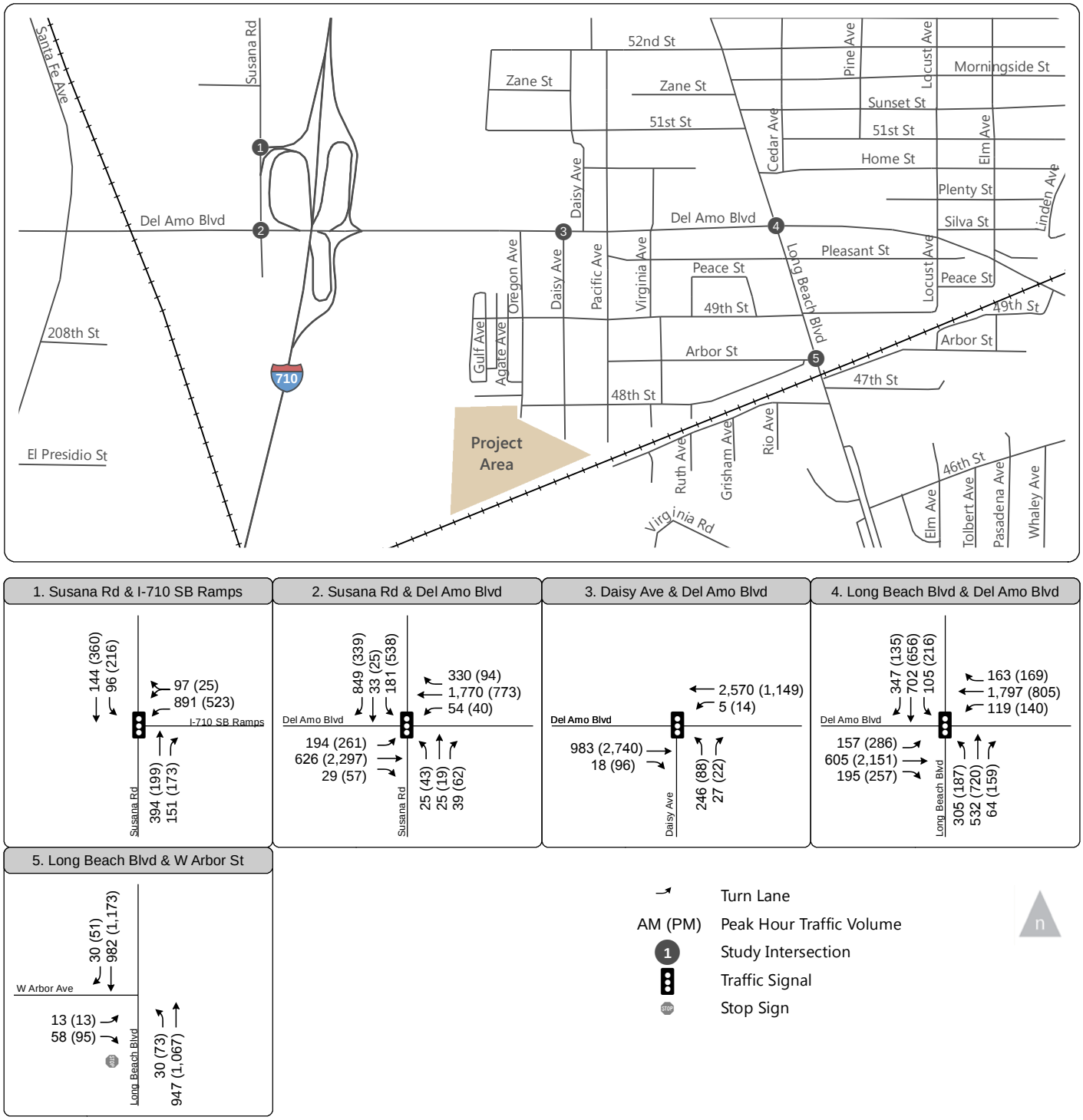

Figure 7-1

Peak Hour Traffic Volumes - Cumulative Year (2030) Plus Project

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Date: April, 2014

As shown in Table 7-1, the following two intersections will continue to operate at an unacceptable level of service during both peak hours under the Cumulative Plus Project scenario:

- Susana Road/Del Amo Blvd
- Long Beach Blvd/Del Amo Blvd

Impact Assessment

According to the significance criteria described in Chapter 2, the project would be required to increase the volume-to-capacity ratio at study intersections by 0.02 or more to be considered a significant impact as both intersections referenced above operate at LOS E or LOS F under the Cumulative No Project scenario. As such, the change in the volume-to-capacity ratio between the Cumulative No Project and Cumulative Plus Project Conditions at these two intersections is summarized below:

- Susana Road/Del Amo Blvd – +0.002 in the AM peak hour and +0.004 in the PM peak hour
- Long Beach Blvd/Del Amo Blvd – +0.002 in the AM peak hour and +0.003 in the PM peak hour

Since the volume-to-capacity ratio increase at both intersections is less than 0.02, the cumulative project impact to these intersections is considered less-than-significant and no mitigation is required.

8. PARKING, SITE ACCESS, ON-SITE CIRCULATION, AND CONSTRUCTION ACTIVITIES

This chapter summarizes our review of parking, site access, on-site circulation, and construction activities. Fehr & Peers' review is based on the site plan for the project dated June 6, 2014.

Parking

To address the adequacy of parking, we reviewed the City of Long Beach Municipal Code parking requirements (Table 41-1A); for residential uses with more than two bedrooms, the following parking should be provided:

- 2.00 residential spaces per unit
- 0.25 guest spaces per unit (or one space per four units)

As such the project must supply 2.25 spaces per unit. Multiplying the parking requirement by the 131 proposed residential units yields a requirement of 295 on-site parking spaces. The project site plan shows a total of 302 parking spaces; as such, the proposed project provides more than enough on-site parking for the project based on the City's parking requirements.

Fehr & Peers does recommend that, at the community pool area and at the tot lot park area, the project sponsor consider providing bicycle parking for its residents.

Site Access

Vehicle Access

Vehicle access to the project site is provided via Daisy Avenue, a residential street, which provides access to a grid-system of residential streets connecting to Del Amo Boulevard and Long Beach Boulevard. At the direction of City Staff, LLG (a local transportation engineering firm) collected traffic data within the adjacent neighborhood to establish an existing baseline traffic condition by which the potential implications of added project traffic volumes could be qualitatively assessed. Fehr & Peers has been requested by City Staff to incorporate the LLG information below:

<u>Neighborhood Transportation Assessment</u>

LLG collected traffic counts at the following ten roadway segments located within the neighborhood adjacent to the proposed project on November 6, 2014. The traffic count sheets are included in Appendix B.

1) W. 48th Street between Oregon Avenue and Daisy Avenue
2) Daisy Avenue between Del Amo Boulevard and W. 49th Street
3) Daisy Avenue between W. 49th Street and W. 48th Street
4) Daisy Avenue south of W. 48th Street
5) W. 48th Street between Daisy Avenue and Pacific Avenue

6) Pacific Avenue between Del Amo Boulevard and Pleasant Street
7) W. 48th Street between Pacific Avenue and Virginia Avenue
8) W. Arbor Street between Virginia Avenue and Long Beach Boulevard
9) W. 48th Street between Virginia Avenue and Long Beach Boulevard
10) W. 49th Street west of Long Beach Boulevard

The City of Long Beach currently does not have specific standards for acceptable levels of traffic on local (residential) roadways. As such, LLG conducted research at other cities within Los Angeles County to identify an appropriate standard to be applied for this effort. Based on their research, the City of Glendale has guidelines showing that the upper limit of acceptable traffic for a residential street is 2,500 vehicles per day for local residential streets[1]. Therefore this value from the City of Glendale was used as a standard to qualitatively evaluate the impact of added traffic volumes by the proposed project.

As shown in Table 8-1, all of the roadways adjacent to the project site will operate below the identified 2,500 upper limit with completion of the proposed project. However, as shown in Table 8-1, the project is more than doubling the traffic volumes on some streets in the adjacent neighborhood. The roadways that are expected to have the highest level of added traffic included Daisy Avenue and 48th Street. Although these roadways will operate below the referenced upper limit, the traffic increases are not inconsequential to residents on those roadways.

As such, Fehr & Peers recommends that the project sponsor work with the City to set up a funding account to pay for the City to work with the neighborhood to develop and implement a comprehensive traffic calming program. Traffic calming is a method where measures can be implemented to either manage speeds or traffic volumes on a given roadway. However, as shown in the flowchart below (which was developed as part of the La Habra Traffic Calming Program), the success of any traffic calming program is interfacing with the community to develop a plan that serves them. As such, a community-based program would allow the City to implement a traffic calming plan to meet the needs and desires of the community. Of course, any traffic calming project will need to be reviewed by the City and first response units to ensure that the projects can be implemented without jeopardizing services to the community.

Fehr & Peers would recommend that the City hire a qualified consultant to work with the community on this effort and that the effort follows the process and recommendations documented in the US Traffic Calming Manual (Planners Press, 2009).

---

[1] Source: *City of Glendale Circulation Element of the General Plan,* Planning and Public Works Divisions, dated August 1998.

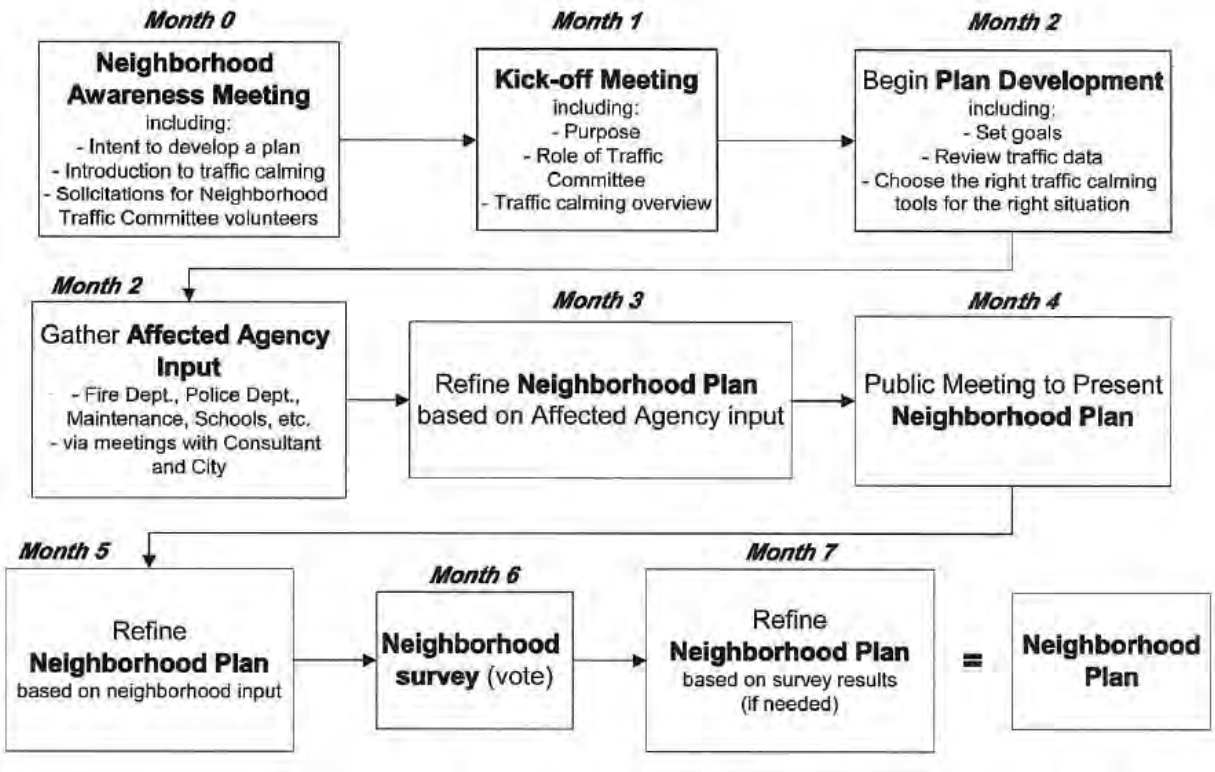
Table 8-1 - Existing Plus Project Traffic Conditions Daily Roadway Segment Analysis Summary							
			Existing Traffic Conditions		Project Only Daily Traffic Volumes	Existing Plus Project Traffic Conditions	
Key Roadway Segment	**Type of Roadway**	**Upper Limit Traffic Level**	**Daily Traffic Volume**	**Above or Below the Upper Limit?**		**Daily Traffic Volume**	**Above or Below the Upper Limit?**
1. W. 48th between Oregon and Daisy	2-lane Residential	2,500	329	Below	0	329	Below
2. Daisy between Del Amo and W. 49th	2-lane Residential	2,500	1,319	Below	952	2,271	Below
3. Daisy between W. 49th and W. 48th	2-lane Residential	2,500	353	Below	952	1,305	Below
4. Daisy south of W. 48th	2-lane Residential	2,500	75	Below	1,247	1,322	Below
5. W. 48th between Daisy and Pacific	2-lane Residential	2,500	499	Below	295	794	Below
6. Pacific between Del Amo and Pleasant	2-lane Residential	2,500	1,169	Below	0	1,169	Below
7. W. 48th between Pacific and Virginia	2-lane Residential	2,500	701	Below	295	996	Below
8. W. Arbor between Virginia and Long Beach	2-lane Residential	2,500	566	Below	0	566	Below
9. W. 48th between Virginia and Long Beach	2-lane Residential	2,500	892	Below	295	1,187	Below
10. W. 49th west of Long Beach	2-lane Residential	2,500	2,375	Below	0	2,375	Below

Source: LLG and Fehr & Peers, 2015

Bicycle Access

One major accessibility benefit of the project is its proximity to the Los Angeles River Bicycle Trail. This trail connects the study area to the region from a bicycle connectivity perspective.

Fehr & Peers recommends that the project sponsor ensure that direct, convenient, and safe connectivity to the bicycle trail is provided.



ON-SITE CIRCULATION

On-site circulation is provided by a 34-foot wide primary loop road connecting the whole of the site. 20-foot wide lanes provide access to the individual properties where primary residential access would occur. Use of the 20-foot wide lanes will minimize speeding adjacent to the residential access areas and is considered beneficial to the project.

The site plan shows pedestrian sidewalks within the project site along the outer edge of the internal loop road. These facilities will provide direct access for residents to walk to/from the community center area and the tot lot park area.

The project site also abuts the rail tracks located along the south end of the project site. Fehr & Peers would also recommend that measures be installed to prohibit access between the proposed project and the rail tracks.

CONTRUCTION TRAFFIC

Construction traffic was assessed by LLG and is summarized below. Its purpose is to summarize potential impacts due to construction activities at the project site.

The construction activities associated with the proposed Project include 1) site preparation, 2) rough grading and 3) building construction. The following section describes the potential construction related

trips associated with each construction activity and provides an assessment as to whether or not the forecast construction trips will have an impact on the existing street system.

It should be noted that the construction analysis evaluated the same five (5) key study intersections evaluated in in this report.

Construction Traffic Trip Generation

In order to forecast the potential construction related trips associated with the construction activities at the project site, the following assumptions, as provided by the project applicant and Rincon Consultants (the EIR consultant for the project) and refined by the project applicant, have been utilized for the three aforementioned construction components.

Site Preparation

- A five-day work week (Monday – Friday) and eight-hour workday was assumed.
- The site preparation phase is anticipated to last approximately 20 days.
- Maximum of one haul truck per day (i.e. two total daily truck trips).
- A total of three workers will be on the site (i.e. six total daily worker trips).

Rough Grading

- 28,900 cubic yards of soil to be imported during this construction phase.
- A six-day work week (Monday – Saturday) and eight-hour workday was assumed.
- The rough grading phase is anticipated to last approximately 60 days.
- Each haul truck has a capacity of 14 cubic yards.
- Maximum of 37 haul trucks per day (i.e. 74 total daily truck trips) resulting in 518 cubic yards of soil imported each day.
- Maximum of one delivery per day (i.e. two total daily truck trips).
- A total of four workers will be on the site (i.e. eight total daily worker trips).

Building Construction

- A five-day work week (Monday – Friday) and eight-hour workday was assumed.
- The building construction phase is anticipated to last approximately 680 days.
- Based on the schedule provided, a maximum of 12 homes are under construction concurrently.
- Maximum of 24 deliveries per day (i.e. 48 total daily truck trips).
- A total of 36 workers will be on the site (i.e. 72 total daily worker trips).

In addition to the aforementioned assumptions for each construction component, the following assumptions were utilized for truck trips and employee trips.

- Each truckload requires an inbound trip and an outbound trip.
- The daily number of truck trips was averaged over the eight-hour workday to obtain the number of peak hour truck trips (50% entering and 50% exiting).
- All truck trips were converted to passenger car equivalents (P.C.E.'s) using a P.C.E. factor of 3.0.
- Each worker would make 2 trips per day (one during the AM peak hour and one during the PM peak hour).

Using the aforementioned assumptions, Table 8-2 provides a summary of the forecast construction peak hour and daily traffic volumes for each of the three construction components. As shown in the Table, the site preparation construction component is expected to generate 12 daily trips with nine trips produced during the AM peak hour and three trips produced during the PM peak hour. Rough grading construction component is expected to generate 236 daily trips with 34 trips produced during the AM peak hour and 34 trips produced during the PM peak hour. The building construction component is expected to generate 216 daily trips with 54 trips produced during the AM peak hour and 54 trips produced during the PM peak hour.

Construction Traffic Impact Assessment

Given that the building construction component will generate the greatest amount of construction-related traffic; this construction traffic assessment focuses to the potential impacts associated with the building construction component (i.e. 216 daily trips, 54 AM peak hour trips and 54 PM peak hour trips).

<u>Construction Traffic Distribution Pattern</u>

Regional access to/from the project site for construction trucks associated with hauls/deliveries were assumed to be provided via the I-710 Freeway (to/from the north). For truck traffic traveling to the project site, it is assumed that trucks would exit the I-710 Freeway at Susana Road, travel south on Susana Road to Del Amo Boulevard, make a left onto Del Amo Boulevard, travel east on Del Amo Boulevard to Daisy Avenue, make a right-turn onto Daisy Avenue and travel south on Daisy Avenue to the project site. Trucks leaving the project site would travel north on Daisy Avenue, make a left onto Del Amo Boulevard and travel west on Del Amo Boulevard to the I-710 Freeway.

Construction worker traffic is anticipated to utilize both regional and local roadways to travel to/from the project site. The following assumptions were utilized for worker traffic:

- 35% to/from the north via the I-710 Freeway
- 5% to/from the north via Long Beach Boulevard
- 25% to/from the south via the I-710 Freeway
- 10% to/from the south via Long Beach Boulevard

Table 8-2 - Project construction–related traffic generation							
Project Description	**Daily 2-Way**	**AM Peak Hour**			**PM Peak Hour**		
		Enter	**Exit**	**Total**	**Enter**	**Exit**	**Total**
Site Preparation Generation Forecast:							
• Construction Truck Traffic (1 Truck)	2	1	1	2	0	0	0
Passenger Car Equivalent Factor[1]	3	3	3	3	3	3	3
Subtotal	6	3	3	6	0	0	0
• Employees (3 Workers)	6	3	0	3	0	3	3
Total Site Preparation Construction Related Traffic Trip Generation Potential	**12**	**6**	**3**	**9**	**0**	**3**	**3**
Rough Grading Generation Forecast:							
• Construction Truck Traffic (38 Trucks)	76	5	5	10	5	5	10
Passenger Car Equivalent Factor	3	3	3	3	3	3	3
Subtotal[1]	228	15	15	30	15	15	30
• Employees (4 Workers)	8	4	0	4	0	4	4
Total Rough Grading Construction Related Traffic Trip Generation Potential	**236**	**19**	**15**	**34**	**15**	**19**	**34**
Building Construction Generation Forecast:							
• Construction Truck Traffic (24 Trucks)	48	3	3	6	3	3	6
Passenger Car Equivalent Factor[1]	3	3	3	3	3	3	3
Subtotal	144	9	9	18	9	9	18
• Employees (36 Workers)	72	36	0	36	0	36	36
Total Building Construction Related Traffic Trip Generation Potential	**216**	**45**	**9**	**54**	**9**	**45**	**54**

[1] A passenger car equivalent factor of 3.0 was applied to the truck trips to convert them into passenger car trips.

- 10% to/from the west via Del Amo Boulevard
- 15% to/from the east via Del Amo Boulevard

Existing Plus Building Construction Traffic Volumes

The AM and PM peak hour building construction trips were then added to the existing AM and PM peak hour traffic volumes to obtain existing plus building construction AM peak hour and PM peak hour traffic volumes for the five (5) key study intersections evaluated in this traffic study.

Existing Plus Construction Traffic Level of Service Results

Table 8-3 summarizes the results of the existing plus construction traffic level of service analysis at the five (5) key study intersections for the building construction component. The significance criteria identified earlier in this report were applied to identify if peak construction activities would create any significant impacts at the study intersections. As shown in Table 8-3, construction activity would not result in any significant impacts to area intersections.

Table 8-3 - Existing Plus Construction Traffic Peak Hour Intersection Capacity Analysis

Key Intersections		Time Period	Existing Traffic Conditions		Existing Plus Construction Traffic Conditions			
			ICU/ HCM	LOS	ICU/ HCM	LOS	Change in ICU/ HCM	Signif-icant Impact
1.	Susana Road at I-710 SB Ramps	AM	0.543	A	0.550	A	+0.007	No
		PM	0.478	A	0.481	A	+0.003	No
2.	Susana Road at Del Amo Boulevard	AM	**0.967**	**E**	**0.967**	**E**	+0.000	No
		PM	0.846	D	0.849	D	+0.003	No
3.	Daisy Avenue at Del Amo Boulevard	AM	0.683	B	0.689	B	+0.006	No
		PM	0.648	B	0.676	B	+0.028	No
4.	Long Beach Boulevard at Del Amo Boulevard	AM	**0.907**	**E**	**0.908**	**E**	+0.001	No
		PM	**0.923**	**E**	**0.924**	**E**	+0.001	No
5.	Long Beach Boulevard at Arbor Street	AM	17.2 sec	C	17.3 sec	C	+0.1 sec	No
		PM	20.4 sec	C	20.3 sec	C	-0.1 sec	No

Notes:
Bold ICU/LOS or **Delay/LOS** values indicate adverse service levels based on City of Long Beach LOS standards
Reduction in delay occurs as vehicles are added to turning movements with lower delay (as such, the weighted average delay decreases).

Construction Management Plan

To ensure impacts to the surrounding street system are managed appropriately, it is recommended that a Construction Management Plan for the proposed project be developed. The Construction Management

Plan should be developed in coordination with the City of Long Beach and, at a minimum, address the following:

- Traffic control for any street closure, detour, or other disruption to traffic circulation.
- Identify the routes that construction vehicles will utilize for the delivery of construction materials (i.e. lumber, tiles, piping, windows, etc.), to access the site, traffic controls and detours, and proposed construction phasing plan for the project.
- Specify the hours during which transport activities can occur and methods to mitigate construction-related impacts to adjacent streets.
- The haul route for the soil import will be prepared to the satisfaction of the City Engineer.
- Require the Applicant to keep all haul routes clean and free of debris including but not limited to gravel and dirt as a result of its operations. The Applicant shall clean adjacent streets, as directed by the City Engineer (or representative of the City Engineer), of any material which may have been spilled, tracked, or blown onto adjacent streets or areas.
- Hauling or transport of oversize loads will be allowed between the hours of 9:00 AM and 4:00 PM only, Monday through Friday, unless approved otherwise by the City Engineer. No hauling or transport will be allowed during nighttime hours, weekends or Federal holidays.
- Use of local streets shall be prohibited unless approved as part of the haul route.
- Haul trucks entering or exiting public streets shall at all times yield to public traffic; the use of flagman will be incorporated as necessary.
- If hauling operations cause any damage to existing pavement, street, curb, and/or gutter along the haul route, the applicant will be fully responsible for repairs. The repairs shall be completed to the satisfaction of the City Engineer.
- All construction-related parking and staging of vehicles will be kept out of the adjacent public roadways/residential streets and will occur on-site.
- This Plan shall meet standards established in the current California Manual on Uniform Traffic Control Device (MUTCD) as well as City of Long Beach requirements.

APPENDIX A:
ANALYSIS AND METHODOLOGY MEMO

Proposed Scope of Services for the Riverwalk Project in Long Beach
Transportation Impact Study

9.27.2013

Fehr & Peers has been retained by the developer of the Riverwalk Project in the City of Long Beach. The DRAFT project site plan is attached to this document.

The project is generally located north of the railroad tracks, south of the termini of Daisy Avenue and Oregon Avenue, east of the Los Angeles River Bicycle Path, and west of Daisy Avenue. Fehr & Peers has completed a preliminary trip generation, distribution, and trip assignment estimate, which is also attached for your review. We've also attached our proposed scope of services for this effort for your review.

We are requesting that the City of Long Beach review and provide any comments on our preliminary assumptions and proposed scope of services to identify impacts associated with the proposed project.

Trip Generation

The proposed project consists of 120 single family homes. The estimated trip generation is summarized below:

Table 1: Trip Generation Rate and Estimates

Unit Count	ITE Reference	Daily	AM Peak Hour			PM Peak Hour		
			Inbound	Outbound	Total	Inbound	Outbound	Total
ITE (9th Edition) Trip Generation Rates								
Single Family Detached Housing		9.52	25%	75%	0.75	63%	37%	1.00
Trip Generation Estimates								
120	Single Family	1,142	22	68	90	76	44	120

Trip Distribution

Fehr & Peers estimated the trip distribution in the study area based on our knowledge of the area. Our proposed trip distribution is summarized below:

- 25% to the north on I-710
- 10% to the south on I-710

- 15% to the west on I-405
- 20% to the east on I-405
- 5% to the north on Long Beach Boulevard
- 5% to the south on Long Beach Boulevard
- 5% to the west on Del Amo Boulevard
- 5% to the east on Del Amo Boulevard
- 5% to the north on Atlantic
- 5% to the south on Atlantic

Proposed Study Intersection

Using the trip generation and trip distribution information above, Fehr & Peers completed a preliminary hand assignment of traffic to the local transportation system. As such, we propose that the following locations be included in the level of service assessment:

- Del Amo Boulevard/S. Susana Road
- Del Amo Boulevard/I-710 Northbound Ramps
- Del Amo Boulevard/I-710 Southbound Ramps
- Del Amo Boulevard/Daisy Avenue
- Del Amo Boulevard/Long Beach Boulevard
- Long Beach Boulevard/West Arbor Street

Methodology

Fehr & Peers also understands that the City has recently completed a mobility element update, where multi-modal level of service (MMLOS) has been identified to evaluate study facilities. Additionally, we understand that the City has traditionally utilized Intersection Capacity Utilization methodologies to evaluate development projects. As such, we are requesting the City to provide verification and direction on the methodology that should be applied for this project.

Site Calculations

Total Acerage:	10.58 AC
Total Lots:	120
Density:	11.3DU/AC
Arch Product:	The Terraces
Min. Lot Area	1,925 SF
Min. Lot Width	35 FT
Maximum Height	32/35 FT
Front Setback	8 Ft (AVE.)
Side Setback	3 FT
Rear Setback	8 FT
Floor Area Ratio	1.2

Parking Calculations

Parking Required:	270	(2.5 / UNIT)
Parking Provided:		
Garage parking	240	(2 / UNIT)
Plan 1 Driveway Space	40	Driveway space
Guest parking	103	
Total Provided:	**383**	(3.2/UNIT)

RIVERWALK LONG BEACH

UA JOB #: 13-091 DATE: 09.16.13

CONCEPTUAL SITE PLAN OPTION E

INTEGRAL Communities
A DIVERSIFIED REAL ESTATE COMPANY

URBAN ARENA

SCALE: 1" = 40'-0"
0 20 40 80

APPENDIX B:
TRAFFIC COUNT SHEETS AND LANE CONFIGURATIONS

Study Intersections Lane Configurations												
Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1. Susana Rd & I-710 SB Ramps		2	1	1	2					1.5		0.5
2. Susana Rd & Del Amo Blvd	0.5	0.5	0.5	1.5	0.5	2	1	2.5	0.5	1	2	1
3. Daisy Ave & Del Amo Blvd	0.5		0.5					2.5	0.5	1	3	
4. Long Beach Blvd & Del Amo Blvd	1	2	1	1	2	1	2	3	1	2	3	1
5. Long Beach Blvd & Arbor St/48th St	1	2			1.5	0.5	0.5		0.5			

Notes:

1. Half lanes indicate shared lanes.

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 13-5514-002 **Day:** Thursday

City: Long Beach **Date:** 10/3/2013

AM

NS/EW Streets:	Susana Rd			Susana Rd			I-710 SB Ramps			I-710 SB Ramps			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	0	0	1	0	3	0	0	2	1	
7:00 AM	0	45	31	26	27	0	0	0	0	210	0	16	355
7:15 AM	0	71	30	18	35	0	0	0	0	184	0	12	350
7:30 AM	0	85	33	18	42	0	0	0	0	176	0	11	365
7:45 AM	0	104	29	19	34	0	0	0	0	204	0	8	398
8:00 AM	0	83	28	23	28	0	0	0	0	199	0	28	389
8:15 AM	0	81	32	23	29	0	0	0	0	175	0	22	362
8:30 AM	0	77	43	19	35	0	0	0	0	179	0	27	380
8:45 AM	0	64	29	18	30	0	0	0	0	162	0	37	340
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	610	255	164	260	0	0	0	0	1489	0	161	2939
APPROACH %'s :	0.00%	70.52%	29.48%	38.68%	61.32%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	90.24%	0.00%	9.76%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	0	345	132	84	126	0	0	0	0	757	0	85	1529
PEAK HR FACTOR :		0.897			0.972			0.000			0.927		0.960

UTURNS

NB	SB	EB	WB
NB	SB	EB	WB
0	0	0	0

CONTROL : 1-Way Stop SB

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 13-5514-002 **Day:** Thursday

City: Long Beach **Date:** 10/3/2013

PM

NS/EW Streets:	Susana Rd			Susana Rd			I-710 SB Ramps			I-710 SB Ramps			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	0	0	1	0	3	0	0	2	1	
4:00 PM	0	52	39	40	64	0	0	0	0	124	0	11	330
4:15 PM	0	37	41	36	66	0	0	0	0	116	0	10	306
4:30 PM	0	52	32	39	71	0	0	0	0	112	0	3	309
4:45 PM	0	39	33	32	80	0	0	0	0	110	0	1	295
5:00 PM	0	46	45	82	98	0	0	0	0	107	0	8	386
5:15 PM	0	35	31	47	57	0	0	0	0	116	0	3	289
5:30 PM	0	24	42	30	44	0	0	0	0	117	0	6	263
5:45 PM	0	22	33	30	32	0	0	0	0	121	0	7	245
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	307	296	336	512	0	0	0	0	923	0	49	2423
APPROACH %'s :	0.00%	50.91%	49.09%	39.62%	60.38%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	94.96%	0.00%	5.04%	
PEAK HR START TIME :	415 PM												TOTAL
PEAK HR VOL :	0	174	151	189	315	0	0	0	0	445	0	22	1296
PEAK HR FACTOR :		0.893			0.700			0.000			0.927		0.839

UTURNS

NB	SB	EB	WB
0	0	0	0

CONTROL : 1-Way Stop SB

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 13-5514-001

Day: Thursday

City: Long Beach

Date: 10/3/2013

AM

NS/EW Streets:	Susana Rd			Susana Rd			Del Amo Blvd			Del Amo Blvd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	1	1	2	1	3	0	1	2.5	0.5	
7:00 AM	2	2	6	28	9	202	40	121	9	11	332	36	798
7:15 AM	4	0	5	28	5	187	46	131	7	14	370	60	857
7:30 AM	8	6	7	27	10	172	35	130	10	16	416	77	914
7:45 AM	8	8	8	38	10	198	43	137	1	12	395	88	946
8:00 AM	2	8	14	42	4	186	46	136	7	5	357	64	871
8:15 AM	5	5	7	38	5	156	46	132	2	9	312	71	788
8:30 AM	3	4	13	61	4	155	46	158	3	5	224	65	741
8:45 AM	7	3	2	44	3	155	31	124	4	10	221	54	658
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	39	36	62	306	50	1411	333	1069	43	82	2627	515	6573
APPROACH %'s :	28.47%	26.28%	45.26%	17.32%	2.83%	79.85%	23.04%	73.98%	2.98%	2.54%	81.48%	15.97%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	22	22	34	135	29	743	170	534	25	47	1538	289	3588
PEAK HR FACTOR :		0.813			0.922			0.964			0.920		0.948

UTURNS

NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 13-5514-001 **Day:** Thursday

City: Long Beach **Date:** 10/3/2013

PM

NS/EW Streets:	Susana Rd			Susana Rd			Del Amo Blvd			Del Amo Blvd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	1	1	2	1	3	0	1	2.5	0.5	
4:00 PM	8	4	25	104	4	87	53	437	12	8	151	33	926
4:15 PM	3	7	17	112	8	63	50	478	3	12	183	21	957
4:30 PM	7	4	20	113	4	76	60	455	9	11	171	27	957
4:45 PM	9	5	10	121	5	72	51	514	13	7	143	22	972
5:00 PM	10	3	13	123	10	78	68	487	12	14	162	23	1003
5:15 PM	12	5	11	101	3	71	49	541	16	3	184	10	1006
5:30 PM	4	6	15	95	7	68	52	535	7	3	143	9	944
5:45 PM	6	2	14	89	11	56	42	466	14	10	121	10	841
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	59	36	125	858	52	571	425	3913	86	68	1258	155	7606
APPROACH %'s :	26.82%	16.36%	56.82%	57.93%	3.51%	38.56%	9.61%	88.45%	1.94%	4.59%	84.94%	10.47%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	38	17	54	458	22	297	228	1997	50	35	660	82	3938
PEAK HR FACTOR :		0.879			0.921			0.939			0.929		0.979

UTURNS

NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 13-5514-004

Day: Thursday

City: Long Beach

Date: 10/3/2013

AM

NS/EW Streets:	Daisy Ave (south leg)			Daisy Ave (south leg)			Del Amo Blvd			Del Amo Blvd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	0	0	0	3	0	1	3	0	
7:00 AM	21	0	0	0	0	0	0	167	0	0	550	0	738
7:15 AM	40	0	3	0	0	0	0	189	0	1	593	0	826
7:30 AM	55	0	1	0	0	0	0	193	1	0	599	0	849
7:45 AM	45	0	4	0	0	0	0	233	0	0	528	0	810
8:00 AM	34	0	6	0	0	0	0	211	1	1	515	0	768
8:15 AM	21	0	4	0	0	0	0	239	0	0	441	0	705
8:30 AM	22	0	11	0	0	0	0	267	0	3	363	0	666
8:45 AM	12	0	4	0	0	0	0	219	0	2	350	0	587
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	250	0	33	0	0	0	0	1718	2	7	3939	0	5949
APPROACH %'s :	88.34%	0.00%	11.66%	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	99.88%	0.12%	0.18%	99.82%	0.00%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	174	0	14	0	0	0	0	826	2	2	2235	0	3253
PEAK HR FACTOR :	0.839			0.000			0.888			0.934			0.958

UTURNS

NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 13-5514-004 **Day:** Thursday

City: Long Beach **Date:** 10/3/2013

PM

NS/EW Streets:	Daisy Ave (south leg)			Daisy Ave (south leg)			Del Amo Blvd			Del Amo Blvd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	0	0	0	3	0	1	3	0	
4:00 PM	9	0	0	0	0	0	0	521	7	2	222	0	761
4:15 PM	16	0	0	0	0	0	0	576	0	0	238	0	830
4:30 PM	12	0	3	0	0	0	0	603	8	4	261	0	891
4:45 PM	8	0	4	0	0	0	0	600	10	2	234	0	858
5:00 PM	13	0	2	0	0	0	0	585	7	0	231	0	838
5:15 PM	18	0	4	0	0	0	0	594	15	0	232	0	863
5:30 PM	11	0	7	0	0	0	0	607	5	0	251	0	881
5:45 PM	11	0	3	0	0	0	0	594	6	2	207	0	823
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	98	0	23	0	0	0	0	4680	58	10	1876	0	6745
APPROACH %'s :	80.99%	0.00%	19.01%	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	98.78%	1.22%	0.53%	99.47%	0.00%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	51	0	13	0	0	0	0	2382	40	6	958	0	3450
PEAK HR FACTOR :	0.727			0.000			0.991			0.909			0.968

UTURNS

NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 13-5514-005

Day: Thursday

City: Long Beach

Date: 10/3/2013

AM

NS/EW Streets:	Long Beach Blvd			Long Beach Blvd			Del Amo Blvd			Del Amo Blvd				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	1	2	1	1	2	1	2	3	1	2	3	1					
7:00 AM	58	106	19	33	117	66	27	110	27	14	379	17	973	0	0	2	0
7:15 AM	68	116	13	20	131	90	28	120	39	18	407	23	1073	0	0	6	0
7:30 AM	63	105	11	25	174	90	32	121	34	23	415	42	1135	0	0	1	0
7:45 AM	71	111	14	29	152	66	34	130	50	32	373	44	1106	0	0	1	0
8:00 AM	62	131	18	16	155	55	38	121	45	30	366	32	1069	0	0	2	0
8:15 AM	56	91	12	21	148	42	50	131	45	25	324	31	976	0	0	3	0
8:30 AM	69	93	19	37	152	52	45	155	71	22	254	25	994	0	0	2	0
8:45 AM	49	93	13	39	160	37	53	117	48	22	256	32	919	0	0	5	0
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	496	846	119	220	1189	498	307	1005	359	186	2774	246	8245	0	0	22	0
APPROACH %'s :	33.95%	57.91%	8.15%	11.54%	62.35%	26.11%	18.37%	60.14%	21.48%	5.80%	86.53%	7.67%					

PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	264	463	56	90	612	301	132	492	168	103	1561	141	4383
PEAK HR FACTOR :		0.928			0.868			0.925			0.940		0.965

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 13-5514-005 **Day:** Thursday

City: Long Beach **Date:** 10/3/2013

PM

NS/EW Streets:	Long Beach Blvd			Long Beach Blvd			Del Amo Blvd			Del Amo Blvd				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 2	ET 3	ER 1	WL 2	WT 3	WR 1	TOTAL	NB	SB	EB	WB
4:00 PM	36	118	30	41	122	28	56	423	82	32	156	34	1158	0	0	0	0
4:15 PM	37	149	40	43	151	29	48	394	73	31	161	43	1199	0	0	0	0
4:30 PM	40	150	35	43	159	35	58	421	74	21	172	30	1238	0	0	0	0
4:45 PM	36	126	29	46	150	33	50	424	58	36	141	30	1159	0	0	0	0
5:00 PM	40	171	40	49	140	28	43	469	59	28	186	38	1291	0	0	0	1
5:15 PM	41	180	35	48	154	23	65	452	46	34	177	38	1293	0	0	0	1
5:30 PM	44	136	31	44	140	36	55	486	65	28	170	27	1262	0	0	0	0
5:45 PM	37	141	33	46	136	28	84	459	52	29	134	43	1222	0	0	0	0
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	311	1171	273	360	1152	240	459	3528	509	239	1297	283	9822	0	0	0	2
APPROACH %'s :	17.72%	66.72%	15.56%	20.55%	65.75%	13.70%	10.21%	78.47%	11.32%	13.14%	71.30%	15.56%					
PEAK HR START TIME :	500 PM												TOTAL				
PEAK HR VOL :	162	628	139	187	570	115	247	1866	222	119	667	146	5068				
PEAK HR FACTOR :		0.907			0.969			0.963			0.925		0.980				

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 13-5514-006

Day: Thursday

City: Long Beach

Date: 10/3/2013

AM

NS/EW Streets:	Long Beach Blvd			Long Beach Blvd			W Arbor St			W Arbor St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	0	2	0	0	1	0	0	0	0	
7:00 AM	1	172	0	0	165	0	3	0	2	0	0	0	343
7:15 AM	4	194	0	0	189	2	5	0	4	0	0	0	398
7:30 AM	2	188	0	0	221	3	2	0	4	0	0	0	420
7:45 AM	2	213	0	0	230	6	0	0	4	0	0	0	455
8:00 AM	3	228	0	0	214	2	0	0	0	0	0	0	447
8:15 AM	1	143	0	0	215	3	4	0	2	0	0	0	368
8:30 AM	0	159	0	0	230	5	1	0	1	0	0	0	396
8:45 AM	0	139	0	0	221	3	1	0	1	0	0	0	365
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	13	1436	0	0	1685	24	16	0	18	0	0	0	3192
APPROACH %'s :	0.90%	99.10%	0.00%	0.00%	98.60%	1.40%	47.06%	0.00%	52.94%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	11	823	0	0	854	13	7	0	12	0	0	0	1720
PEAK HR FACTOR :		0.903			0.918			0.528			0.000		0.945

UTURNS

NB	SB	EB	WB
NB	SB	EB	WB
0	0	0	0

CONTROL : 1-Way Stop (EB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 13-5514-006

Day: Thursday

City: Long Beach

Date: 10/3/2013

PM

NS/EW Streets:	Long Beach Blvd			Long Beach Blvd			W Arbor St			W Arbor St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	0	2	0	0	1	0	0	0	0	
4:00 PM	5	198	0	0	216	7	3	0	2	0	0	0	431
4:15 PM	5	213	0	0	243	4	2	0	1	0	0	0	468
4:30 PM	2	219	0	0	260	3	0	0	7	0	0	0	491
4:45 PM	3	182	0	0	242	4	0	0	4	0	0	0	435
5:00 PM	6	285	0	0	242	2	1	0	8	0	0	0	544
5:15 PM	7	225	0	0	265	5	1	0	5	0	0	0	508
5:30 PM	3	224	0	0	264	3	0	0	5	0	0	0	499
5:45 PM	3	196	0	0	250	8	3	0	3	0	0	0	463
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	34	1742	0	0	1982	36	10	0	35	0	0	0	3839
APPROACH %'s :	1.91%	98.09%	0.00%	0.00%	98.22%	1.78%	22.22%	0.00%	77.78%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	19	930	0	0	1021	18	5	0	21	0	0	0	2014
PEAK HR FACTOR :		0.815			0.962			0.722			0.000		0.926

UTURNS

NB	SB	EB	WB
0	0	0	0

CONTROL : 1-Way Stop (EB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 13-5514-106 **Day:** Thursday

City: Long Beach **Date:** 10/3/2013

AM

NS/EW Streets:	Long Beach Blvd			Long Beach Blvd			W 48th St			W 48th St				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	1	2	0	0	2	0	0	1	0	0	0	0					
7:00 AM	2	0	0	0	0	1	3	0	4	0	0	0	10				
7:15 AM	1	0	0	0	0	0	2	0	9	0	0	1	13				
7:30 AM	0	0	0	0	0	0	2	0	9	0	0	0	11				
7:45 AM	2	0	0	0	0	5	1	0	10	0	0	0	18				
8:00 AM	2	0	0	0	0	3	0	0	4	0	0	0	9				
8:15 AM	3	0	0	0	0	0	1	0	4	0	0	0	8				
8:30 AM	3	0	0	0	0	4	2	0	6	0	0	2	17				
8:45 AM	1	0	0	0	0	6	2	0	5	0	0	0	14				
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	14	0	0	0	0	19	13	0	51	0	0	3	100	0	0	0	0
APPROACH %'s :	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	20.31%	0.00%	79.69%	0.00%	0.00%	100.00%					
PEAK HR START TIME :	745 AM												TOTAL				
PEAK HR VOL :	10	0	0	0	0	12	4	0	24	0	0	2	52				
PEAK HR FACTOR :	0.833			0.600			0.636			0.250			0.722				

CONTROL : 1-Way Stop (EB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 13-5514-106 **Day:** Thursday

City: Long Beach **Date:** 10/3/2013

PM

NS/EW Streets:	Long Beach Blvd			Long Beach Blvd			W 48th St			W 48th St				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	1	2	0	0	2	0	0	1	0	0	0	0					
4:00 PM	5	0	0	0	0	3	0	0	6	0	0	1	15				
4:15 PM	1	0	0	0	0	2	4	0	12	0	0	0	19				
4:30 PM	4	0	0	0	0	4	1	0	17	0	0	1	27				
4:45 PM	6	0	0	0	0	8	1	0	12	0	0	0	27				
5:00 PM	10	0	0	0	0	3	1	0	12	0	0	0	26				
5:15 PM	8	0	0	0	0	8	1	0	13	0	0	0	30				
5:30 PM	6	0	0	0	0	2	3	0	16	0	0	0	27				
5:45 PM	6	0	0	0	0	1	2	0	14	0	0	0	23				
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	46	0	0	0	0	31	13	0	102	0	0	2	194	0	0	0	0
APPROACH %'s :	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	11.30%	0.00%	88.70%	0.00%	0.00%	100.00%					

PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	30	0	0	0	0	21	6	0	53	0	0	0	110
PEAK HR FACTOR :	0.750			0.656			0.776			0.000			0.917

CONTROL : 1-Way Stop (EB)

Transportation Studies, Inc.

2640 Walnut Avenue, Suite H

Tustin, CA. 92780

Location : W. 48TH STREET

Segment : OREGON AVE TO DAISY AVE

Client : LL&G

Site: LONG BEACH

Date: 11/06/14

Day: Thursday

Interval	WB				EB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	0	2	3	7	0	0	1	5	0	2	4	12
12:15	1		2		0		2		1		4	
12:30	1		0		0		2		1		2	
12:45	0		2		0		0		0		2	
01:00	0	0	0	3	0	1	5	7	0	1	5	10
01:15	0		1		1		0		1		1	
01:30	0		1		0		0		0		1	
01:45	0		1		0		2		0		3	
02:00	0	0	2	11	0	0	2	20	0	0	4	31
02:15	0		4		0		10		0		14	
02:30	0		1		0		4		0		5	
02:45	0		4		0		4		0		8	
03:00	0	0	6	12	0	0	2	6	0	0	8	18
03:15	0		2		0		0		0		2	
03:30	0		1		0		2		0		3	
03:45	0		3		0		2		0		5	
04:00	0	1	6	15	1	2	5	15	1	3	11	30
04:15	0		5		0		2		0		7	
04:30	1		1		1		5		2		6	
04:45	0		3		0		3		0		6	
05:00	0	1	5	18	1	4	8	23	1	5	13	41
05:15	1		6		0		6		1		12	
05:30	0		5		3		5		3		10	
05:45	0		2		0		4		0		6	
06:00	0	6	3	9	2	10	4	10	2	16	7	19
06:15	1		3		0		1		1		4	
06:30	3		1		4		3		7		4	
06:45	2		2		4		2		6		4	
07:00	2	14	3	11	6	18	0	8	8	32	3	19
07:15	9		2		8		4		17		6	
07:30	2		4		2		2		4		6	
07:45	1		2		2		2		3		4	
08:00	1	13	2	10	1	11	2	6	2	24	4	16
08:15	4		2		2		0		6		2	
08:30	4		5		4		4		8		9	
08:45	4		1		4		0		8		1	
09:00	6	8	2	8	1	3	1	6	7	11	3	14
09:15	2		2		2		2		4		4	
09:30	0		2		0		2		0		4	
09:45	0		2		0		1		0		3	
10:00	2	3	0	0	2	4	1	1	4	7	1	1
10:15	0		0		0		0		0		0	
10:30	0		0		0		0		0		0	
10:45	1		0		2		0		3		0	
11:00	1	5	1	3	0	5	1	4	1	10	2	7
11:15	2		0		1		2		3		2	
11:30	0		1		2		0		2		1	
11:45	2		1		2		1		4		2	
Totals	53		107		58		111		111		218	
Split%	47.7		49.1		52.3		50.9					
Day Totals		160				169				329		
Day Splits		48.6				51.4						
Peak Hour	08:15		04:45		06:30		05:00		06:30		04:45	
Volume	18		19		22		23		38		41	
Factor	0.75		0.79		0.69		0.72		0.56		0.79	

Data File : D1411001

Printed : 11/10/2014

Transportation Studies, Inc.

2640 Walnut Avenue, Suite H

Tustin, CA. 92780

Location: : DAISY AVENUE

Segment: : DEL AMO BLVD TO W. 49TH ST

Client: : LL&G

Site: LONG BEACH

Date: 11/06/14

Day: Thursday

Interval	SB				NB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	3	3	10	32	1	2	7	26	4	5	17	58
12:15	0		4		0		3		0		7	
12:30	0		8		1		6		1		14	
12:45	0		10		0		10		0		20	
01:00	5	7	6	22	0	2	10	43	5	9	16	65
01:15	1		8		2		8		3		16	
01:30	0		4		0		15		0		19	
01:45	1		4		0		10		1		14	
02:00	0	2	6	27	0	0	10	35	0	2	16	62
02:15	0		6		0		10		0		16	
02:30	1		7		0		7		1		14	
02:45	1		8		0		8		1		16	
03:00	1	3	5	23	0	0	9	43	1	3	14	66
03:15	1		9		0		14		1		23	
03:30	1		3		0		12		1		15	
03:45	0		6		0		8		0		14	
04:00	1	5	6	40	0	2	18	49	1	7	24	89
04:15	0		7		1		20		1		27	
04:30	3		15		0		5		3		20	
04:45	1		12		1		6		2		18	
05:00	4	24	14	69	2	25	14	46	6	49	28	115
05:15	4		22		1		11		5		33	
05:30	8		22		12		8		20		30	
05:45	8		11		10		13		18		24	
06:00	6	40	13	42	11	52	8	28	17	92	21	70
06:15	9		10		8		4		17		14	
06:30	16		7		16		14		32		21	
06:45	9		12		17		2		26		14	
07:00	14	82	4	21	18	93	5	14	32	175	9	35
07:15	20		6		20		4		40		10	
07:30	25		8		28		2		53		10	
07:45	23		3		27		3		50		6	
08:00	14	68	6	31	25	73	2	17	39	141	8	48
08:15	24		6		19		1		43		7	
08:30	12		11		16		12		28		23	
08:45	18		8		13		2		31		10	
09:00	13	46	14	31	8	20	2	10	21	66	16	41
09:15	12		9		1		2		13		11	
09:30	12		6		5		2		17		8	
09:45	9		2		6		4		15		6	
10:00	7	18	4	10	6	21	4	7	13	39	8	17
10:15	5		3		4		1		9		4	
10:30	4		1		7		0		11		1	
10:45	2		2		4		2		6		4	
11:00	5	33	2	11	4	15	1	6	9	48	3	17
11:15	12		2		1		2		13		4	
11:30	8		2		7		1		15		3	
11:45	8		5		3		2		11		7	
Totals	331		359		305		324		636		683	
Split%	52.0		52.6		48.0		47.4					
Day Totals		690				629				1,319		
Day Splits		52.3				47.7						
Peak Hour	07:30		04:45		07:15		03:30		07:30		05:00	
Volume	86		70		100		58		185		115	
Factor	0.86		0.80		0.89		0.73		0.87		0.87	

* Data File : D1411002

Printed : 11/10/2014

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Transportation Studies, Inc.

2640 Walnut Avenue, Suite H

Tustin, CA. 92780

Location: : DAISY AVENUE | Site: LONG BEACH

Segment: : W. 49TH ST TO W. 48TH ST | Date: 11/06/14

Client: : LL&G

Interval	SB				NB				Combined				Day:	Thursday
Begin	AM		PM		AM		PM		AM		PM			
12:00	1	1	1	7	0	0	1	8	1	1	2	15		
12:15	0		2		0		1		0		3			
12:30	0		2		0		0		0		2			
12:45	0		2		0		6		0		8			
01:00	1	3	3	11	2	3	1	9	3	6	4	20		
01:15	0		1		1		2		1		3			
01:30	0		4		0		3		0		7			
01:45	2		3		0		3		2		6			
02:00	0	1	1	11	0	0	1	6	0	1	2	17		
02:15	0		6		0		1		0		7			
02:30	0		1		0		2		0		3			
02:45	1		3		0		2		1		5			
03:00	0	1	5	17	0	1	2	4	0	2	7	21		
03:15	1		3		1		2		2		5			
03:30	0		7		0		0		0		7			
03:45	0		2		0		0		0		2			
04:00	1	2	5	17	0	1	2	9	1	3	7	26		
04:15	0		6		0		2		0		8			
04:30	0		4		0		3		0		7			
04:45	1		2		1		2		2		4			
05:00	1	10	6	22	0	1	0	8	1	11	6	30		
05:15	0		8		0		4		0		12			
05:30	7		3		1		2		8		5			
05:45	2		5		0		2		2		7			
06:00	1	7	2	12	3	9	4	6	4	16	6	18		
06:15	0		2		2		0		2		2			
06:30	4		3		2		1		6		4			
06:45	2		5		2		1		4		6			
07:00	3	12	3	12	2	12	0	2	5	24	3	14		
07:15	2		2		2		0		4		2			
07:30	5		2		2		2		7		4			
07:45	2		5		6		0		8		5			
08:00	6	22	4	10	3	9	1	1	9	31	5	11		
08:15	2		1		2		0		4		1			
08:30	8		3		4		0		12		3			
08:45	6		2		0		0		6		2			
09:00	5	12	4	15	1	4	0	3	6	16	4	18		
09:15	2		6		0		0		2		6			
09:30	0		4		2		3		2		7			
09:45	5		1		1		0		6		1			
10:00	6	12	6	8	0	1	0	2	6	13	6	10		
10:15	3		1		0		2		3		3			
10:30	0		1		0		0		0		1			
10:45	3		0		1		0		4		0			
11:00	1	14	1	3	3	12	0	0	4	26	1	3		
11:15	5		0		2		0		7		0			
11:30	7		0		6		0		13		0			
11:45	1		2		1		0		2		2			
Totals	97		145		53		58		150		203			
Split%	64.7		71.4		35.3		28.6							
Day Totals		242				111				353				
Day Splits		68.6				31.4								
Peak Hour	08:00		05:00		07:45		12:45		07:45		05:00			
Volume	22		22		15		12		33		30			
Factor	0.69		0.69		0.63		0.50		0.69		0.63			

* Data File : D1411003 | Printed : 11/10/2014

Transportation Studies, Inc.

2640 Walnut Avenue, Suite H

Tustin, CA. 92780

Location : DAISY AVENUE
Segment : S/O W. 48TH STREET
Client : LL&G

Site: LONG BEACH
Date: 11/06/14

Interval	SB				NB				Combined				Day:	Thursday
Begin	AM		PM		AM		PM		AM		PM			
12:00	0	0	0	0	0	0	1	2	0	0	1	2		
12:15	0		0		0		0		0		0			
12:30	0		0		0		0		0		0			
12:45	0		0		0		1		0		1			
01:00	0	0	0	0	0	0	2	6	0	0	2	6		
01:15	0		0		0		1		0		1			
01:30	0		0		0		2		0		2			
01:45	0		0		0		1		0		1			
02:00	0	0	0	2	0	0	6	9	0	0	6	11		
02:15	0		1		0		2		0		3			
02:30	0		1		0		1		0		2			
02:45	0		0		0		0		0		0			
03:00	0	0	0	1	0	0	0	2	0	0	0	3		
03:15	0		1		0		2		0		3			
03:30	0		0		0		0		0		0			
03:45	0		0		0		0		0		0			
04:00	0	0	3	6	0	1	1	1	0	1	4	7		
04:15	0		0		0		0		0		0			
04:30	0		3		0		0		0		3			
04:45	0		0		1		0		1		0			
05:00	0	0	0	3	0	0	0	0	0	0	0	3		
05:15	0		1		0		0		0		1			
05:30	0		2		0		0		0		2			
05:45	0		0		0		0		0		0			
06:00	0	0	2	4	0	4	0	0	0	4	2	4		
06:15	0		1		3		0		3		1			
06:30	0		0		0		0		0		0			
06:45	0		1		1		0		1		1			
07:00	0	1	0	1	2	3	0	0	2	4	0	1		
07:15	0		0		0		0		0		0			
07:30	0		0		0		0		0		0			
07:45	1		1		1		0		2		1			
08:00	0	2	1	4	0	0	0	0	0	2	1	4		
08:15	0		0		0		0		0		0			
08:30	1		1		0		0		1		1			
08:45	1		2		0		0		1		2			
09:00	0	0	0	2	2	2	0	0	2	2	0	2		
09:15	0		0		0		0		0		0			
09:30	0		2		0		0		0		2			
09:45	0		0		0		0		0		0			
10:00	1	1	4	4	0	2	1	1	1	3	5	5		
10:15	0		0		1		0		1		0			
10:30	0		0		1		0		1		0			
10:45	0		0		0		0		0		0			
11:00	0	1	0	2	0	6	1	2	0	7	1	4		
11:15	0		2		2		1		2		3			
11:30	1		0		4		0		5		0			
11:45	0		0		0		0		0		0			
Totals	5		29		18		23		23		52			
Split%	21.7		55.8		78.3		44.2							
Day Totals		34				41				75				
Day Splits		45.3				54.7								
Peak Hour	07:45		03:45		06:15		01:30		10:45		01:30			
Volume	2		6		6		11		7		12			
Factor	0.50		0.50		0.50		0.46		0.35		0.50			

* Data File : D1411004

Printed : 11/10/2014

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Transportation Studies, Inc.

2640 Walnut Avenue, Suite H

Tustin, CA. 92780

Location : W. 48TH STREET

Segment : DAISY AVE TO PACIFIC AVE

Client : LL&G

Site: LONG BEACH

Date: 11/06/14

Day: Thursday

Interval	WB				EB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	1	1	5	15	0	2	1	7	1	3	6	22
12:15	0		4		1		1		1		5	
12:30	0		1		1		4		1		5	
12:45	0		5		0		1		0		6	
01:00	0	0	2	13	0	0	6	11	0	0	8	24
01:15	0		6		0		0		0		6	
01:30	0		2		0		2		0		4	
01:45	0		3		0		3		0		6	
02:00	0	1	6	18	0	0	2	19	0	1	8	37
02:15	0		3		0		9		0		12	
02:30	0		3		0		3		0		6	
02:45	1		6		0		5		1		11	
03:00	0	0	4	13	0	0	3	15	0	0	7	28
03:15	0		2		0		3		0		5	
03:30	0		3		0		5		0		8	
03:45	0		4		0		4		0		8	
04:00	0	3	5	22	1	3	5	15	1	6	10	37
04:15	0		7		0		3		0		10	
04:30	1		5		1		4		2		9	
04:45	2		5		1		3		3		8	
05:00	1	3	8	18	3	6	7	25	4	9	15	43
05:15	1		4		0		7		1		11	
05:30	0		4		3		4		3		8	
05:45	1		2		0		7		1		9	
06:00	2	7	6	19	1	10	2	15	3	17	8	34
06:15	2		6		3		4		5		10	
06:30	2		3		3		3		5		6	
06:45	1		4		3		6		4		10	
07:00	2	14	6	16	6	23	2	5	8	37	8	21
07:15	5		4		9		0		14		4	
07:30	5		3		6		1		11		4	
07:45	2		3		2		2		4		5	
08:00	4	13	6	25	4	20	2	8	8	33	8	33
08:15	3		7		2		1		5		8	
08:30	3		7		4		3		7		10	
08:45	3		5		10		2		13		7	
09:00	6	13	3	16	6	9	1	8	12	22	4	24
09:15	1		5		2		4		3		9	
09:30	0		6		1		1		1		7	
09:45	6		2		0		2		6		4	
10:00	4	5	4	8	6	15	2	4	10	20	6	12
10:15	0		2		5		1		5		3	
10:30	1		2		1		1		2		3	
10:45	0		0		3		0		3		0	
11:00	3	15	1	3	3	14	1	4	6	29	2	7
11:15	7		1		4		2		11		3	
11:30	3		1		4		0		7		1	
11:45	2		0		3		1		5		1	
Totals	75		186		102		136		177		322	
Split%	42.4		57.8		57.6		42.2					
Day Totals		261				238				499		
Day Splits		52.3				47.7						
Peak Hour	07:15		04:15		06:45		05:00		06:45		04:30	
Volume	16		25		24		25		37		43	
Factor	0.80		0.78		0.67		0.89		0.66		0.72	

* Data File : D1411005

Printed : 11/10/2014

Transportation Studies, Inc.

2640 Walnut Avenue, Suite H

Tustin, CA. 92780

Location : PACIFIC AVENUE

Segment : DEL AMO BLVD TO PLEASANT ST

Client : LL&G

Site: LONG BEACH

Date: 11/06/14

Day: Thursday

Interval	SB				NB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	2	6	7	26	0	5	6	31	2	11	13	57
12:15	1		5		3		7		4		12	
12:30	1		3		0		6		1		9	
12:45	2		11		2		12		4		23	
01:00	0	4	10	29	1	4	8	33	1	8	18	62
01:15	1		10		1		8		2		18	
01:30	2		8		2		5		4		13	
01:45	1		1		0		12		1		13	
02:00	2	3	6	28	1	6	10	31	3	9	16	59
02:15	1		9		2		12		3		21	
02:30	0		9		1		2		1		11	
02:45	0		4		2		7		2		11	
03:00	2	6	10	40	1	2	8	27	3	8	18	67
03:15	2		6		0		2		2		8	
03:30	1		10		1		11		2		21	
03:45	1		14		0		6		1		20	
04:00	2	5	17	69	1	12	6	24	3	17	23	93
04:15	1		18		1		6		2		24	
04:30	0		19		7		6		7		25	
04:45	2		15		3		6		5		21	
05:00	2	10	22	75	4	18	10	35	6	28	32	110
05:15	0		14		3		8		3		22	
05:30	6		26		6		11		12		37	
05:45	2		13		5		6		7		19	
06:00	5	17	13	38	6	25	10	30	11	42	23	68
06:15	4		10		6		5		10		15	
06:30	5		3		6		7		11		10	
06:45	3		12		7		8		10		20	
07:00	9	28	10	36	4	29	4	18	13	57	14	54
07:15	5		6		12		3		17		9	
07:30	8		10		6		8		14		18	
07:45	6		10		7		3		13		13	
08:00	4	27	13	49	12	56	5	30	16	83	18	79
08:15	5		11		10		8		15		19	
08:30	5		18		20		13		25		31	
08:45	13		7		14		4		27		11	
09:00	7	28	7	21	5	15	11	30	12	43	18	51
09:15	7		1		4		6		11		7	
09:30	2		6		2		8		4		14	
09:45	12		7		4		5		16		12	
10:00	2	17	12	30	6	30	6	12	8	47	18	42
10:15	2		9		4		4		6		13	
10:30	6		7		8		1		14		8	
10:45	7		2		12		1		19		3	
11:00	3	23	4	14	2	27	4	10	5	50	8	24
11:15	5		4		8		2		13		6	
11:30	7		5		7		1		14		6	
11:45	8		1		10		3		18		4	
Totals	174		455		229		311		403		766	
Split%	43.2		59.4		56.8		40.6					
Day Totals		629				540				1,169		
Day Splits		53.8				46.2						
Peak Hour	08:30		04:45		08:00		01:30		08:00		04:45	
Volume	32		77		56		39		83		112	
Factor	0.62		0.74		0.70		0.81		0.77		0.76	

Data File : D1411006

Printed : 11/10/2014

Transportation Studies, Inc.

2640 Walnut Avenue, Suite H

Tustin, CA. 92780

Location : W. 48TH STREET

Segment : PACIFIC AVE TO VIRGINIA AVE

Client : LL&G

Site: LONG BEACH

Date: 11/06/14

Day: Thursday

Interval	EB				WB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	0	4	4	17	1	4	7	21	1	8	11	38
12:15	1		1		0		5		1		6	
12:30	1		6		1		2		2		8	
12:45	2		6		2		7		4		13	
01:00	1	1	5	25	0	1	1	11	1	2	6	36
01:15	0		4		0		4		0		8	
01:30	0		8		1		4		1		12	
01:45	0		8		0		2		0		10	
02:00	1	2	6	31	0	1	1	14	1	3	7	45
02:15	0		11		0		7		0		18	
02:30	1		7		1		0		2		7	
02:45	0		7		0		6		0		13	
03:00	1	2	4	23	0	0	6	19	1	2	10	42
03:15	0		5		0		6		0		11	
03:30	0		6		0		3		0		9	
03:45	1		8		0		4		1		12	
04:00	1	3	8	31	1	3	4	26	2	6	12	57
04:15	0		10		0		10		0		20	
04:30	1		8		1		8		2		16	
04:45	1		5		1		4		2		9	
05:00	3	10	13	38	0	2	8	19	3	12	21	57
05:15	0		8		0		2		0		10	
05:30	4		8		2		2		6		10	
05:45	3		9		0		7		3		16	
06:00	1	14	6	31	2	6	4	19	3	20	10	50
06:15	2		9		2		5		4		14	
06:30	4		6		2		6		6		12	
06:45	7		10		0		4		7		14	
07:00	4	29	9	18	2	13	4	15	6	42	13	33
07:15	10		1		4		2		14		3	
07:30	10		2		6		4		16		6	
07:45	5		6		1		5		6		11	
08:00	7	29	3	14	6	14	10	28	13	43	13	42
08:15	7		2		5		3		12		5	
08:30	6		4		1		10		7		14	
08:45	9		5		2		5		11		10	
09:00	8	25	4	11	8	12	5	17	16	37	9	28
09:15	7		6		1		4		8		10	
09:30	4		0		0		5		4		5	
09:45	6		1		3		3		9		4	
10:00	4	16	4	11	3	13	2	5	7	29	6	16
10:15	5		2		2		1		7		3	
10:30	2		5		6		0		8		5	
10:45	5		0		2		2		7		2	
11:00	2	21	5	9	3	17	2	6	5	38	7	15
11:15	6		2		6		0		12		2	
11:30	5		0		2		3		7		3	
11:45	8		2		6		1		14		3	
Totals	156		259		86		200		242		459	
Split%	64.5		56.4		35.5		43.6					
Day Totals		415				286				701		
Day Splits		59.2				40.8						
Peak Hour	07:15		05:00		07:30		04:15		07:15		04:15	
Volume	32		38		18		30		49		66	
Factor	0.80		0.73		0.75		0.75		0.77		0.79	

Data File : D1411007

Printed : 11/10/2014

A-7

Transportation Studies, Inc.

2640 Walnut Avenue, Suite H

Tustin, CA. 92780

Location : W. ARBOR STREET

Segment : VIRGINIA AVE TO LONG BEACH BVD

Client : LL&G

Site: LONG BEACH

Date: 11/06/14

Day: Thursday

Interval	WB				EB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	0	1	4	18	0	1	2	15	0	2	6	33
12:15	1		4		0		3		1		7	
12:30	0		5		0		5		0		10	
12:45	0		5		1		5		1		10	
01:00	0	0	2	9	0	1	2	20	0	1	4	29
01:15	0		4		1		8		1		12	
01:30	0		2		0		4		0		6	
01:45	0		1		0		6		0		7	
02:00	0	1	6	13	1	4	4	13	1	5	10	26
02:15	0		1		2		4		2		5	
02:30	1		4		0		2		1		6	
02:45	0		2		1		3		1		5	
03:00	0	1	3	11	0	0	2	8	0	1	5	19
03:15	0		2		0		1		0		3	
03:30	0		4		0		3		0		7	
03:45	1		2		0		2		1		4	
04:00	1	3	8	36	1	3	10	37	2	6	18	73
04:15	0		9		2		6		2		15	
04:30	2		8		0		7		2		15	
04:45	0		11		0		14		0		25	
05:00	1	6	8	33	0	3	12	31	1	9	20	64
05:15	2		12		0		6		2		18	
05:30	2		6		3		4		5		10	
05:45	1		7		0		9		1		16	
06:00	1	10	9	21	0	11	12	26	1	21	21	47
06:15	1		4		5		5		6		9	
06:30	4		1		1		3		5		4	
06:45	4		7		5		6		9		13	
07:00	5	13	4	16	2	15	4	25	7	28	8	41
07:15	3		4		4		12		7		16	
07:30	2		2		5		3		7		5	
07:45	3		6		4		6		7		12	
08:00	6	18	0	6	4	17	5	12	10	35	5	18
08:15	2		1		3		6		5		7	
08:30	4		1		4		0		8		1	
08:45	6		4		6		1		12		5	
09:00	4	12	1	7	1	15	1	7	5	27	2	14
09:15	5		1		5		0		10		1	
09:30	1		4		4		2		5		6	
09:45	2		1		5		4		7		5	
10:00	6	8	1	4	0	6	0	6	6	14	1	10
10:15	1		2		1		2		2		4	
10:30	1		0		4		1		5		1	
10:45	0		1		1		3		1		4	
11:00	4	18	2	6	4	14	0	5	8	32	2	11
11:15	5		0		5		1		10		1	
11:30	4		0		2		2		6		2	
11:45	5		4		3		2		8		6	
Totals	91		180		90		205		181		385	
Split%	50.3		46.8		49.7		53.2					
Day Totals		271				295				566		
Day Splits		47.9				52.1						
Peak Hour	08:30		04:30		07:15		04:15		08:00		04:30	
Volume	19		39		17		39		35		78	
Factor	0.79		0.81		0.85		0.70		0.73		0.78	

Data File : D1411008

Printed : 11/10/2014

A-8

Transportation Studies, Inc.

2640 Walnut Avenue, Suite H

Tustin, CA. 92780

Location : W. 48TH STREET

Segment : VIRGINIA AVE TO LONG BEACH BVD

Client : LL&G

Site: LONG BEACH

Date: 11/06/14

Day: Thursday

Interval	EB				WB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	0	6	6	24	1	2	4	17	1	8	10	41
12:15	2		2		1		3		3		5	
12:30	3		6		0		4		3		10	
12:45	1		10		0		6		1		16	
01:00	2	4	6	25	2	2	4	15	4	6	10	40
01:15	2		7		0		4		2		11	
01:30	0		3		0		5		0		8	
01:45	0		9		0		2		0		11	
02:00	0	1	9	37	0	0	5	24	0	1	14	61
02:15	0		8		0		13		0		21	
02:30	1		8		0		2		1		10	
02:45	0		12		0		4		0		16	
03:00	0	0	12	42	0	0	5	20	0	0	17	62
03:15	0		10		0		4		0		14	
03:30	0		8		0		5		0		13	
03:45	0		12		0		6		0		18	
04:00	2	5	10	40	0	0	5	27	2	5	15	67
04:15	0		10		0		9		0		19	
04:30	2		14		0		8		2		22	
04:45	1		6		0		5		1		11	
05:00	2	13	16	41	0	2	10	39	2	15	26	80
05:15	3		11		1		7		4		18	
05:30	4		6		1		11		5		17	
05:45	4		8		0		11		4		19	
06:00	4	21	5	21	3	11	10	37	7	32	15	58
06:15	6		8		8		8		14		16	
06:30	6		4		0		10		6		14	
06:45	5		4		0		9		5		13	
07:00	9	45	12	34	2	9	2	9	11	54	14	43
07:15	13		7		4		3		17		10	
07:30	18		5		2		2		20		7	
07:45	5		10		1		2		6		12	
08:00	12	43	13	39	5	9	1	14	17	52	14	53
08:15	9		7		1		4		10		11	
08:30	11		11		1		9		12		20	
08:45	11		8		2		0		13		8	
09:00	13	37	4	16	5	12	5	21	18	49	9	37
09:15	10		6		3		7		13		13	
09:30	9		3		1		7		10		10	
09:45	5		3		3		2		8		5	
10:00	2	22	2	16	3	13	5	17	5	35	7	33
10:15	4		8		4		6		8		14	
10:30	9		4		6		4		15		8	
10:45	7		2		0		2		7		4	
11:00	5	33	1	5	6	19	2	3	11	52	3	8
11:15	8		2		3		0		11		2	
11:30	8		1		4		1		12		2	
11:45	12		1		6		0		18		1	
Totals	230		340		79		243		309		583	
Split%	74.4		58.3		25.6		41.7					
Day Totals		570				322				892		
Day Splits		63.9				36.1						
Peak Hour	07:15		04:30		11:00		05:30		07:15		05:00	
Volume	48		47		19		40		60		80	
Factor	0.67		0.73		0.79		0.91		0.75		0.77	

Data File : D1411009

Printed : 11/10/2014

Transportation Studies, Inc.

2640 Walnut Avenue, Suite H

Tustin, CA. 92780

Location : W. 49TH STREET

Segment : W/O LONG BEACH BLVD

Client : LL&G

Site: LONG BEACH

Date: 11/06/14

Day: Thursday

Interval	EB				WB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	2	7	10	45	2	7	14	63	4	14	24	108
12:15	1		10		1		20		2		30	
12:30	2		15		2		17		4		32	
12:45	2		10		2		12		4		22	
01:00	1	4	11	54	1	7	18	69	2	11	29	123
01:15	1		13		1		20		2		33	
01:30	1		15		4		17		5		32	
01:45	1		15		1		14		2		29	
02:00	1	1	14	62	2	5	23	90	3	6	37	152
02:15	0		12		1		27		1		39	
02:30	0		26		1		22		1		48	
02:45	0		10		1		18		1		28	
03:00	0	0	18	89	0	3	22	87	0	3	40	176
03:15	0		8		3		23		3		31	
03:30	0		25		0		20		0		45	
03:45	0		38		0		22		0		60	
04:00	1	6	25	108	1	4	21	111	2	10	46	219
04:15	2		22		0		28		2		50	
04:30	2		29		2		36		4		65	
04:45	1		32		1		26		2		58	
05:00	4	22	32	134	1	15	34	120	5	37	66	254
05:15	6		30		3		30		9		60	
05:30	4		40		5		26		9		66	
05:45	8		32		6		30		14		62	
06:00	8	41	31	91	9	45	28	87	17	86	59	178
06:15	6		32		6		14		12		46	
06:30	14		15		15		21		29		36	
06:45	13		13		15		24		28		37	
07:00	21	83	6	34	29	129	17	60	50	212	23	94
07:15	30		11		24		12		54		23	
07:30	18		7		38		16		56		23	
07:45	14		10		38		15		52		25	
08:00	16	65	6	39	40	122	16	53	56	187	22	92
08:15	20		19		30		17		50		36	
08:30	16		8		32		10		48		18	
08:45	13		6		20		10		33		16	
09:00	10	45	6	22	19	43	12	40	29	88	18	62
09:15	15		8		6		10		21		18	
09:30	7		5		11		7		18		12	
09:45	13		3		7		11		20		14	
10:00	20	50	4	16	6	34	8	19	26	84	12	35
10:15	8		4		11		3		19		7	
10:30	6		4		10		6		16		10	
10:45	16		4		7		2		23		6	
11:00	13	55	3	11	19	58	4	20	32	113	7	31
11:15	12		1		15		6		27		7	
11:30	19		4		14		6		33		10	
11:45	11		3		10		4		21		7	
Totals	379		705		472		819		851		1,524	
Split%	44.5		46.3		55.5		53.7					
Day Totals		1,084				1,291				2,375		
Day Splits		45.6				54.4						
Peak Hour	07:00		05:30		07:30		04:30		07:15		05:00	
Volume	83		135		146		126		218		254	
Factor	0.69		0.84		0.91		0.88		0.97		0.96	

Data File : D1411010

Printed : 11/10/2014

APPENDIX C:
LEVEL OF SERVICE CALCULATION SHEETS

Riverwalk Subdivision
Existing Conditions
AM Peak

Summary Scenario Comparison Report (With Average Critical Delay)
Future Volume Alternative

Intersection		Default Scenario				???				???						???			
		LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)	LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)	LOS	Avg Del (sec)	Crit V/C	Crit V/C Change	Avg Crit Del (sec)	Avg Crit Del Change	LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)
#1	Susana Rd & I-710 SB Ramps	A	17.6	0.543	16.6	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#2	Susana Rd & Del Amo Blvd	E	32.5	0.967	40.8	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#3	Daisy Ave & Del Amo Blvd	B	7.2	0.683	8.1	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#4	Long Beach Blvd & Del Amo Blvd	E	30.8	0.907	34.1	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#5	Long Beach Blvd & Arbor St/48th St	C	0.6	0.074	0.6	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x

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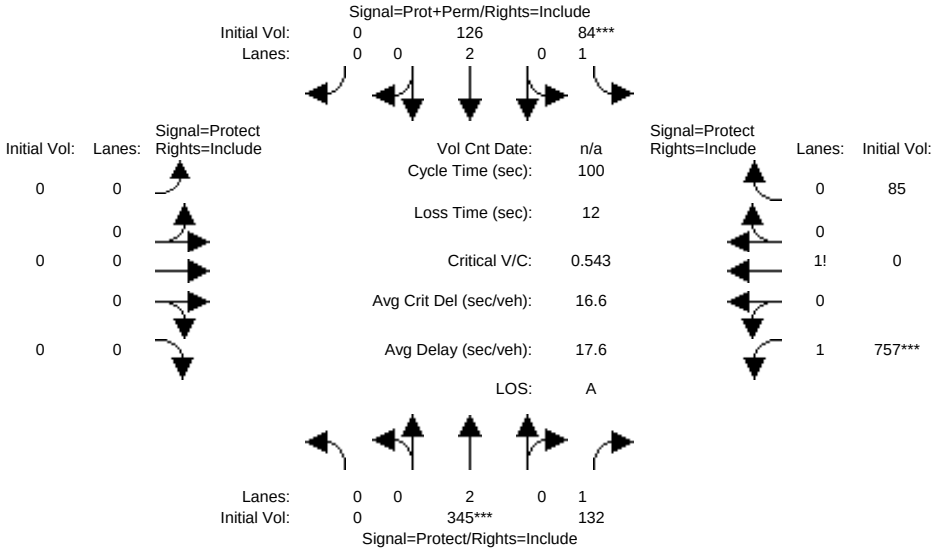
Riverwalk Subdivision
Existing Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #1: Susana Rd & I-710 SB Ramps



Street Name:	Susana Rd						I-710 SB Ramps					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	0	345	132	84	126	0	0	0	0	757	0	85
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	345	132	84	126	0	0	0	0	757	0	85
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:	0	345	132	84	126	0	0	0	0	757	0	85
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	345	132	84	126	0	0	0	0	757	0	85
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	345	132	84	126	0	0	0	0	757	0	85
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	345	132	84	126	0	0	0	0	757	0	85
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	2.00	1.00	1.00	2.00	0.00	0.00	0.00	0.00	1.80	0.00	0.20
Final Sat.:	0	3200	1600	1600	3200	0	0	0	0	2877	0	323
Capacity Analysis Module:												
Vol/Sat:	0.00	0.11	0.08	0.05	0.04	0.00	0.00	0.00	0.00	0.26	0.00	0.26
Crit Moves:		****		****						****		

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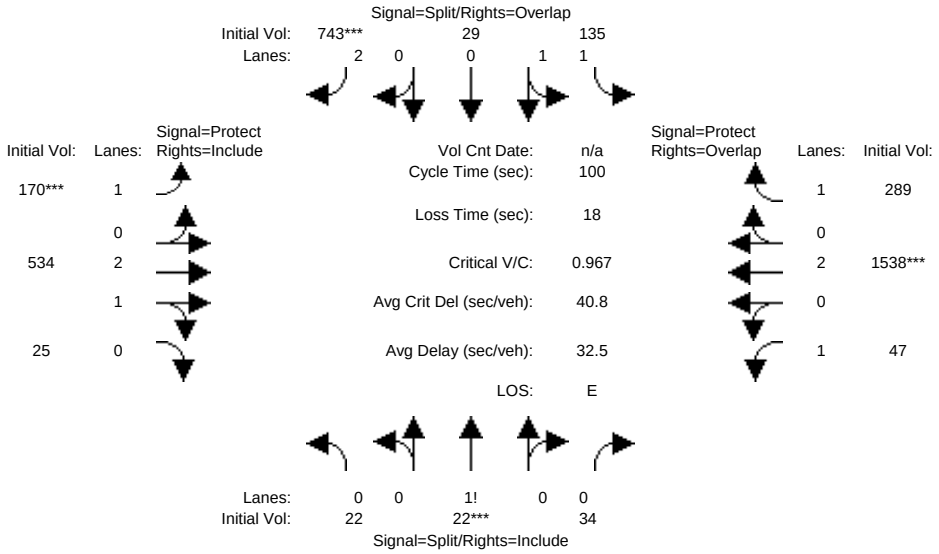
Riverwalk Subdivision
Existing Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #2: Susana Rd & Del Amo Blvd

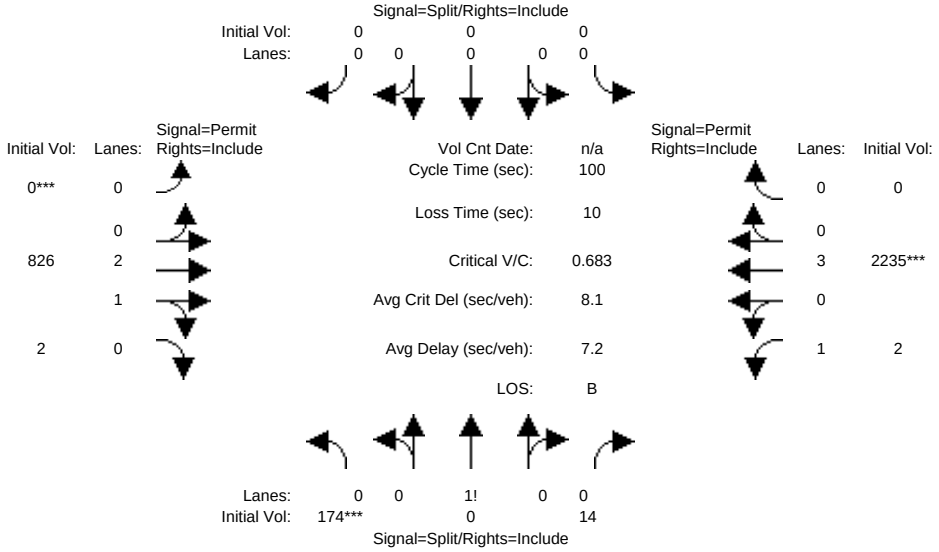


Street Name:	Susana Rd						Del Amo Blvd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	22	22	34	135	29	743	170	534	25	47	1538	289
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:	22	22	34	135	29	743	170	534	25	47	1538	289
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:	22	22	34	135	29	743	170	534	25	47	1538	289
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:	22	22	34	135	29	743	170	534	25	47	1538	289
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	22	22	34	135	29	743	170	534	25	47	1538	289
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:	22	22	34	135	29	743	170	534	25	47	1538	289
OvlAdjVol:						437						207
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	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.28	0.28	0.44	1.65	0.35	2.00	1.00	2.87	0.13	1.00	2.00	1.00
Final Sat.:	451	451	697	2634	566	2880	1600	4585	215	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.05	0.05	0.05	0.05	0.05	0.26	0.11	0.12	0.12	0.03	0.48	0.18
OvlAdjV/S:						0.15						0.13
Crit Moves:		****				****	****				****	

Riverwalk Subdivision
Existing Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #3: Daisy Ave & Del Amo Blvd



Street Name:	Daisy Ave						Del Amo Blvd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	174	0	14	0	0	0	0	826	2	2	2235	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:	174	0	14	0	0	0	0	826	2	2	2235	0
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:	174	0	14	0	0	0	0	826	2	2	2235	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:	174	0	14	0	0	0	0	826	2	2	2235	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	174	0	14	0	0	0	0	826	2	2	2235	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:	174	0	14	0	0	0	0	826	2	2	2235	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:	0.93	0.00	0.07	0.00	0.00	0.00	0.00	2.99	0.01	1.00	3.00	0.00
Final Sat.:	1481	0	119	0	0	0	0	4788	12	1600	4800	0
Capacity Analysis Module:												
Vol/Sat:	0.12	0.00	0.12	0.00	0.00	0.00	0.00	0.17	0.17	0.00	0.47	0.00
Crit Moves:	****						****				****	

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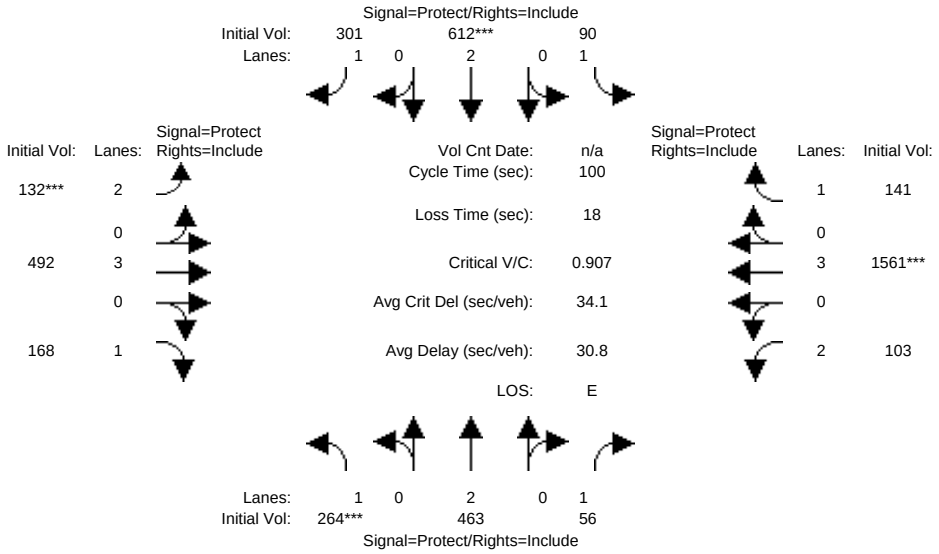
Riverwalk Subdivision
Existing Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #4: Long Beach Blvd & Del Amo Blvd



Street Name:	Long Beach Blvd						Del Amo Blvd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	264	463	56	90	612	301	132	492	168	103	1561	141
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:	264	463	56	90	612	301	132	492	168	103	1561	141
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:	264	463	56	90	612	301	132	492	168	103	1561	141
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:	264	463	56	90	612	301	132	492	168	103	1561	141
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	264	463	56	90	612	301	132	492	168	103	1561	141
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:	264	463	56	90	612	301	132	492	168	103	1561	141
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	0.90	1.00	1.00	0.90	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	2.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	1600	3200	1600	1600	3200	1600	2880	4800	1600	2880	4800	1600
Capacity Analysis Module:												
Vol/Sat:	0.17	0.14	0.04	0.06	0.19	0.19	0.05	0.10	0.11	0.04	0.33	0.09
Crit Moves:	****				****		****				****	

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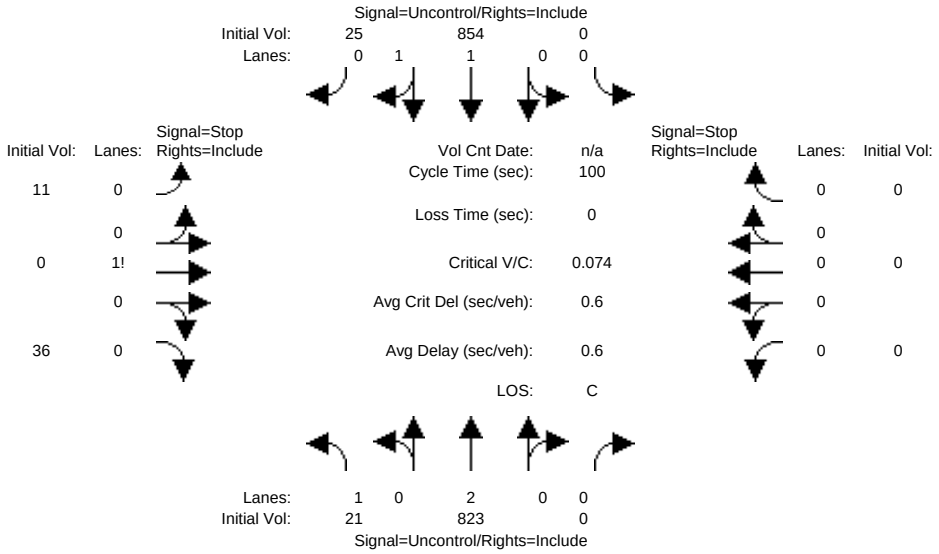
Riverwalk Subdivision
Existing Conditions
AM Peak

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Default Scenario

Intersection #5: Long Beach Blvd & Arbor St/48th St




```
Street Name:         Long Beach Blvd                    Arbor St/48th St
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      21  823     0     0  854    25    11    0    36     0    0     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:   21  823     0     0  854    25    11    0    36     0    0     0
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:   21  823     0     0  854    25    11    0    36     0    0     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:    21  823     0     0  854    25    11    0    36     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   21  823     0     0  854    25    11    0    36     0    0     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx xxxxx xxxx xxxxx   6.8  6.5   6.9 xxxxx xxxx xxxxx
FollowUpTim:  2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.5  4.0   3.3 xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  879 xxxx xxxxx  xxxx xxxx xxxxx  1320 1732   440  xxxx xxxx xxxxx
Potent Cap.:  777 xxxx xxxxx  xxxx xxxx xxxxx   151   89   571  xxxx xxxx xxxxx
Move Cap.:    777 xxxx xxxxx  xxxx xxxx xxxxx   148   87   571  xxxx xxxx xxxxx
Volume/Cap:  0.03 xxxx  xxxx  xxxx xxxx  xxxx  0.07 0.00  0.06  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.1 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:  9.8 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    A    *     *     *    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  342 xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.5 xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx 17.2 xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    C     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx             17.2           xxxxxx
ApproachLOS:         *                *                C                *
Note: Queue reported is the number of cars per lane.
                    Peak Hour Delay Signal Warrant Report
*******************************************************************************
Intersection #5 Long Beach Blvd & Arbor St/48th St
*******************************************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
```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```
------------|---------------||---------------||---------------||---------------|
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Lanes:        1  0  2  0  0    0  0  1  1  0    0  0  1! 0  0    0  0  0  0  0
Initial Vol:   21  823     0     0  854    25    11    0    36     0    0     0
ApproachDel:    xxxxxx           xxxxxx             17.2           xxxxxx
------------|---------------||---------------||---------------||---------------|
Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=47]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1770]
   SUCCEED - Total volume greater than or equal to 650 for intersection
             with less than four approaches.
--------------------------------------------------------------------------------
SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
                Peak Hour Volume Signal Warrant Report [Urban]
********************************************************************************
Intersection #5 Long Beach Blvd & Arbor St/48th St
********************************************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
------------|---------------||---------------||---------------||---------------|
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Lanes:        1  0  2  0  0    0  0  1  1  0    0  0  1! 0  0    0  0  0  0  0
Initial Vol:   21  823     0     0  854    25    11    0    36     0    0     0
------------|---------------||---------------||---------------||---------------|
Major Street Volume:             1723
Minor Approach Volume:           47
Minor Approach Volume Threshold: 97 [less than minimum of 100]
--------------------------------------------------------------------------------
SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
```


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Riverwalk Subdivision
Existing Conditions
PM Peak

Summary Scenario Comparison Report (With Average Critical Delay)
Future Volume Alternative

Intersection		Default Scenario				???				???						???			
		LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)	LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)	LOS	Avg Del (sec)	Crit V/C	Crit V/C Change	Avg Crit Del (sec)	Avg Crit Del Change	LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)
#1	Susana Rd & I-710 SB Ramps	A	18.6	0.478	20.8	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#2	Susana Rd & Del Amo Blvd	D	23.8	0.846	24.7	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#3	Daisy Ave & Del Amo Blvd	B	3.2	0.648	3.7	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#4	Long Beach Blvd & Del Amo Blvd	E	30.4	0.923	32.9	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#5	Long Beach Blvd & Arbor St/48th St	C	1.1	0.148	1.1	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x

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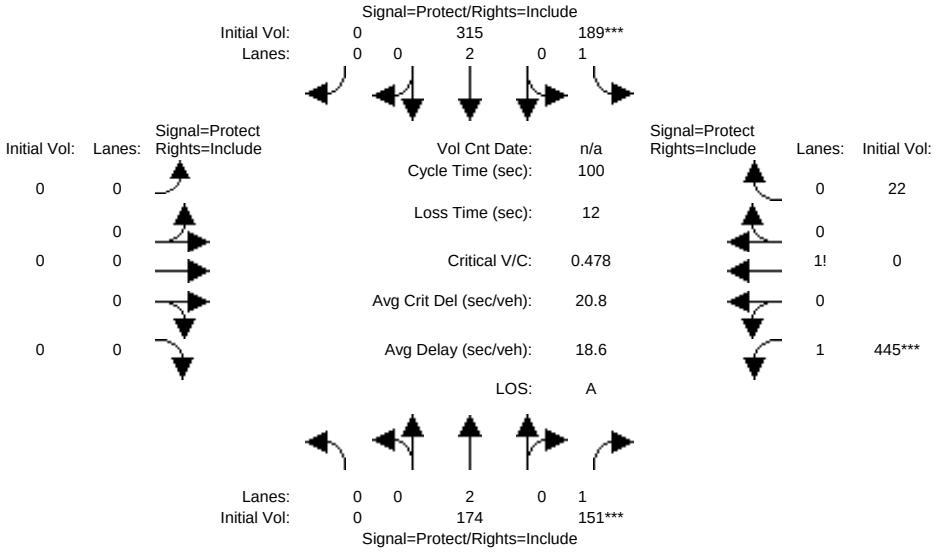
Existing Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #1: Susana Rd & I-710 SB Ramps



Street Name:	Susana Rd						I-710 SB Ramps					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	0	174	151	189	315	0	0	0	0	445	0	22
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	174	151	189	315	0	0	0	0	445	0	22
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:	0	174	151	189	315	0	0	0	0	445	0	22
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	174	151	189	315	0	0	0	0	445	0	22
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	174	151	189	315	0	0	0	0	445	0	22
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	174	151	189	315	0	0	0	0	445	0	22
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	2.00	1.00	1.00	2.00	0.00	0.00	0.00	0.00	1.91	0.00	0.09
Final Sat.:	0	3200	1600	1600	3200	0	0	0	0	3049	0	151
Capacity Analysis Module:												
Vol/Sat:	0.00	0.05	0.09	0.12	0.10	0.00	0.00	0.00	0.00	0.15	0.00	0.15
Crit Moves:			****	****						****		

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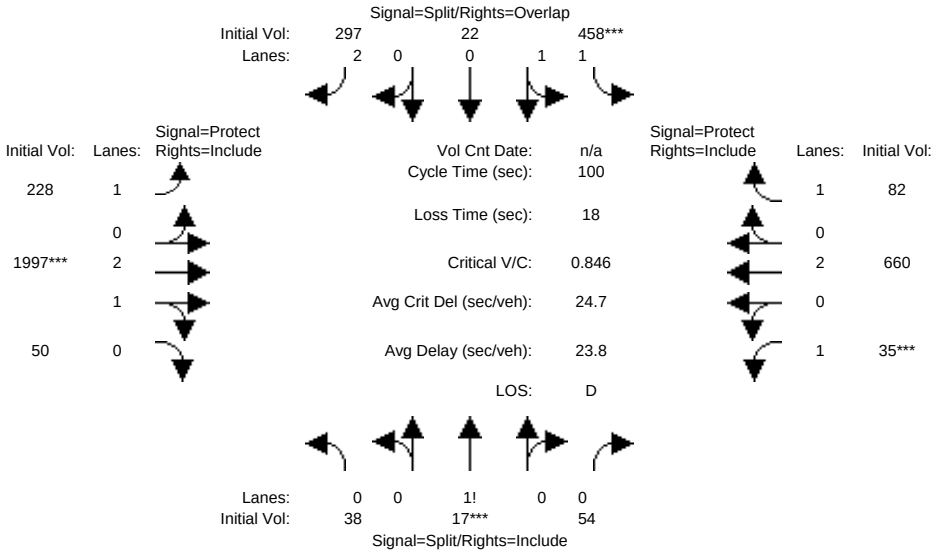
Riverwalk Subdivision
Existing Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #2: Susana Rd & Del Amo Blvd



Street Name:	Susana Rd						Del Amo Blvd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	38	17	54	458	22	297	228	1997	50	35	660	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:	38	17	54	458	22	297	228	1997	50	35	660	82
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	17	54	458	22	297	228	1997	50	35	660	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:	38	17	54	458	22	297	228	1997	50	35	660	82
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	38	17	54	458	22	297	228	1997	50	35	660	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:	38	17	54	458	22	297	228	1997	50	35	660	82
OvlAdjVol:						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	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.35	0.16	0.49	1.91	0.09	2.00	1.00	2.93	0.07	1.00	2.00	1.00
Final Sat.:	558	250	793	3053	147	2880	1600	4683	117	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.07	0.07	0.07	0.15	0.15	0.10	0.14	0.43	0.43	0.02	0.21	0.05
OvlAdjV/S:						0.00						
Crit Moves:		****		****				****		****		

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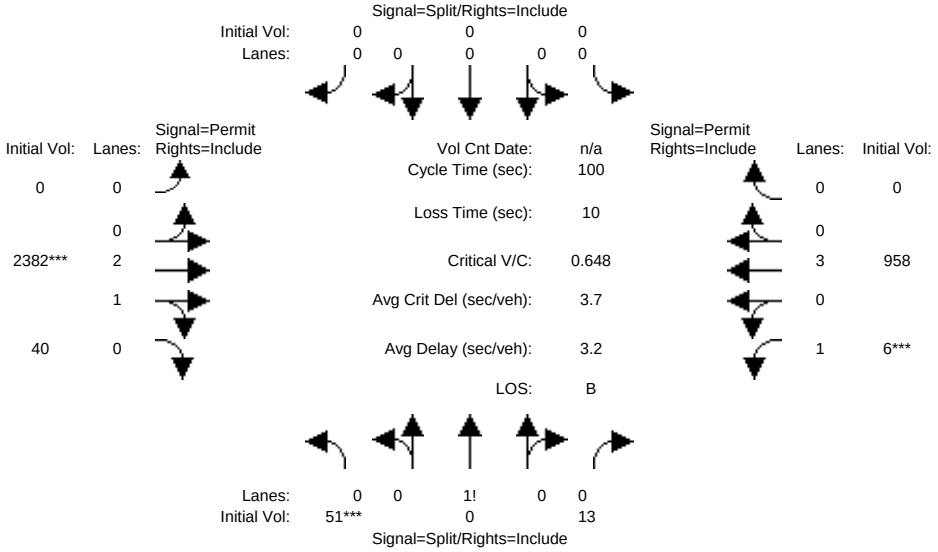
Riverwalk Subdivision
Existing Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #3: Daisy Ave & Del Amo Blvd



Street Name:	Daisy Ave						Del Amo Blvd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	51	0	13	0	0	0	0	2382	40	6	958	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:	51	0	13	0	0	0	0	2382	40	6	958	0
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:	51	0	13	0	0	0	0	2382	40	6	958	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:	51	0	13	0	0	0	0	2382	40	6	958	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	51	0	13	0	0	0	0	2382	40	6	958	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:	51	0	13	0	0	0	0	2382	40	6	958	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:	0.80	0.00	0.20	0.00	0.00	0.00	0.00	2.95	0.05	1.00	3.00	0.00
Final Sat.:	1275	0	325	0	0	0	0	4721	79	1600	4800	0
Capacity Analysis Module:												
Vol/Sat:	0.04	0.00	0.04	0.00	0.00	0.00	0.00	0.50	0.50	0.00	0.20	0.00
Crit Moves:	****							****		****		

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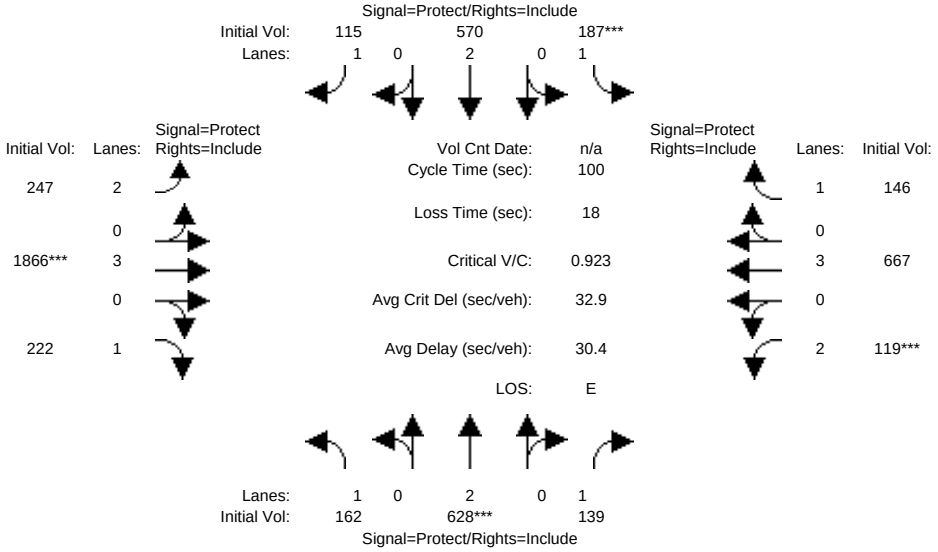
Riverwalk Subdivision
Existing Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #4: Long Beach Blvd & Del Amo Blvd



Street Name:	Long Beach Blvd						Del Amo Blvd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	162	628	139	187	570	115	247	1866	222	119	667	146
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:	162	628	139	187	570	115	247	1866	222	119	667	146
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:	162	628	139	187	570	115	247	1866	222	119	667	146
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:	162	628	139	187	570	115	247	1866	222	119	667	146
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	162	628	139	187	570	115	247	1866	222	119	667	146
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:	162	628	139	187	570	115	247	1866	222	119	667	146
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	0.90	1.00	1.00	0.90	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	2.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	1600	3200	1600	1600	3200	1600	2880	4800	1600	2880	4800	1600
Capacity Analysis Module:												
Vol/Sat:	0.10	0.20	0.09	0.12	0.18	0.07	0.09	0.39	0.14	0.04	0.14	0.09
Crit Moves:		****		****				****		****		

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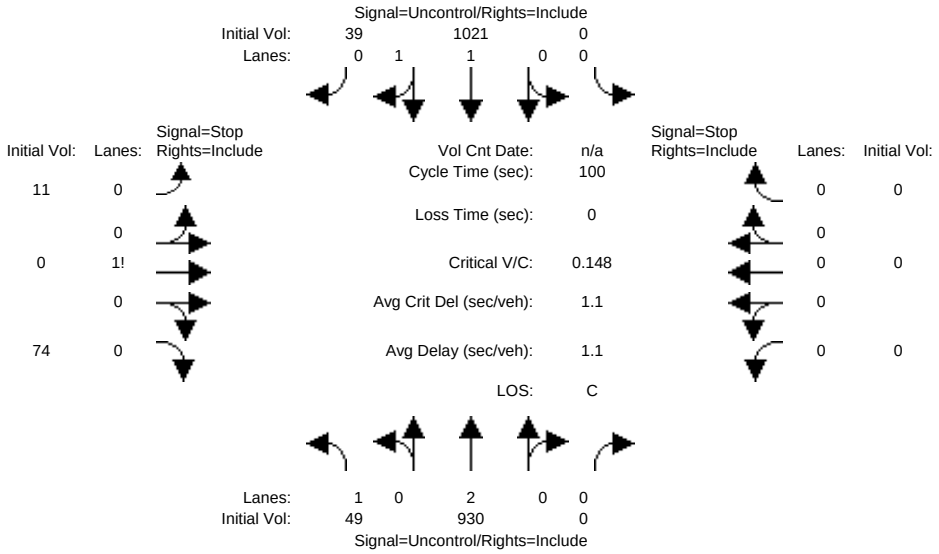
Riverwalk Subdivision
Existing Conditions
PM Peak

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Default Scenario

Intersection #5: Long Beach Blvd & Arbor St/48th St




```
Street Name:         Long Beach Blvd                    Arbor St/48th St
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      49  930     0     0 1021    39    11    0    74     0    0     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:   49  930     0     0 1021    39    11    0    74     0    0     0
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:   49  930     0     0 1021    39    11    0    74     0    0     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:    49  930     0     0 1021    39    11    0    74     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   49  930     0     0 1021    39    11    0    74     0    0     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx xxxxx xxxx xxxxx   6.8  6.5   6.9 xxxxx xxxx xxxxx
FollowUpTim:  2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.5  4.0   3.3 xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1060 xxxx xxxxx  xxxx xxxx xxxxx  1604 2069   530  xxxx xxxx xxxxx
Potent Cap.:  665 xxxx xxxxx  xxxx xxxx xxxxx    98   55   499  xxxx xxxx xxxxx
Move Cap.:    665 xxxx xxxxx  xxxx xxxx xxxxx    93   51   499  xxxx xxxx xxxxx
Volume/Cap:  0.07 xxxx  xxxx  xxxx xxxx  xxxx  0.12 0.00  0.15  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.2 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del: 10.8 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    B    *     *     *    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  318 xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx  1.1 xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx 20.4 xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    C     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx             20.4           xxxxxx
ApproachLOS:         *                *                C                *
Note: Queue reported is the number of cars per lane.
                    Peak Hour Delay Signal Warrant Report
*******************************************************************************
Intersection #5 Long Beach Blvd & Arbor St/48th St
*******************************************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
```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```
------------|---------------||---------------||---------------||---------------|
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Lanes:        1  0  2  0  0    0  0  1  1  0    0  0  1! 0  0    0  0  0  0  0
Initial Vol:   49  930     0     0 1021    39    11    0    74     0    0     0
ApproachDel:    xxxxxx           xxxxxx             20.4           xxxxxx
------------|---------------||---------------||---------------||---------------|
Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.5]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=85]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2124]
   SUCCEED - Total volume greater than or equal to 650 for intersection
             with less than four approaches.
--------------------------------------------------------------------------------
SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
                Peak Hour Volume Signal Warrant Report [Urban]
********************************************************************************
Intersection #5 Long Beach Blvd & Arbor St/48th St
********************************************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
------------|---------------||---------------||---------------||---------------|
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Lanes:        1  0  2  0  0    0  0  1  1  0    0  0  1! 0  0    0  0  0  0  0
Initial Vol:   49  930     0     0 1021    39    11    0    74     0    0     0
------------|---------------||---------------||---------------||---------------|
Major Street Volume:             2039
Minor Approach Volume:           85
Minor Approach Volume Threshold: 39 [less than minimum of 100]
--------------------------------------------------------------------------------
SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
```


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Riverwalk Subdivision
Horizon Year (2015) Conditions
AM Peak

Summary Scenario Comparison Report (With Average Critical Delay)
Future Volume Alternative

Intersection		Default Scenario				???				???						???			
		LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)	LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)	LOS	Avg Del (sec)	Crit V/C	Crit V/C Change	Avg Crit Del (sec)	Avg Crit Del Change	LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)
#1	Susana Rd & I-710 SB Ramps	A	17.7	0.563	16.7	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#2	Susana Rd & Del Amo Blvd	E	37.6	0.994	46.7	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#3	Daisy Ave & Del Amo Blvd	C	7.3	0.704	8.3	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#4	Long Beach Blvd & Del Amo Blvd	E	32.9	0.935	37.3	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#5	Long Beach Blvd & Arbor St/48th St	C	0.6	0.081	0.6	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x

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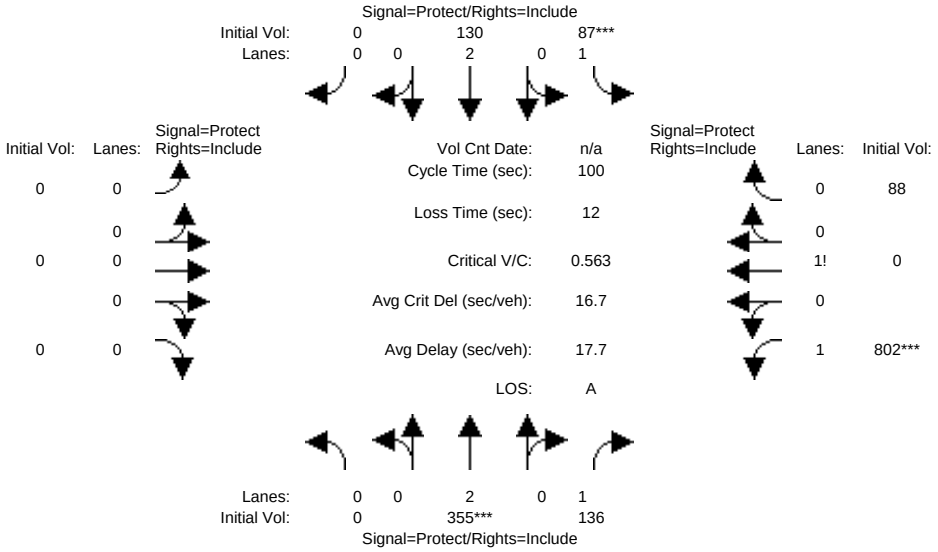
Riverwalk Subdivision
Horizon Year (2015) Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #1: Susana Rd & I-710 SB Ramps



Street Name:	Susana Rd						I-710 SB Ramps					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	0	355	136	87	130	0	0	0	0	802	0	88
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	355	136	87	130	0	0	0	0	802	0	88
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Approved Pr:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	355	136	87	130	0	0	0	0	802	0	88
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	355	136	87	130	0	0	0	0	802	0	88
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	355	136	87	130	0	0	0	0	802	0	88
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	355	136	87	130	0	0	0	0	802	0	88
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	2.00	1.00	1.00	2.00	0.00	0.00	0.00	0.00	1.80	0.00	0.20
Final Sat.:	0	3200	1600	1600	3200	0	0	0	0	2884	0	316
Capacity Analysis Module:												
Vol/Sat:	0.00	0.11	0.09	0.05	0.04	0.00	0.00	0.00	0.00	0.28	0.00	0.28
Crit Moves:		****		****						****		

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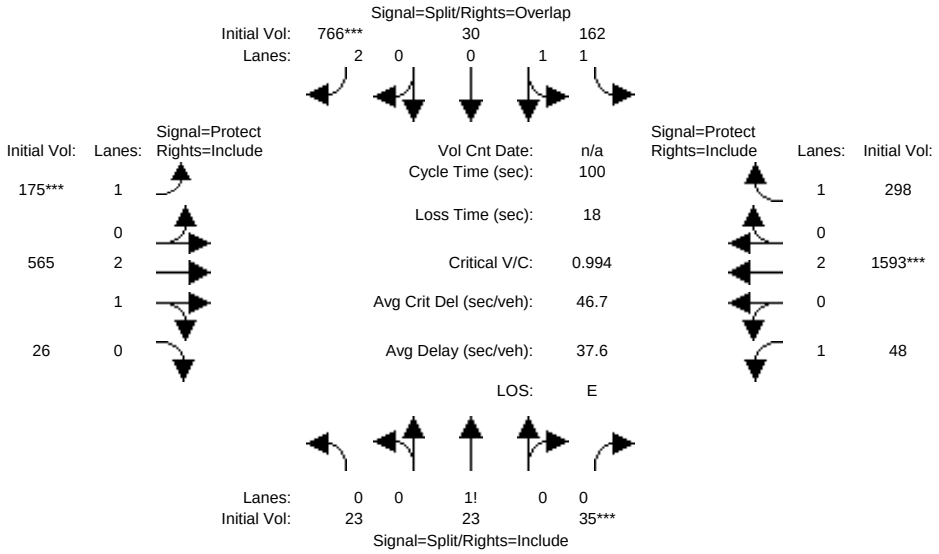
Riverwalk Subdivision
Horizon Year (2015) Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #2: Susana Rd & Del Amo Blvd



Street Name:	Susana Rd						Del Amo Blvd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	23	23	35	162	30	766	175	565	26	48	1593	298
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:	23	23	35	162	30	766	175	565	26	48	1593	298
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Approved Pr:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	23	23	35	162	30	766	175	565	26	48	1593	298
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:	23	23	35	162	30	766	175	565	26	48	1593	298
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	23	23	35	162	30	766	175	565	26	48	1593	298
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:	23	23	35	162	30	766	175	565	26	48	1593	298
OvlAdjVol:						451						
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	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.28	0.28	0.44	1.69	0.31	2.00	1.00	2.87	0.13	1.00	2.00	1.00
Final Sat.:	454	454	691	2700	500	2880	1600	4589	211	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.05	0.05	0.05	0.06	0.06	0.27	0.11	0.12	0.12	0.03	0.50	0.19
OvlAdjV/S:						0.16						
Crit Moves:			****			****	****				****	

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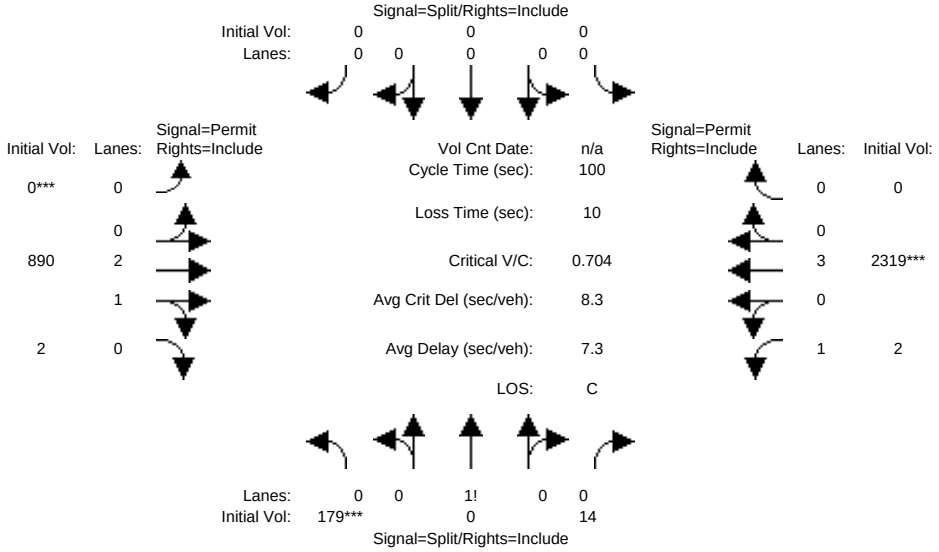
Riverwalk Subdivision
Horizon Year (2015) Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #3: Daisy Ave & Del Amo Blvd



Street Name:	Daisy Ave						Del Amo Blvd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	179	0	14	0	0	0	0	890	2	2	2319	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:	179	0	14	0	0	0	0	890	2	2	2319	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Approved Pr:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	179	0	14	0	0	0	0	890	2	2	2319	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:	179	0	14	0	0	0	0	890	2	2	2319	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	179	0	14	0	0	0	0	890	2	2	2319	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:	179	0	14	0	0	0	0	890	2	2	2319	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:	0.93	0.00	0.07	0.00	0.00	0.00	0.00	2.99	0.01	1.00	3.00	0.00
Final Sat.:	1484	0	116	0	0	0	0	4789	11	1600	4800	0
Capacity Analysis Module:												
Vol/Sat:	0.12	0.00	0.12	0.00	0.00	0.00	0.00	0.19	0.19	0.00	0.48	0.00
Crit Moves:	****						****				****	

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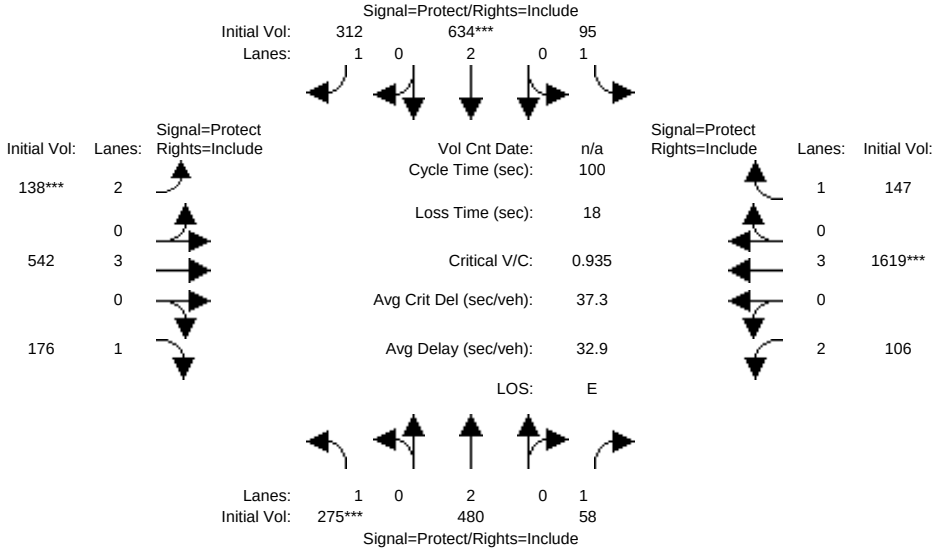
Riverwalk Subdivision
Horizon Year (2015) Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #4: Long Beach Blvd & Del Amo Blvd



Street Name:	Long Beach Blvd						Del Amo Blvd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	275	480	58	95	634	312	138	542	176	106	1619	147
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:	275	480	58	95	634	312	138	542	176	106	1619	147
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Approved Pr:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	275	480	58	95	634	312	138	542	176	106	1619	147
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:	275	480	58	95	634	312	138	542	176	106	1619	147
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	275	480	58	95	634	312	138	542	176	106	1619	147
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:	275	480	58	95	634	312	138	542	176	106	1619	147
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	0.90	1.00	1.00	0.90	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	2.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	1600	3200	1600	1600	3200	1600	2880	4800	1600	2880	4800	1600
Capacity Analysis Module:												
Vol/Sat:	0.17	0.15	0.04	0.06	0.20	0.20	0.05	0.11	0.11	0.04	0.34	0.09
Crit Moves:	****				****		****				****	

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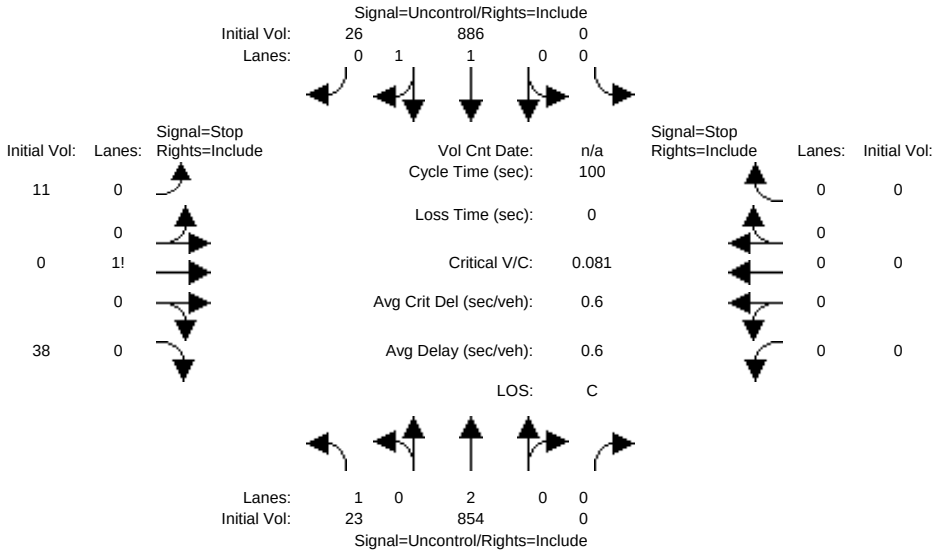
Riverwalk Subdivision
Horizon Year (2015) Conditions
AM Peak

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Default Scenario

Intersection #5: Long Beach Blvd & Arbor St/48th St




```
Street Name:         Long Beach Blvd                    Arbor St/48th St
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      23  854     0     0  886    26    11    0    38     0    0     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:   23  854     0     0  886    26    11    0    38     0    0     0
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
Approved Pr:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   23  854     0     0  886    26    11    0    38     0    0     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:    23  854     0     0  886    26    11    0    38     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   23  854     0     0  886    26    11    0    38     0    0     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx xxxxx xxxx xxxxx   6.8  6.5   6.9 xxxxx xxxx xxxxx
FollowUpTim:  2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.5  4.0   3.3 xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  912 xxxx xxxxx  xxxx xxxx xxxxx  1372 1799   456  xxxx xxxx xxxxx
Potent Cap.:  755 xxxx xxxxx  xxxx xxxx xxxxx   140   81   557  xxxx xxxx xxxxx
Move Cap.:    755 xxxx xxxxx  xxxx xxxx xxxxx   136   78   557  xxxx xxxx xxxxx
Volume/Cap:  0.03 xxxx  xxxx  xxxx xxxx  xxxx  0.08 0.00  0.07  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.1 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:  9.9 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    A    *     *     *    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  329 xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.5 xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx 17.8 xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    C     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx             17.8           xxxxxx
ApproachLOS:         *                *                C                *
Note: Queue reported is the number of cars per lane.
                    Peak Hour Delay Signal Warrant Report
*******************************************************************************
Intersection #5 Long Beach Blvd & Arbor St/48th St
*******************************************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
```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```
------------|---------------||---------------||---------------||---------------|
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Lanes:        1  0  2  0  0    0  0  1  1  0    0  0  1! 0  0    0  0  0  0  0
Initial Vol:   23  854     0     0  886    26    11    0    38     0    0     0
ApproachDel:    xxxxxx           xxxxxx             17.8           xxxxxx
------------|---------------||---------------||---------------||---------------|
Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=49]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1838]
   SUCCEED - Total volume greater than or equal to 650 for intersection
             with less than four approaches.
--------------------------------------------------------------------------------
SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
                Peak Hour Volume Signal Warrant Report [Urban]
********************************************************************************
Intersection #5 Long Beach Blvd & Arbor St/48th St
********************************************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
------------|---------------||---------------||---------------||---------------|
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Lanes:        1  0  2  0  0    0  0  1  1  0    0  0  1! 0  0    0  0  0  0  0
Initial Vol:   23  854     0     0  886    26    11    0    38     0    0     0
------------|---------------||---------------||---------------||---------------|
Major Street Volume:             1789
Minor Approach Volume:           49
Minor Approach Volume Threshold: 84 [less than minimum of 100]
--------------------------------------------------------------------------------
SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
```


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Riverwalk Subdivision
Horizon Year (2015) Conditions
PM Peak

Summary Scenario Comparison Report (With Average Critical Delay)
Future Volume Alternative

Intersection		Default Scenario				???				???						???			
		LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)	LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)	LOS	Avg Del (sec)	Crit V/C	Crit V/C Change	Avg Crit Del (sec)	Avg Crit Del Change	LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)
#1	Susana Rd & I-710 SB Ramps	A	18.7	0.492	20.9	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#2	Susana Rd & Del Amo Blvd	D	25.0	0.872	24.6	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#3	Daisy Ave & Del Amo Blvd	B	3.4	0.669	3.9	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#4	Long Beach Blvd & Del Amo Blvd	E	32.6	0.951	36.5	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#5	Long Beach Blvd & Arbor St/48th St	C	1.1	0.159	1.1	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x

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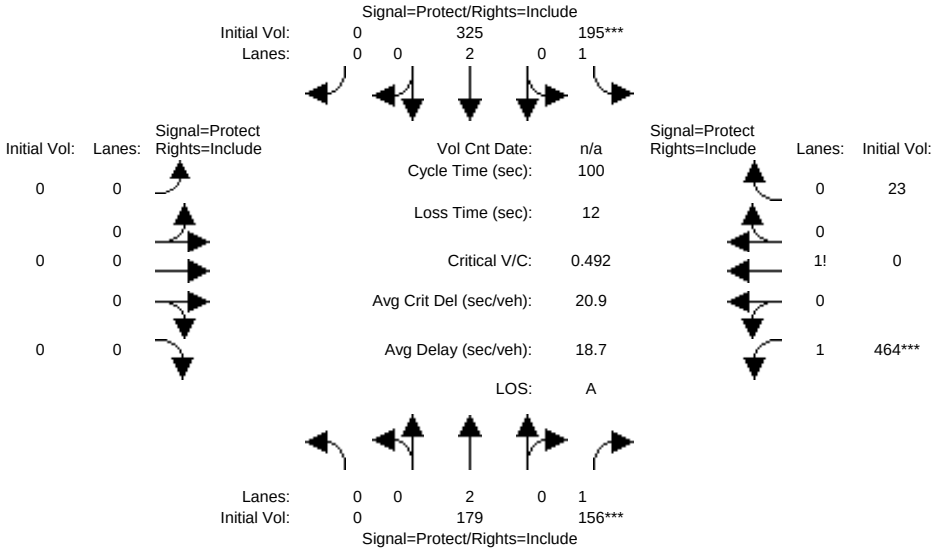
Riverwalk Subdivision
Horizon Year (2015) Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #1: Susana Rd & I-710 SB Ramps



Street Name:	Susana Rd						I-710 SB Ramps					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	0	179	156	195	325	0	0	0	0	464	0	23
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	179	156	195	325	0	0	0	0	464	0	23
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:	0	179	156	195	325	0	0	0	0	464	0	23
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	179	156	195	325	0	0	0	0	464	0	23
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	179	156	195	325	0	0	0	0	464	0	23
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	179	156	195	325	0	0	0	0	464	0	23
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	2.00	1.00	1.00	2.00	0.00	0.00	0.00	0.00	1.91	0.00	0.09
Final Sat.:	0	3200	1600	1600	3200	0	0	0	0	3049	0	151
Capacity Analysis Module:												
Vol/Sat:	0.00	0.06	0.10	0.12	0.10	0.00	0.00	0.00	0.00	0.15	0.00	0.15
Crit Moves:			****	****						****		

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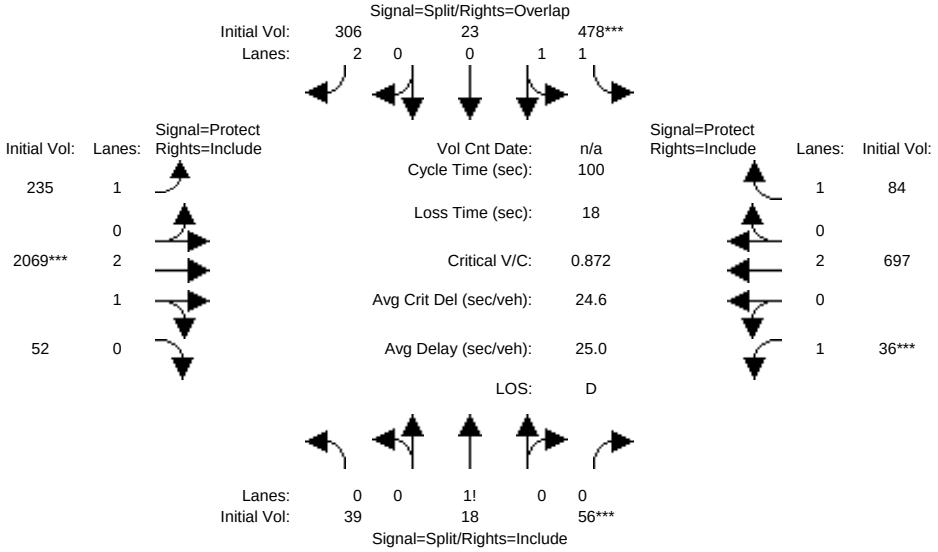
Riverwalk Subdivision
Horizon Year (2015) Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #2: Susana Rd & Del Amo Blvd



Street Name:	Susana Rd						Del Amo Blvd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	39	18	56	478	23	306	235	2069	52	36	697	84
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:	39	18	56	478	23	306	235	2069	52	36	697	84
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:	39	18	56	478	23	306	235	2069	52	36	697	84
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:	39	18	56	478	23	306	235	2069	52	36	697	84
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	39	18	56	478	23	306	235	2069	52	36	697	84
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:	39	18	56	478	23	306	235	2069	52	36	697	84
OvlAdjVol:						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	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.34	0.16	0.50	1.91	0.09	2.00	1.00	2.93	0.07	1.00	2.00	1.00
Final Sat.:	552	255	793	3053	147	2880	1600	4682	118	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.07	0.07	0.07	0.16	0.16	0.11	0.15	0.44	0.44	0.02	0.22	0.05
OvlAdjV/S:						0.00						
Crit Moves:			****	****				****		****		

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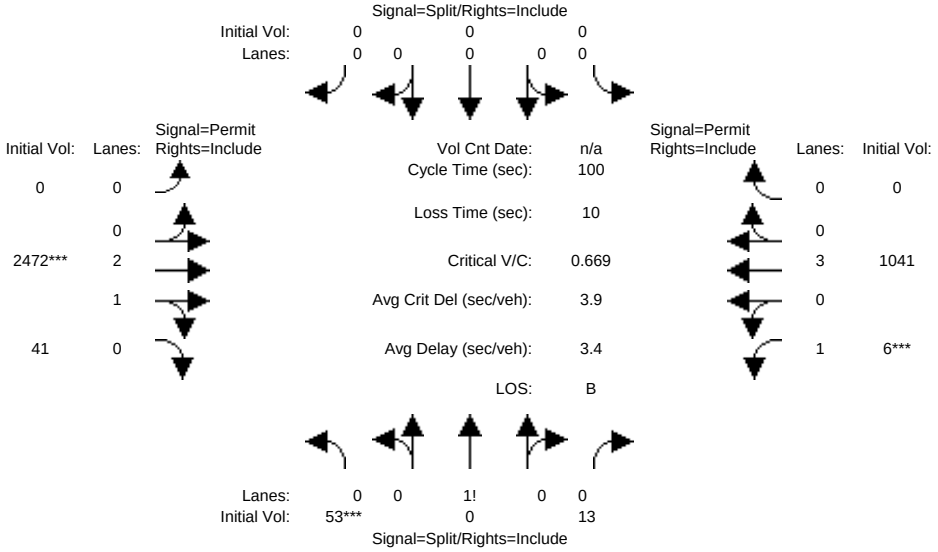
Riverwalk Subdivision
Horizon Year (2015) Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #3: Daisy Ave & Del Amo Blvd



Street Name:	Daisy Ave						Del Amo Blvd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	53	0	13	0	0	0	0	2472	41	6	1041	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:	53	0	13	0	0	0	0	2472	41	6	1041	0
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:	53	0	13	0	0	0	0	2472	41	6	1041	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:	53	0	13	0	0	0	0	2472	41	6	1041	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	53	0	13	0	0	0	0	2472	41	6	1041	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:	53	0	13	0	0	0	0	2472	41	6	1041	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:	0.80	0.00	0.20	0.00	0.00	0.00	0.00	2.95	0.05	1.00	3.00	0.00
Final Sat.:	1285	0	315	0	0	0	0	4722	78	1600	4800	0
Capacity Analysis Module:												
Vol/Sat:	0.04	0.00	0.04	0.00	0.00	0.00	0.00	0.52	0.52	0.00	0.22	0.00
Crit Moves:	****							****		****		

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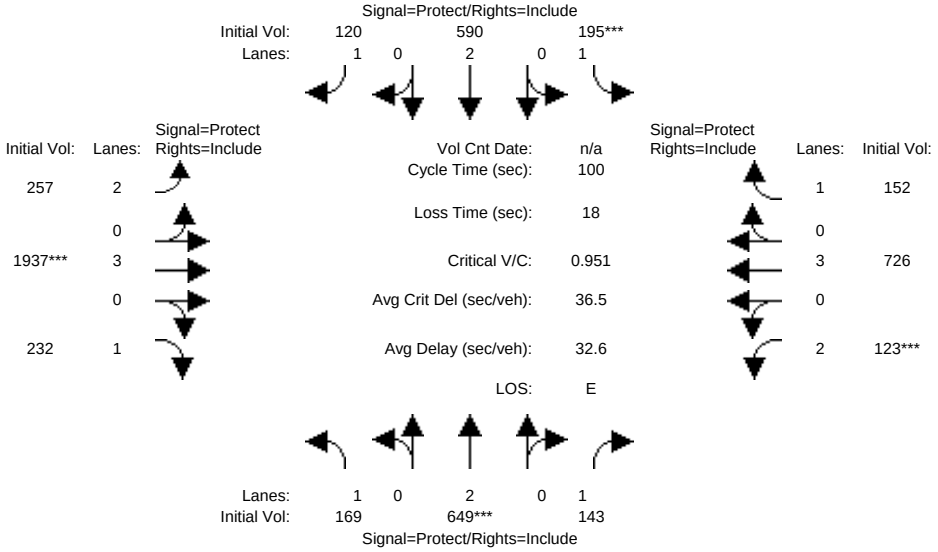
Riverwalk Subdivision
Horizon Year (2015) Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #4: Long Beach Blvd & Del Amo Blvd



Street Name:	Long Beach Blvd						Del Amo Blvd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	169	649	143	195	590	120	257	1937	232	123	726	152
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:	169	649	143	195	590	120	257	1937	232	123	726	152
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:	169	649	143	195	590	120	257	1937	232	123	726	152
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:	169	649	143	195	590	120	257	1937	232	123	726	152
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	169	649	143	195	590	120	257	1937	232	123	726	152
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:	169	649	143	195	590	120	257	1937	232	123	726	152
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	0.90	1.00	1.00	0.90	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	2.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	1600	3200	1600	1600	3200	1600	2880	4800	1600	2880	4800	1600
Capacity Analysis Module:												
Vol/Sat:	0.11	0.20	0.09	0.12	0.18	0.08	0.09	0.40	0.15	0.04	0.15	0.10
Crit Moves:		****		****				****		****		

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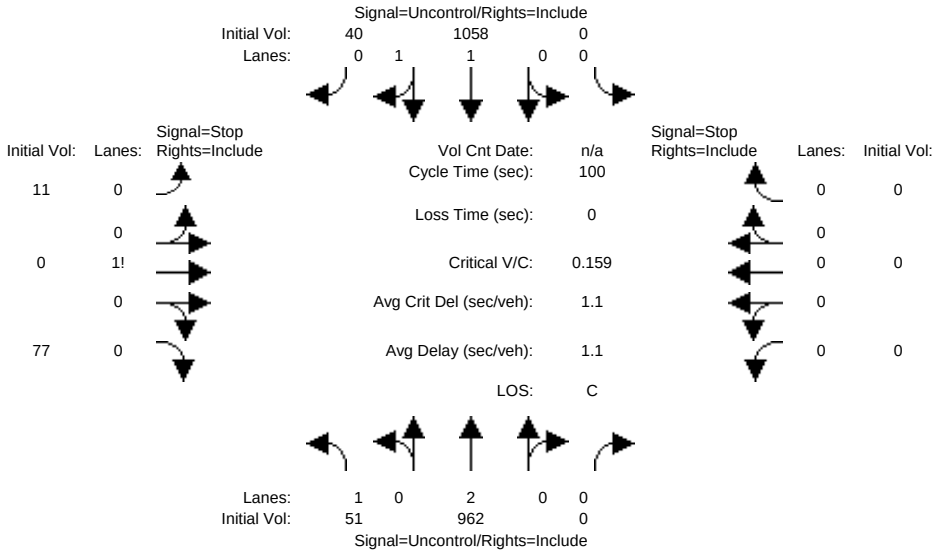
Riverwalk Subdivision
Horizon Year (2015) Conditions
PM Peak

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Default Scenario

Intersection #5: Long Beach Blvd & Arbor St/48th St




```
Street Name:         Long Beach Blvd                    Arbor St/48th St
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      51  962     0     0 1058    40    11    0    77     0    0     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:   51  962     0     0 1058    40    11    0    77     0    0     0
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:   51  962     0     0 1058    40    11    0    77     0    0     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:    51  962     0     0 1058    40    11    0    77     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   51  962     0     0 1058    40    11    0    77     0    0     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx xxxxx xxxx xxxxx   6.8  6.5   6.9 xxxxx xxxx xxxxx
FollowUpTim:  2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.5  4.0   3.3 xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1098 xxxx xxxxx  xxxx xxxx xxxxx  1661 2142   549  xxxx xxxx xxxxx
Potent Cap.:  643 xxxx xxxxx  xxxx xxxx xxxxx    90   49   485  xxxx xxxx xxxxx
Move Cap.:    643 xxxx xxxxx  xxxx xxxx xxxxx    85   45   485  xxxx xxxx xxxxx
Volume/Cap:  0.08 xxxx  xxxx  xxxx xxxx  xxxx  0.13 0.00  0.16  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.3 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del: 11.1 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    B    *     *     *    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  304 xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx  1.2 xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx 21.6 xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    C     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx             21.6           xxxxxx
ApproachLOS:         *                *                C                *
Note: Queue reported is the number of cars per lane.
                    Peak Hour Delay Signal Warrant Report
*******************************************************************************
Intersection #5 Long Beach Blvd & Arbor St/48th St
*******************************************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
```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```
------------|---------------||---------------||---------------||---------------|
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Lanes:        1  0  2  0  0    0  0  1  1  0    0  0  1! 0  0    0  0  0  0  0
Initial Vol:   51  962     0     0 1058    40    11    0    77     0    0     0
ApproachDel:    xxxxxx           xxxxxx             21.6           xxxxxx
------------|---------------||---------------||---------------||---------------|
Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.5]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=88]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2199]
   SUCCEED - Total volume greater than or equal to 650 for intersection
             with less than four approaches.
--------------------------------------------------------------------------------
SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
                Peak Hour Volume Signal Warrant Report [Urban]
********************************************************************************
Intersection #5 Long Beach Blvd & Arbor St/48th St
********************************************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
------------|---------------||---------------||---------------||---------------|
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Lanes:        1  0  2  0  0    0  0  1  1  0    0  0  1! 0  0    0  0  0  0  0
Initial Vol:   51  962     0     0 1058    40    11    0    77     0    0     0
------------|---------------||---------------||---------------||---------------|
Major Street Volume:             2111
Minor Approach Volume:           88
Minor Approach Volume Threshold: 27 [less than minimum of 100]
--------------------------------------------------------------------------------
SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
```


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Riverwalk Subdivision
Horizon Year (2015) Plus Project Conditions
AM Peak

Summary Scenario Comparison Report (With Average Critical Delay)
Future Volume Alternative

		Default Scenario				???				???						???			
Intersection		LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)	LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)	LOS	Avg Del (sec)	Crit V/C	Crit V/C Change	Avg Crit Del (sec)	Avg Crit Del Change	LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)
#1	Susana Rd & I-710 SB Ramps	A	17.7	0.565	16.7	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#2	Susana Rd & Del Amo Blvd	E	37.8	0.996	47.0	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#3	Daisy Ave & Del Amo Blvd	C	9.4	0.740	10.6	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#4	Long Beach Blvd & Del Amo Blvd	E	33.1	0.937	37.6	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#5	Long Beach Blvd & Arbor St/48th St	C	0.7	0.097	0.7	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x

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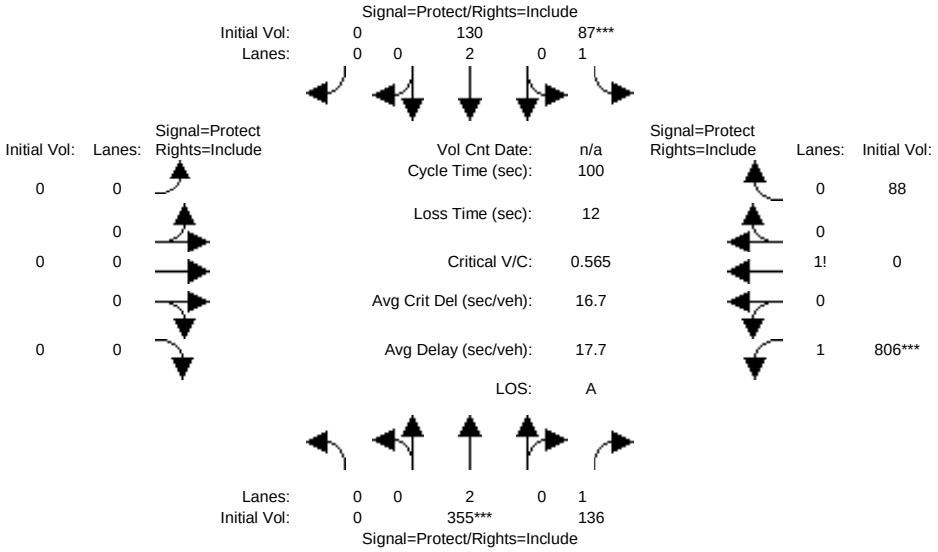
Riverwalk Subdivision
Horizon Year (2015) Plus Project Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #1: Susana Rd & I-710 SB Ramps



Street Name:	Susana Rd						I-710 SB Ramps					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	0	355	136	87	130	0	0	0	0	806	0	88
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	355	136	87	130	0	0	0	0	806	0	88
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:	0	355	136	87	130	0	0	0	0	806	0	88
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	355	136	87	130	0	0	0	0	806	0	88
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	355	136	87	130	0	0	0	0	806	0	88
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	355	136	87	130	0	0	0	0	806	0	88
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	2.00	1.00	1.00	2.00	0.00	0.00	0.00	0.00	1.80	0.00	0.20
Final Sat.:	0	3200	1600	1600	3200	0	0	0	0	2885	0	315
Capacity Analysis Module:												
Vol/Sat:	0.00	0.11	0.09	0.05	0.04	0.00	0.00	0.00	0.00	0.28	0.00	0.28
Crit Moves:		****		****						****		

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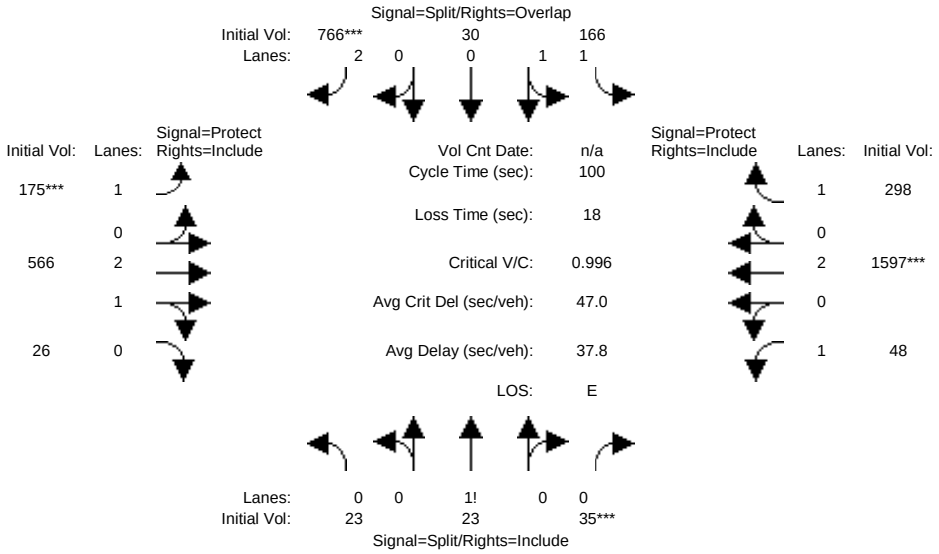
Riverwalk Subdivision
Horizon Year (2015) Plus Project Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #2: Susana Rd & Del Amo Blvd



Street Name:	Susana Rd						Del Amo Blvd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	23	23	35	166	30	766	175	566	26	48	1597	298
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:	23	23	35	166	30	766	175	566	26	48	1597	298
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:	23	23	35	166	30	766	175	566	26	48	1597	298
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:	23	23	35	166	30	766	175	566	26	48	1597	298
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	23	23	35	166	30	766	175	566	26	48	1597	298
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:	23	23	35	166	30	766	175	566	26	48	1597	298
OvlAdjVol:						451						
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	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.28	0.28	0.44	1.69	0.31	2.00	1.00	2.87	0.13	1.00	2.00	1.00
Final Sat.:	454	454	691	2710	490	2880	1600	4589	211	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.05	0.05	0.05	0.06	0.06	0.27	0.11	0.12	0.12	0.03	0.50	0.19
OvlAdjV/S:						0.16						
Crit Moves:			****			****	****				****	

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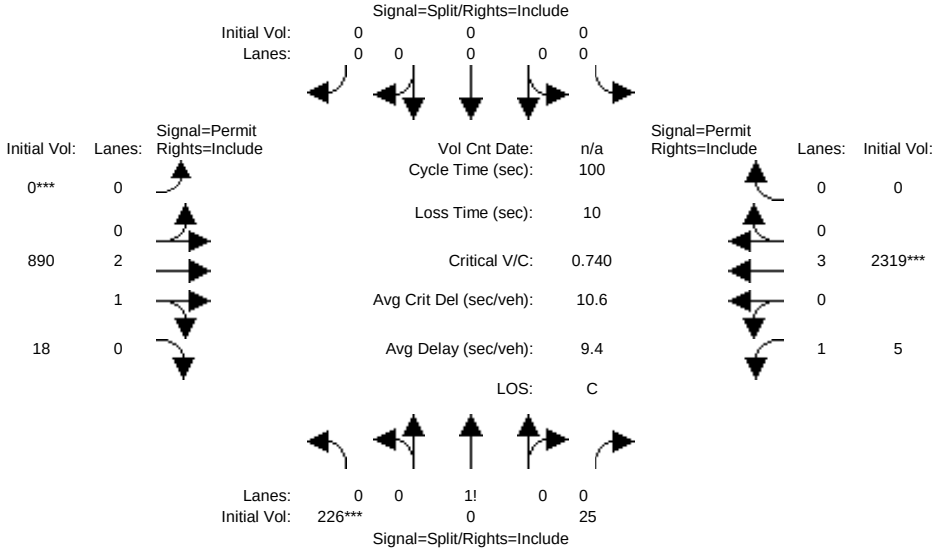
Riverwalk Subdivision
Horizon Year (2015) Plus Project Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #3: Daisy Ave & Del Amo Blvd



Street Name:	Daisy Ave						Del Amo Blvd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	226	0	25	0	0	0	0	890	18	5	2319	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:	226	0	25	0	0	0	0	890	18	5	2319	0
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:	226	0	25	0	0	0	0	890	18	5	2319	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:	226	0	25	0	0	0	0	890	18	5	2319	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	226	0	25	0	0	0	0	890	18	5	2319	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:	226	0	25	0	0	0	0	890	18	5	2319	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:	0.90	0.00	0.10	0.00	0.00	0.00	0.00	2.94	0.06	1.00	3.00	0.00
Final Sat.:	1441	0	159	0	0	0	0	4705	95	1600	4800	0
Capacity Analysis Module:												
Vol/Sat:	0.16	0.00	0.16	0.00	0.00	0.00	0.00	0.19	0.19	0.00	0.48	0.00
Crit Moves:	****						****				****	

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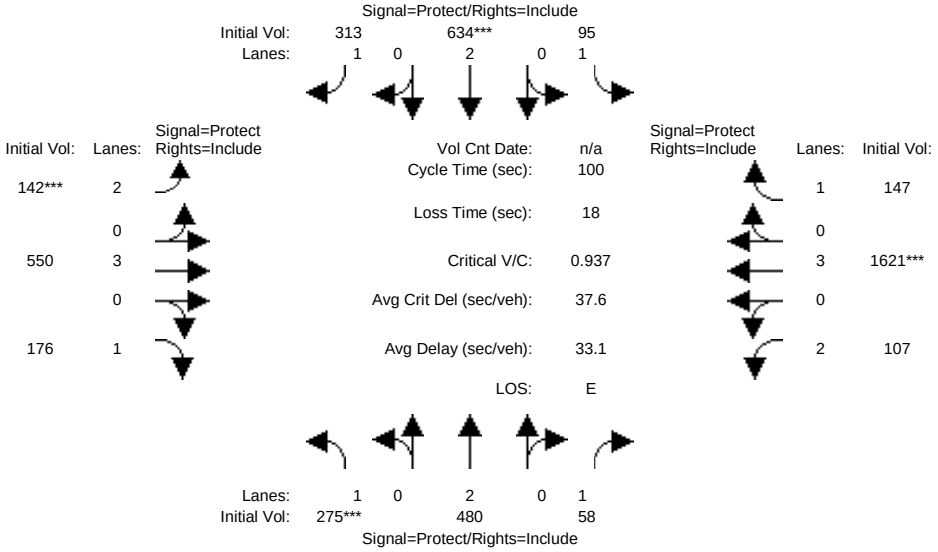
Riverwalk Subdivision
Horizon Year (2015) Plus Project Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #4: Long Beach Blvd & Del Amo Blvd



Street Name:	Long Beach Blvd						Del Amo Blvd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	275	480	58	95	634	313	142	550	176	107	1621	147
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:	275	480	58	95	634	313	142	550	176	107	1621	147
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:	275	480	58	95	634	313	142	550	176	107	1621	147
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:	275	480	58	95	634	313	142	550	176	107	1621	147
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	275	480	58	95	634	313	142	550	176	107	1621	147
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:	275	480	58	95	634	313	142	550	176	107	1621	147
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	0.90	1.00	1.00	0.90	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	2.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	1600	3200	1600	1600	3200	1600	2880	4800	1600	2880	4800	1600
Capacity Analysis Module:												
Vol/Sat:	0.17	0.15	0.04	0.06	0.20	0.20	0.05	0.11	0.11	0.04	0.34	0.09
Crit Moves:	****				****		****				****	

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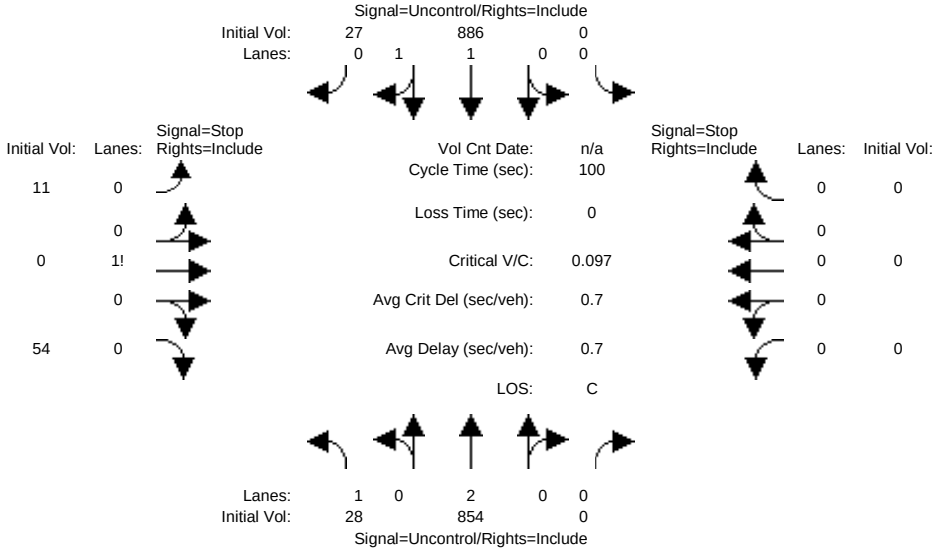
Riverwalk Subdivision
Horizon Year (2015) Plus Project Conditions
AM Peak

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Default Scenario

Intersection #5: Long Beach Blvd & Arbor St/48th St




```
Street Name:         Long Beach Blvd                    Arbor St/48th St
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      28  854     0     0  886    27    11    0    54     0    0     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:   28  854     0     0  886    27    11    0    54     0    0     0
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:   28  854     0     0  886    27    11    0    54     0    0     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:    28  854     0     0  886    27    11    0    54     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   28  854     0     0  886    27    11    0    54     0    0     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx xxxxx xxxx xxxxx   6.8  6.5   6.9 xxxxx xxxx xxxxx
FollowUpTim:  2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.5  4.0   3.3 xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  913 xxxx xxxxx  xxxx xxxx xxxxx  1383 1810   457  xxxx xxxx xxxxx
Potent Cap.:  755 xxxx xxxxx  xxxx xxxx xxxxx   137   80   557  xxxx xxxx xxxxx
Move Cap.:    755 xxxx xxxxx  xxxx xxxx xxxxx   133   77   557  xxxx xxxx xxxxx
Volume/Cap:  0.04 xxxx  xxxx  xxxx xxxx  xxxx  0.08 0.00  0.10  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.1 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del: 10.0 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    A    *     *     *    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  362 xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.6 xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx 17.1 xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    C     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx             17.1           xxxxxx
ApproachLOS:         *                *                C                *
Note: Queue reported is the number of cars per lane.
                    Peak Hour Delay Signal Warrant Report
*******************************************************************************
Intersection #5 Long Beach Blvd & Arbor St/48th St
*******************************************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
```

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```
------------|---------------||---------------||---------------||---------------|
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Lanes:        1  0  2  0  0    0  0  1  1  0    0  0  1! 0  0    0  0  0  0  0
Initial Vol:   28  854     0     0  886    27    11    0    54     0    0     0
ApproachDel:    xxxxxx           xxxxxx             17.1           xxxxxx
------------|---------------||---------------||---------------||---------------|
Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.3]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=65]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1860]
   SUCCEED - Total volume greater than or equal to 650 for intersection
             with less than four approaches.
--------------------------------------------------------------------------------
SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
                Peak Hour Volume Signal Warrant Report [Urban]
********************************************************************************
Intersection #5 Long Beach Blvd & Arbor St/48th St
********************************************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
------------|---------------||---------------||---------------||---------------|
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Lanes:        1  0  2  0  0    0  0  1  1  0    0  0  1! 0  0    0  0  0  0  0
Initial Vol:   28  854     0     0  886    27    11    0    54     0    0     0
------------|---------------||---------------||---------------||---------------|
Major Street Volume:             1795
Minor Approach Volume:           65
Minor Approach Volume Threshold: 83 [less than minimum of 100]
--------------------------------------------------------------------------------
SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
```


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Riverwalk Subdivision
Horizon Year (2015) Plus Project Conditions
PM Peak

Summary Scenario Comparison Report (With Average Critical Delay)
Future Volume Alternative

		Default Scenario				???				???						???			
Intersection		LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)	LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)	LOS	Avg Del (sec)	Crit V/C	Crit V/C Change	Avg Crit Del (sec)	Avg Crit Del Change	LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)
#1	Susana Rd & I-710 SB Ramps	A	18.8	0.496	20.8	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#2	Susana Rd & Del Amo Blvd	D	25.4	0.876	36.8	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#3	Daisy Ave & Del Amo Blvd	C	5.0	0.709	6.6	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#4	Long Beach Blvd & Del Amo Blvd	E	32.9	0.953	36.9	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#5	Long Beach Blvd & Arbor St/48th St	C	1.3	0.178	1.3	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x

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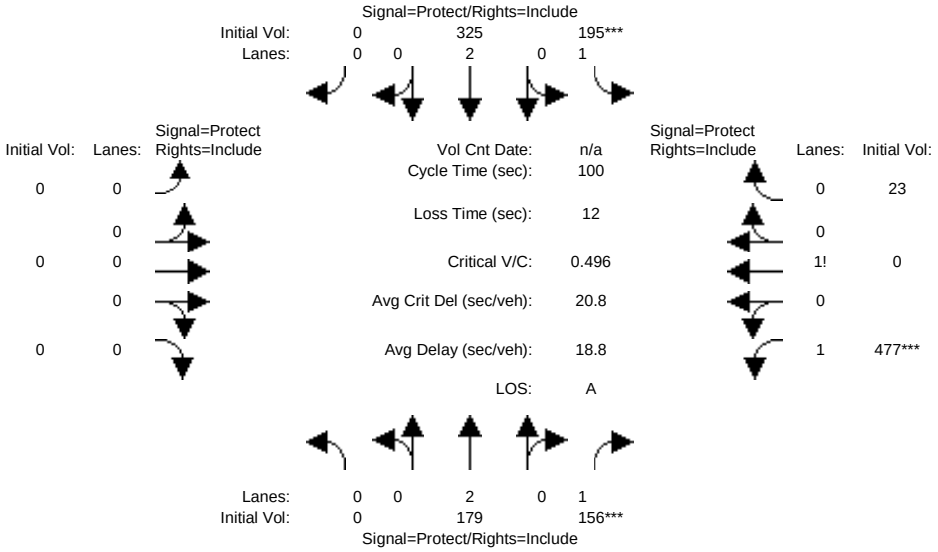
Riverwalk Subdivision
Horizon Year (2015) Plus Project Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #1: Susana Rd & I-710 SB Ramps



Street Name:	Susana Rd						I-710 SB Ramps					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	0	179	156	195	325	0	0	0	0	477	0	23
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	179	156	195	325	0	0	0	0	477	0	23
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:	0	179	156	195	325	0	0	0	0	477	0	23
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	179	156	195	325	0	0	0	0	477	0	23
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	179	156	195	325	0	0	0	0	477	0	23
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	179	156	195	325	0	0	0	0	477	0	23
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	2.00	1.00	1.00	2.00	0.00	0.00	0.00	0.00	1.91	0.00	0.09
Final Sat.:	0	3200	1600	1600	3200	0	0	0	0	3053	0	147
Capacity Analysis Module:												
Vol/Sat:	0.00	0.06	0.10	0.12	0.10	0.00	0.00	0.00	0.00	0.16	0.00	0.16
Crit Moves:			****	****						****		

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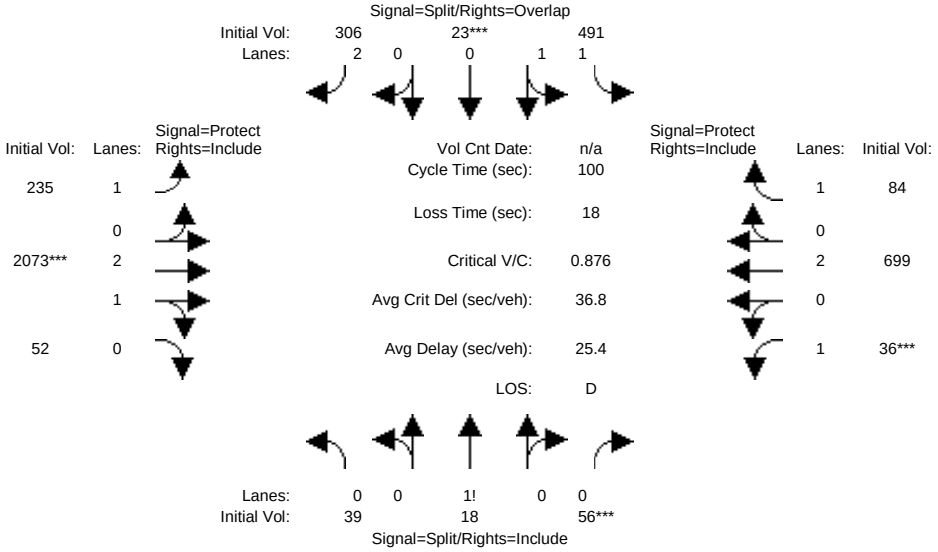
Riverwalk Subdivision
Horizon Year (2015) Plus Project Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #2: Susana Rd & Del Amo Blvd



Street Name:	Susana Rd						Del Amo Blvd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	39	18	56	491	23	306	235	2073	52	36	699	84
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:	39	18	56	491	23	306	235	2073	52	36	699	84
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:	39	18	56	491	23	306	235	2073	52	36	699	84
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:	39	18	56	491	23	306	235	2073	52	36	699	84
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	39	18	56	491	23	306	235	2073	52	36	699	84
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:	39	18	56	491	23	306	235	2073	52	36	699	84
OvlAdjVol:						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	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.34	0.16	0.50	1.91	0.09	2.00	1.00	2.93	0.07	1.00	2.00	1.00
Final Sat.:	552	255	793	3057	143	2880	1600	4683	117	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.07	0.07	0.07	0.16	0.16	0.11	0.15	0.44	0.44	0.02	0.22	0.05
OvlAdjV/S:						0.00						
Crit Moves:			****		****			****		****		

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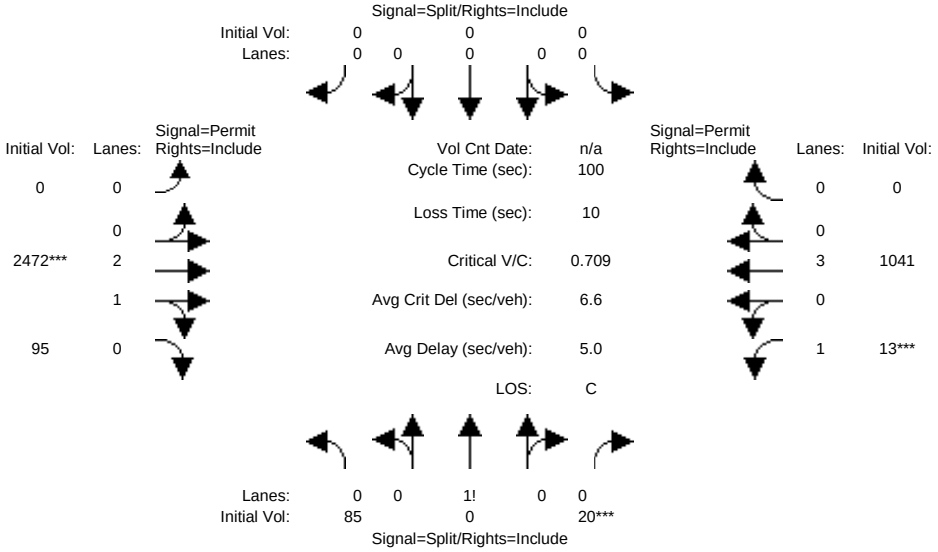
Riverwalk Subdivision
Horizon Year (2015) Plus Project Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #3: Daisy Ave & Del Amo Blvd



Street Name:	Daisy Ave						Del Amo Blvd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	85	0	20	0	0	0	0	2472	95	13	1041	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:	85	0	20	0	0	0	0	2472	95	13	1041	0
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:	85	0	20	0	0	0	0	2472	95	13	1041	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:	85	0	20	0	0	0	0	2472	95	13	1041	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	85	0	20	0	0	0	0	2472	95	13	1041	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:	85	0	20	0	0	0	0	2472	95	13	1041	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:	0.81	0.00	0.19	0.00	0.00	0.00	0.00	2.89	0.11	1.00	3.00	0.00
Final Sat.:	1295	0	305	0	0	0	0	4622	178	1600	4800	0
Capacity Analysis Module:												
Vol/Sat:	0.07	0.00	0.07	0.00	0.00	0.00	0.00	0.53	0.53	0.01	0.22	0.00
Crit Moves:			****					****		****		

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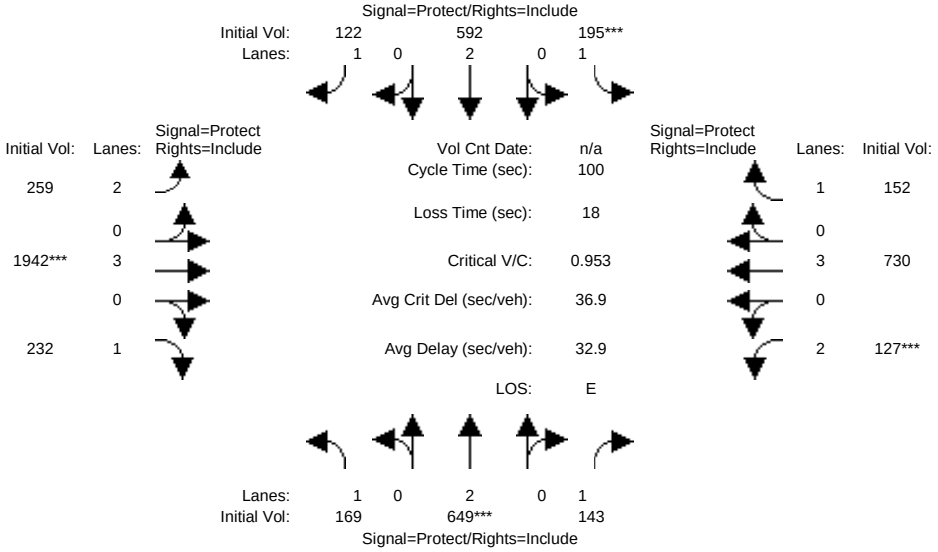
Riverwalk Subdivision
Horizon Year (2015) Plus Project Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #4: Long Beach Blvd & Del Amo Blvd



Street Name:	Long Beach Blvd						Del Amo Blvd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	169	649	143	195	592	122	259	1942	232	127	730	152
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:	169	649	143	195	592	122	259	1942	232	127	730	152
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:	169	649	143	195	592	122	259	1942	232	127	730	152
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:	169	649	143	195	592	122	259	1942	232	127	730	152
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	169	649	143	195	592	122	259	1942	232	127	730	152
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:	169	649	143	195	592	122	259	1942	232	127	730	152
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	0.90	1.00	1.00	0.90	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	2.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	1600	3200	1600	1600	3200	1600	2880	4800	1600	2880	4800	1600
Capacity Analysis Module:												
Vol/Sat:	0.11	0.20	0.09	0.12	0.19	0.08	0.09	0.40	0.15	0.04	0.15	0.10
Crit Moves:		****		****				****		****		

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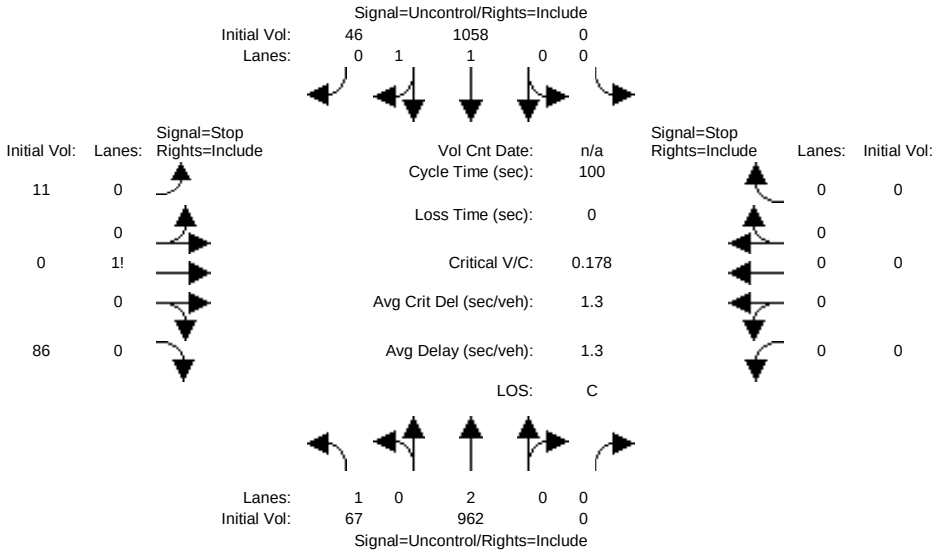
Riverwalk Subdivision
Horizon Year (2015) Plus Project Conditions
PM Peak

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Default Scenario

Intersection #5: Long Beach Blvd & Arbor St/48th St




```
Street Name:         Long Beach Blvd                    Arbor St/48th St
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      67  962     0     0 1058    46    11    0    86     0    0     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:   67  962     0     0 1058    46    11    0    86     0    0     0
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:   67  962     0     0 1058    46    11    0    86     0    0     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:    67  962     0     0 1058    46    11    0    86     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   67  962     0     0 1058    46    11    0    86     0    0     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx xxxxx xxxx xxxxx   6.8  6.5   6.9 xxxxx xxxx xxxxx
FollowUpTim:  2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.5  4.0   3.3 xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1104 xxxx xxxxx  xxxx xxxx xxxxx  1696 2177   552  xxxx xxxx xxxxx
Potent Cap.:  640 xxxx xxxxx  xxxx xxxx xxxxx    85   47   483  xxxx xxxx xxxxx
Move Cap.:    640 xxxx xxxxx  xxxx xxxx xxxxx    78   42   483  xxxx xxxx xxxxx
Volume/Cap:  0.10 xxxx  xxxx  xxxx xxxx  xxxx  0.14 0.00  0.18  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.3 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del: 11.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    B    *     *     *    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  305 xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx  1.3 xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx 22.2 xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    C     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx              22.2           xxxxxx
ApproachLOS:         *                *                 C                *
Note: Queue reported is the number of cars per lane.
                    Peak Hour Delay Signal Warrant Report
*******************************************************************************
Intersection #5 Long Beach Blvd & Arbor St/48th St
*******************************************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
```

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```
------------|---------------||---------------||---------------||---------------|
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Lanes:        1  0  2  0  0    0  0  1  1  0    0  0  1! 0  0    0  0  0  0  0
Initial Vol:   67  962     0     0 1058    46    11    0    86     0    0     0
ApproachDel:    xxxxxx           xxxxxx             22.2           xxxxxx
------------|---------------||---------------||---------------||---------------|
Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.6]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=97]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2230]
   SUCCEED - Total volume greater than or equal to 650 for intersection
             with less than four approaches.
--------------------------------------------------------------------------------
SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
                Peak Hour Volume Signal Warrant Report [Urban]
********************************************************************************
Intersection #5 Long Beach Blvd & Arbor St/48th St
********************************************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
------------|---------------||---------------||---------------||---------------|
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Lanes:        1  0  2  0  0    0  0  1  1  0    0  0  1! 0  0    0  0  0  0  0
Initial Vol:   67  962     0     0 1058    46    11    0    86     0    0     0
------------|---------------||---------------||---------------||---------------|
Major Street Volume:             2133
Minor Approach Volume:           97
Minor Approach Volume Threshold: 24 [less than minimum of 100]
--------------------------------------------------------------------------------
SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
```


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Riverwalk Subdivision
Cumulative Year (2030) Conditions
AM Peak

Summary Scenario Comparison Report (With Average Critical Delay)
Future Volume Alternative

Intersection		Default Scenario				???				???						???			
		LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)	LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)	LOS	Avg Del (sec)	Crit V/C	Crit V/C Change	Avg Crit Del (sec)	Avg Crit Del Change	LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)
#1	Susana Rd & I-710 SB Ramps	B	18.3	0.611	17.3	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#2	Susana Rd & Del Amo Blvd	F	64.6	1.082	86.1	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#3	Daisy Ave & Del Amo Blvd	C	8.2	0.770	9.5	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#4	Long Beach Blvd & Del Amo Blvd	F	45.5	1.017	56.1	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#5	Long Beach Blvd & Arbor St/48th St	C	0.7	0.120	0.7	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x

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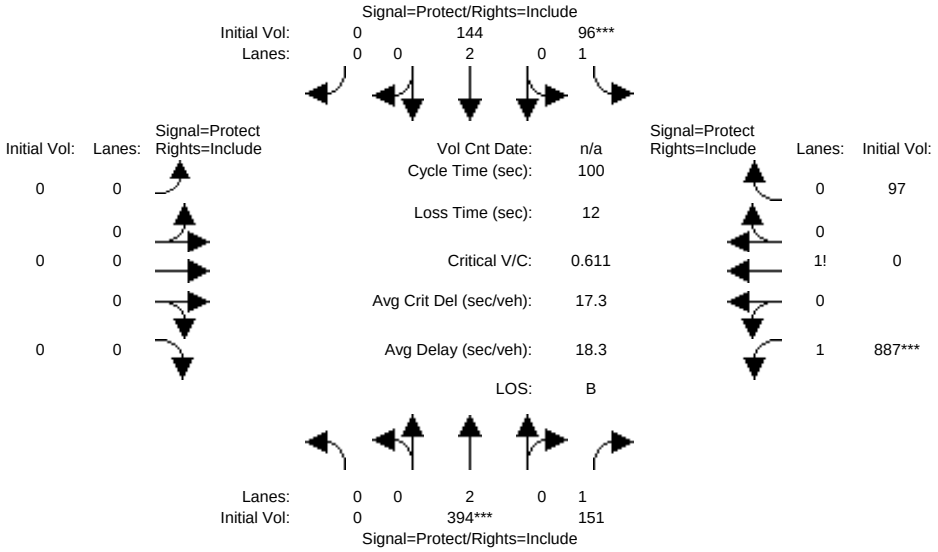
Riverwalk Subdivision
Cumulative Year (2030) Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #1: Susana Rd & I-710 SB Ramps



Street Name:	Susana Rd						I-710 SB Ramps					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	0	394	151	96	144	0	0	0	0	887	0	97
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	394	151	96	144	0	0	0	0	887	0	97
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:	0	394	151	96	144	0	0	0	0	887	0	97
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	394	151	96	144	0	0	0	0	887	0	97
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	394	151	96	144	0	0	0	0	887	0	97
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	394	151	96	144	0	0	0	0	887	0	97
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	2.00	1.00	1.00	2.00	0.00	0.00	0.00	0.00	1.80	0.00	0.20
Final Sat.:	0	3200	1600	1600	3200	0	0	0	0	2885	0	315
Capacity Analysis Module:												
Vol/Sat:	0.00	0.12	0.09	0.06	0.05	0.00	0.00	0.00	0.00	0.31	0.00	0.31
Crit Moves:		****		****						****		

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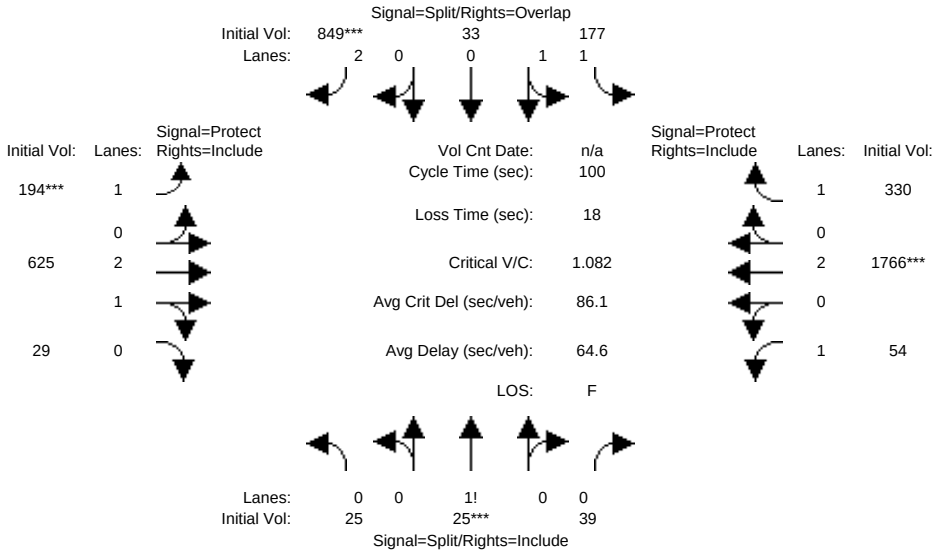
Riverwalk Subdivision
Cumulative Year (2030) Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #2: Susana Rd & Del Amo Blvd



Street Name:	Susana Rd						Del Amo Blvd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	25	25	39	177	33	849	194	625	29	54	1766	330
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:	25	25	39	177	33	849	194	625	29	54	1766	330
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:	25	25	39	177	33	849	194	625	29	54	1766	330
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:	25	25	39	177	33	849	194	625	29	54	1766	330
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	25	25	39	177	33	849	194	625	29	54	1766	330
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:	25	25	39	177	33	849	194	625	29	54	1766	330
OvlAdjVol:						500						
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	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.28	0.28	0.44	1.69	0.31	2.00	1.00	2.87	0.13	1.00	2.00	1.00
Final Sat.:	449	449	701	2697	503	2880	1600	4587	213	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.06	0.06	0.06	0.07	0.07	0.29	0.12	0.14	0.14	0.03	0.55	0.21
OvlAdjV/S:						0.17						
Crit Moves:		****				****	****				****	

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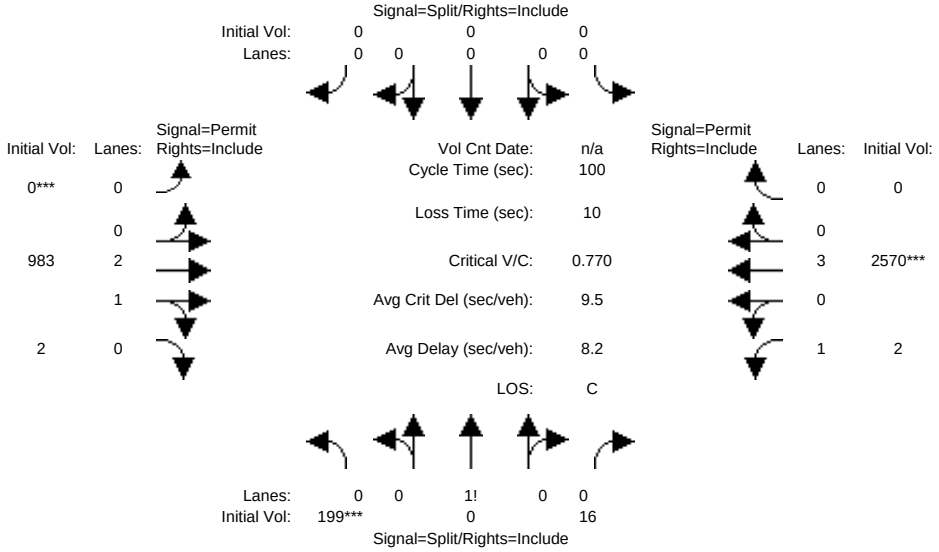
Riverwalk Subdivision
Cumulative Year (2030) Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #3: Daisy Ave & Del Amo Blvd



Street Name:	Daisy Ave						Del Amo Blvd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	199	0	16	0	0	0	0	983	2	2	2570	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:	199	0	16	0	0	0	0	983	2	2	2570	0
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:	199	0	16	0	0	0	0	983	2	2	2570	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:	199	0	16	0	0	0	0	983	2	2	2570	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	199	0	16	0	0	0	0	983	2	2	2570	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:	199	0	16	0	0	0	0	983	2	2	2570	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:	0.93	0.00	0.07	0.00	0.00	0.00	0.00	2.99	0.01	1.00	3.00	0.00
Final Sat.:	1481	0	119	0	0	0	0	4790	10	1600	4800	0
Capacity Analysis Module:												
Vol/Sat:	0.13	0.00	0.13	0.00	0.00	0.00	0.00	0.21	0.21	0.00	0.54	0.00
Crit Moves:	****						****				****	

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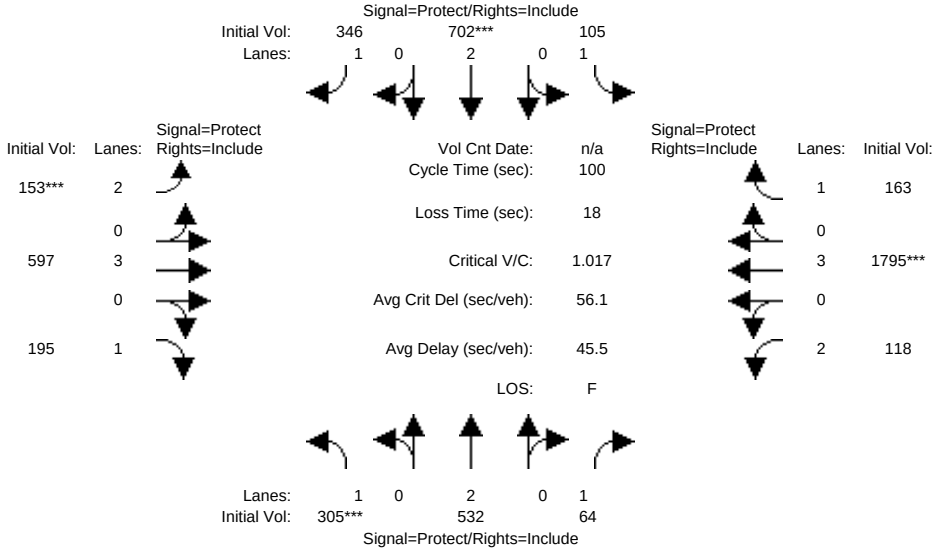
Riverwalk Subdivision
Cumulative Year (2030) Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #4: Long Beach Blvd & Del Amo Blvd



Street Name:	Long Beach Blvd						Del Amo Blvd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	305	532	64	105	702	346	153	597	195	118	1795	163
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:	305	532	64	105	702	346	153	597	195	118	1795	163
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:	305	532	64	105	702	346	153	597	195	118	1795	163
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:	305	532	64	105	702	346	153	597	195	118	1795	163
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	305	532	64	105	702	346	153	597	195	118	1795	163
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:	305	532	64	105	702	346	153	597	195	118	1795	163
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	0.90	1.00	1.00	0.90	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	2.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	1600	3200	1600	1600	3200	1600	2880	4800	1600	2880	4800	1600
Capacity Analysis Module:												
Vol/Sat:	0.19	0.17	0.04	0.07	0.22	0.22	0.05	0.12	0.12	0.04	0.37	0.10
Crit Moves:	****				****		****				****	

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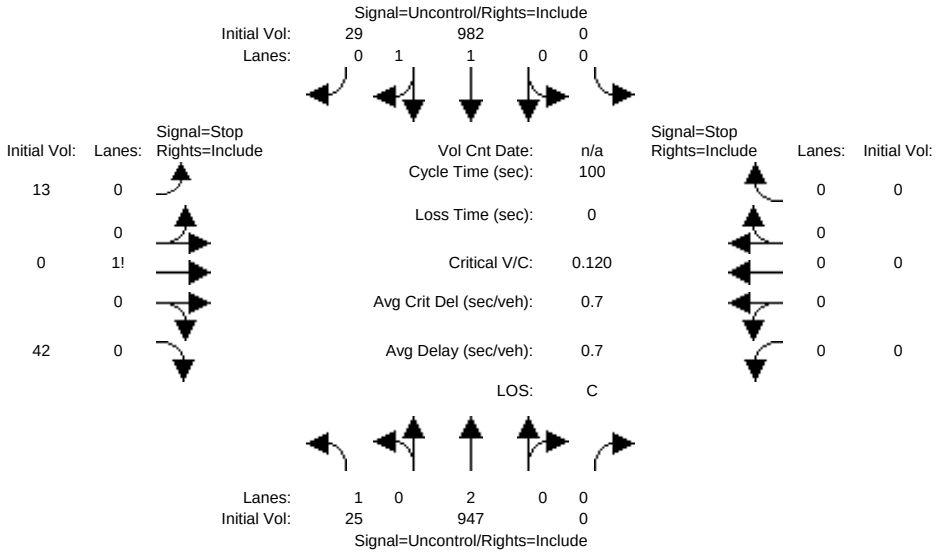
Riverwalk Subdivision
Cumulative Year (2030) Conditions
AM Peak

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Default Scenario

Intersection #5: Long Beach Blvd & Arbor St/48th St




```
Street Name:         Long Beach Blvd                    Arbor St/48th St
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      25  947     0     0  982    29    13    0    42     0    0     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:   25  947     0     0  982    29    13    0    42     0    0     0
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:   25  947     0     0  982    29    13    0    42     0    0     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:    25  947     0     0  982    29    13    0    42     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   25  947     0     0  982    29    13    0    42     0    0     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx xxxxx xxxx xxxxx   6.8  6.5   6.9 xxxxx xxxx xxxxx
FollowUpTim:  2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.5  4.0   3.3 xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1011 xxxx xxxxx  xxxx xxxx xxxxx  1520 1994   506  xxxx xxxx xxxxx
Potent Cap.:  694 xxxx xxxxx  xxxx xxxx xxxxx   112   61   517  xxxx xxxx xxxxx
Move Cap.:    694 xxxx xxxxx  xxxx xxxx xxxxx   108   59   517  xxxx xxxx xxxxx
Volume/Cap:  0.04 xxxx  xxxx  xxxx xxxx  xxxx  0.12 0.00  0.08  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.1 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del: 10.4 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    B    *     *     *    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  274 xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.7 xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx 21.4 xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    C     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx             21.4           xxxxxx
ApproachLOS:         *                *                C                *
Note: Queue reported is the number of cars per lane.
                    Peak Hour Delay Signal Warrant Report
*******************************************************************************
Intersection #5 Long Beach Blvd & Arbor St/48th St
*******************************************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
```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```
------------|---------------||---------------||---------------||---------------|
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Lanes:        1  0  2  0  0    0  0  1  1  0    0  0  1! 0  0    0  0  0  0  0
Initial Vol:   25  947     0     0  982    29    13    0    42     0    0     0
ApproachDel:    xxxxxx           xxxxxx             21.4           xxxxxx
------------|---------------||---------------||---------------||---------------|
Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.3]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=55]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2038]
   SUCCEED - Total volume greater than or equal to 650 for intersection
             with less than four approaches.
--------------------------------------------------------------------------------
SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
                Peak Hour Volume Signal Warrant Report [Urban]
********************************************************************************
Intersection #5 Long Beach Blvd & Arbor St/48th St
********************************************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
------------|---------------||---------------||---------------||---------------|
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Lanes:        1  0  2  0  0    0  0  1  1  0    0  0  1! 0  0    0  0  0  0  0
Initial Vol:   25  947     0     0  982    29    13    0    42     0    0     0
------------|---------------||---------------||---------------||---------------|
Major Street Volume:             1983
Minor Approach Volume:           55
Minor Approach Volume Threshold: 49 [less than minimum of 100]
--------------------------------------------------------------------------------
SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
```


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Riverwalk Subdivision
Cumulative Year (2030) Conditions
PM Peak

Summary Scenario Comparison Report (With Average Critical Delay)
Future Volume Alternative

		Default Scenario				???				???						???			
Intersection		LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)	LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)	LOS	Avg Del (sec)	Crit V/C	Crit V/C Change	Avg Crit Del (sec)	Avg Crit Del Change	LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)
#1	Susana Rd & I-710 SB Ramps	A	19.1	0.532	21.4	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#2	Susana Rd & Del Amo Blvd	E	30.3	0.945	49.1	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#3	Daisy Ave & Del Amo Blvd	C	3.9	0.730	5.2	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#4	Long Beach Blvd & Del Amo Blvd	F	46.7	1.034	59.3	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#5	Long Beach Blvd & Arbor St/48th St	D	1.5	0.207	1.5	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x

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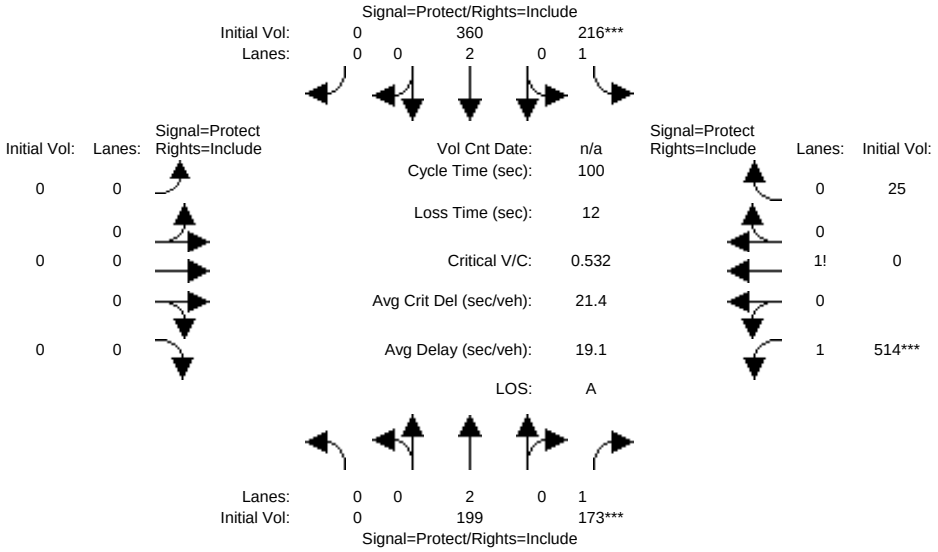
Riverwalk Subdivision
Cumulative Year (2030) Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #1: Susana Rd & I-710 SB Ramps



Street Name:	Susana Rd						I-710 SB Ramps					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	0	199	173	216	360	0	0	0	0	514	0	25
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	199	173	216	360	0	0	0	0	514	0	25
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:	0	199	173	216	360	0	0	0	0	514	0	25
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	199	173	216	360	0	0	0	0	514	0	25
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	199	173	216	360	0	0	0	0	514	0	25
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	199	173	216	360	0	0	0	0	514	0	25
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	2.00	1.00	1.00	2.00	0.00	0.00	0.00	0.00	1.91	0.00	0.09
Final Sat.:	0	3200	1600	1600	3200	0	0	0	0	3052	0	148
Capacity Analysis Module:												
Vol/Sat:	0.00	0.06	0.11	0.14	0.11	0.00	0.00	0.00	0.00	0.17	0.00	0.17
Crit Moves:			****	****						****		

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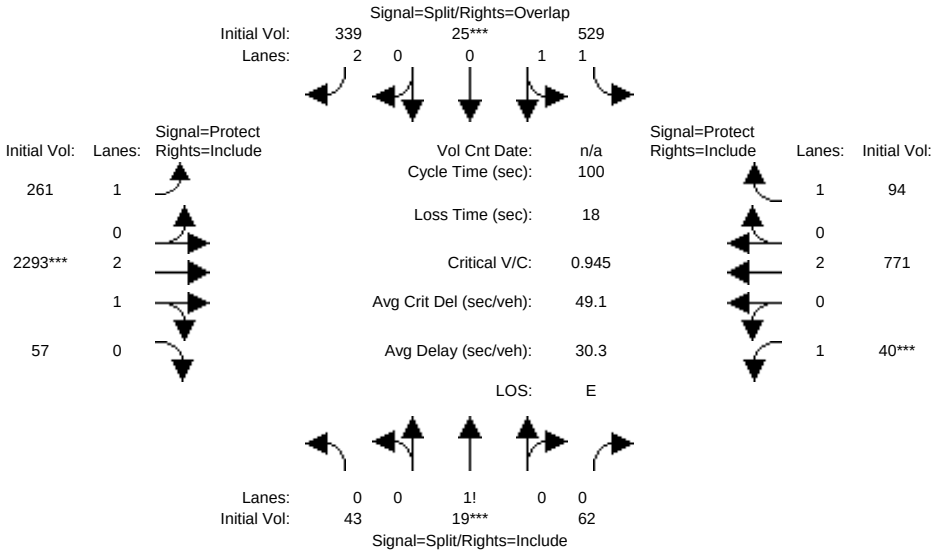
Riverwalk Subdivision
Cumulative Year (2030) Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #2: Susana Rd & Del Amo Blvd



Street Name:	Susana Rd						Del Amo Blvd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	43	19	62	529	25	339	261	2293	57	40	771	94
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:	43	19	62	529	25	339	261	2293	57	40	771	94
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:	43	19	62	529	25	339	261	2293	57	40	771	94
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:	43	19	62	529	25	339	261	2293	57	40	771	94
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	43	19	62	529	25	339	261	2293	57	40	771	94
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:	43	19	62	529	25	339	261	2293	57	40	771	94
OvlAdjVol:						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	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.35	0.15	0.50	1.91	0.09	2.00	1.00	2.93	0.07	1.00	2.00	1.00
Final Sat.:	555	245	800	3056	144	2880	1600	4684	116	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.08	0.08	0.08	0.17	0.17	0.12	0.16	0.49	0.49	0.03	0.24	0.06
OvlAdjV/S:						0.00						
Crit Moves:	****			****			****			****		

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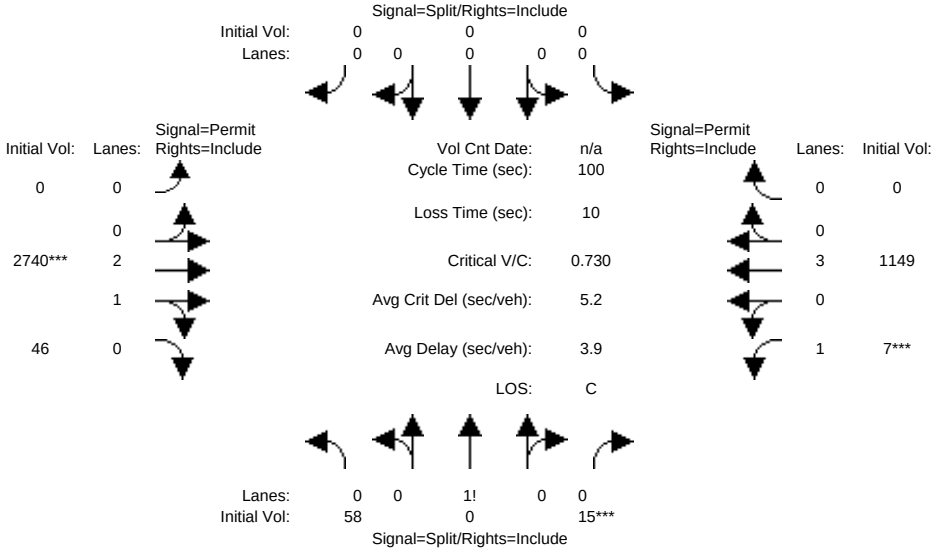
Riverwalk Subdivision
Cumulative Year (2030) Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #3: Daisy Ave & Del Amo Blvd



Street Name:	Daisy Ave						Del Amo Blvd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	58	0	15	0	0	0	0	2740	46	7	1149	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:	58	0	15	0	0	0	0	2740	46	7	1149	0
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:	58	0	15	0	0	0	0	2740	46	7	1149	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:	58	0	15	0	0	0	0	2740	46	7	1149	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	58	0	15	0	0	0	0	2740	46	7	1149	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:	58	0	15	0	0	0	0	2740	46	7	1149	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:	0.79	0.00	0.21	0.00	0.00	0.00	0.00	2.95	0.05	1.00	3.00	0.00
Final Sat.:	1271	0	329	0	0	0	0	4721	79	1600	4800	0
Capacity Analysis Module:												
Vol/Sat:	0.05	0.00	0.05	0.00	0.00	0.00	0.00	0.58	0.58	0.00	0.24	0.00
Crit Moves:			****					****		****		

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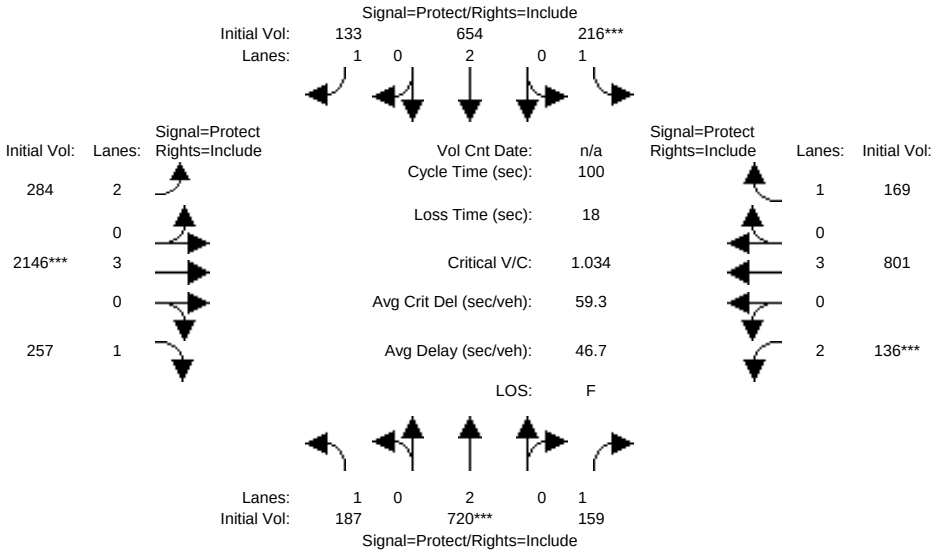
Riverwalk Subdivision
Cumulative Year (2030) Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #4: Long Beach Blvd & Del Amo Blvd



Street Name:	Long Beach Blvd						Del Amo Blvd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	187	720	159	216	654	133	284	2146	257	136	801	169
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:	187	720	159	216	654	133	284	2146	257	136	801	169
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:	187	720	159	216	654	133	284	2146	257	136	801	169
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:	187	720	159	216	654	133	284	2146	257	136	801	169
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	187	720	159	216	654	133	284	2146	257	136	801	169
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:	187	720	159	216	654	133	284	2146	257	136	801	169
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	0.90	1.00	1.00	0.90	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	2.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	1600	3200	1600	1600	3200	1600	2880	4800	1600	2880	4800	1600
Capacity Analysis Module:												
Vol/Sat:	0.12	0.23	0.10	0.14	0.20	0.08	0.10	0.45	0.16	0.05	0.17	0.11
Crit Moves:		****		****				****		****		

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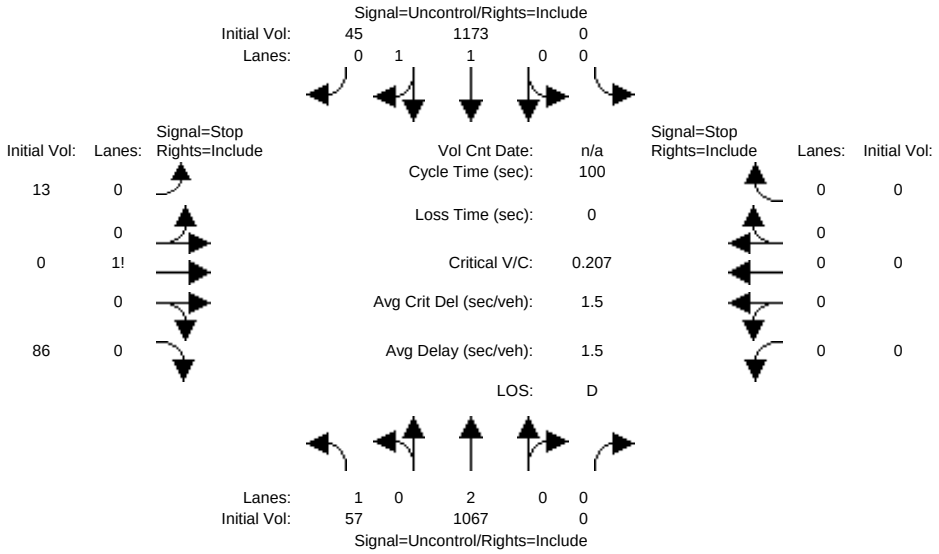
Riverwalk Subdivision
Cumulative Year (2030) Conditions
PM Peak

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Default Scenario

Intersection #5: Long Beach Blvd & Arbor St/48th St




```
Street Name:         Long Beach Blvd                    Arbor St/48th St
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      57 1067     0     0 1173    45    13    0    86     0    0     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:   57 1067     0     0 1173    45    13    0    86     0    0     0
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:   57 1067     0     0 1173    45    13    0    86     0    0     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:    57 1067     0     0 1173    45    13    0    86     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   57 1067     0     0 1173    45    13    0    86     0    0     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx xxxxx xxxx xxxxx   6.8  6.5   6.9 xxxxx xxxx xxxxx
FollowUpTim:  2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.5  4.0   3.3 xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1218 xxxx xxxxx  xxxx xxxx xxxxx  1843 2377   609  xxxx xxxx xxxxx
Potent Cap.:  580 xxxx xxxxx  xxxx xxxx xxxxx    68   35   443  xxxx xxxx xxxxx
Move Cap.:    580 xxxx xxxxx  xxxx xxxx xxxxx    63   32   443  xxxx xxxx xxxxx
Volume/Cap:  0.10 xxxx  xxxx  xxxx xxxx  xxxx  0.21 0.00  0.19  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.3 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del: 11.9 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    B    *     *     *    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  247 xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx  1.8 xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx 29.0 xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    D     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx              29.0           xxxxxx
ApproachLOS:         *                *                 D                *
Note: Queue reported is the number of cars per lane.
                    Peak Hour Delay Signal Warrant Report
*******************************************************************************
Intersection #5 Long Beach Blvd & Arbor St/48th St
*******************************************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
```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```
------------|---------------||---------------||---------------||---------------|
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Lanes:        1  0  2  0  0    0  0  1  1  0    0  0  1! 0  0    0  0  0  0  0
Initial Vol:   57 1067     0     0 1173    45    13    0    86     0    0     0
ApproachDel:    xxxxxx           xxxxxx             29.0           xxxxxx
------------|---------------||---------------||---------------||---------------|
Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.8]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=99]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2441]
   SUCCEED - Total volume greater than or equal to 650 for intersection
             with less than four approaches.
--------------------------------------------------------------------------------
SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
                Peak Hour Volume Signal Warrant Report [Urban]
********************************************************************************
Intersection #5 Long Beach Blvd & Arbor St/48th St
********************************************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
------------|---------------||---------------||---------------||---------------|
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Lanes:        1  0  2  0  0    0  0  1  1  0    0  0  1! 0  0    0  0  0  0  0
Initial Vol:   57 1067     0     0 1173    45    13    0    86     0    0     0
------------|---------------||---------------||---------------||---------------|
Major Street Volume:             2342
Minor Approach Volume:           99
Minor Approach Volume Threshold: -8 [less than minimum of 100]
--------------------------------------------------------------------------------
SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
```


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Riverwalk Subdivision
Cumulative Year (2030) Plus Project Conditions
AM Peak

Summary Scenario Comparison Report (With Average Critical Delay)
Future Volume Alternative

		Default Scenario				???				???						???			
Intersection		LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)	LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)	LOS	Avg Del (sec)	Crit V/C	Crit V/C Change	Avg Crit Del (sec)	Avg Crit Del Change	LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)
#1	Susana Rd & I-710 SB Ramps	B	18.3	0.612	17.3	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#2	Susana Rd & Del Amo Blvd	F	65.1	1.084	86.9	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#3	Daisy Ave & Del Amo Blvd	D	10.5	0.806	11.9	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#4	Long Beach Blvd & Del Amo Blvd	F	45.9	1.019	56.8	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#5	Long Beach Blvd & Arbor St/48th St	C	0.9	0.122	0.9	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x

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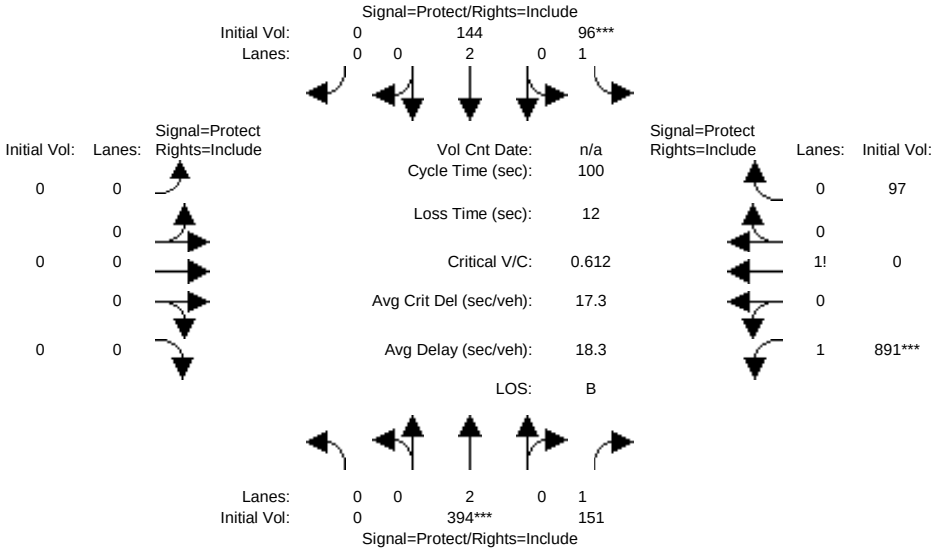
Riverwalk Subdivision
Cumulative Year (2030) Plus Project Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #1: Susana Rd & I-710 SB Ramps



Street Name:	Susana Rd						I-710 SB Ramps					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	0	394	151	96	144	0	0	0	0	891	0	97
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	394	151	96	144	0	0	0	0	891	0	97
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:	0	394	151	96	144	0	0	0	0	891	0	97
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	394	151	96	144	0	0	0	0	891	0	97
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	394	151	96	144	0	0	0	0	891	0	97
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	394	151	96	144	0	0	0	0	891	0	97
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	2.00	1.00	1.00	2.00	0.00	0.00	0.00	0.00	1.80	0.00	0.20
Final Sat.:	0	3200	1600	1600	3200	0	0	0	0	2886	0	314
Capacity Analysis Module:												
Vol/Sat:	0.00	0.12	0.09	0.06	0.05	0.00	0.00	0.00	0.00	0.31	0.00	0.31
Crit Moves:		****		****						****		

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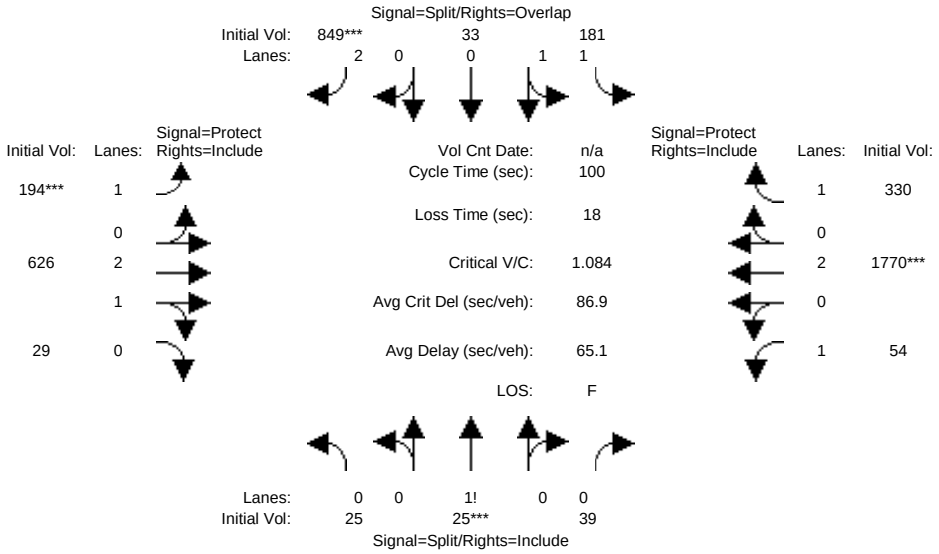
Riverwalk Subdivision
Cumulative Year (2030) Plus Project Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #2: Susana Rd & Del Amo Blvd



Street Name:	Susana Rd						Del Amo Blvd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	25	25	39	181	33	849	194	626	29	54	1770	330
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:	25	25	39	181	33	849	194	626	29	54	1770	330
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:	25	25	39	181	33	849	194	626	29	54	1770	330
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:	25	25	39	181	33	849	194	626	29	54	1770	330
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	25	25	39	181	33	849	194	626	29	54	1770	330
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:	25	25	39	181	33	849	194	626	29	54	1770	330
OvlAdjVol:						500						
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	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.28	0.28	0.44	1.69	0.31	2.00	1.00	2.87	0.13	1.00	2.00	1.00
Final Sat.:	449	449	701	2707	493	2880	1600	4587	213	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.06	0.06	0.06	0.07	0.07	0.29	0.12	0.14	0.14	0.03	0.55	0.21
OvlAdjV/S:						0.17						
Crit Moves:		****				****	****				****	

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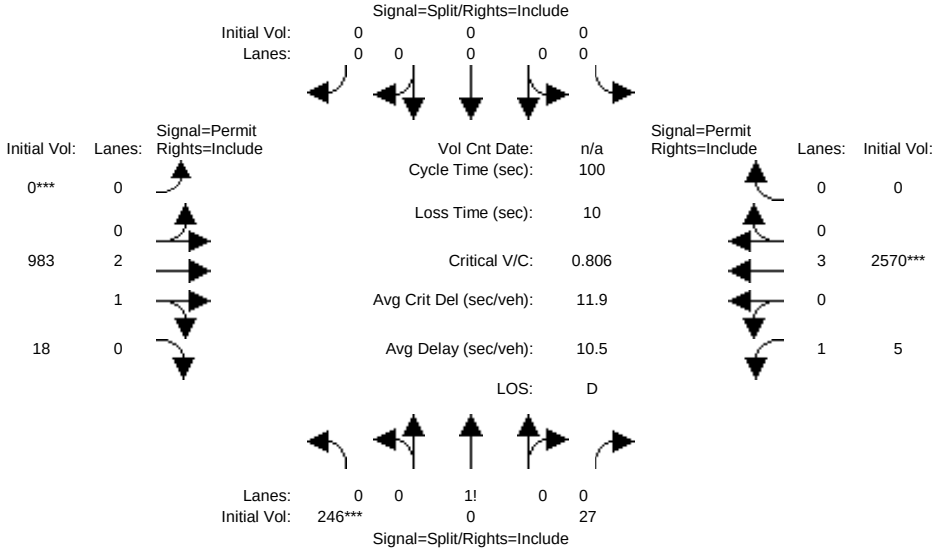
Riverwalk Subdivision
Cumulative Year (2030) Plus Project Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #3: Daisy Ave & Del Amo Blvd



Street Name:	Daisy Ave						Del Amo Blvd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	246	0	27	0	0	0	0	983	18	5	2570	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:	246	0	27	0	0	0	0	983	18	5	2570	0
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:	246	0	27	0	0	0	0	983	18	5	2570	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:	246	0	27	0	0	0	0	983	18	5	2570	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	246	0	27	0	0	0	0	983	18	5	2570	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:	246	0	27	0	0	0	0	983	18	5	2570	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:	0.90	0.00	0.10	0.00	0.00	0.00	0.00	2.95	0.05	1.00	3.00	0.00
Final Sat.:	1442	0	158	0	0	0	0	4714	86	1600	4800	0
Capacity Analysis Module:												
Vol/Sat:	0.17	0.00	0.17	0.00	0.00	0.00	0.00	0.21	0.21	0.00	0.54	0.00
Crit Moves:	****						****				****	

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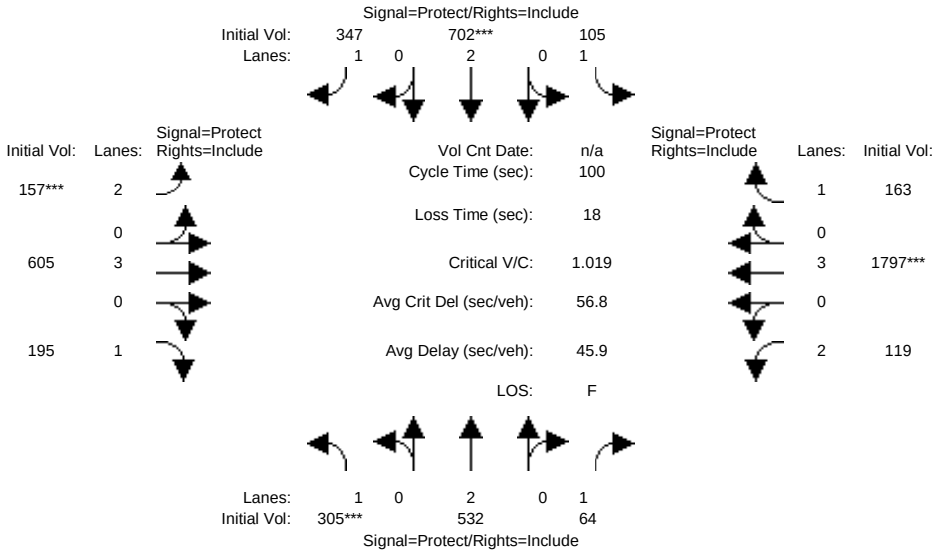
Riverwalk Subdivision
Cumulative Year (2030) Plus Project Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #4: Long Beach Blvd & Del Amo Blvd



Street Name:	Long Beach Blvd						Del Amo Blvd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	305	532	64	105	702	347	157	605	195	119	1797	163
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:	305	532	64	105	702	347	157	605	195	119	1797	163
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:	305	532	64	105	702	347	157	605	195	119	1797	163
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:	305	532	64	105	702	347	157	605	195	119	1797	163
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	305	532	64	105	702	347	157	605	195	119	1797	163
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:	305	532	64	105	702	347	157	605	195	119	1797	163
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	0.90	1.00	1.00	0.90	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	2.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	1600	3200	1600	1600	3200	1600	2880	4800	1600	2880	4800	1600
Capacity Analysis Module:												
Vol/Sat:	0.19	0.17	0.04	0.07	0.22	0.22	0.05	0.13	0.12	0.04	0.37	0.10
Crit Moves:	****				****		****				****	

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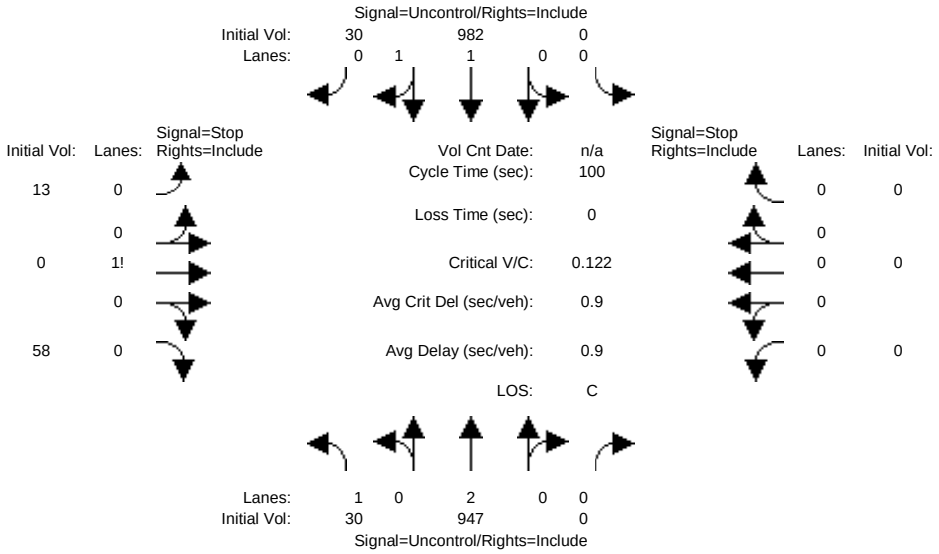
Riverwalk Subdivision
Cumulative Year (2030) Plus Project Conditions
AM Peak

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Default Scenario

Intersection #5: Long Beach Blvd & Arbor St/48th St




```
Street Name:         Long Beach Blvd                    Arbor St/48th St
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      30  947     0     0  982    30    13    0    58     0    0     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:   30  947     0     0  982    30    13    0    58     0    0     0
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:   30  947     0     0  982    30    13    0    58     0    0     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:    30  947     0     0  982    30    13    0    58     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   30  947     0     0  982    30    13    0    58     0    0     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx xxxxx xxxx xxxxx   6.8  6.5   6.9 xxxxx xxxx xxxxx
FollowUpTim:  2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.5  4.0   3.3 xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1012 xxxx xxxxx  xxxx xxxx xxxxx  1531 2004   506  xxxx xxxx xxxxx
Potent Cap.:  693 xxxx xxxxx  xxxx xxxx xxxxx   110   60   517  xxxx xxxx xxxxx
Move Cap.:    693 xxxx xxxxx  xxxx xxxx xxxxx   106   58   517  xxxx xxxx xxxxx
Volume/Cap:  0.04 xxxx  xxxx  xxxx xxxx  xxxx  0.12 0.00  0.11  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.1 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del: 10.4 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    B    *     *     *    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  303 xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.9 xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx 20.5 xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    C     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx              20.5           xxxxxx
ApproachLOS:         *                *                 C                *
Note: Queue reported is the number of cars per lane.
                    Peak Hour Delay Signal Warrant Report
*******************************************************************************
Intersection #5 Long Beach Blvd & Arbor St/48th St
*******************************************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
```

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```
------------|---------------||---------------||---------------||---------------|
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Lanes:        1  0  2  0  0    0  0  1  1  0    0  0  1! 0  0    0  0  0  0  0
Initial Vol:   30  947     0     0  982    30    13    0    58     0    0     0
ApproachDel:    xxxxxx           xxxxxx              20.5           xxxxxx
------------|---------------||---------------||---------------||---------------|
Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.4]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=71]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2060]
   SUCCEED - Total volume greater than or equal to 650 for intersection
             with less than four approaches.
--------------------------------------------------------------------------------
SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
                Peak Hour Volume Signal Warrant Report [Urban]
********************************************************************************
Intersection #5 Long Beach Blvd & Arbor St/48th St
********************************************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
------------|---------------||---------------||---------------||---------------|
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Lanes:        1  0  2  0  0    0  0  1  1  0    0  0  1! 0  0    0  0  0  0  0
Initial Vol:   30  947     0     0  982    30    13    0    58     0    0     0
------------|---------------||---------------||---------------||---------------|
Major Street Volume:             1989
Minor Approach Volume:           71
Minor Approach Volume Threshold: 48 [less than minimum of 100]
--------------------------------------------------------------------------------
SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
```


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Riverwalk Subdivision
Cumulative Year (2030) Plus Project Conditions
PM Peak

Summary Scenario Comparison Report (With Average Critical Delay)
Future Volume Alternative

		Default Scenario				???				???						???			
Intersection		LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)	LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)	LOS	Avg Del (sec)	Crit V/C	Crit V/C Change	Avg Crit Del (sec)	Avg Crit Del Change	LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)
#1	Susana Rd & I-710 SB Ramps	A	19.1	0.534	21.4	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#2	Susana Rd & Del Amo Blvd	E	30.8	0.949	50.2	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#3	Daisy Ave & Del Amo Blvd	C	5.7	0.768	6.6	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#4	Long Beach Blvd & Del Amo Blvd	F	47.4	1.037	60.4	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x
#5	Long Beach Blvd & Arbor St/48th St	D	1.7	0.223	1.7	?	xx.x	x.xxx	xx.x	?	xx.x	x.xxx	x.xxx	xx.x	xx.x	?	xx.x	x.xxx	xx.x

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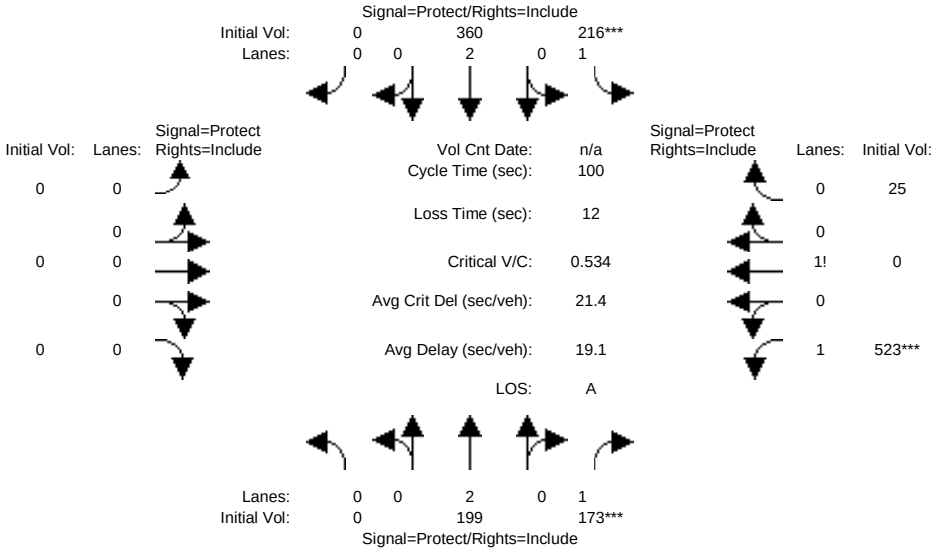
Riverwalk Subdivision
Cumulative Year (2030) Plus Project Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #1: Susana Rd & I-710 SB Ramps



Street Name:	Susana Rd						I-710 SB Ramps					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	0	199	173	216	360	0	0	0	0	523	0	25
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	199	173	216	360	0	0	0	0	523	0	25
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:	0	199	173	216	360	0	0	0	0	523	0	25
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	199	173	216	360	0	0	0	0	523	0	25
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	199	173	216	360	0	0	0	0	523	0	25
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	199	173	216	360	0	0	0	0	523	0	25
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	2.00	1.00	1.00	2.00	0.00	0.00	0.00	0.00	1.91	0.00	0.09
Final Sat.:	0	3200	1600	1600	3200	0	0	0	0	3054	0	146
Capacity Analysis Module:												
Vol/Sat:	0.00	0.06	0.11	0.14	0.11	0.00	0.00	0.00	0.00	0.17	0.00	0.17
Crit Moves:			****	****						****		

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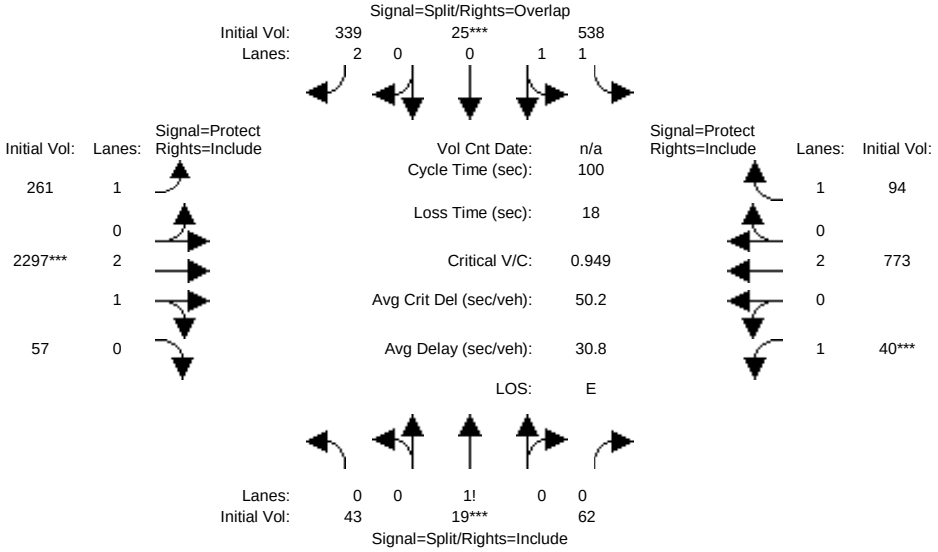
Riverwalk Subdivision
Cumulative Year (2030) Plus Project Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #2: Susana Rd & Del Amo Blvd



Street Name:	Susana Rd						Del Amo Blvd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	43	19	62	538	25	339	261	2297	57	40	773	94
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:	43	19	62	538	25	339	261	2297	57	40	773	94
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:	43	19	62	538	25	339	261	2297	57	40	773	94
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:	43	19	62	538	25	339	261	2297	57	40	773	94
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	43	19	62	538	25	339	261	2297	57	40	773	94
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:	43	19	62	538	25	339	261	2297	57	40	773	94
OvlAdjVol:						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	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.35	0.15	0.50	1.91	0.09	2.00	1.00	2.93	0.07	1.00	2.00	1.00
Final Sat.:	555	245	800	3058	142	2880	1600	4684	116	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.08	0.08	0.08	0.18	0.18	0.12	0.16	0.49	0.49	0.03	0.24	0.06
OvlAdjV/S:						0.00						
Crit Moves:		****			****			****			****	

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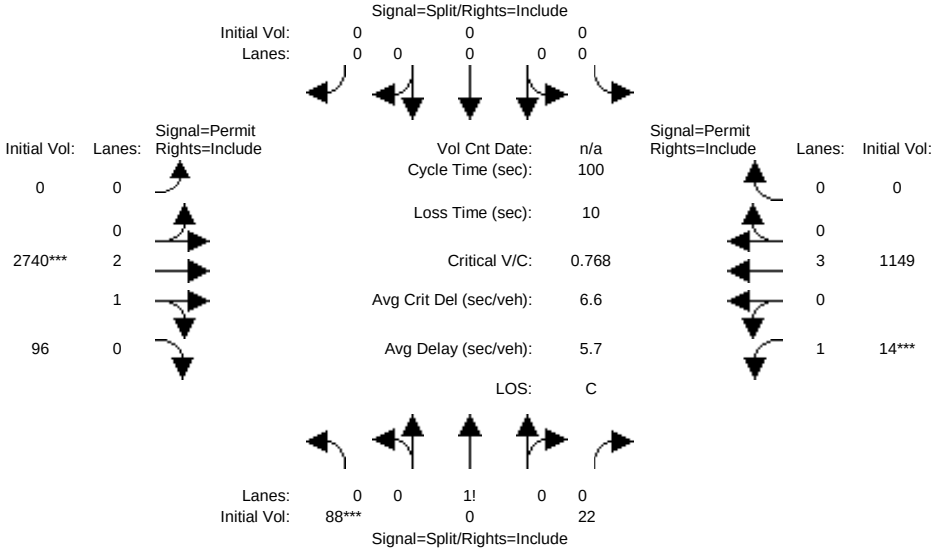
Riverwalk Subdivision
Cumulative Year (2030) Plus Project Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #3: Daisy Ave & Del Amo Blvd



Street Name:	Daisy Ave						Del Amo Blvd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	88	0	22	0	0	0	0	2740	96	14	1149	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:	88	0	22	0	0	0	0	2740	96	14	1149	0
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:	88	0	22	0	0	0	0	2740	96	14	1149	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:	88	0	22	0	0	0	0	2740	96	14	1149	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	88	0	22	0	0	0	0	2740	96	14	1149	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:	88	0	22	0	0	0	0	2740	96	14	1149	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:	0.80	0.00	0.20	0.00	0.00	0.00	0.00	2.90	0.10	1.00	3.00	0.00
Final Sat.:	1280	0	320	0	0	0	0	4638	162	1600	4800	0
Capacity Analysis Module:												
Vol/Sat:	0.07	0.00	0.07	0.00	0.00	0.00	0.00	0.59	0.59	0.01	0.24	0.00
Crit Moves:	****							****		****		

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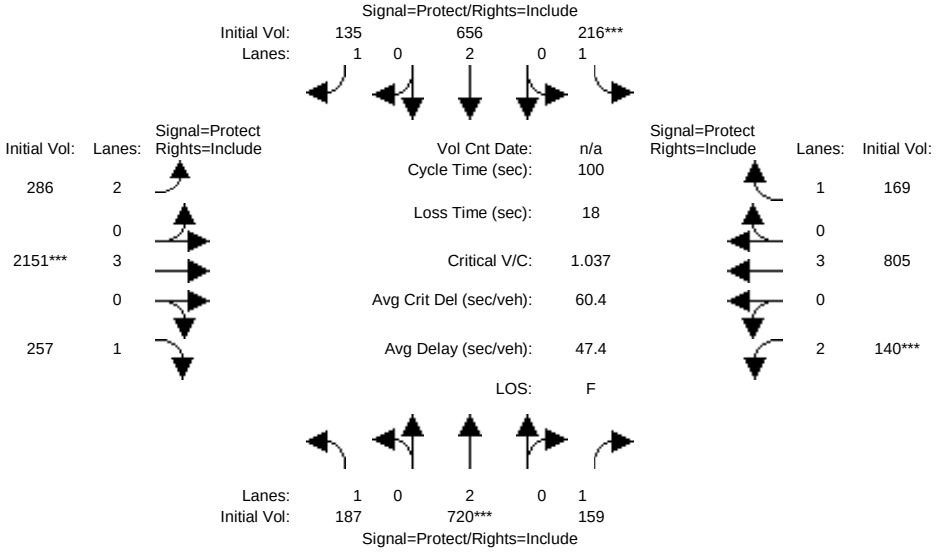
Riverwalk Subdivision
Cumulative Year (2030) Plus Project Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) (Future Volume Alternative)
Default Scenario

Intersection #4: Long Beach Blvd & Del Amo Blvd



Street Name:	Long Beach Blvd						Del Amo Blvd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
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
Volume Module:												
Base Vol:	187	720	159	216	656	135	286	2151	257	140	805	169
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:	187	720	159	216	656	135	286	2151	257	140	805	169
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:	187	720	159	216	656	135	286	2151	257	140	805	169
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:	187	720	159	216	656	135	286	2151	257	140	805	169
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	187	720	159	216	656	135	286	2151	257	140	805	169
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:	187	720	159	216	656	135	286	2151	257	140	805	169
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	0.90	1.00	1.00	0.90	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	2.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	1600	3200	1600	1600	3200	1600	2880	4800	1600	2880	4800	1600
Capacity Analysis Module:												
Vol/Sat:	0.12	0.23	0.10	0.14	0.21	0.08	0.10	0.45	0.16	0.05	0.17	0.11
Crit Moves:		****		****				****		****		

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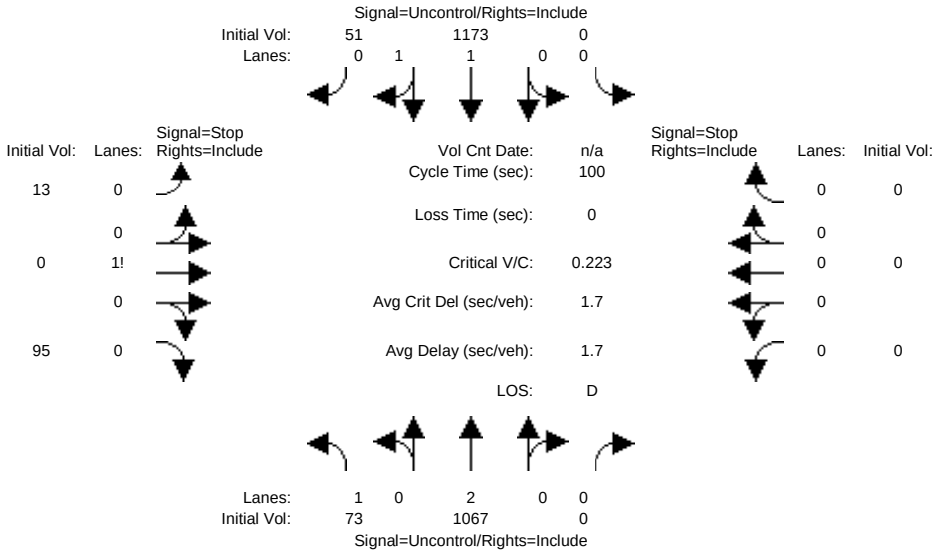
Riverwalk Subdivision
Cumulative Year (2030) Plus Project Conditions
PM Peak

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Default Scenario

Intersection #5: Long Beach Blvd & Arbor St/48th St




```
Street Name:         Long Beach Blvd                    Arbor St/48th St
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      73 1067     0     0 1173    51    13    0    95     0    0     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:   73 1067     0     0 1173    51    13    0    95     0    0     0
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:   73 1067     0     0 1173    51    13    0    95     0    0     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:    73 1067     0     0 1173    51    13    0    95     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   73 1067     0     0 1173    51    13    0    95     0    0     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx xxxxx xxxx xxxxx   6.8  6.5   6.9 xxxxx xxxx xxxxx
FollowUpTim:  2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.5  4.0   3.3 xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1224 xxxx xxxxx  xxxx xxxx xxxxx  1878 2412   612  xxxx xxxx xxxxx
Potent Cap.:  577 xxxx xxxxx  xxxx xxxx xxxxx    64   33   441  xxxx xxxx xxxxx
Move Cap.:    577 xxxx xxxxx  xxxx xxxx xxxxx    58   29   441  xxxx xxxx xxxxx
Volume/Cap:  0.13 xxxx  xxxx  xxxx xxxx  xxxx  0.22 0.00  0.22  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.4 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del: 12.1 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    B    *     *     *    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  246 xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx  2.1 xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx 30.6 xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    D     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx              30.6           xxxxxx
ApproachLOS:         *                *                 D                *
Note: Queue reported is the number of cars per lane.
                    Peak Hour Delay Signal Warrant Report
*******************************************************************************
Intersection #5 Long Beach Blvd & Arbor St/48th St
*******************************************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
```

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```
------------|---------------||---------------||---------------||---------------|
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Lanes:        1  0  2  0  0    0  0  1  1  0    0  0  1! 0  0    0  0  0  0  0
Initial Vol:   73 1067     0     0 1173    51    13    0    95     0    0     0
ApproachDel:    xxxxxx           xxxxxx             30.6           xxxxxx
------------|---------------||---------------||---------------||---------------|
Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.9]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=108]
   SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2472]
   SUCCEED - Total volume greater than or equal to 650 for intersection
             with less than four approaches.
--------------------------------------------------------------------------------
SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
                Peak Hour Volume Signal Warrant Report [Urban]
********************************************************************************
Intersection #5 Long Beach Blvd & Arbor St/48th St
********************************************************************************
Future Volume Alternative: Peak Hour Warrant Met
------------|---------------||---------------||---------------||---------------|
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Lanes:        1  0  2  0  0    0  0  1  1  0    0  0  1! 0  0    0  0  0  0  0
Initial Vol:   73 1067     0     0 1173    51    13    0    95     0    0     0
------------|---------------||---------------||---------------||---------------|
Major Street Volume:             2364
Minor Approach Volume:           108
Minor Approach Volume Threshold: -12 [less than minimum of 100]
--------------------------------------------------------------------------------
SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
```


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