Appendix G

Traffic Study

Remedial Action Plan
Ascon Landfill Site
Transportation Impact Study
Draft Report

Prepared for:
PCR
City of Huntington Beach

June 5, 2013

Prepared By:
FEHR PEERS

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1.0 INTRODUCTION

The purpose of the report is to summarize the findings of the traffic analyses completed for the Ascon Landfill Remedial Action Plan (RAP) Project and to identify the mitigation measures necessary to mitigate project impacts. A brief description of the analyses scenarios will be given as well as the assumptions used.

This Traffic Impact Study (TIS) was developed based on the requirements within the City of Huntington Beach's General Plan and Circulation Element (1996).

1.1 Project Description

The ASCON Landfill Site is a former hazardous waste disposal site. The State of California, through the Department of Toxic Substance Control (DTSC) and the Responsible Parties (RP's) is proposing to remediate the site through a partial removal and capping process. This process will include both the removal of contaminated material and the replacement of this material with clean fill, which will then cover the site. Following the completion of this partial removal and capping, the site will remain vacant for the conceivable future with periodic monitoring of the site by various agencies and parties. Truck and automobile traffic generated by this partial removing and capping process is analyzed by this Transportation Impact Study. As an alternative, we have also evaluated a second scenario which would entail a full removal of the material at the site.

Figure 1-1 shows the project study area in relation to the surrounding transportation network and Figure 1-2 shows the preliminary project site plan.

The current site has two access points. Inbound traffic is proposed to use an access point at the northwest corner of the site along Hamilton Avenue which would provide full access (allowing right and left turns). Outbound truck traffic is proposed to use an access point at the southeast corner of the site along Magnolia Street where a right-turn only out of the driveway is proposed. The precise access locations may be adjusted or shift during the construction process.

One truck haul route is analyzed in this traffic study. This route generally uses Beach Boulevard (SR-39) and Pacific Coast Highway (SR-1). Since the route is proposed along state highways as well as City of Huntington Beach facilities, the traffic analysis has been performed using the Highway Capacity Manual methodology to satisfy Caltrans requirements and the Intersection Capacity Utilization methodology to satisfy City requirements, respectively.

1.2 Project Study Area

The project study area was established in accordance with City of Huntington Beach Traffic Engineering staff and covers the area adjacent to the project which would be utilized by project traffic. The study area is generally bounded by Interstate 405 (I-405) to the north, Beach Boulevard (SR-39) to the west, Pacific Coast Highway (SR-1) to the south and Brookhurst Street to the east. A vicinity map which provides the project location, study area, and analysis locations is provided in Figure 1-1.

The following intersections were chosen for analysis:

1. Beach Boulevard at Center Avenue
2. Beach Boulevard at Edinger Avenue
3. Beach Boulevard at Warner Avenue
4. Beach Boulevard at Talbert Avenue
5. Beach Boulevard at Main Street/Ellis Avenue
6. Beach Boulevard at Garfield Avenue
7. Beach Boulevard at Adams Avenue
8. Beach Boulevard at Atlanta Avenue
9. Beach Boulevard at Pacific Coast Highway
10. Newland Street at Pacific Coast Highway
11. Magnolia Street at Pacific Coast Highway
12. Brookhurst Street at Pacific Coast Highway
13. Brookhurst Street at Hamilton Avenue
14. Magnolia Street at Hamilton Avenue
15. Newland Street at Hamilton Avenue
16. Newland Street at Atlanta Avenue

1.3 Analysis Scenarios

To identify significant project impacts, Fehr & Peers evaluated the following four scenarios for study area intersections as part of the proposed project:

- Existing Year (2013) Base Traffic Conditions– Consists of existing counts collected in the study area in 2013.

- Existing Year (2013) Plus Project Traffic Conditions– Consists of existing counts collected in the study area plus project truck traffic.

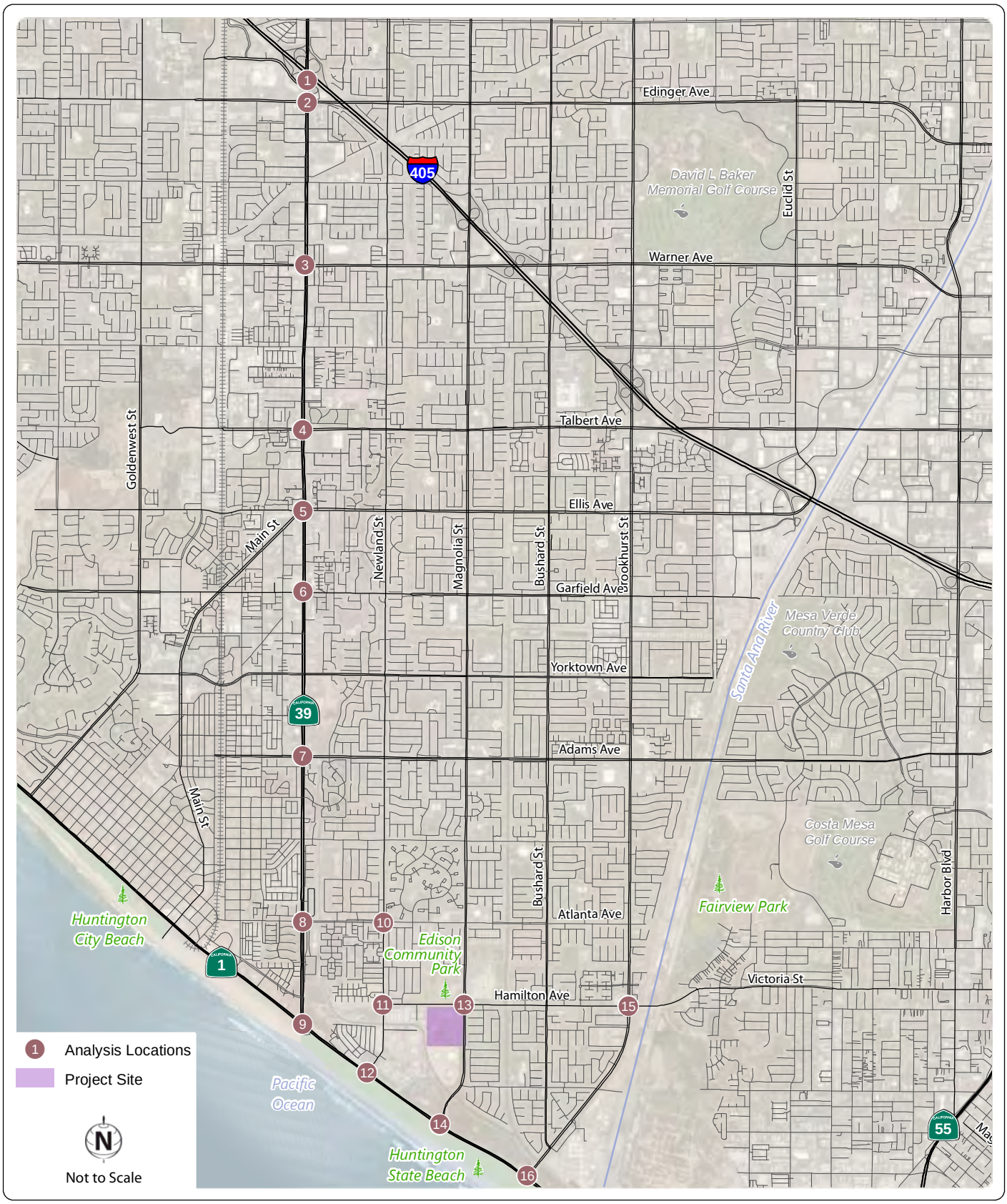
- Operating Year (2015) Base Traffic Conditions – Consists of Existing (2013) Conditions traffic volumes plus an annual growth rate factor of one percent per year over the three-year period between the existing counts and the project opening year. In addition, traffic generated from pending and approved projects, provided by local jurisdictions, anticipated to be operational by 2015 in the vicinity of the proposed project are also included. This scenario coincides with the Partial Removal and Cap Alternative.

- Operating Year (2015) Plus Project Traffic Conditions– Consists of the Project Closing Year (2015) No Project Conditions traffic volumes plus traffic generated from the proposed project. This scenario therefore evaluates impacts associated with the Partial Removal and Cap Alternative.

- Operating Year (2017) Base Traffic Conditions- Consists of Existing (2013) Conditions traffic volumes plus an annual growth rate factor of one percent per year over the five-year period between the existing counts and the project opening year. In addition, traffic generated from

pending and approved projects, provided by local jurisdictions, anticipated to be operational by 2017 in the vicinity of the proposed project are also included. This scenario coincides with the Full Removal Alternative.

- Operating Year (2017) Plus Project Traffic Conditions– Consists of the Project Closing Year (2017) No Project Conditions traffic volumes plus traffic generated from the proposed project. This scenario therefore evaluates impacts associated with the Full Removal Alternative.



FEHR PEERS

Project Study Area and Analysis Locations

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Figure 1-1

NOTES:

1. STORM WATER DETENTION BASINS EXCAVATED INTO NATIVE SOIL. WASTE MATERIAL EXCAVATED AND RECONSOLIDATED UNDER FINAL COVER.
2. OIL LEASE PROPERTY WASTE MATERIAL, RELATED TO ASCON OPERATIONS, IF PRESENT, EXCAVATED AND RECONSOLIDATED UNDER FINAL COVER
SED OFF-SITE AT APPROVED DISPOSAL FACILITY (DEPENDING ON TIMING OF CLOSURE CONSTRUCTION AND LEASE STATUS).
R ROAD AND CITY OF HUNTINGTON BEACH PARCEL WASTE MATERIAL EXCAVATED TO A MAXIMUM DEPTH OF 4 FEET BELOW GROUND SURFACE AND RECONSOLIDATED UNDER FINAL COVER.

LEGEND

- EXISTING MAJOR GROUND CONTOUR
- EXISTING MINOR GROUND CONTOUR
- 25 — PROPOSED MAJOR GROUND CONTOUR
- PROPOSED MINOR GROUND CONTOUR
- PROPERTY BOUNDARY
- CAP FOR TOP DECK AREA
- CAP FOR SIDE SLOPES
- STORM WATER DETENTION BASINS (NOTE 1)
- OIL LEASE PROPERTY (NOTE 2)
- PERIMETER ACCESS ROAD (NOTE 3)
- CITY OF HUNTINGTON BEACH (NOTE 3)

0 150' 300'
SCALE IN FEET

The cap configuration shown in this figure is conceptual. The final cap configuration will be subject to review and approval by DTSC.

FEHR & PEERS

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Project Site Plan

Figure 1-2

2.0 ANALYSIS METHODOLOGIES

At the direction of the City of Huntington Beach, intersection analysis was performed to determine impacts to the study area. This chapter discusses analysis methodologies and assumptions approved by the City, used to evaluate the project impacts.

2.1 Level of Service Analysis

Fehr & Peers' analysis of intersections employs a methodology based on empirical research conducted by the Transportation Research Board (TRB) and other authorities. Since the truck routes are proposed along state highways as well as City of Huntington Beach facilities, the traffic analysis has been performed using the Highway Capacity Manual (HCM) methodology to satisfy Caltrans requirements and the Intersection Capacity Utilization (ICU) methodology to satisfy City requirements. The HCM and ICU methodologies are considered the state-of-the-practice methodologies for evaluating intersection operations, and are consistent with Caltrans requirements and the City of Huntington Beach General Plan Circulation Element requirements, respectively.

The HCM 2000 Methodology estimates a quantitative delay at intersections while the ICU methodology measures a quantitative volume-to-capacity (V/C) ratio at intersections. After the quantitative delay or V/C ratio 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 signalized and unsignalized intersections are provided in Table 2-1.

The HCM 2000 methodology for signalized intersections estimates the average control delay for the vehicle at the intersection. The HCM analysis is conducted with the Synchro 8 Software. The HCM analysis uses a lane capacity of 1,900 vehicles per hour per lane (vphpl) with a peak hour factor.

The ICU methodology assigns a qualitative letter grade that represents the operations of the intersection based off a V/C ratio instead of estimated delay. The ICU methodology bases the calculation procedure on critical movements at an intersection. The ICU methodology is conducted with the Traffix 8.0 Software. A capacity of 1,700 vphpl is assumed together with a .05 clearance interval, based upon the guidelines in the Orange County Congestion Management Plan (CMP).

TABLE 2-1
INTERSECTION LEVEL OF SERVICE CRITERIA

Level of Service	Description	ICU Signalized V/C	HCM Signalized Delay (Seconds)
A	Operations with very low delay occurring with favorable progression and/or short cycle length.	0.00-0.60	≤10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	0.61-0.70	>10.0 to 20.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	0.71-0.80	>20.0 to 35.0
D	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.	0.81-0.90	>35.0 to 55.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	0.91-1.00	>55.0 to 80.0
F	Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	>1.00	>80.0

Source: *Highway Capacity Manual* (Transportation Research Board, 2000).

2.2 Significant Impact Criteria

The City of Huntington Beach General Plan defines the following LOS standards for determining acceptable operations on their facilities:

- LOS "D" or better at intersections during the peak hour. A project will be deemed to create a significant impact if the project alone causes an intersection at Level of Service D or better to move to Level of Service E or F.
- If a project impacts an intersection that is already at LOS "E" or "F", this is also deemed a significant impact and mitigation would be required to bring the LOS back to where it was prior to the project.

The Orange County Congestion Management Plan (CMP) also requires that projects cannot be allowed to reduce the LOS or increase ICU by more than 0.03 at a location that is forecasted to operate at LOS "E" or "F." Since the City of Huntington Beach General Plan specifies that adding traffic to a facility already operating at LOS "E" or "F" is considered a significant impact, the City's General Plan criteria will typically be more stringent than the County CMP criteria and will satisfy most County CMP requirements.

Additionally, Caltrans requires that any facilities within Caltrans Jurisdiction shall maintain a minimum LOS threshold of LOS "D," or less than 55 seconds of average delay. A project is deemed to create a significant impact if the project alone causes an intersection at LOS "D" or better to degrade to LOS "E" or worse. If the facility already operates at LOS "E" or worse before the addition of project traffic, and the project causes the average delay to increase, the project's impact may also be deemed significant by Caltrans. Mitigation measures to bring the facility back to acceptable operations need to be considered if a significant impact is identified

3.0 Existing (2013) Conditions

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

Existing Roadway Facilities

Regional access to the Ascon project site is provided by Interstate 405 (I-405) and State Route 1 (Pacific Coast Highway) (SR-1). Local access is provided by State Route 39 (Beach Boulevard) (SR-39), Brookhurst Street, Newland Street, Magnolia Street, Atlanta Avenue and Hamilton Avenue. Roadways in the study area are classified per the City of Huntington Beach General Plan and described in detail below.

Regional Roads

- Interstate 405 (I-405) – I-405 is generally a north-south freeway that starts at Interstate 5 (I-5) in North Valley and reconnects to the I-5 in Irvine. In the study area, I-405 generally contains ten lanes (four lanes and a high occupancy vehicle lane in each direction). Access to the project site is provided via Beach Boulevard or Brookhurst Avenue ramps.

- State Route 1 (Pacific Coast Highway) (SR-1) - Pacific Coast Highway is classified as a Congestion Management Plan (CMP) Highway in the 2011 Orange County CMP and in the City of Huntington Beach General Plan as a Six Lane Major (Divided). The roadway extends from State Route 101 in Leggett, California south along the Pacific Coast over 650 miles before terminating at Interstate 5 in Dana Point, California. Within the study area Pacific Coast Highway has an east-west orientation and is a six lane facility divided by a center median. On-street parking is generally not permitted within the study area. The posted speed limit along Pacific Coast Highway within the study limits is 50 miles per hour (mph).

Local Access Roads

- State Route 39 (Beach Boulevard) (SR-39) – Beach Boulevard is classified a CMP Highway in the 2011 Orange County CMP, is classified in the City of Huntington Beach General Plan as an Eight Lane Principal (Divided), and is classified as a Smart Street in the Orange County Master Plan of Arterial highways (MPAH). Near the project site, Beach Boulevard is a six lane facility with a center median. North of Ellis Avenue the roadway contains eight lanes and is separated by a center median. On-street parking is not permitted along Beach Boulevard north of Ellis Avenue but is generally permitted south of Ellis Avenue. Beach Boulevard is oriented in the north-south direction and the posted speed limit ranges from 45 to 50 mph. Beach Boulevard provides direct access to State Route 90, I-5, State Route 91 (SR-91), State Route 22 (SR-22), and I-405.

- Brookhurst Street – Brookhurst Street is classified in the City of Huntington Beach General Plan as an Eight Lane Principal (Divided) between Garfield Avenue and Indianapolis Avenue and as a Six Lane Major (Divided) between Indianapolis Avenue and Pacific Coast Highway as well as being classified as a Major Arterial in the MPAH. Brookhurst Street is a north-south street that contains six lanes and is typically separated by a center median. Some on-street parking is permitted south of Adams Avenue. Beach Boulevard contains bike lanes from Bushard Street to Pacific Coast Highway and the posted speed limit ranges from 45 to 50 mph. Brookhurst Street provides direct access to I-405, SR-22, I-5 and SR-91.

- Newland Street – Newland Street is classified in the City of Huntington Beach General Plan as a Four Lane Primary (Divided) and is designated as a Secondary Arterial in the MPAH. Newland Street is a north/south street that contains four lanes (divided) north of Hamilton Avenue and two lanes (undivided) south of Hamilton Avenue. On-street parking is generally not permitted on Newland Street due to the bike lanes present between Warner Avenue and Pacific Coast Highway, though some parking lanes are provided. The posted speed limit on Newland Street varies between 35 and 45 mph.

- Magnolia Street – Magnolia Street is classified in the City of Huntington Beach General Plan as a Four Lane Primary (Divided) and is designated as a Primary Arterial in the MPAH. Magnolia Street is a four lane (divided) roadway oriented in the north/south direction. On-street parking is generally not permitted on Magnolia Street due to the bike lanes present between Slater Avenue and Pacific Coast Highway, though some parking lanes are provided. The posted speed limit on Magnolia Street varies between 35 and 45 mph. Magnolia Street provides direct access to the project site.

- Main Street – Main Street is classified in the Huntington Beach General Plan as a Six Lane Major (Divided) between Delaware Street and Beach Boulevard, as a Four Lane Primary (Divided) between Delaware Street and Pacific Coast Highway and as a Primary Arterial in the MPAH. Main Street begins at Ellis Avenue and beach Boulevard and stretches in the north/south direction to Pacific Coast Highway. The roadway contains six lanes (divided) between Beach Boulevard and Yorktown Avenue, four lanes (divided) between Yorktown Avenue and 17th Street and two lanes (undivided) south of 17th Street. Parking is generally permitted along Main Street and contains bike lanes between Beach Boulevard and Loma Avenue. The speed limit on Main Street ranges between 25 and 45 mph.

- Center Avenue – Center Avenue is classified in the City of Huntington Beach General Plan as a Four Lane Secondary. Center Avenue is a four lane (divided) roadway oriented in the east/west direction. On-street parking is generally not permitted along Center Avenue and the posted speed limit is 35 mph.

- Edinger Avenue – Edinger Avenue is classified in the City of Huntington Beach General Plan as a Six Lane Major (Divided) between Springdale Street and Newland Street, a Four Lane Primary (Divided) elsewhere in Huntington Beach, and as a Primary Arterial in the MPAH. Edinger Avenue is an east/west roadway that contains six lanes (divided) west of Newland Street and four lanes divided east of Newland Street. On-street parking is generally not permitted on Edinger Avenue. Edinger Avenue contains bike lanes east of Newland Street and the posted speed limit is 40 mph.

- Warner Avenue – Warner Avenue is classified in the City of Huntington Beach General Plan as a Six Lane Major (Divided) between Algonquin Street and Gathard Street, an Eight Lane Principal (Divided) elsewhere in Huntington Beach, and as a Primary Arterial in the MPAH. Warner Avenue is an east/west roadway that contains six lanes (divided). On-street parking is generally not permitted on Warner Avenue due to the bike lanes present between Pacific Coast Highway and Newland Street, though some parking lanes are provided. The posted speed limit on Warner Avenue is 45 mph.

- Talbert Avenue – Talbert Avenue is classified in the City of Huntington Beach General Plan as a Six Lane Major (Divided) between Gothard Street and Beach Boulevard, a Four Lane Primary (Divided)

elsewhere in Huntington Beach, and as a Primary Arterial in the MPAH. Talbert Avenue is an east/west roadway that contains four lanes (divided). On-street parking is generally not permitted on Talbert Avenue due to the bike lanes present between Gothard Street and Bushard Street. The posted speed limit on Talbert Avenue is 45 mph.

- Ellis Avenue – Ellis Avenue is classified in the City of Huntington Beach General Plan as a Four Lane Primary (Divided) and is designated as a Secondary Arterial in the MPAH. Ellis Avenue is four lane (divided) roadway oriented in the east/west direction. On-street parking is typically not permitted along Ellis Avenue due to the bike lanes present from Newland Street to Ward Street. The posted speed limit on Ellis Avenue ranges from 40 to 45 mph.

- Garfield Avenue – Garfield Avenue is classified in the City of Huntington Beach General Plan as a Six Lane Major (Divided) between Seapoint Street and Magnolia Avenue, a Four Lane Primary (Divided) east of Magnolia Avenue and is designated as a Primary Arterial in the MPAH. Garfield four lane (divided) roadway oriented in the east/west direction. On-street parking is generally not permitted due to the bike lanes present between Seapoint Street and Ward Street. The posted speed limit on Garfield Avenue is 45 mph.

- Adams Avenue – Adams Avenue is classified in the City of Huntington Beach General Plan as a Four Lane Primary (Divided) between 1st Street and beach Boulevard, as a Six Lane Major (Divided) east of Beach Boulevard and is designated as a Major Arterial in the MPAH. Adams Avenue is an east/west roadway that contains two lanes (undivided) between 17th Street and Lake Street, four lanes (divided) between Lake Street and beach Boulevard, and six lanes (divided) east of beach Boulevard. On-street parking is generally not permitted along Adams Avenue due to the bike lanes present from Lake Street to Magnolia Avenue. The posted speed limit on Adams Avenue ranges from 25 to 45 mph.

- Atlanta Avenue – Atlanta Avenue is classified in the City of Huntington Beach General Plan as a Four Lane Primary (Divided) and as a Primary Arterial in the MPAH. Atlanta Avenue is a four lane (divided) roadway oriented in the east/west direction. On-street parking is generally permitted where bike lanes are not present or where parking lanes are provided adjacent to bike lanes. Bike lanes are present on Atlanta Avenue between Beach Boulevard and the terminus of Atlanta Avenue at Surge Lane. The posted speed limit on Atlanta Avenue ranges between 40 and 45 mph.

- Hamilton Avenue – Hamilton Avenue is classified in the City of Huntington Beach General Plan as a Four Lane Primary (Divided) and as a Primary Arterial in the MPAH. Hamilton Avenue is an east/west roadway that contains two lanes (undivided) between Newland Street and Magnolia Street and four lanes (divided) east of Magnolia Street. On-street parking is generally permitted and discontinuous bike lanes are present throughout the roadway. Hamilton Avenue provides direct access to the project site.

Existing Bus Transit Facilities

The study area is serviced by Orange County Transit Authority (OCTA) and operates five bus routes near the Ascon Landfill project site. These routes are described below:

- Route 1 – Route 1 is a local fixed bus route that serves the communities of Long Beach, Huntington Beach, Laguna Beach and San Clemente, among others. It connects the VA Hospital and Cal State Long Beach to the Newport Transportation Center, Laguna Beach Bus Station,

several schools and beaches along Pacific Coast Highway, and the San Clemente Metrolink Station, among others. Route 1 operates mostly along Pacific Coast Highway, including near the project site. It operates on 30- to 60-minute headways during weekdays and on 60-minute headways on weekends.

- Route 29 – Route 29 is a local fixed bus route that serves the communities of La Habra, Anaheim, Westminster and Huntington Beach, among others. It connects the La Habra Marketplace, the Buena Park Metrolink Station and Civic Center, Knott's Berry Farm, West Anaheim Medical Center, Stanton Civic Center, the West County Courthouse, the Westminster Civic Center, the Goldenwest Transportation Center, Humana Hospital of Huntington Beach, several schools and Huntington City Beach, among others. This route operates mostly along Beach Boulevard, as well as Pacific Coast Highway and Whittier Boulevard. Route 29 operates on 15- to 60-minute headways on weekdays and weekends.

- Route 33 – Route 33 is a local fixed bus route that serves the communities of Fullerton, Anaheim, Westminster and Huntington Beach, among others. It connects the Fullerton Park-and-Ride, Little Saigon, several schools and Huntington State Beach, among others. This route operates primarily on Magnolia Street. Route 33 operates on 30- to 45-minute headways on weekdays and 60- to 80-minute headways on weekends.

- Route 35 – Route 35 is a local fixed bus route that serves the communities of Fullerton, Anaheim, Westminster and Huntington Beach, among others. It connects the Fullerton Park-and-Ride, Garden Grove Promenade, Korea Town, the Fountain Valley Civic Center, the Mile Square Park Park-and-Ride, Talbert Medical Center, Huntington State beach and several schools, among others. This route operates primarily on Brookhurst Street. Route 35 operates on 30- to 60-minute headways on weekdays and on 45-60 minute headways on the weekends and holidays.

- Route 173 – Route 173 is a community and shuttle route that serves the communities of Santa Ana, Costa Mesa, and Huntington Beach. It connects the Orange County Fair Grounds, South Coast Plaza, Vanguard University, Triangle Square, Huntington City Beach and several schools, among others. This route operates along Atlanta Avenue, Hamilton Avenue, Orange Avenue, Del Mar Avenue, and Bear Street, among others. Route 173 operates on 45-minute headways on weekdays and does not operate on the weekends.

Bicycle and Pedestrian Network

The City of Huntington Beach provides an extensive bicycle network that connects the community. A north/south and east/west grid network of dedicated bicycle lanes and trails allows for bicycle travel to any part of the City. Class I, II and III bicycle facilities are provided throughout Huntington Beach, including adjacent to the project site.

Class I bicycle facilities in Huntington Beach are dedicated right-of-way on off street trails designated specifically for bike and non-automotive uses. Class II bicycle facilities in Huntington Beach are typically painted bicycle lanes that share right-of-way with automobiles. Class III bicycle facilities in Huntington Beach are typically roadways that share right-of-way with bicycles and automobiles and contain "bike route" signs.

Class I Bike Lanes in the study area are designated on:

- Pacific Coast Highway
- Santa Ana River Trail

Class II Bike Lanes in the study area are designated on:

- Warner Avenue
- Talbert Avenue
- Ellis Avenue
- Garfield Avenue
- Adams Avenue
- Atlanta Avenue
- Hamilton Avenue
- Newland Street
- Magnolia Street
- Brookhurst Street

Pedestrian facilities throughout Huntington Beach are well developed along most major roadways. Hamilton Avenue adjacent to the project site contains a paved walkway (not standard sidewalk) on the south side of the street and contains sidewalk through Edison Community Park on the north side. Magnolia Avenue adjacent to the project site only contains sidewalk on the east side of the street. Walking in Huntington Beach is relatively easy and the pedestrian network allows for connectivity to local activity centers.

Existing Traffic Volumes

Fehr & Peers collected existing traffic volume counts at study intersections on March 14, 2013 during the morning (7:00 to 9:00 AM) and evening (4:00 to 6:00 PM) peak hours. Figure 3-1 summarizes the existing intersection turning movement volumes for the AM and PM peak hours and is used to represent Existing (2013) conditions. Existing traffic count data is provided in Appendix A.

3.1 Intersection Operations

Existing traffic volumes described above, lane configurations collected in the field, and signal timing information provided by City staff and Caltrans were used to evaluate operations at the study intersections for existing AM and PM peak hour conditions. The results are summarized in Table 3-1. Lane configurations and peak hour traffic volumes at study intersections for Existing (2013) Conditions are shown on Figure 3-1. The Existing LOS reports are provided in Appendix B.

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

Intersection	Control	AM Peak		PM Peak	
		Delay or V/C	LOS	Delay or V/C	LOS
1. Beach Boulevard at Center Avenue[1]	Signal	14.4	B	21.2	C
2. Beach Boulevard at Edinger Avenue[1]	Signal	33.4	C	36.6	D
3. Beach Boulevard at Warner Avenue[1]	Signal	34.3	C	35.6	D
4. Beach Boulevard at Talbert Avenue[1]	Signal	29.7	C	40.0	D
5. Beach Boulevard at Main Street/Ellis Avenue[1]	Signal	35.5	D	46.8	D
6. Beach Boulevard at Garfield Avenue[1]	Signal	44.5	D	58.3	E
7. Beach Boulevard at Adams Avenue[1]	Signal	36.3	D	45.7	D
8. Beach Boulevard at Atlanta Avenue[1]	Signal	29.6	C	49.0	D
9. Beach Boulevard at Pacific Coast Highway[1]	Signal	30.0	C	28.5	C
10. Newland Street at Atlanta Avenue[2]	Signal	0.428	A	0.477	A
11. Newland Street at Hamilton Avenue[2]	Signal	0.471	A	0.589	A
12. Newland Street at Pacific Coast Highway[1]	Signal	23.1	C	25.4	C
13. Magnolia Street at Hamilton Avenue[2]	Signal	0.488	A	0.544	A
14. Magnolia Street at Pacific Coast Highway[1]	Signal	12.1	B	17.6	B
15. Brookhurst Street at Hamilton Avenue[2]	Signal	0.672	B	0.619	B
16. Brookhurst Street at Pacific Coast Highway[1]	Signal	12.1	B	27.8	C

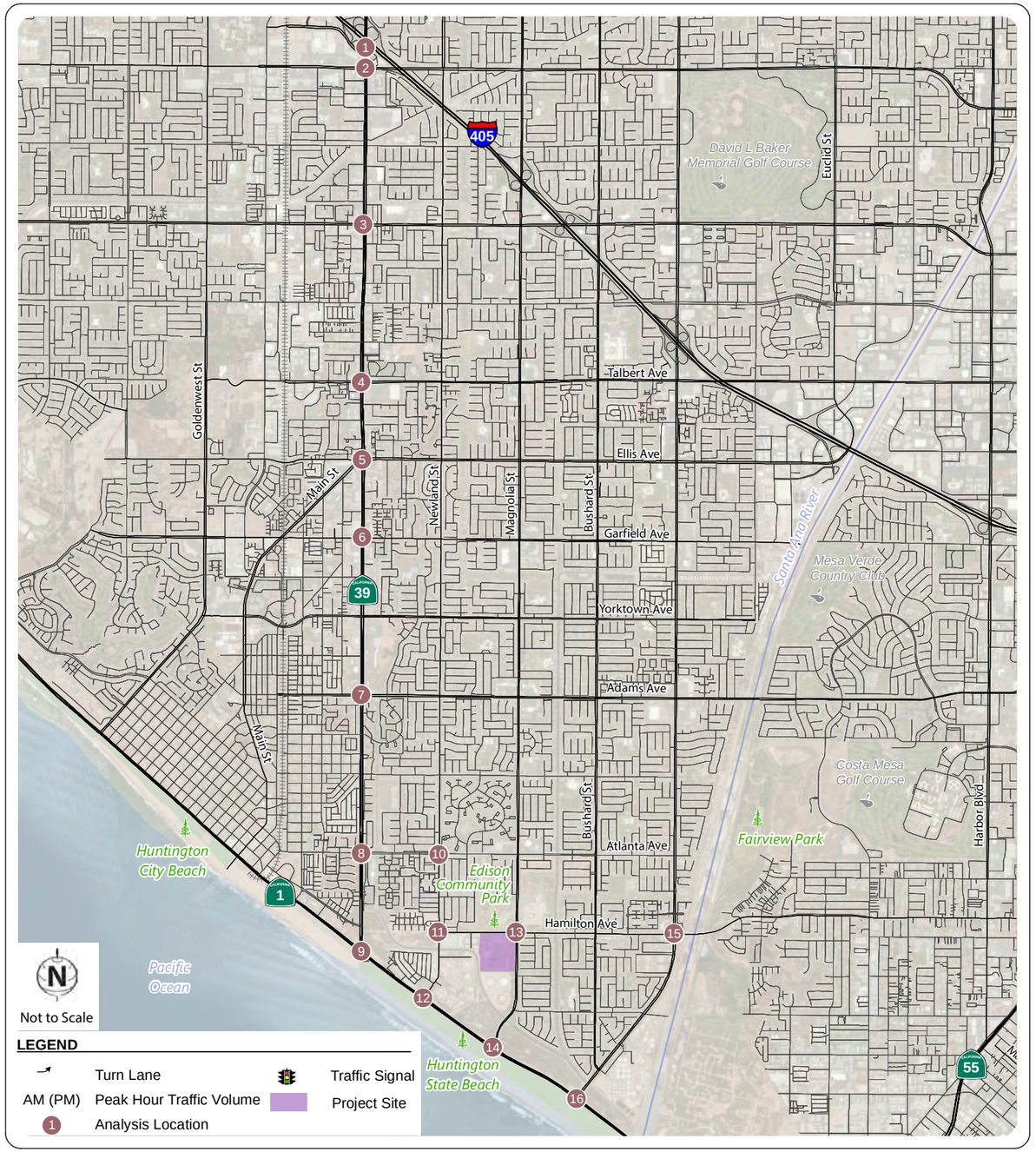
Notes:

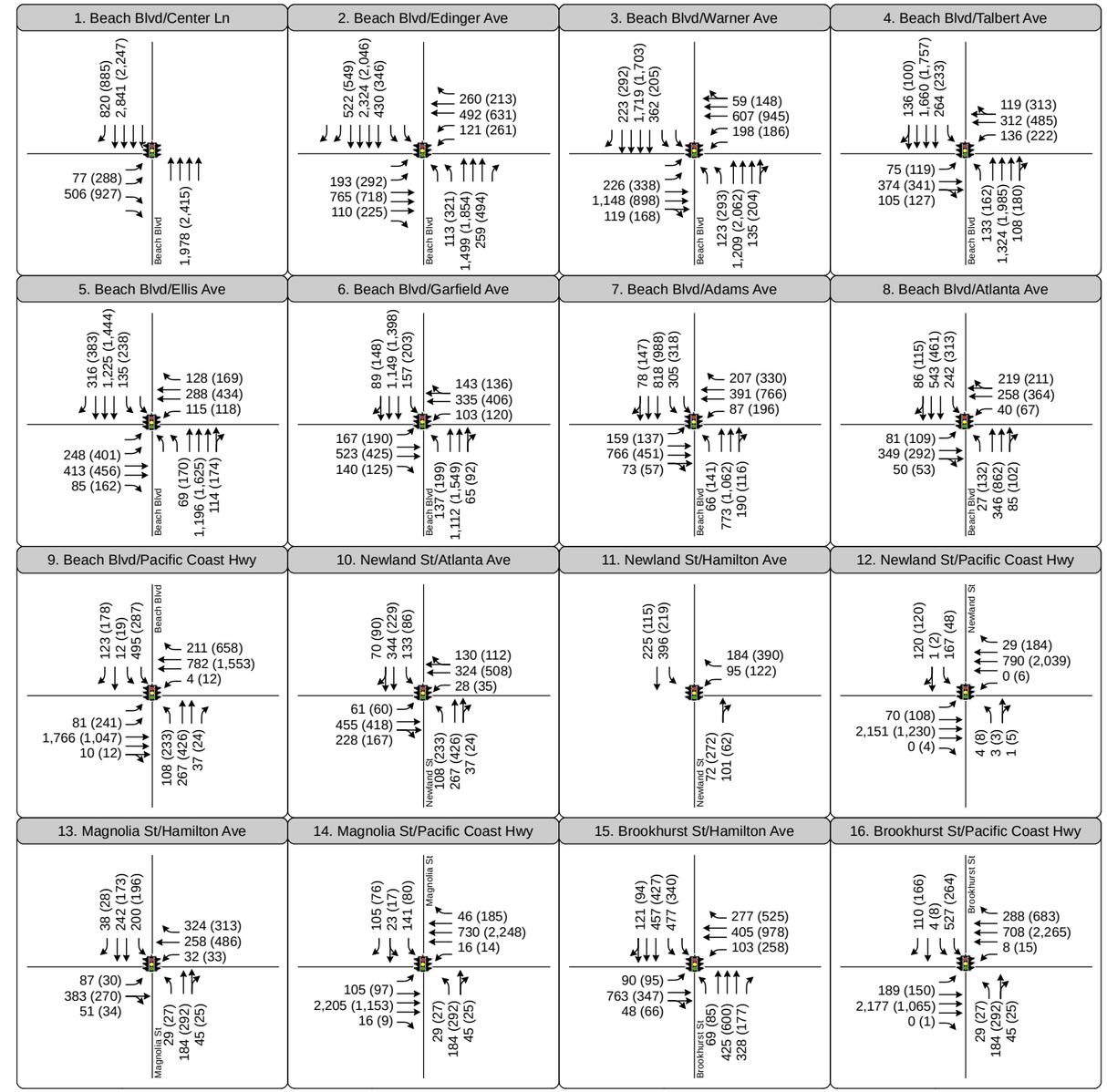
1. Intersection is within Caltrans jurisdiction and evaluated under HCM 2000 methodology. Average delay is reported for signalized intersections.
2. Intersection is within Huntington Beach jurisdiction and evaluated under ICU methodology. V/C ratio is reported for signalized intersections.
3. Cells highlighted in grey represent intersections that are operating below acceptable thresholds.

Source: Fehr & Peers, 2013

As shown in Table 3-1, all of the study intersections currently operate acceptably at LOS D or better during the peak hours, with exception to the following locations:

6. Beach Boulevard at Garfield Avenue- PM Peak Hour (LOS E)





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Peak Hour Traffic Volumes and Lane Configurations - Existing Conditions (2013)

Figure 3-1

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4.0 Project Traffic Generation

This section discusses traffic associated with the construction activity at the site.

Project Overview

The ASCON Landfill Site is a former hazardous waste disposal site. The State of California, through the Department of Toxic Substance Control (DTSC) and the Responsible Parties (RP's) is proposing to remediate the site through a partial removal and capping process. This process will include both the removal of contaminated material and the replacement of this material with clean fill, which will then cover the site. Following the completion of this Partial Removal and Capping, the site will remain vacant for the conceivable future with periodic monitoring of the site by various agencies and parties. As an alternative, we have also evaluated the traffic impacts associated with the Full Removal alternative.

A key point to note is that the site will generate traffic only during construction activity. The site currently generates no traffic and would not generate traffic following the completion of the partial capping and removal or the full removal.

Project Trip Generation Methodology

This facility is a unique use which cannot be readily classified using standard Institute of Transportation Engineers (ITE) rates. As such, the trip generation is estimated using data regarding the level of truck, employee and visitor activity. The various categories of vehicles associated with the project are described below.

- Export trucks- These trucks are removing material from the site and delivering the material to disposal locations outside of Southern California. Each of these trucks arrives on the site, is filled with material, and then departs. Given the distance each truck needs to travel to dispose of the material, each truck makes the trip only once per day. These trucks would be traveling to the site from 7:00 AM to 1:00 PM at 20 trucks per hour and from 1:00 PM to 6:00 PM at four trucks per hour. The daily number of export trucks is 100 per day.

- Import trucks- These trucks are tasked with delivering clean fill to the site. Therefore, each truck travels to the site, delivers its material, and then leaves the site. These trucks would arrive and depart at the site throughout the day, from 7:00 AM to 6:00 PM. The maximum number of trucks per hour would be 25 for the AM and PM peak hours. The total daily number of import trucks will be 200.

- Supply Trucks- In addition to these other trucks, there may be as many as 10 trucks per day bringing various supplies to the site including water, equipment, and other related items. A maximum of 4 trucks per hour are assumed as a maximum with 2 trucks per hour the more likely condition. 4 is assumed to provide a conservative estimate. These supply trucks will be traveling to and from the site during the day, from 7:00 AM to 4:00 PM.

- Employees- There is 37 employees assumed to work at the site throughout the day. These employees would arrive at the site before 6:00 AM and then departing the site during the PM peak period (any time from 4:00 PM to 6:00 PM).

- Visitors- There is 10 visitors assumed to access the site during any day. These visitors will mostly likely be from regulatory agencies that are performing monitoring on the site periodically. To account for various levels of this activity, the analysis includes up to 10 daily visitors who would arrive at 7:00 AM and then leave the site at 5:00 PM.

Project Trip Generation Estimates

One aspect of the Full Removal is that the construction activity occurs throughout 2015, 2016, and 2017. The peak trip generation occurs in 2017 based on the anticipated construction schedule. Though the Full Removal Project is likely to generate fewer trips than the Partial Removal and Capping Project, the same trip assumptions were used as part of a conservative analysis for both scenarios.

TABLE 4-1
PROJECT TRIP GENERATION ESTIMATES

Trip Type	PCE[1]	Daily One-Way Trips	Daily Two-Way PCE	Max Hourly One-Way Trips		A.M. Peak Passenger Car Equivalents			P.M. Peak Passenger Car Equivalents		
				AM	PM	In	Out	Total	In	Out	Total
Export Trucks	3	100	600	20	4	60	60	120	12	12	24
Import Trucks	3	200	1,200	25	25	75	75	150	75	75	150
Supply Trucks	3	10	60	4	0	12	12	24	0	0	0
Employee	1	37	74	0	37	0	0	0	0	37	37
Visitor	1	10	20	10	10	10	0	10	0	10	10
Totals		357	1,954	59	76	157	147	304	87	134	221

Notes:
1. PCE represents the passenger car equivalent used.

Source: PCR, 2013

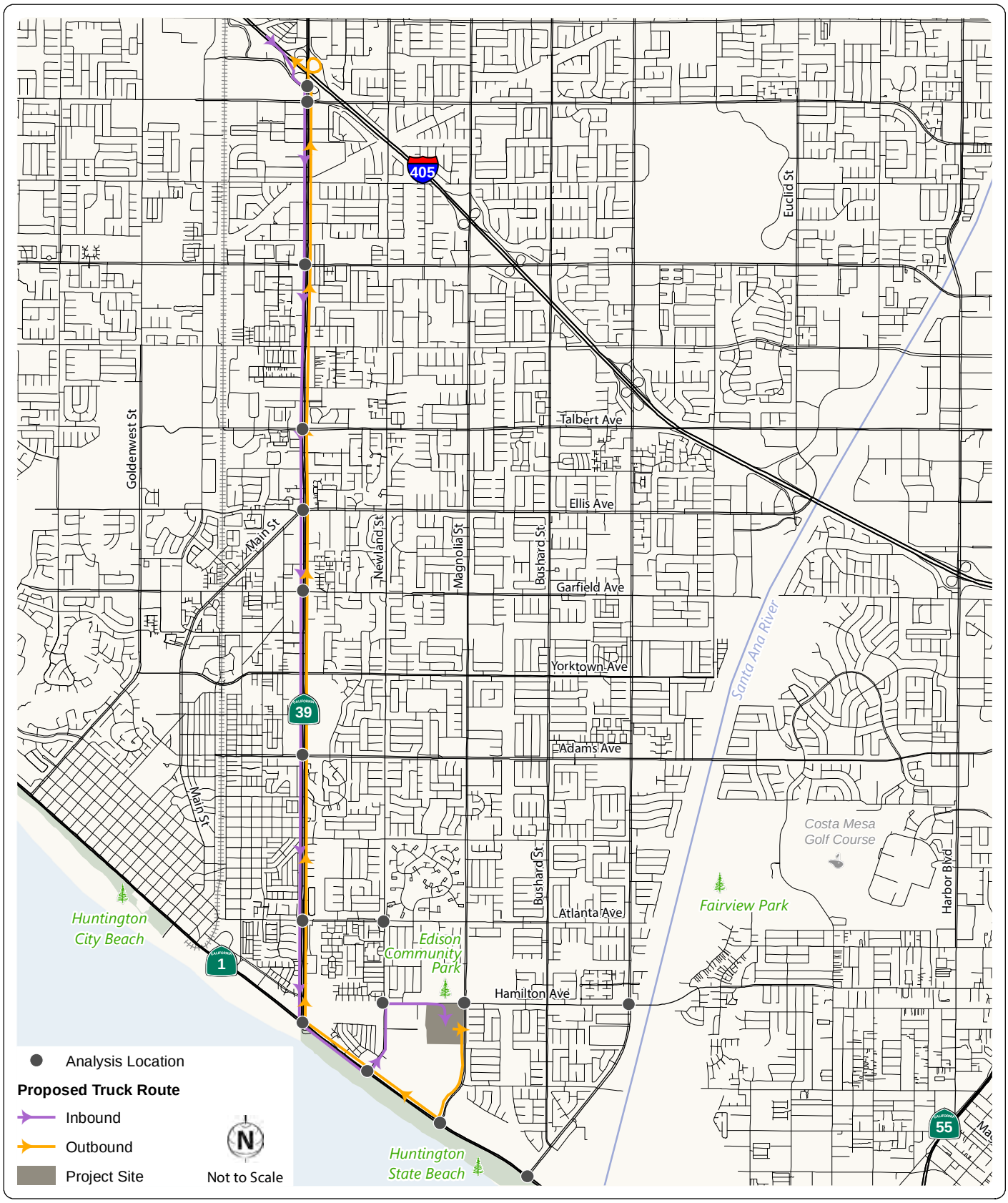
Project Trip Distribution

The project truck trip distribution will follow a specific haul route as shown in Figure 4-1. Regional access to the project site will be provided by I-405. The ingress route has traffic exit I-405 and travel south on Beach Boulevard and then turning left on PCH. Trucks would then turn left onto Newland Street, travel north to Hamilton Avenue, and then turn right on Hamilton Avenue to access the site . The egress route has trucks exiting from the project site's east gate by traveling south on Magnolia Street, traveling west along Pacific Coast Highway and continuing north along Beach Boulevard back to the I-405.

The travel route of the employees and visitors is assumed to take a slightly different route once they approach the project site. The ingress route is assumed to travel south on Beach Boulevard, turn left at Atlanta Avenue, right at Newland Street and left on Hamilton before entering the project site. The egress route would assume the same route in reverse, which travels west on Hamilton from the project site before making a right on Newland Street, a left on Atlanta Avenue and a right on Beach Boulevard back to the I-405 Freeway.

Project Trip Assignment

Trip generation volumes were applied to trip distribution percentages to obtain the volume of project trips assigned to study area roadways and intersections. The assignment of "project only" trips is shown on Figure 4-2.



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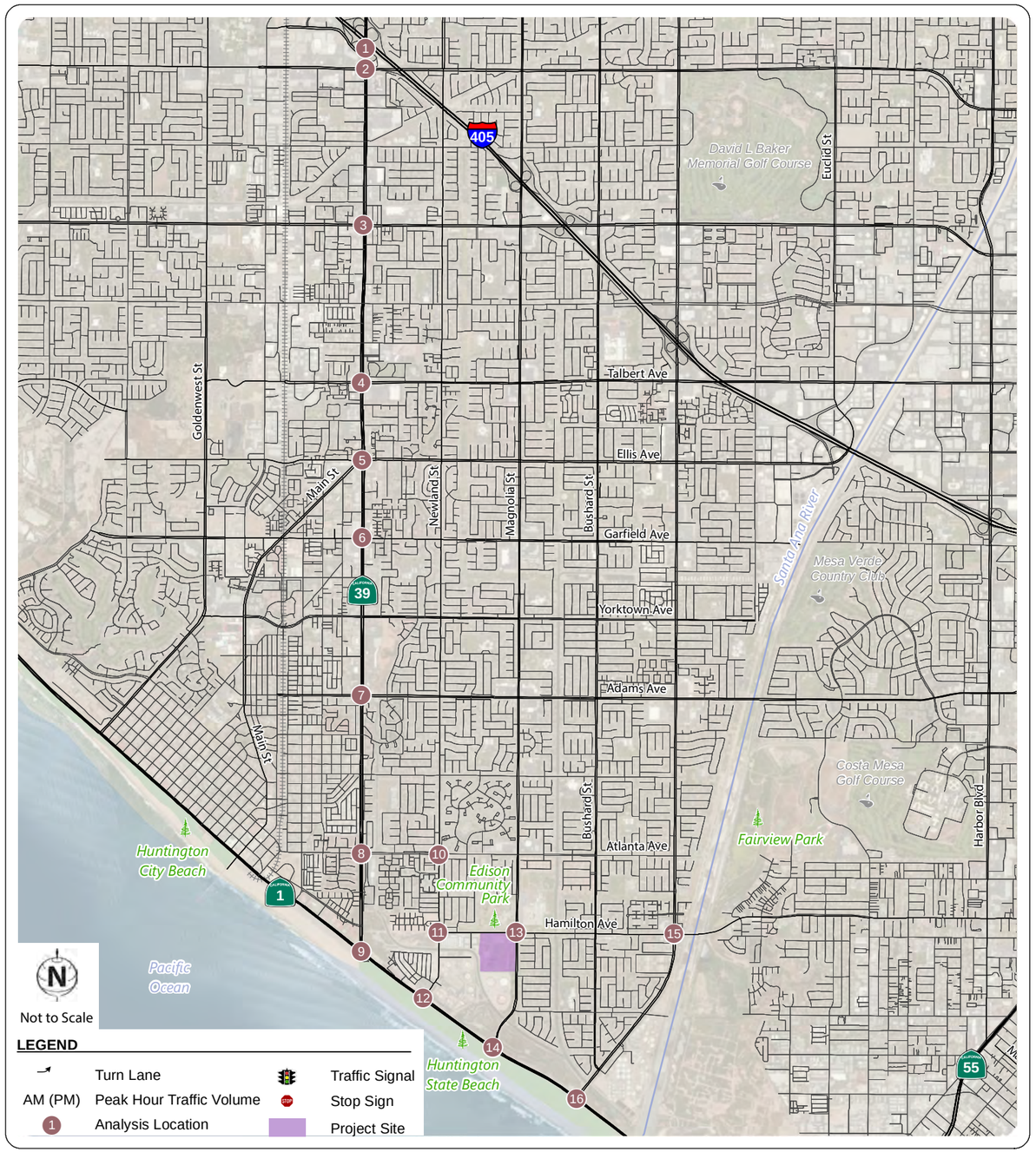
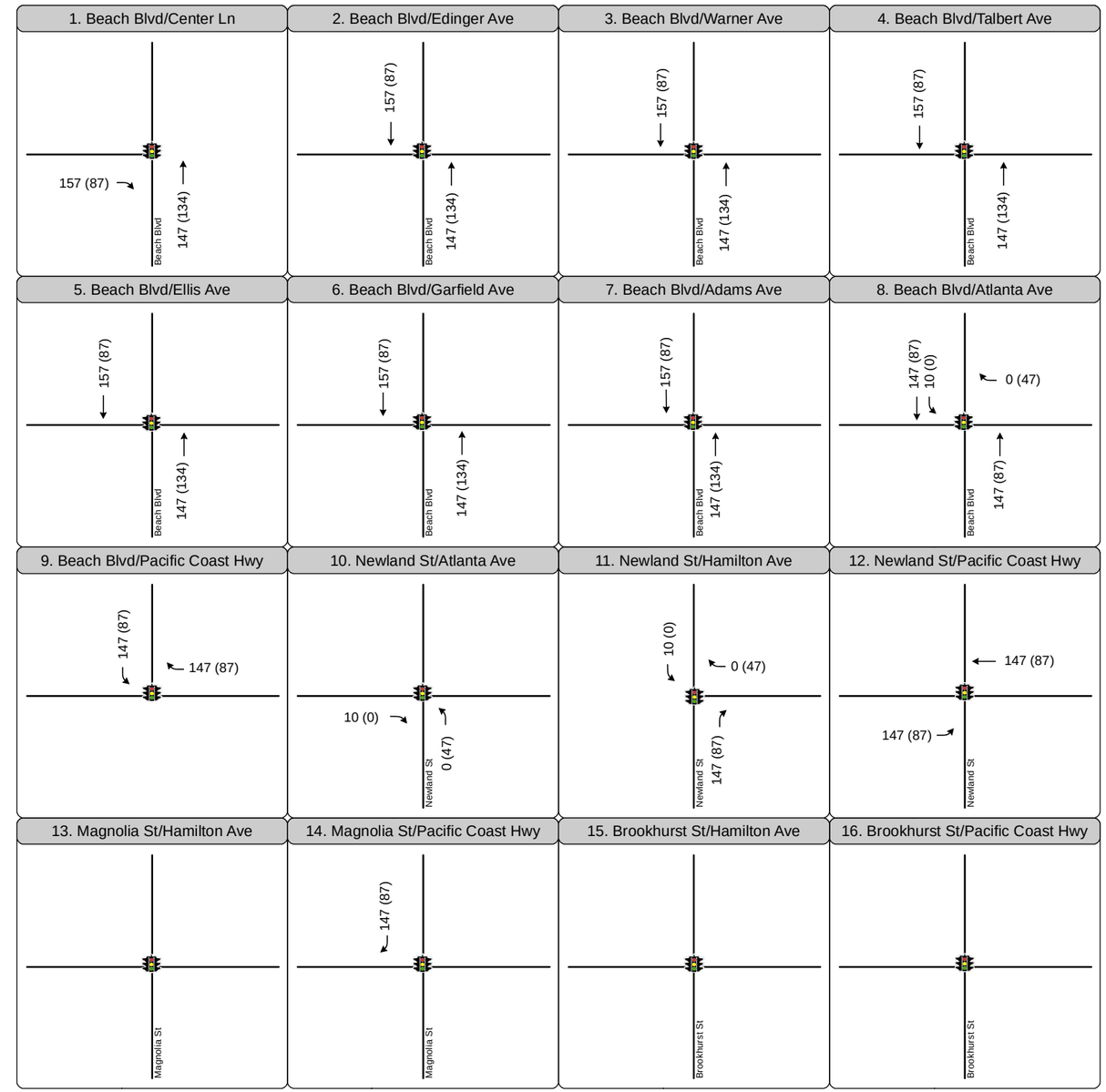
Truck Haul Route

Figure 4-1





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Peak Hour Traffic Volumes
Project Only
Figure 4-2

5.0 Existing Plus Project (2013) Analysis

This section documents the conditions of the Existing Plus Project (2013) Base scenario. While construction activity is not anticipated during this period, this scenario is presented for informational purposes.

Traffic Volumes

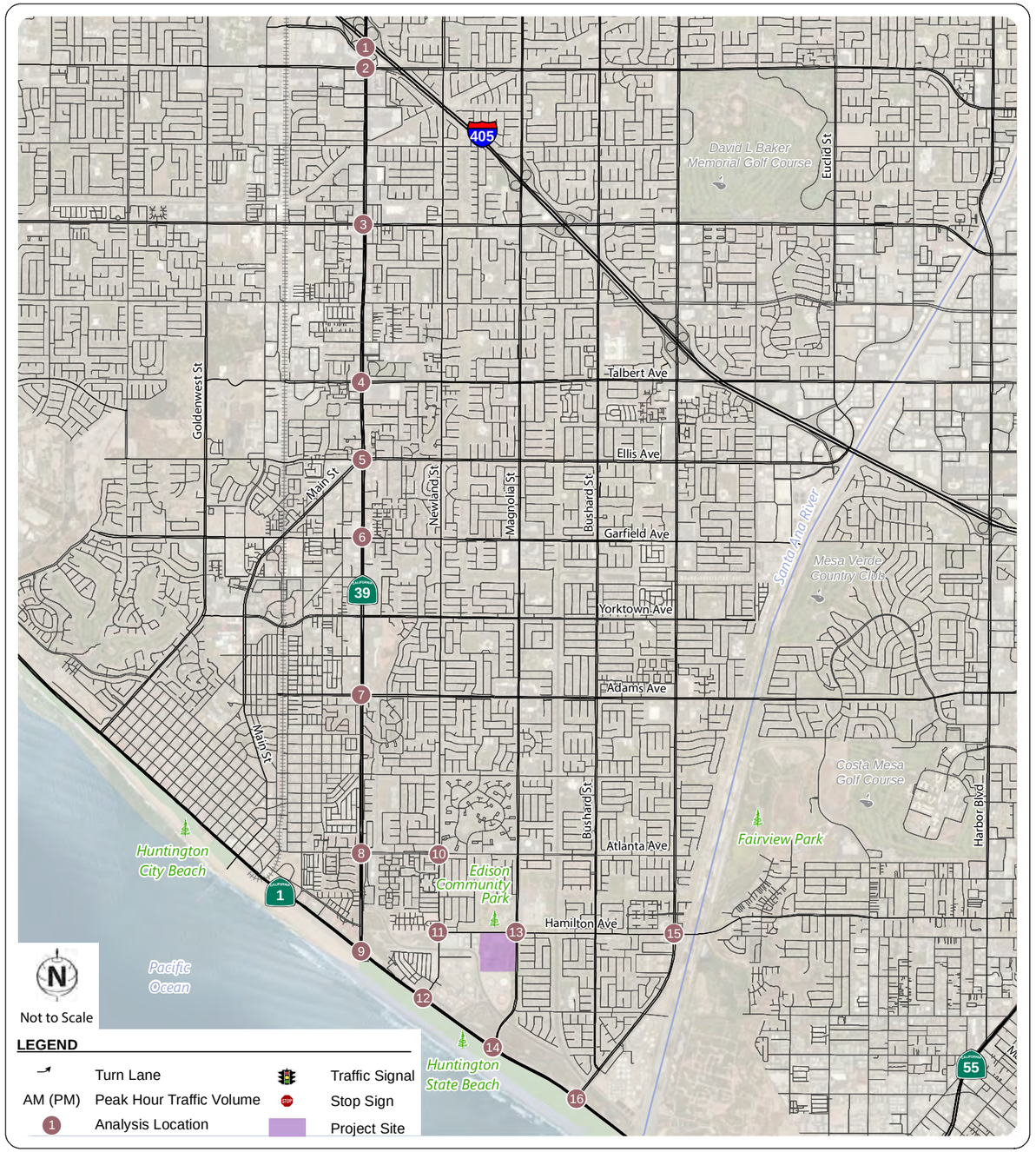
As previously stated, traffic volumes for the Existing (2013) Plus Project scenario will include existing traffic volumes plus project volumes from the proposed haul route.

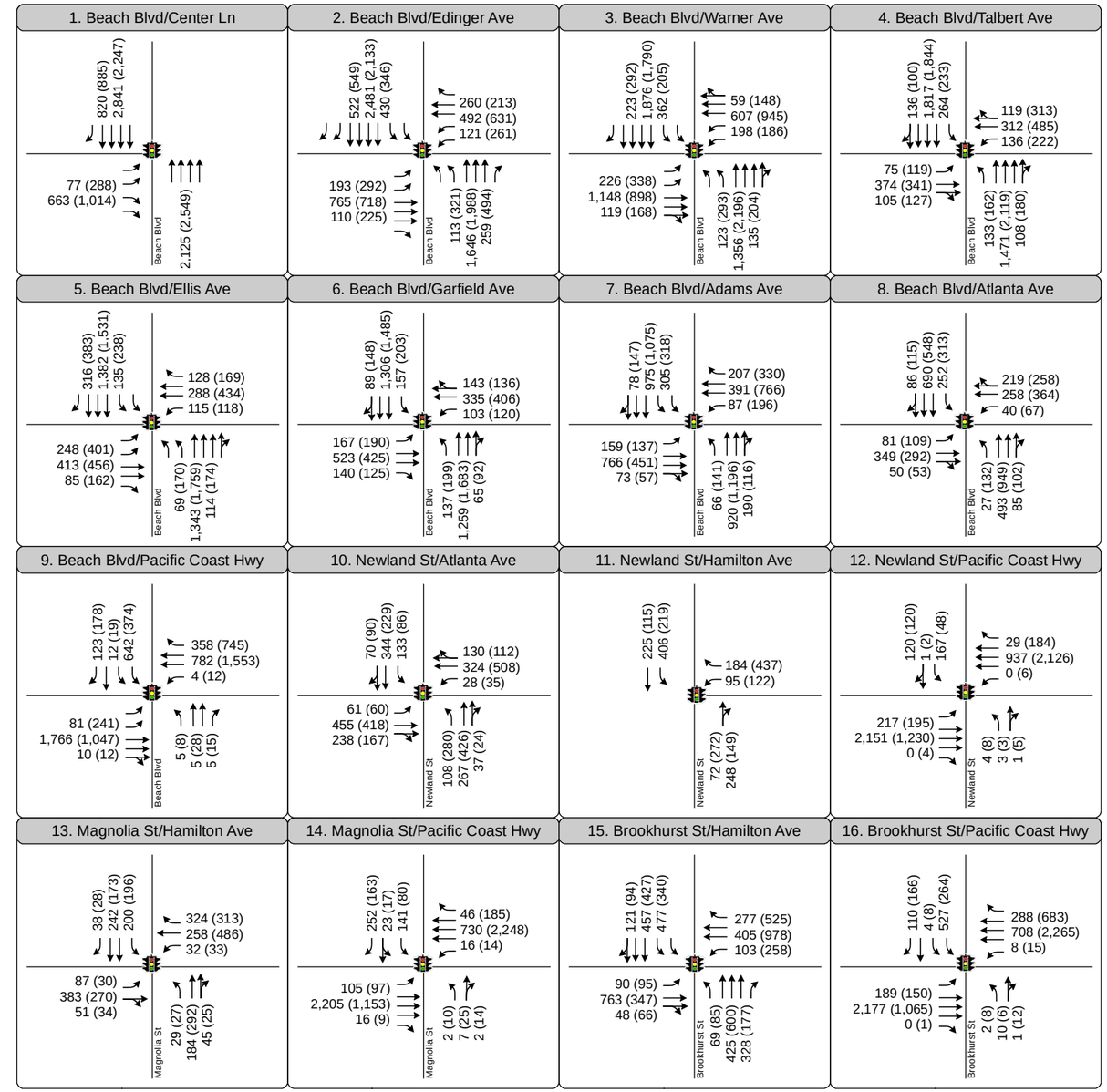
Roadway Improvements

Existing Plus Project lane configurations are assumed to include the same lane geometries as Existing Conditions. No roadway improvements, including neither within the project nor at project driveways are proposed.

5.1 INTERSECTION OPERATIONS

The intersection LOS results are summarized in Table 5-1 for Existing Plus Project Conditions. Lane configurations and peak hour traffic volumes at study intersections for Existing Plus Project Conditions are shown on Figure 5-1. The Existing Plus Project LOS reports are provided in Appendix C.





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Peak Hour Traffic Volumes and Lane Configurations - Existing (2013) Plus Project Conditions

Figure 5-1

TABLE 5-1
INTERSECTION LEVEL OF SERVICE: EXISTING (2013) PLUS PROJECT CONDITIONS

Intersection	Control	AM Peak		PM Peak	
		Delay or V/C	LOS	Delay or V/C	LOS
1. Beach Boulevard at Center Avenue[1]	Signal	18.3	B	22.7	C
2. Beach Boulevard at Edinger Avenue[1]	Signal	34.0	C	36.6	D
3. Beach Boulevard at Warner Avenue[1]	Signal	34.2	C	35.2	D
4. Beach Boulevard at Talbert Avenue[1]	Signal	28.8	C	44.0	D
5. Beach Boulevard at Main Street/Ellis Avenue[1]	Signal	35.0	D	47.4	D
6. Beach Boulevard at Garfield Avenue[1]	Signal	45.4	D	59.0	E
7. Beach Boulevard at Adams Avenue[1]	Signal	36.5	D	46.3	D
8. Beach Boulevard at Atlanta Avenue[1]	Signal	30.7	C	52.1	D
9. Beach Boulevard at Pacific Coast Highway[1]	Signal	53.0	D	33.1	C
10. Newland Street at Atlanta Avenue[2]	Signal	0.431	A	0.506	A
11. Newland Street at Hamilton Avenue[2]	Signal	0.569	A	0.673	B
12. Newland Street at Pacific Coast Highway[1]	Signal	30.1	C	36.4	D
13. Magnolia Street at Hamilton Avenue[2]	Signal	0.488	A	0.544	B
14. Magnolia Street at Pacific Coast Highway[1]	Signal	13.4	B	18.8	B
15. Brookhurst Street at Hamilton Avenue[2]	Signal	0.672	B	0.619	B
16. Brookhurst Street at Pacific Coast Highway[1]	Signal	23.4	C	27.9	C

Notes:
1. Intersection is within Caltrans jurisdiction and evaluated under HCM 2000 methodology. Average delay is reported for signalized intersections.
2. Intersection is within Huntington Beach jurisdiction and evaluated under ICU methodology. V/C ratio is reported for signalized intersections.
3. Cells highlighted in grey represent intersections that are operating below acceptable thresholds.

Source: Fehr & Peers, 2013

5.2 Intersection Impact Assessment

Table 5-2 compares the changes in delay and LOS at intersections that operate at LOS E or F between "Base" and "Plus Project" scenarios of Existing Year (2013) to determine project impacts. Changes in delay are compared to the allowable change outlined in Section 2.2.

TABLE 5-2
INTERSECTION LEVEL OF SERVICE: EXISTING (2013) COMPARISON

Intersection	Control	Peak	No Project Delay	No Project LOS	With Project Delay	With Project LOS	Δ Delay
6. Beach Boulevard at Garfield Avenue	Signal	AM	44.5	D	45.4	D	-
		PM	***58.3***	***E***	**59.0**	***E***	***0.7***

Notes:
1. Delay is measured in seconds. Calculated using Synchro 8 software package.
2. ***Bold-italicized*** type indicates project impact.

Source: Fehr & Peers, 2013

As shown in Table 5-2, the project traffic will impact the following intersection under the Existing Year (2013) Conditions:

6. Beach Boulevard at Garfield Avenue – PM Peak Hour (LOS E)

Measures to mitigate the identified impacts are discussed in detail in Chapter 11.

5.3 Hamilton Avenue Lane Closure

During construction activity on the site, it may be necessary to close the shared parking/bicycle lane on eastbound Hamilton Avenue along the project frontage. This lane closure could potentially affect the current Magnolia Street/Hamilton Avenue intersection by closing the existing shared through/right-turn lane. With this temporary closure, the eastbound approach would be reconfigured to include a shared left-turn/through/right-turn lane. Table 5-3 documents the ICU and LOS results with the implementation of this lane closure under the Existing Plus Project Scenario As shown in the table below, the intersection remains at LOS A with the implementation of the lane closure during both the AM and PM peak hours.

TABLE 5-3
INTERSECTION LOS COMPARISON – EXISTING PLUS PROJECT (2013) CONDITIONS

	Without Lane Closure				With Lane Closure				Change in V/C	
	AM Peak		PM Peak		AM Peak		PM Peak			
Intersection	**V/C**	**LOS**	**V/C**	**LOS**	**V/C**	**LOS**	**V/C**	**LOS**	**AM**	**PM**
Magnolia St & Hamilton Ave	0.488	A	0.544	A	0.542	A	0.544	A	0.054	0.0

Source: Fehr & Peers,.2013

6.0 Project Operating Year (2015) Base Traffic Conditions

This section documents the conditions of the Project Operating Year (2015) Base scenario. The project has an operating time frame from 2015 to 2016. This scenario analyzes the intersection conditions with the addition of ambient growth per year from the existing volumes to the project operating year (2015).

Traffic Volumes

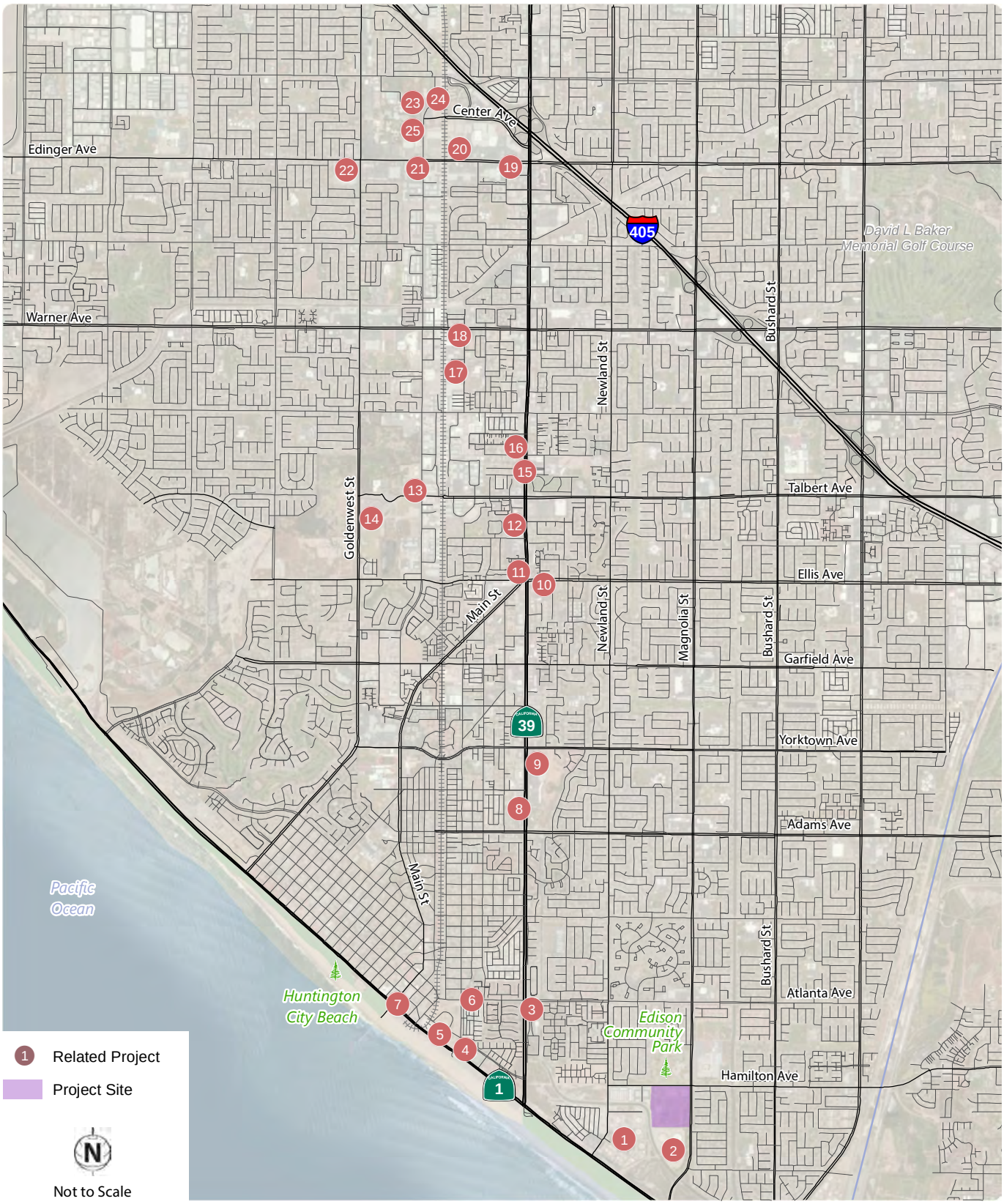
Traffic volumes for this scenario were calculated by applying an annual ambient growth and traffic from cumulative projects to existing volumes. A 1% ambient growth per year, over the three-year period between the Existing and Operating Year was applied to the existing conditions volumes. Cumulative projects within a one-mile radius of the project, to be completed by project operating year were provided by City of Huntington Beach staff and are shown on Figure 6-1. Operating year assumptions as well as estimated trip generation volumes are provided in Appendix D.

Roadway Improvements

There are no roadway improvements planned and funded in the study area that will be completed by 2015.

6.1 Intersection Operations

The intersection LOS results are summarized in Table 6-1 for Project Operating Year (2015) Base Conditions. Lane configurations and peak hour traffic volumes at study intersections for Project Operating Year (2015) Base Conditions are shown on Figure 6-2. The Project Operating Year (2015) Base Conditions LOS reports are provided in Appendix E.



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Pending and Approved Development Projects

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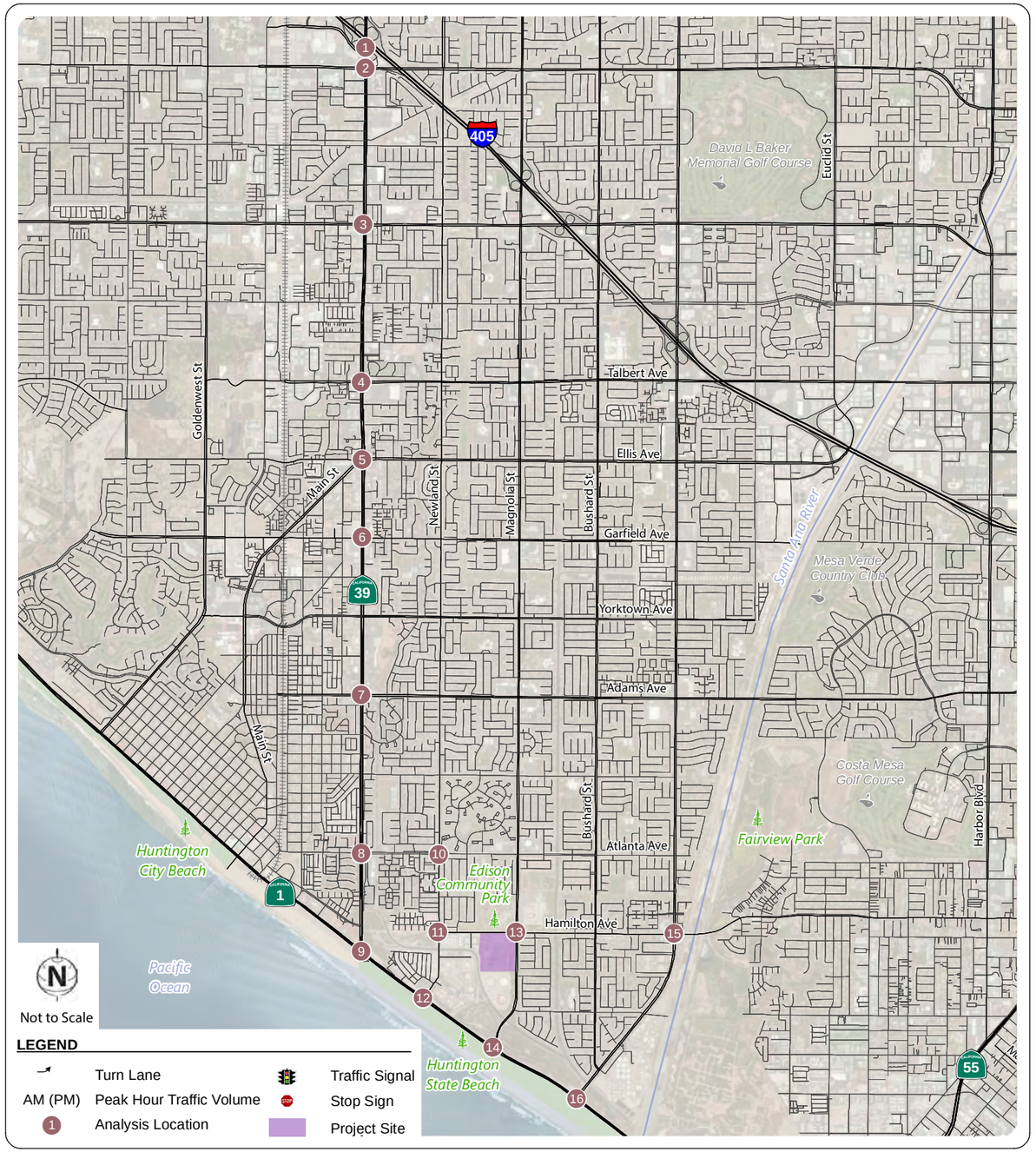
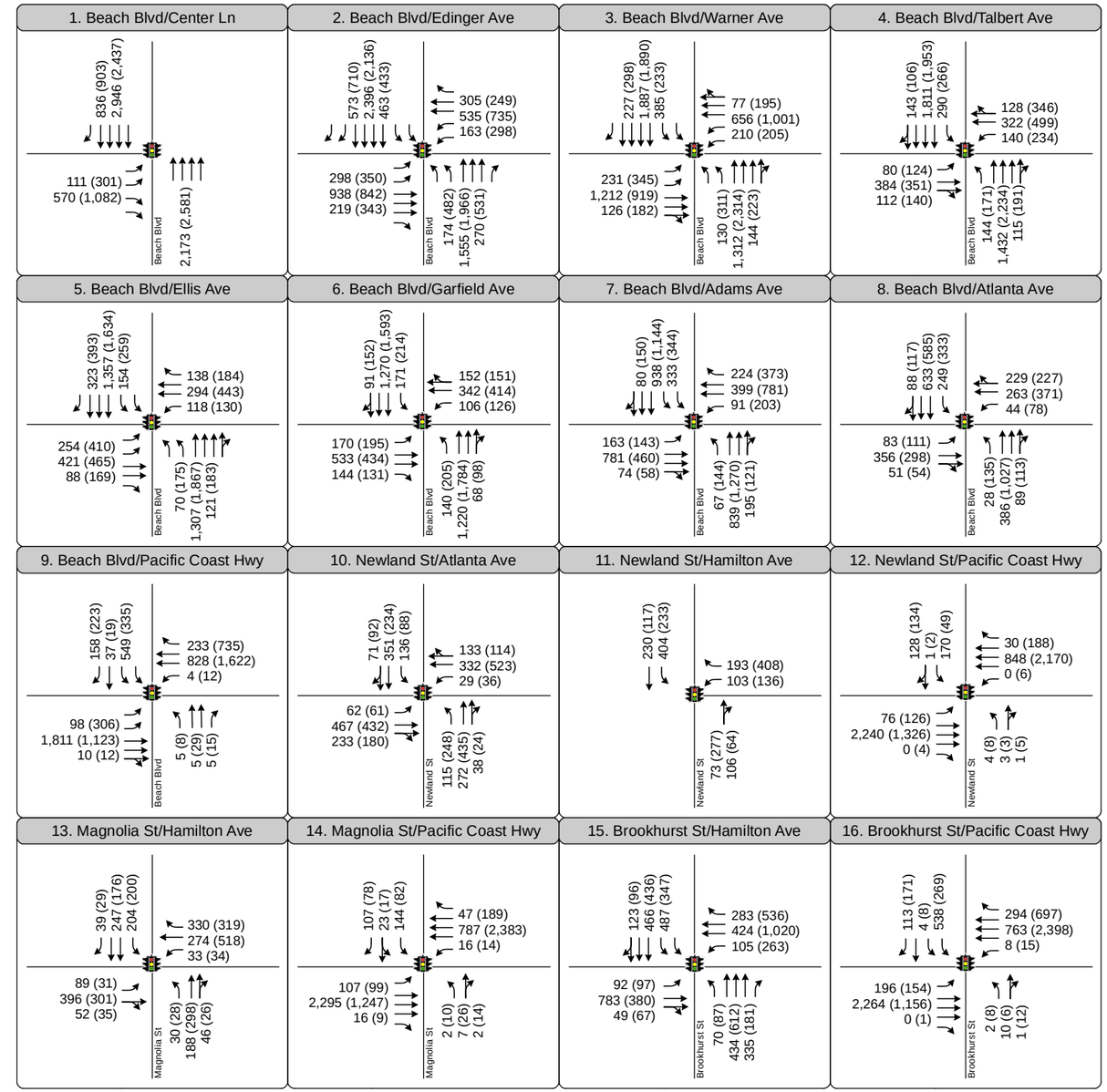
Figure 6-1





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Peak Hour Traffic Volumes and Lane Configurations - Project Operating Year (2015) Base Conditions

Figure 6-2

TABLE 6-1
INTERSECTION LEVEL OF SERVICE: PROJECT OPERATING YEAR (2015) BASE CONDITONS

Intersection	Control	AM Peak		PM Peak	
		Delay or V/C	LOS	Delay or V/C	LOS
1. Beach Boulevard at Center Avenue[1]	Signal	16.4	B	21.6	C
2. Beach Boulevard at Edinger Avenue[1]	Signal	39.2	D	54.0	D
3. Beach Boulevard at Warner Avenue[1]	Signal	36.3	D	38.9	D
4. Beach Boulevard at Talbert Avenue[1]	Signal	31.4	C	60.3	E
5. Beach Boulevard at Main Street/Ellis Avenue[1]	Signal	34.9	C	49.2	D
6. Beach Boulevard at Garfield Avenue[1]	Signal	45.6	D	65.3	E
7. Beach Boulevard at Adams Avenue[1]	Signal	36.8	D	48.1	D
8. Beach Boulevard at Atlanta Avenue[1]	Signal	30.2	C	56.8	E
9. Beach Boulevard at Pacific Coast Highway[1]	Signal	37.1	D	39.5	D
10. Newland Street at Atlanta Avenue[2]	Signal	0.441	A	0.494	A
11. Newland Street at Hamilton Avenue[2]	Signal	0.485	A	0.614	B
12. Newland Street at Pacific Coast Highway[1]	Signal	23.9	C	31.3	C
13. Magnolia Street at Hamilton Avenue[2]	Signal	0.501	A	0.569	A
14. Magnolia Street at Pacific Coast Highway[1]	Signal	12.3	B	18.1	B
15. Brookhurst Street at Hamilton Avenue[2]	Signal	0.687	B	0.632	B
16. Brookhurst Street at Pacific Coast Highway[1]	Signal	24.5	C	30.8	C

Notes:
1. Intersection is within Caltrans jurisdiction and evaluated under HCM 2000 methodology. Average delay is reported for signalized intersections.
2. Intersection is within Huntington Beach jurisdiction and evaluated under ICU methodology. V/C ratio is reported for signalized intersections.
3. Cells highlighted in grey represent intersections that are operating below acceptable thresholds.

Source: Fehr & Peers, 2013

As shown in Table 6-1, all of the study intersections will operate acceptably at LOS D or better during the peak hours, with exception to the following locations:

- Beach Boulevard at Talbert Avenue – PM Peak Hour (LOS E)
- Beach Boulevard at Garfield Avenue – PM Peak Hour (LOS E)
- Beach Boulevard at Atlanta Avenue – PM Peak Hour (LOS E)

7.0 Project Operating Year (2015) Plus Project Traffic Conditions

This section documents the conditions in the Project Operating Year (2015) Base Conditions plus traffic generated by the project. This condition is used to evaluate the net change in traffic conditions and to identify potential traffic impacts associated with the project.

Traffic Volumes

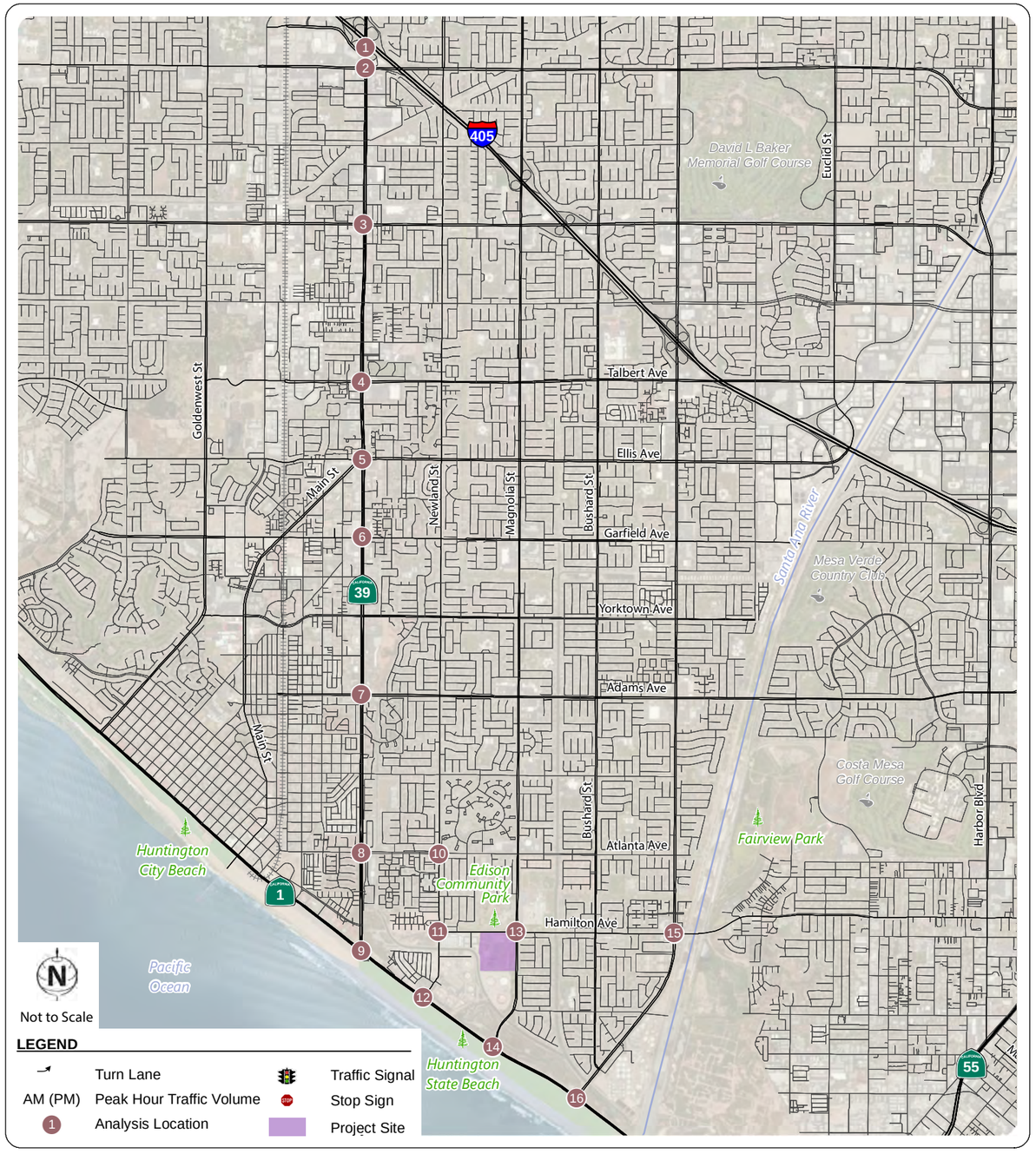
Traffic volumes for this scenario were calculated by adding volumes generated by the project to the Project Operating Year (2015) Base Conditions. The traffic volumes added to the Project Operating Year (2015) Base Conditions are the "project only" trips shown in Figure 4-2. Project Operating Year (2015) Plus Project traffic volumes for the study area are shown on Figure 7-1.

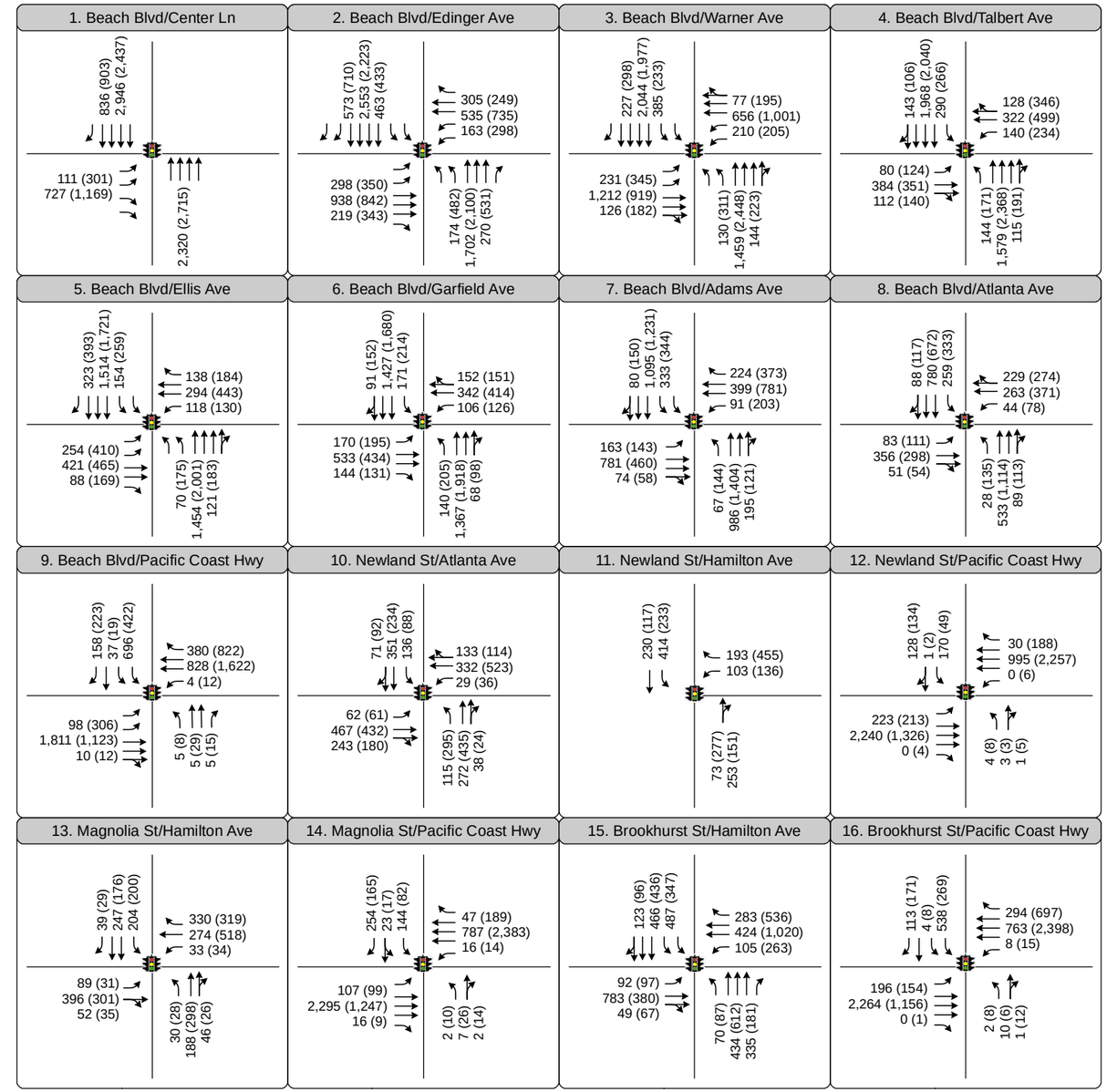
Roadway Improvements

No roadway improvements, except for within the project and at project driveways are proposed.

7.1 Intersection Operations

The intersection LOS results are summarized in Table 7-1 for Project Operating Year (2015) Plus Project Conditions. The intersection volumes are shown on Figure 7-1. The Project Operating Year (2015) Plus Project LOS reports are provided in Appendix F.





Peak Hour Traffic Volumes and Lane Configurations - Project Operating Year (2015) Plus Project Conditions

Figure 7-1

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TABLE 7-1
INTERSECTION LEVEL OF SERVICE: PROJECT OPERATING YEAR (2015) PUS PROJECT CONDITONS

Intersection	Control	AM Peak		PM Peak	
		Delay or V/C	LOS	Delay or V/C	LOS
1. Beach Boulevard at Center Avenue[1]	Signal	20.8	C	27.6	C
2. Beach Boulevard at Edinger Avenue[1]	Signal	40.1	D	55.1	E
3. Beach Boulevard at Warner Avenue[1]	Signal	37	D	38.8	D
4. Beach Boulevard at Talbert Avenue[1]	Signal	30.2	C	69.8	E
5. Beach Boulevard at Main Street/Ellis Avenue[1]	Signal	34.8	C	50	D
6. Beach Boulevard at Garfield Avenue[1]	Signal	47.4	D	74.4	E
7. Beach Boulevard at Adams Avenue[1]	Signal	36.7	D	49.1	D
8. Beach Boulevard at Atlanta Avenue[1]	Signal	31.4	C	59.7	E
9. Beach Boulevard at Pacific Coast Highway[1]	Signal	63.1	E	46.8	D
10. Newland Street at Atlanta Avenue[2]	Signal	0.441	A	0.494	A
11. Newland Street at Hamilton Avenue[2]	Signal	0.485	A	0.614	B
12. Newland Street at Pacific Coast Highway[1]	Signal	31.3	C	47.9	D
13. Magnolia Street at Hamilton Avenue[2]	Signal	0.501	A	0.569	A
14. Magnolia Street at Pacific Coast Highway[1]	Signal	13.5	B	19.3	B
15. Brookhurst Street at Hamilton Avenue[2]	Signal	0.687	B	0.632	B
16. Brookhurst Street at Pacific Coast Highway[1]	Signal	24.6	C	30.8	C

Notes:

1. Intersection is within Caltrans jurisdiction and evaluated under HCM 2000 methodology. Average delay is reported for signalized intersections.
2. Intersection is within Huntington Beach jurisdiction and evaluated under ICU methodology. V/C ratio is reported for signalized intersections.

Source: Fehr & Peers, 2013

7.2 Intersection Impact Assessment

Table 7-2 compares the changes in delay and LOS at intersections that operate at LOS E or F between "Base" and "Plus Project" scenarios of Operating Year (2015) to determine project impacts. Changes in delay are compared to the allowable change outlined in Section 2.2.

TABLE 7-2
INTERSECTION LEVEL OF SERVICE: OPERATING YEAR (2015) NO PROJECT AND WITH PROJECT COMPARISON

Intersection	Control	Peak	No Project Delay	No Project LOS	With Project Delay	With Project LOS	Δ Delay
2. Beach Boulevard at Edinger Avenue	Signal	AM	39.2	D	40.1	D	-
		PM	54.0	D	***55.1***	***E***	***1.1***
4. Beach Boulevard at Talbert Avenue	Signal	AM	31.4	C	30.2	C	-
		PM	***60.3***	***E***	***69.8***	***E***	***9.5***
6. Beach Boulevard at Garfield Avenue	Signal	AM	45.6	D	47.4	D	-
		PM	***65.3***	***E***	***74.4***	***E***	***9.1***
8. Beach Boulevard at Atlanta Avenue	Signal	AM	30.2	C	31.4	C	-
		PM	***56.8***	***E***	***59.7***	***E***	***2.9***
9. Beach Boulevard at Pacific Coast Highway	Signal	AM	37.1	D	***63.1***	***E***	***26.0***
		PM	39.5	D	46.8	D	-

Notes:
1. Delay is measured in seconds. Calculated using Synchro 8 software package.
2. ***Bold-italicized*** type indicates project impact.

Source: Fehr & Peers, 2013

As shown in Table 7-2, the project will impact the following intersections under the Operating Year (2015) Conditions:

- Beach Boulevard at Edinger Avenue – PM Peak Hour (LOS E)
- Beach Boulevard at Talbert Avenue – PM Peak Hour (LOS E)
- Beach Boulevard at Garfield Avenue – PM Peak Hour (LOS E)
- Beach Boulevard at Atlanta Avenue – PM Peak Hour (LOS E)
- Beach Boulevard at Pacific Coast Highway – AM Peak Hour (LOS E)

Measures to mitigate the identified impacts are discussed in detail in Chapter 11.

7.3 Hamilton Avenue Lane Closure

During construction, it may be necessary to close the shared parking/bicycle lane on eastbound Hamilton Avenue along the project frontage. This lane closure could potentially affect the current Magnolia

Street/Hamilton Avenue intersection by closing the existing shared through/right-turn lane. With this temporary closure, the eastbound approach would be reconfigured to include a shared left-turn/through/right-turn lane. Table 7-3 documents the ICU and LOS results with the implementation of this lane closure under Operating Year (2015) Plus Project Conditions. As shown in the table below, the intersection remains at LOS A with the implementation of the lane closure. LOS Reports for the Hamilton Avenue Lane Closure scenario are provided in Appendix J.

TABLE 7-3
INTERSECTION LOS COMPARISON – OPERATING YEAR (2015) PLUS PROJECT CONDITIONS

	Without Lane Closure				With Lane Closure				Change in V/C	
	AM Peak		PM Peak		AM Peak		PM Peak			
Intersection	**V/C**	**LOS**	**V/C**	**LOS**	**V/C**	**LOS**	**V/C**	**LOS**	**AM**	**PM**
Magnolia St & Hamilton Ave	0.501	A	0.569	A	0.557	A	0.569	A	0.056	0.0

Source: Fehr & Peers, 2013

8.0 Alternative- Project Operating Year (2017) Base Traffic Conditions

Construction activity is anticipated to be complete by 2015, which occurs if the import and export activity occurs concurrently. If the activity occurs sequentially instead, in that the export activity is completed and then the import occurs, then construction activity will occur at the site through 2017. This extended construction schedule would occur if the Full Removal Alternative is implemented.

Traffic Volumes

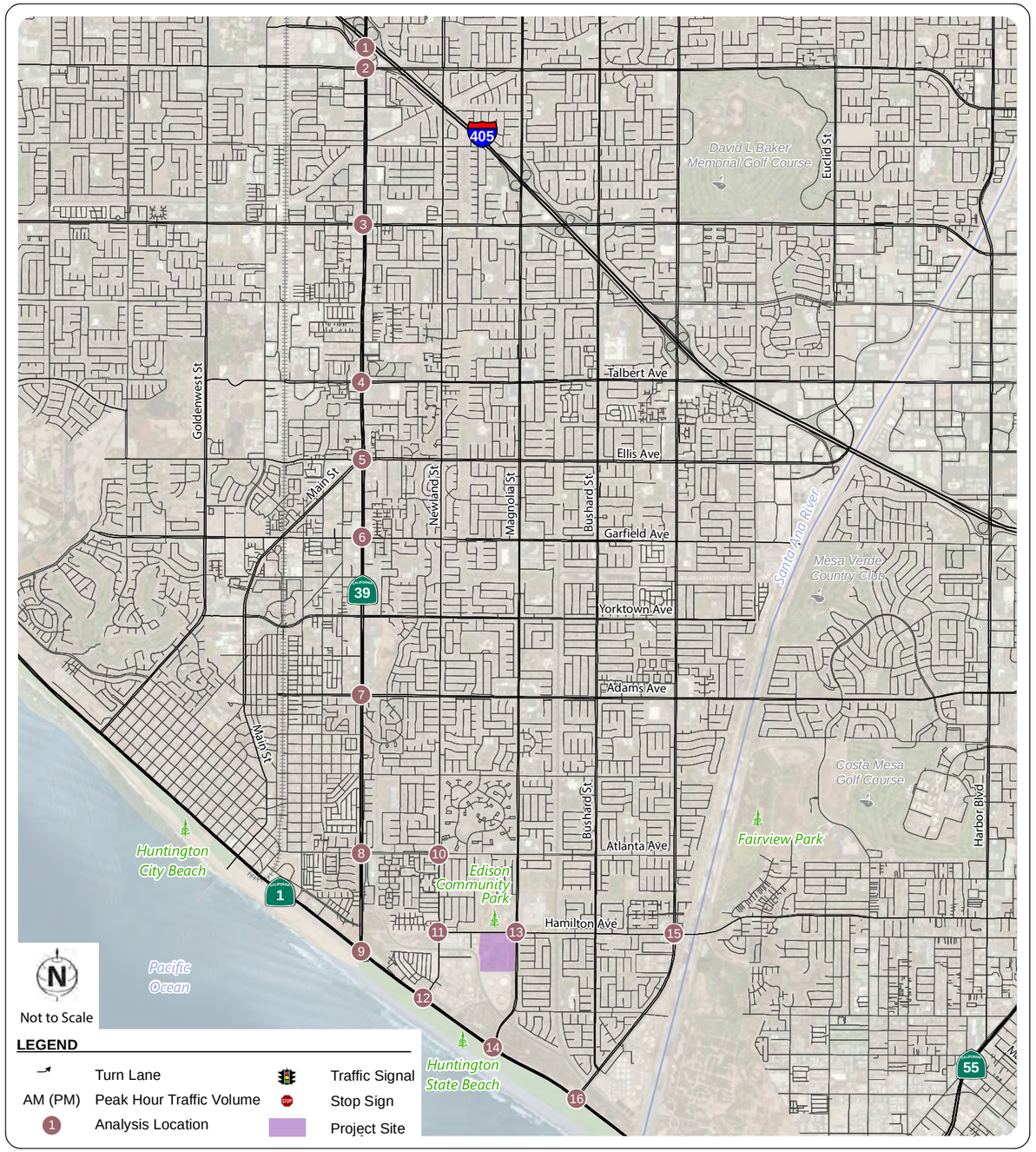
Traffic volumes for this scenario were calculated by applying an annual ambient growth and traffic from cumulative projects to existing volumes. A 1% ambient growth per year, over the four-year period between the Existing and Operating Year was applied to the existing conditions volumes. Cumulative projects within a one-mile radius of the project, to be completed by project operating year were provided by City of Huntington Beach staff and are shown on Figure 6-1. Operating year assumptions as well as estimated trip generation volumes are provided in Appendix D. Based on information provided by the City of Huntington Beach, there are several Cumulative Projects which would be under construction or operating in 2017 that would not be operational in 2015.

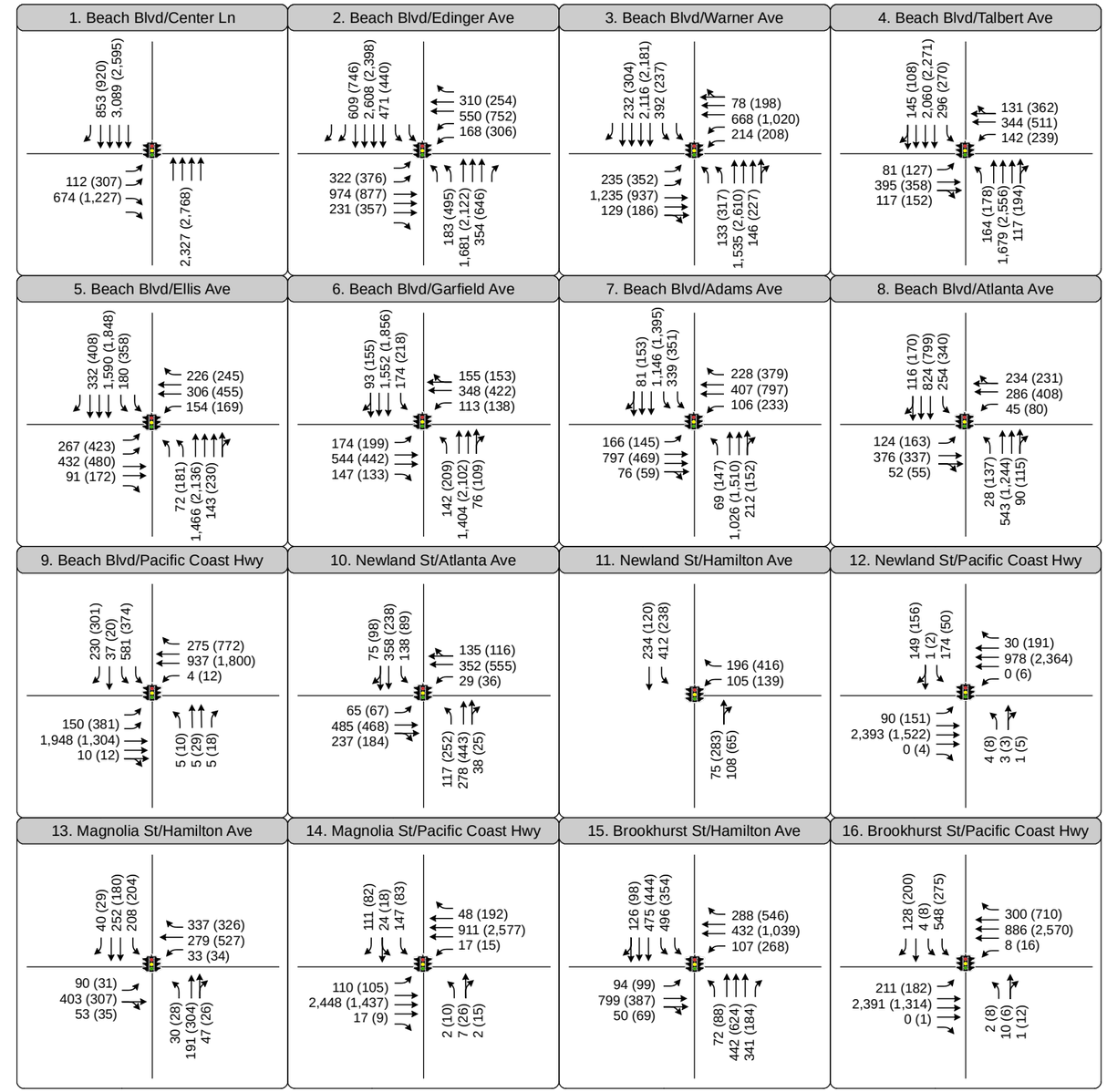
Roadway Improvements

There are no roadway improvements planned and funded in the study area that will be completed by 2017.

8.1 Intersection Operations

The intersection LOS results are summarized in Figure 8-1 for Project Operating Year (2017) Base Conditions. Lane configurations and peak hour traffic volumes at study intersections for Project Operating Year (2017) Base Conditions are shown on Figure 8-1. The Project Operating Year (2017) Base Conditions LOS reports are provided in Appendix G.





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Peak Hour Traffic Volumes and Lane Configurations - Project Operating Year (2017) Base Conditions

Figure 8-1

TABLE 8-1
INTERSECTION LEVEL OF SERVICE: PROJECT OPERATING YEAR (2017) BASE CONDITONS

Intersection	Control	AM Peak		PM Peak	
		Delay or V/C	LOS	Delay or V/C	LOS
1. Beach Boulevard at Center Avenue[1]	Signal	20.3	C	34.9	C
2. Beach Boulevard at Edinger Avenue[1]	Signal	42.4	D	60.1	E
3. Beach Boulevard at Warner Avenue[1]	Signal	38.8	D	44.4	D
4. Beach Boulevard at Talbert Avenue[1]	Signal	31.9	C	86	F
5. Beach Boulevard at Main Street/Ellis Avenue[1]	Signal	36.6	D	69.8	E
6. Beach Boulevard at Garfield Avenue[1]	Signal	49.5	D	98.2	F
7. Beach Boulevard at Adams Avenue[1]	Signal	37.4	D	54.1	D
8. Beach Boulevard at Atlanta Avenue[1]	Signal	34.2	C	68.3	E
9. Beach Boulevard at Pacific Coast Highway[1]	Signal	41.4	D	85.4	F
10. Newland Street at Atlanta Avenue[2]	Signal	0.452	A	0.514	A
11. Newland Street at Hamilton Avenue[2]	Signal	0.494	A	0.626	B
12. Newland Street at Pacific Coast Highway[1]	Signal	25.3	C	49.3	D
13. Magnolia Street at Hamilton Avenue[2]	Signal	0.51	A	0.579	A
14. Magnolia Street at Pacific Coast Highway[1]	Signal	17	B	20.3	C
15. Brookhurst Street at Hamilton Avenue[2]	Signal	0.7	C	0.644	B
16. Brookhurst Street at Pacific Coast Highway[1]	Signal	26.9	C	46.7	D

Notes:
1. Intersection is within Caltrans jurisdiction and evaluated under HCM 2000 methodology. Average delay is reported for signalized intersections.
2. Intersection is within Huntington Beach jurisdiction and evaluated under ICU methodology. V/C ratio is reported for signalized intersections.
3. Cells highlighted in grey represent intersections that are operating below acceptable thresholds.

Source: Fehr & Peers, 2013

As shown in Table 8-1, all of the study intersections will operate acceptably at LOS D or better during the peak hours, with exception to the following locations:

- Beach Boulevard at Edinger Avenue – PM Peak Hour (LOS E)
- Beach Boulevard at Talbert Avenue – PM Peak Hour (LOS F)
- Beach Boulevard at Main Street/Ellis Avenue – PM Peak Hour (LOS E)

- Beach Boulevard at Garfield Avenue – PM Peak Hour (LOS F)
- Beach Boulevard at Atlanta Avenue – PM Peak Hour (LOS E)
- Beach Boulevard at Pacific Coast Highway – PM Peak Hour (LOS F)

9.0 Project Operating Year (2017) Plus Project (Full Removal) Traffic Conditions

This section documents the conditions in the Project Operating Year (2017) Base Conditions plus traffic generated by the project. This condition is used to evaluate the net change in traffic conditions and to identify potential traffic impacts associated with the project.

Traffic Volumes

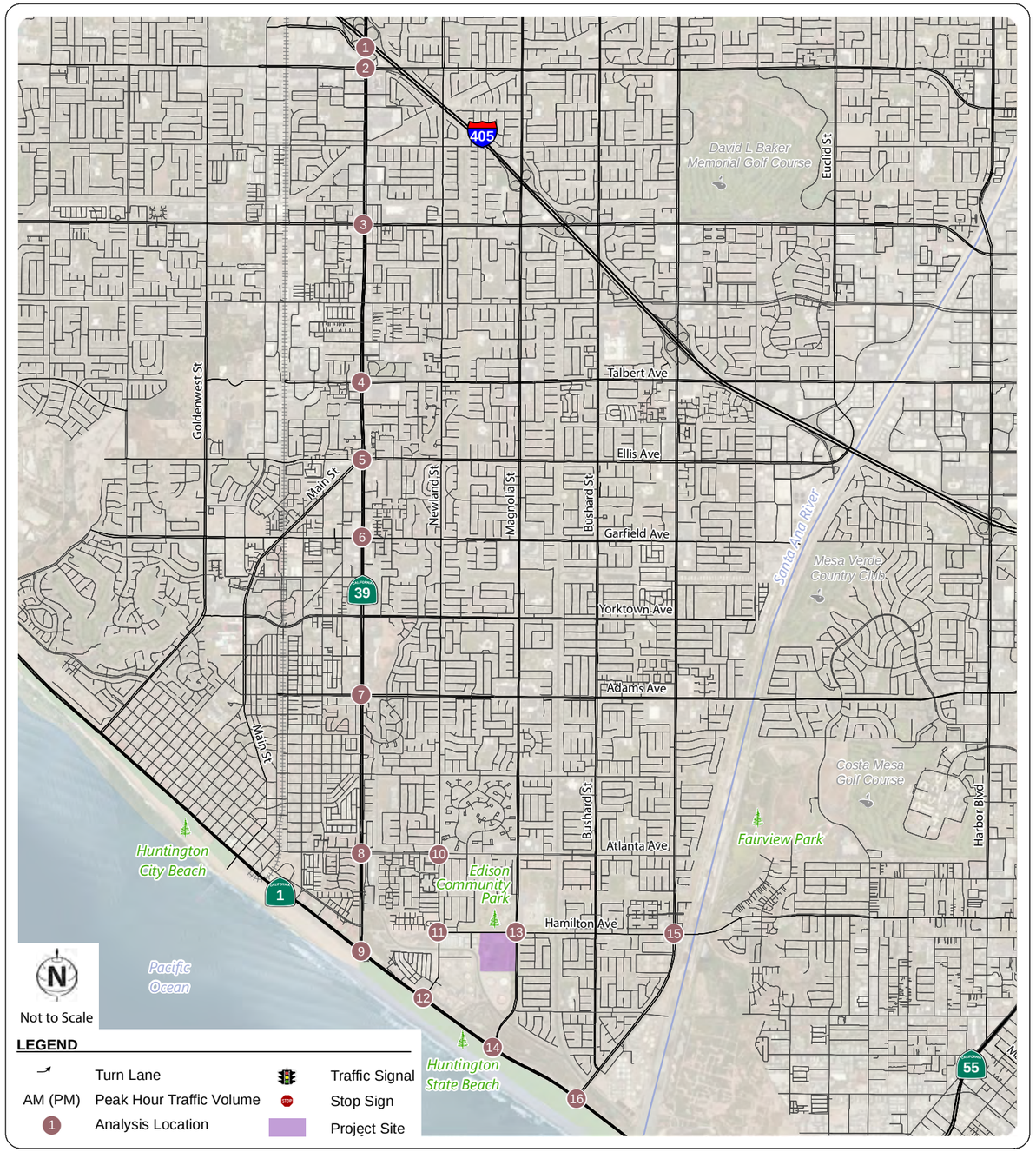
Traffic volumes for this scenario were calculated by adding volumes generated by the project to the Project Operating Year (2017) Base Conditions. The traffic volumes added to the Project Operating Year (2017) Base Conditions are the "project only" trips shown in Figure 4-2. Project Operating Year (2017) Plus Project traffic volumes for the study area are shown on Figure 9-1.

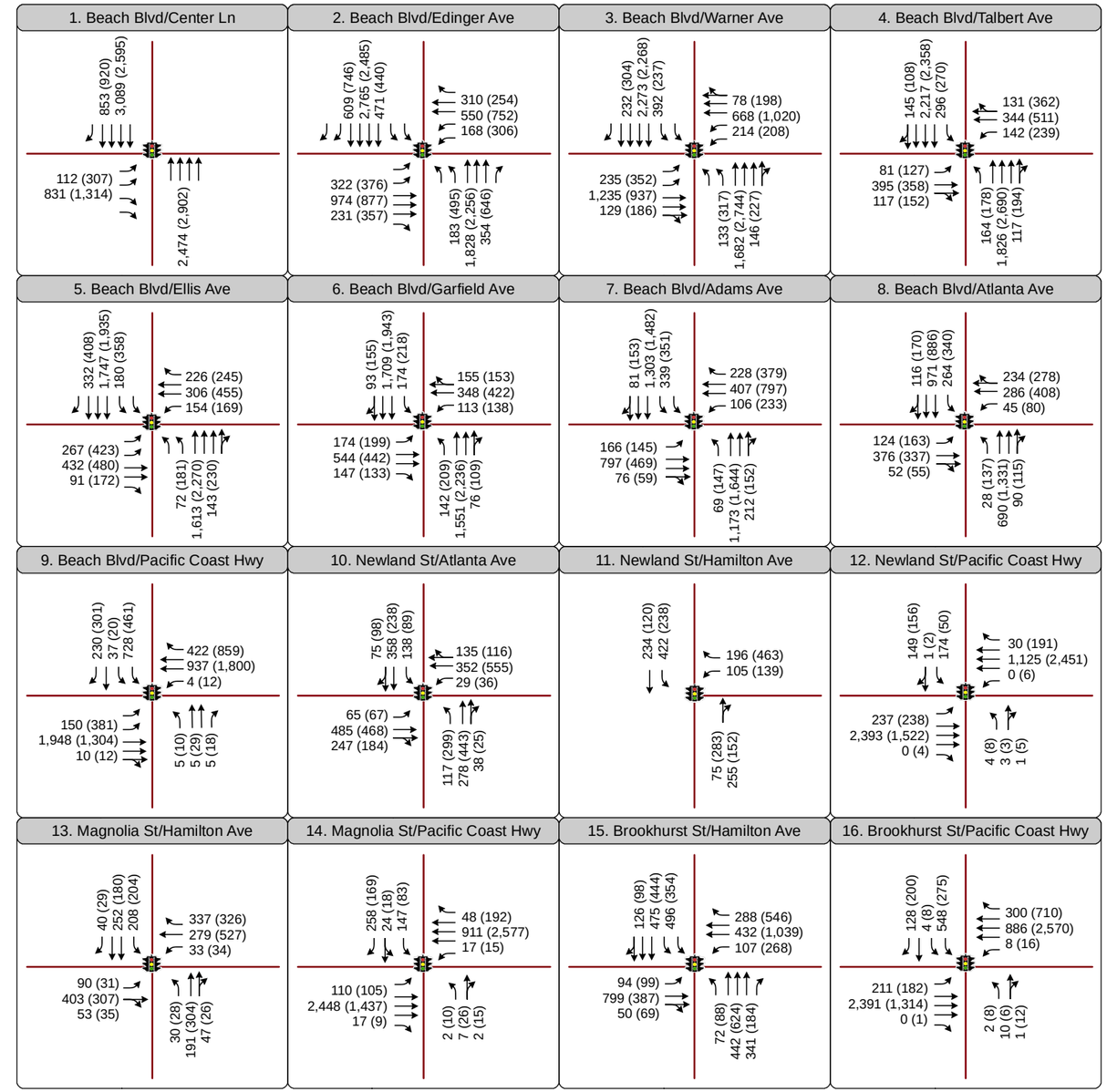
Roadway Improvements

No roadway improvements, except for within the project and at project driveways are proposed.

9.1 Intersection Operations

The intersection LOS results are summarized in Table 9-1 for Project Operating Year (2017) Plus Project Conditions. The intersection volumes are shown on Figure 9-1. The Project Operating Year (2017) Plus Project LOS reports are provided in Appendix H.





Peak Hour Traffic Volumes and Lane Configurations - Project Operating Year (2017) Plus Project (Full Removal) Conditions

Figure 9-1

FEHR PEERS

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TABLE 9-1
INTERSECTION LEVEL OF SERVICE: PROJECT OPERATING YEAR (2017) PUS PROJECT CONDITONS

Intersection	Control	AM Peak		PM Peak	
		Delay or V/C	LOS	Delay or V/C	LOS
1. Beach Boulevard at Center Avenue[1]	Signal	28.3	C	38.5	D
2. Beach Boulevard at Edinger Avenue[1]	Signal	44.0	D	60.3	E
3. Beach Boulevard at Warner Avenue[1]	Signal	39.3	D	50.9	D
4. Beach Boulevard at Talbert Avenue[1]	Signal	31.8	C	96.6	F
5. Beach Boulevard at Main Street/Ellis Avenue[1]	Signal	36.7	D	81.8	F
6. Beach Boulevard at Garfield Avenue[1]	Signal	58.3	E	115.3	F
7. Beach Boulevard at Adams Avenue[1]	Signal	38.0	D	59.5	E
8. Beach Boulevard at Atlanta Avenue[1]	Signal	36.1	D	70.3	E
9. Beach Boulevard at Pacific Coast Highway[1]	Signal	66.9	E	95.0	F
10. Newland Street at Atlanta Avenue[2]	Signal	0.455	A	0.543	A
11. Newland Street at Hamilton Avenue[2]	Signal	0.593	A	0.710	B
12. Newland Street at Pacific Coast Highway[1]	Signal	33.6	C	69.3	E
13. Magnolia Street at Hamilton Avenue[2]	Signal	0.510	A	0.579	A
14. Magnolia Street at Pacific Coast Highway[1]	Signal	18.1	B	20.9	C
15. Brookhurst Street at Hamilton Avenue[2]	Signal	0.700	C	0.644	B
16. Brookhurst Street at Pacific Coast Highway[1]	Signal	27.0	C	46.7	D

Notes:
1. Intersection is within Caltrans jurisdiction and evaluated under HCM 2000 methodology. Average delay is reported for signalized intersections.
2. Intersection is within Huntington Beach jurisdiction and evaluated under ICU methodology. V/C ratio is reported for signalized intersections.
3. Cells highlighted in grey represent intersections that are operating below acceptable thresholds.

Source: Fehr & Peers, 2013

9.2 Intersection Impact Assessment

Table 9-2 compares the changes in delay and LOS at intersections that operate at LOS E or F between "Base" and "Plus Project" scenarios of Operating Year (2017) to determine project impacts. Changes in delay are compared to the allowable change outlined in Section 2.2.

TABLE 9-2
INTERSECTION LEVEL OF SERVICE: OPERATING YEAR NO PROJECT AND WITH PROJECT COMPARISON

Intersection	Control	Peak	No Project Delay	No Project LOS	With Project Delay	With Project LOS	Δ Delay
2. Beach Boulevard at Edinger Avenue	Signal	AM	42.4	D	44	D	-
		PM	***60.1***	***E***	***60.3***	***E***	***0.2***
4. Beach Boulevard at Talbert Avenue	Signal	AM	31.9	C	31.8	C	-
		PM	***86***	***F***	***96.6***	***F***	***10.6***
5. Beach Boulevard at Main Street/Ellis Avenue	Signal	AM	36.6	D	36.7	D	-
		PM	***69.8***	***E***	***81.8***	***F***	***12.0***
6. Beach Boulevard at Garfield Avenue	Signal	AM	49.5	D	58.3	D	-
		PM	***98.2***	***F***	***115.3***	***F***	***17.1***
7. Beach Boulevard at Adams Avenue	Signal	AM	37.4	D	38	D	-
		PM	54.1	D	***59.5***	***E***	***5.4***
8. Beach Boulevard at Atlanta Avenue	Signal	AM	34.2	C	36.1	D	-
		PM	***68.3***	***E***	***70.3***	***E***	***2.0***
9. Beach Boulevard at Pacific Coast Highway	Signal	AM	41.4	D	***66.9***	***E***	***25.5***
		PM	***85.4***	***F***	***95***	***F***	***9.6***
12. Newland Street at Pacific Coast Highway	Signal	AM	25.3	C	33.6	C	-
		PM	49.3	D	***69.3***	***E***	***20.0***

Notes:
1. Delay is measured in seconds. Calculated using Synchro 8 software package.
2. ***Bold-italicized*** type indicates project impact.

Source: Fehr & Peers, 2013

As shown in Table 9-2, the project will impact the following intersections under the Operating Year (2017) Conditions:

- Beach Boulevard at Edinger Avenue – PM Peak Hour (LOS E)
- Beach Boulevard at Talbert Avenue – PM Peak Hour (LOS F)
- Beach Boulevard at Main Street/Ellis Avenue – PM Peak Hour (LOS F)
- Beach Boulevard at Garfield Avenue – PM Peak Hour (LOS F)

- Beach Boulevard at Adams Avenue – PM Peak Hour (LOS E)
- Beach Boulevard at Atlanta Avenue – PM Peak Hour (LOS E)
- Beach Boulevard at Pacific Coast Highway – AM Peak Hour (LOS E) & PM Peak Hour (LOS F)
- Newland Street at Pacific Coast Highway – PM Peak Hour (LOS E)

Measures to mitigate the identified impacts are discussed in detail in Chapter 11.

9.3 Hamilton Avenue Lane Closure

During construction, it may be necessary to close the shared parking/bicycle lane on eastbound Hamilton Avenue along the project frontage. This lane closure could potentially affect the current Magnolia Street/Hamilton Avenue intersection by closing the existing shared through/right-turn lane. With this temporary closure, the eastbound approach would be reconfigured to include a shared left-turn/through/right-turn lane. Table 9-3 documents the ICU and LOS results with the implementation of this lane closure under Operating Year (2017) Plus Project Conditions. As shown in the table below, the intersection remains at LOS A with the implementation of the lane closure. LOS Reports for the Hamilton Avenue Lane Closure scenario are provided in Appendix J.

TABLE 9-3
INTERSECTION LOS COMPARISON – OPERATING YEAR (2017) PLUS PROJECT CONDITIONS

	Without Lane Closure				With Lane Closure				Change in V/C	
	AM Peak		PM Peak		AM Peak		PM Peak			
Intersection	**V/C**	**LOS**	**V/C**	**LOS**	**V/C**	**LOS**	**V/C**	**LOS**	**AM**	**PM**
Magnolia St & Hamilton Ave	0.510	A	0.579	A	0.566	A	0.579	A	.056	0

Source: Fehr & Peers, 2013

10.0 CMP Analysis

This chapter provides the impact analysis for OCTA CMP intersection locations.

10.1 CMP Intersection Analysis

The Orange County Congestion Management Plan (CMP) requires that projects cannot be allowed to reduce the LOS or increase ICU by more than 0.03 at a location that is forecasted to operate at LOS "E" or "F." These intersections are analyzed using the ICU methodology in compliance with the requirements of OCTA. Four CMP intersections are located in the study area as noted below. As shown in Table 10-1, the increase in ICU is less than 0.03 and no impact is noted.

TABLE 10-1
CMP ANALYSIS : NO PROJECT AND WITH PROJECT COMPARISON

Intersection	Peak	Existing ICU	E+P ICU	Change	2015 ICU	2015+P ICU	Change	2017 ICU	2017+P ICU	Change
2. Beach Boulevard at Edinger Avenue	AM	0.864	0.886	0.022	**0.908**	**0.930**	**0.022**	**0.945**	**0.968**	**0.023**
	PM	**0.901**	**0.926**	**0.025**	**0.976**	**1.002**	**0.026**	**1.020**	**1.046**	**0.026**
3. Beach Boulevard at Warner Avenue	AM	0.847	0.870	0.023	0.886	**0.908**	**0.022**	**0.924**	**0.947**	**0.023**
	PM	**0.923**	**0.943**	**0.02**	**0.984**	**1.004**	**0.02**	**1.032**	**1.052**	**0.020**
7. Beach Boulevard at Adams Avenue	AM	0.708	0.736	0.028	0.733	0.761	0.028	0.778	0.807	0.029
	PM	0.798	0.824	0.026	0.851	0.877	0.026	**0.911**	**0.937**	**0.026**
9. Beach Boulevard at Pacific Coast Highway	AM	0.676	0.718	0.042	0.734	0.776	0.042	0.799	0.840	0.041
	PM	0.773	0.798	0.025	0.825	0.849	0.024	**0.906**	**0.931**	**0.025**

Notes: LOS E or F intersections shown in bold

Source: Fehr & Peers, 2013

11.0 Findings and Mitigation Measures

This chapter provides a summary of the key findings and project impacts for each scenario analyzed, and recommended mitigation measures to mitigate these impacts.

11.1 Summary of Project Impacts at Intersections

As previously stated in Chapter 2, The City of Huntington Beach General Plan defines the following LOS standards for determining acceptable operations on their facilities:

- LOS "D" or better at intersections during the peak hour. A project will be deemed to create a significant impact if the project alone causes an intersection at Level of Service D or better to move to Level of Service E or F.
- A project is deemed to create a significant impact if the project alone causes an intersection at LOS "D" or better to move to LOS "E" or "F". If a project impacts an intersection that is already at LOS "E" or "F", this is also deemed a significant impact and mitigation would be required to bring the LOS back to where it was prior to the project.

Additionally, Caltrans requires that any facilities within Caltrans Jurisdiction shall maintain a minimum LOS threshold of LOS "D," or less than 55 seconds of average delay. A project is deemed to create a significant impact if the project alone causes an intersection at LOS "D" or better to degrade to LOS "E" or worse. If the facility already operates at LOS "E" or worse before the addition of project traffic, and the project causes the average delay to increase, the project's impact may also be deemed significant by Caltrans. Mitigation measures to bring the facility back to acceptable operations need to be considered if a significant impact is identified.

Based upon these significance criteria, the addition of the project will significantly impact the following locations under each analyzed scenario:

Existing (2013) Plus Project Conditions

- Beach Boulevard at Garfield Avenue – PM Peak Hour (project adds traffic at LOS E intersection)

Operating Year (2015) Plus Project Conditions

- Beach Boulevard at Edinger Avenue – PM Peak Hour (project causes LOS D intersection to worsen to LOS E)
- Beach Boulevard at Talbert Avenue – AM/PM Peak Hour (project adds traffic at LOS E intersection)
- Beach Boulevard at Garfield Avenue – AM/PM Peak Hour (project adds traffic at LOSE intersection
- Beach Boulevard at Atlanta Avenue – AM/PM Peak Hour (project adds traffic at LOS E intersection)
- Beach Boulevard at Pacific Coast Highway – AM Peak Hour (project causes LOS D intersection to worsen to LOS E)

Operating Year (2017) Plus Project (Full Removal) Conditions

- Beach Boulevard at Edinger Avenue – PM Peak Hour (project adds traffic at LOS E intersection)
- Beach Boulevard at Talbert Avenue – PM Peak Hour (project adds traffic at LOS F intersection)
- Beach Boulevard at Main Street/Ellis Avenue – PM Peak Hour (project causes LOS E intersection to worsen to LOS F)
- Beach Boulevard at Garfield Avenue – PM Peak Hour (project adds traffic at LOS F intersection)
- Beach Boulevard at Adams Avenue – PM Peak Hour (project causes LOS D intersection to worsen to LOS E)
- Beach Boulevard at Atlanta Avenue –PM Peak Hour (project adds traffic at LOS E intersection)
- Beach Boulevard at Pacific Coast Highway – AM Peak Hour (project causes LOS D intersection to worsen to LOS E) & PM Peak Hour (project adds traffic at LOS F intersection)
- Newland Street at Pacific Coast Highway – PM Peak Hour (project causes LOS D intersection to worsen to LOS E)

11.2 Recommended Mitigation Measures for Intersections

Improvement measures were developed to minimize the impact of a project on the study area. Implementing the mitigation measures described below, the "with project" scenarios would no longer result is a significant impact as outlined in Chapter 2. A description of all mitigation measures recommended is provided below and is summarized in Table 11-1 and Table 11-2. LOS results for mitigation measures are provided in Appendix I.

Existing (2013) Plus Project Conditions

- Beach Boulevard at Garfield Avenue – PM Peak Hour
    - Signal timing optimization: Caltrans would be responsible for updating the traffic signal timings to provide additional capacity at this intersection. Detailed Synchro reports showing the recommended adjusted signal timing are included in Appendix I.
        - Improved PM operations to LOS D, delay of 54.5 seconds.
        - This intersection is within Caltrans jurisdiction and therefore any proposed mitigation measures require Caltrans approval.

Operating Year (2015) Plus Project Conditions

- Beach Boulevard at Edinger Avenue – PM Peak Hour
    - Signal timing optimization: Caltrans would be responsible for updating the traffic signal timings to provide additional capacity at this intersection. Detailed Synchro reports showing the recommended adjusted signal timing are included in Appendix I.

        - With implementation of these recommended signal timing changes, the delay improves to 45.8 seconds and an LOS of D.
        - This intersection is within Caltrans jurisdiction and therefore any proposed mitigation measures require Caltrans approval.

- Beach Boulevard at Talbert Avenue – PM Peak Hour
    - Signal timing optimization: Caltrans would be responsible for updating the traffic signal timings to provide additional capacity at this intersection. Detailed Synchro reports with adjusted signal timing are included in Appendix I.
        - With the implementation of these signal timing changes, the delay improves to 51.8 seconds and an LOS of D.
        - This intersection is within Caltrans jurisdiction and therefore any proposed mitigation measures require Caltrans approval.
- Beach Boulevard at Garfield Avenue – PM Peak Hour
    - Signal timing optimization: Caltrans would be responsible for updating the traffic signal timings to provide additional capacity at this intersection. Detailed Synchro reports with adjusted signal timing are included in Appendix I.
        - With the implementation of these signal timing changes, the delay improves to 53.0 seconds and an LOS of D.
        - This intersection is within Caltrans jurisdiction and therefore any proposed mitigation measures require Caltrans approval.
- Beach Boulevard at Atlanta Avenue – PM Peak Hour
    - Signal timing optimization: Caltrans would be responsible for updating the traffic signal timings to provide additional capacity at this intersection. Detailed Synchro reports with adjusted signal timing are included in Appendix I.
        - With the implementation of these signal timing changes, the delay improves to 43.2 seconds and an LOS of D.
        - This intersection is within Caltrans jurisdiction and therefore any proposed mitigation measures require Caltrans approval.
- Beach Boulevard at Pacific Coast Highway – AM Peak Hour
    - Signal timing optimization: Caltrans would be responsible for updating the traffic signal timings to provide additional capacity at this intersection. Detailed Synchro reports with adjusted signal timing are included in Appendix I.
        - With the implementation of these signal timing changes, the delay will improve to 34.2 seconds and an LOS of C.

        - This intersection is within Caltrans jurisdiction and therefore any proposed mitigation measures require Caltrans approval.

Operating Year (2017) Plus Project (Full Removal) Conditions

- Beach Boulevard at Edinger Avenue – PM Peak Hour
    - Signal timing optimization: Caltrans would be responsible for updating the traffic signal timings to provide additional capacity at this intersection. Detailed Synchro reports showing the recommended adjusted signal timing are included in Appendix I.
        - With implementation of these recommended signal timing changes, the delay improves to 54.8 seconds and an LOS of D.
        - This intersection is within Caltrans jurisdiction and therefore any proposed mitigation measures require Caltrans approval.
- Beach Boulevard at Talbert Avenue – PM Peak Hour
    - Signal timing optimization: Caltrans would be responsible for updating the traffic signal timings to provide additional capacity at this intersection. Detailed Synchro reports with adjusted signal timing are included in Appendix I.
        - With the implementation of these signal timing changes, the delay improves to 76.6 seconds and LOS of E, which is less than the delay of 86.0 seconds the intersection experiences under Operating Year (2017) Conditions.
        - This intersection is within Caltrans jurisdiction and therefore any proposed mitigation measures require Caltrans approval.
- Beach Boulevard at Main Street/Ellis Avenue – PM Peak Hour
    - Signal timing optimization: Caltrans would be responsible for updating the traffic signal timings to provide additional capacity at this intersection. Detailed Synchro reports with adjusted signal timing are included in Appendix I.
        - With the implementation of these signal timing changes, the delay improves to 62.3 seconds and LOS of E, which is less than the delay of 69.8 seconds the intersection experiences under Operating Year (2017) Conditions.
        - This intersection is within Caltrans jurisdiction and therefore any proposed mitigation measures require Caltrans approval.
- Beach Boulevard at Garfield Avenue – AM & PM Peak Hour
    - Signal timing optimization: Caltrans would be responsible for updating the traffic signal timings to provide additional capacity at this intersection. Detailed Synchro reports with adjusted signal timing are included in Appendix I.
        - With the implementation of these signal timing changes, the delay in the AM peak hour improves to 49.3 seconds and LOS of D. The delay in the PM peak

hour improves to 84.6 seconds and LOS of F, which is less than the PM peak hour delay of 98.2 seconds the intersection experiences under Operating Year (2017) Conditions.

- This intersection is within Caltrans jurisdiction and therefore any proposed mitigation measures require Caltrans approval.

- Beach Boulevard at Adams Avenue – PM Peak Hour
  - Signal timing optimization: Caltrans would be responsible for updating the traffic signal timings to provide additional capacity at this intersection. Detailed Synchro reports with adjusted signal timing are included in Appendix I.
    - With the implementation of these signal timing changes, the delay improves to 53.7 seconds and LOS of D, which is less than the delay of 54.1 seconds the intersection experiences under Operating Year (2017) Conditions.
    - This intersection is within Caltrans jurisdiction and therefore any proposed mitigation measures require Caltrans approval.
- Beach Boulevard at Atlanta Avenue – PM Peak Hour
  - Signal timing optimization: Caltrans would be responsible for updating the traffic signal timings to provide additional capacity at this intersection. Detailed Synchro reports with adjusted signal timing are included in Appendix I.
    - With the implementation of these signal timing changes, the delay improves to 58.7 seconds and LOS of E, which is less than the delay of 68.3 seconds the intersection experiences under Operating Year (2017) Conditions.
    - This intersection is within Caltrans jurisdiction and therefore any proposed mitigation measures require Caltrans approval.
- Beach Boulevard at Pacific Coast Highway – AM & PM Peak Hour
  - Signal timing optimization: Caltrans would be responsible for updating the traffic signal timings to provide additional capacity at this intersection. Detailed Synchro reports with adjusted signal timing are included in Appendix I.
    - With the implementation of these signal timing changes, the delay in the AM peak hour improves to 37.3 seconds and an LOS of C. The delay in the PM peak hour improves to 56.3 seconds and LOS of E, which is less than the delay in the PM peak hour of 85.4 seconds the intersection experiences under Operating Year (2017) Conditions.
    - This intersection is within Caltrans jurisdiction and therefore any proposed mitigation measures require Caltrans approval.
- Newland Street at Pacific Coast Highway – PM Peak Hour

- Signal timing optimization: Caltrans would be responsible for updating the traffic signal timings to provide additional capacity at this intersection. Detailed Synchro reports with adjusted signal timing are included in Appendix I.
    - With the implementation of these signal timing changes, the delay improves to 38.1 seconds and LOS of D, which is less than the delay of 49.3 seconds the intersection experiences under Operating Year (2017) Conditions.
    - This intersection is within Caltrans jurisdiction and therefore any proposed mitigation measures require Caltrans approval.

TABLE 11-1
INTERSECTION LEVEL OF SERVICE: EXISTING PLUS PROJECT MITIGATION

Intersection	Control	Peak	With Project Delay	With Project LOS	After Mitigation Delay	After Mitigation LOS
Beach Boulevard at Garfield Avenue	Signal	AM	45.4	D	N/A	*N/A*
		PM	***59.0***	***E***	54.5	D

Bold indicates deficient location
N/A indicates no mitigation required
Source: Fehr & Peers, 2013

TABLE 11-2
INTERSECTION LEVEL OF SERVICE: 2015 OPERATING YEAR PLUS PROJECT MITIGATION

Intersection	Control	Peak	With Project Delay	With Project LOS	After Mitigation Delay	After Mitigation LOS
Beach Boulevard at Edinger Avenue	Signal	AM	40.1	D	N/A	N/A
		PM	***55.1***	***E***	45.8	D
Beach Boulevard at Talbert Avenue	Signal	AM	30.2	C	N/A	N/A
		PM	***69.8***	***E***	51.8	D
Beach Boulevard at Garfield Avenue	Signal	AM	47.4	D	N/A	N/A
		PM	***74.4***	***E***	53.0	D
Beach Boulevard at Atlanta Avenue	Signal	AM	31.4	C	N/A	N/A
		PM	***59.7***	***E***	43.2	D
Beach Boulevard at Pacific Coast Highway	Signal	AM	***63.1***	***E***	34.2	C
		PM	46.8	D	N/A	N/A

Bold indicates deficient location
N/A indicates no mitigation required
Source: Fehr & Peers, 2013

TABLE 11-3
INTERSECTION LEVEL OF SERVICE: 2017 OPERATING YEAR PLUS PROJECT MITIGATION

Intersection	Control	Peak	With Project Delay	With Project LOS	After Mitigation Delay	After Mitigation LOS
Beach Boulevard at Edinger Avenue	Signal	AM	44.0	D	N/A	N/A
		PM	***60.3***	***E***	54.8	D
Beach Boulevard at Talbert Avenue	Signal	AM	31.8	C	N/A	N/A
		PM	***96.6***	***F***	76.6	E
Beach Boulevard at Main Street/Ellis Avenue	Signal	AM	36.7	D	N/A	N/A
		PM	***81.8***	***F***	62.3	E
Beach Boulevard at Garfield Avenue	Signal	AM	***58.3***	***E***	49.3	D
		PM	***115.3***	***F***	84.6	F
Beach Boulevard at Adams Avenue	Signal	AM	38.0	D	N/A	N/A
		PM	***59.5***	***E***	53.7	D
Beach Boulevard at Atlanta Avenue	Signal	AM	36.1	D	N/A	N/A
		PM	***70.3***	***E***	58.7	E
Beach Boulevard at Pacific Coast Highway	Signal	AM	***66.9***	***E***	37.3	C
		PM	***95.0***	***F***	78.2	E
Newland Street at Pacific Coast Highway	Signal	AM	33.6	C	N/A	N/A
		PM	***69.3***	***E***	38.1	D

Bold indicates deficient location
N/A indicates no mitigation required
Source: Fehr & Peers, 2013

11.3 Summary of Other Project Impacts

This discussion focuses on traffic impacts at transit, bicycle, and pedestrian facilities during the interim construction period for the project. This section also addresses potential safety impacts that will occur during construction.

11.3.1 ALTERNATIVE MODE SIGNIFICANCE CRITERIA

The following significance criteria were applied to determine if the project would disrupt existing alternative transportation services or facilities:

> An impact would be considered significant for alternative forms of transportation if the project conflicts with adopted policies, plans, or programs supporting alternative transportation.

11.3.2 PROJECT IMPACT - TRANSIT

11.3.2.1 Existing and Future Transit Service

There is existing transit service along both Hamilton Avenue and Magnolia Street. OCTA Route 173 has a transit stop in the eastbound direction on the far side of the Hamilton Avenue & Magnolia Street intersection. OCTA Route 33 has a southbound stop at the far side of the Bermuda Drive & Magnolia Street intersection. Neither bus stop would be affected by the closure of the parking and bicycle lanes on Hamilton Avenue and Magnolia Street. Furthermore, there are no planned transit lines or bus stops that would be affected by the lane closures on Hamilton Avenue and Magnolia Street. The project does not conflict with any of the aforementioned policies. Therefore the project impact is less than significant and no mitigation is required.

11.3.2.2 Adopted Transit System Plans, Guidelines, Policies or Standards

The City of Huntington Beach General Plan Circulation Element (1996) has several general plan policies related to transit:

- Encourage and support the various public transit agencies and companies, ride sharing programs, and other incentive programs, that allow residents to utilize forms of transportation other than the private automobile. (CE 3.1.1)
- Augment the existing bus routes with any new bus routes designated in the Orange County Transportation Authority (OCTA) Future Transit Needs Study as shown in Figure CE-8. (CE 3.1.2)
- Continue to reserve the abandoned rail right-of-way for future transportation use such as a transit or bicycle facility. (CE 3.1.3)
- Explore the possibility of a transportation center located in the vicinity of the downtown commercial area. (CE 3.1.4)

- Work with OCTA in pursuing a future urban rail transit system that services the City of Huntington Beach (CE 3.1.5.)
- Require developers to include transit facilities, such as park-and-ride sites, bus benches, shelters, pads or turnouts in their development plans, where feasible as specified in the City's TDM Ordinance. (CE 3.2.1)

The project does not conflict with any of the aforementioned policies. Therefore the project impact is less than significant and no mitigation is required.

11.3.2.3 Demand for Public Transit Services Above Capacity

In determining the adequacy of public transit capacity, Fehr & Peers considered two factors:

- What is the likely transit demand created by the site?
- What is the residual capacity of services that would likely be used by persons traveling to/from the site.

If the likely transit demand exceeds capacity, then a significant impact occurs. This type of project lends itself to workers arriving and departing by private automobile instead of transit. Since the project would generate no transit trips Fehr & Peers would expect the impact to be less than significant and no mitigation would be required.

11.3.3 PROJECT IMPACT - BICYCLE

11.3.3.1 Disruptions to Existing Bicycle Facilities

There are existing bicycle lanes on Magnolia Street and Hamilton Avenue adjacent to the project site. During the construction phase of the project, the bicycle lanes on the southbound side of Magnolia Street and the eastbound side of Hamilton Avenue will be barricaded by a "K" rail. As such, cyclists will not be able to utilize this lane. Although bicyclists will not be prohibited from traveling along this street, the heavy traffic and loss of the shoulder would not be conducive to comfortable riding. As such, most cyclists will have to divert trips to other roadway facilities. Therefore, the impact is potentially significant.

11.3.3.1.1 Analysis

The impact is temporary as the "K" rails will be removed at the completion of construction, thus restoring the bicycle facilities. Cycling trips will nonetheless likely be diverted elsewhere during construction. The Project would include a design feature to notify cyclists of the detour through signage which will be in place during construction. This signage will notify cyclists of alternative routes that can be used instead of the facilities along Hamilton and Magnolia. Alternative east-west routes include Banning Avenue and Atlanta Avenue. Alternative north-south routes include Newland Street and Brookhurst Street. These

alternative routes provide connectivity to many of the same destinations as Hamilton and Magnolia. Therefore, placing this detour signage will ensure impacts on bicycle facilities are less than significant.

11.3.3.2 Project interferes with Planned Bicycle Facilities

The City of Huntington Beach has yet to adopt a Bicycle Master Plan. There is an adopted OCTA Commuter Bikeways Strategic Plan, which identifies existing and planned bicycle facilities within the City of Huntington Beach. There are no planned facilities adjacent to the project site. Therefore, the impact is less than significant.

11.3.3.3 Conflicts with Adopted Bicycle System Plans, Guidelines, Policies, or Standards

The City of Huntington Beach General Plan notes the following policies related to bicycling:

- Assure local bicycle routes within the City will be connected to routes of neighboring cities. (CE 6.1.1)
- Link bicycle routes as shown in Figure CE-9 with pedestrian trails and bus routes to promote an interconnected system. (CE 6.1.2)
- Encourage the inclusion of facilities that transport bicycles on public transit vehicles (both fixed route and para-transit) wherever possible. (CE 6.1.3)
- Continue to update the City's Bike Route Plan to include new routes identified in the County's Master Plan of Bikeways. (CE 6.1.4)
- Encourage the utilization of easements and/or rights-of-way along flood control channels, public utilities, railroads and streets, wherever possible, for the use of bicycles and/or pedestrians. (CE 6.1.5)
- Implement appropriate traffic devices and operational programs throughout the community to ensure that conflicts between pedestrians, bicycles, and vehicles are minimized and safety enhanced. (CE 6.1.10)

The project does not conflict with any of the aforementioned policies. Therefore the project impact is less than significant and no mitigation is required.

11.3.4 PROJECT IMPACT - PEDESTRIAN

11.3.4.1 Disruptions to Existing Pedestrian Facilities

There is an existing paved sidewalk along Hamilton Avenue adjacent to the project site and a raised soil shoulder along Magnolia Street adjacent to the project site. During the construction phase of the project, the sidewalk and soil shoulder will be barricaded by a "K" rail. As such, pedestrians will not be able to walk along the south side of Hamilton Avenue or the west side of Magnolia Street. Pedestrians will therefore have to travel exclusively along the north side of Hamilton Avenue and the east side of Magnolia Street. The north side of Hamilton Avenue has an off-street pedestrian path that is slightly set back from Hamilton Avenue and connects to Edison Community Park. The east side of Magnolia Street

has a paved sidewalk. Both of these facilities provide more comfortable walking environments than the pedestrian facilities barricaded. Nonetheless, since the existing facilities will be disrupted, the impact is potentially significant.

11.3.4.1.1 Analysis

The impact is temporary as the "K" rails will be removed at the completion of construction, thus restoring the pedestrian facilities. Pedestrians will nonetheless need to cross the street to travel along the non-barricaded sidewalks and walkways. The Project would include a design feature to provide detour signage for pedestrians notifying them of the closure along the project perimeter. With the implementation of this detour signage, the impact will be less than significant.

11.3.4.2 Project interferes with Planned Pedestrian Facilities

The City of Huntington Beach has yet to adopt a Pedestrian Master Plan. Although the west side of Magnolia Avenue lacks a sidewalk, the soil shoulder operates as one. There are no new planned facilities adjacent to the project site. Therefore, the impact is less than significant.

11.3.4.3 Conflicts with Adopted Bicycle System Plans, Guidelines, Policies, or Standards

The City of Huntington Beach General Plan notes the following policies related to pedestrians:

- Encourage the utilization of easements and/or rights-of-way along flood control channels, public utilities, railroads and streets, wherever possible, for the use of bicycles and/or pedestrians. (CE 6.1.5)
- Maintain existing pedestrian facilities and require new development to provide pedestrian walkways and bicycle routes between developments, schools, and public facilities. (CE 6.1.6)
- Require new development to provide accessible facilities for the elderly and disabled. (CE 6.1.7)
- Implement appropriate traffic devices and operational programs throughout the community to ensure that conflicts between pedestrians, bicycles, and vehicles are minimized and safety enhanced. (CE 6.1.10)

The project does not conflict with any of the aforementioned policies. Therefore the project impact is less than significant and no mitigation is required.

11.3.5 HAZARDS SIGNIFICANCE CRITERIA

The following significance criteria were applied to determine if the project create a significant impact related to hazards:

> An impact will be considered significant if the project substantially increase hazards due to a design feature or incompatible uses.

11.3.6 PROJECT IMPACT

The construction activity on the site will involve the travel of heavy trucks throughout the day, which has the potential to create conflicts as these vehicles enter the roadways and travel along the designated routes to reach I-405. The Project would implement several design features that would limit the impacts of this construction traffic on the adjacent roadways including:

- The Project would prepare a Construction Traffic Management Plan, which would be reviewed and approved by the City prior to any construction activity occurring
- As noted above, "K"-rails would be placed around the perimeter of the project to provide a buffer between the construction activity and the adjacent street traffic on Hamilton and Magnolia
- The project would place flagmen at each of the project driveways on Hamilton and Magnolia to direct trucks into and out of the site, which would limit further conflicts with any vehicles on these roadways during construction activity.

Given the items above, the project impact would be less than significant.

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_1064_001 **Day:** THURSDAY

City: City of Huntington Beach **Date:** 3/14/2013

AM

NS/EW Streets:	Beach Blvd			Beach Blvd			Center Ave			Center Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	4	0	0	4	1	2	0	2	0	0	0	
7:00 AM		449			448	206	13		87				1203
7:15 AM		476			494	183	22		126				1301
7:30 AM		558			750	226	13		117				1664
7:45 AM		507			747	190	13		115				1572
8:00 AM		488			701	217	27		122				1555
8:15 AM		425			643	187	24		152				1431
8:30 AM		371			594	190	38		185				1378
8:45 AM		357			611	209	25		162				1364
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	3631	0	0	4988	1608	175	0	1066	0	0	0	11468
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	75.62%	24.38%	14.10%	0.00%	85.90%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	0	1978	0	0	2841	820	77	0	506	0	0	0	6222
PEAK HR FACTOR :		0.886			0.938			0.828			0.000		0.935

CONTROL : Signalized

APPENDIX A: EXISTING TRAFFIC COUNTS

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_1064_001 **Day:** THURSDAY

City: City of Huntington Beach **Date:** 3/14/2013

PM

NS/EW Streets:	Beach Blvd			Beach Blvd			Center Ave			Center Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	4	0	0	4	1	2	0	2	0	0	0	
4:00 PM		562			567	192	80		206				1607
4:15 PM		540			541	202	65		227				1575
4:30 PM		571			587	202	75		237				1672
4:45 PM		606			524	219	68		242				1659
5:00 PM		615			572	205	75		229				1696
5:15 PM		623			564	259	70		219				1735
5:30 PM		616			558	215	71		198				1658
5:45 PM		608			514	211	54		169				1556
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	4741	0	0	4427	1705	558	0	1727	0	0	0	13158
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	72.20%	27.80%	24.42%	0.00%	75.58%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	0	2415	0	0	2247	885	288	0	927	0	0	0	6762
PEAK HR FACTOR :		0.969			0.951			0.974			0.000		0.974

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_1064_002 **Day:** THURSDAY

City: City of Huntington Beach **Date:** 3/14/2013

AM

NS/EW Streets:	Beach Blvd			Beach Blvd			Edinger Ave			Edinger Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	2	3	1	2	4	2	2	3	1	2	2	1	
7:00 AM	16	339	53	68	383	79	42	151	20	15	55	53	1274
7:15 AM	27	367	71	81	450	91	65	223	18	13	72	64	1542
7:30 AM	28	404	86	136	599	136	43	206	18	23	126	83	1888
7:45 AM	27	399	55	105	589	155	53	209	29	43	172	58	1894
8:00 AM	32	371	63	105	574	129	54	199	30	24	96	59	1736
8:15 AM	26	325	55	84	562	102	43	151	33	31	98	60	1570
8:30 AM	49	269	49	93	561	119	31	161	28	24	92	53	1529
8:45 AM	37	282	37	69	577	120	47	137	38	35	91	34	1504
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	242	2756	469	741	4295	931	378	1437	214	208	802	464	12937
APPROACH %'s :	6.98%	79.49%	13.53%	12.42%	71.98%	15.60%	18.63%	70.82%	10.55%	14.11%	54.41%	31.48%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	113	1499	259	430	2324	522	193	765	110	121	492	260	7088
PEAK HR FACTOR :		0.903			0.940			0.918			0.799		0.936

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_1064_002 **Day:** THURSDAY

City: City of Huntington Beach **Date:** 3/14/2013

PM

NS/EW Streets:	Beach Blvd			Beach Blvd			Edinger Ave			Edinger Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 2	NT 3	NR 1	SL 2	ST 4	SR 2	EL 2	ET 3	ER 1	WL 2	WT 2	WR 1	TOTAL
4:00 PM	79	403	57	93	546	129	87	197	52	38	109	25	1815
4:15 PM	84	416	54	87	531	148	81	189	51	34	102	29	1806
4:30 PM	85	411	58	99	560	151	96	218	56	41	112	27	1914
4:45 PM	99	436	51	62	564	135	84	199	68	36	116	31	1881
5:00 PM	93	459	101	90	552	159	91	231	73	39	91	36	2015
5:15 PM	99	475	83	80	482	159	80	185	71	42	139	35	1930
5:30 PM	71	468	138	96	513	114	61	166	32	102	215	70	2046
5:45 PM	58	452	172	80	499	117	60	136	49	78	186	72	1959
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	668	3520	714	687	4247	1112	640	1521	452	410	1070	325	15366
APPROACH %'s :	13.63%	71.81%	14.57%	11.36%	70.24%	18.39%	24.49%	58.21%	17.30%	22.71%	59.28%	18.01%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	321	1854	494	346	2046	549	292	718	225	261	631	213	7950
PEAK HR FACTOR :		0.978			0.918			0.782			0.714		0.971

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_1064_003 **Day:** THURSDAY

City: City of Huntington Beach **Date:** 3/14/2013

AM

NS/EW Streets:	Beach Blvd			Beach Blvd			Warner Ave			Warner Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 2	NT 4	NR 0	SL 2	ST 4	SR 1	EL 2	ET 3	ER 0	WL 2	WT 3	WR 0	TOTAL
7:00 AM	15	292	29	56	256	49	47	316	7	21	108	15	1211
7:15 AM	20	360	31	59	343	48	39	315	17	33	96	15	1376
7:30 AM	34	298	34	106	423	55	50	349	22	43	140	11	1565
7:45 AM	25	313	32	86	388	54	37	268	32	55	190	16	1496
8:00 AM	31	312	38	98	468	64	65	239	29	59	146	14	1563
8:15 AM	33	286	31	72	440	50	74	292	36	41	131	18	1504
8:30 AM	24	291	31	67	390	45	45	226	30	40	89	17	1295
8:45 AM	34	276	21	54	385	45	41	257	36	49	152	21	1371
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	216	2428	247	598	3093	410	398	2262	209	341	1052	127	11381
APPROACH %'s :	7.47%	83.98%	8.54%	14.58%	75.42%	10.00%	13.87%	78.84%	7.28%	22.43%	69.21%	8.36%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	123	1209	135	362	1719	223	226	1148	119	198	607	59	6128
PEAK HR FACTOR :		0.963			0.914			0.887			0.828		0.979

UTURNS			
NB	SB	EB	WB
3	5	1	2
0	2	0	0
5	5	1	1
2	2	1	3
2	4	2	3
3	1	0	2
3	4	0	2
4	2	3	3
NB	SB	EB	WB
22	25	8	16

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_1064_003 **Day:** THURSDAY

City: City of Huntington Beach **Date:** 3/14/2013

PM

NS/EW Streets:	Beach Blvd			Beach Blvd			Warner Ave			Warner Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 2	NT 4	NR 0	SL 2	ST 4	SR 1	EL 2	ET 3	ER 0	WL 2	WT 3	WR 0	TOTAL
4:00 PM	57	407	48	41	303	62	99	225	43	46	197	26	1554
4:15 PM	64	443	43	59	398	74	67	195	37	50	211	33	1674
4:30 PM	71	445	53	42	393	72	93	263	44	57	196	46	1775
4:45 PM	78	478	50	71	386	60	90	216	43	60	195	43	1770
5:00 PM	66	536	51	61	471	74	82	221	30	48	189	40	1869
5:15 PM	84	529	49	49	320	61	80	248	53	46	258	36	1813
5:30 PM	68	560	67	49	475	80	75	189	38	43	214	27	1885
5:45 PM	75	437	37	46	437	77	101	240	47	49	284	45	1875
TOTAL VOLUMES :	NL 563	NT 3835	NR 398	SL 418	ST 3183	SR 560	EL 687	ET 1797	ER 335	WL 399	WT 1744	WR 296	TOTAL 14215
APPROACH %'s :	11.74%	79.96%	8.30%	10.05%	76.50%	13.46%	24.37%	63.75%	11.88%	16.36%	71.50%	12.14%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	293	2062	204	205	1703	292	338	898	168	186	945	148	7442
PEAK HR FACTOR :		0.921			0.908			0.905			0.846		0.987

UTURNS			
NB	SB	EB	WB
6	3	1	1
8	6	0	6
8	5	4	3
12	10	4	6
8	8	5	3
5	9	4	4
5	6	2	1
10	7	3	0
NB 62	SB 54	EB 23	WB 24

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_1064_004 **Day:** THURSDAY

City: City of Huntington Beach **Date:** 3/14/2013

AM

NS/EW Streets:	Beach Blvd			Beach Blvd			Talbert Ave			Talbert Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 4	NR 0	SL 1	ST 4	SR 0	EL 1	ET 2	ER 1	WL 1	WT 2	WR 0	TOTAL
7:00 AM	13	311	37	37	254	24	14	57	9	19	46	24	845
7:15 AM	15	294	36	48	298	27	18	76	19	20	50	19	920
7:30 AM	24	343	23	70	360	30	17	88	21	32	64	33	1105
7:45 AM	30	333	26	63	426	47	21	87	31	33	82	23	1202
8:00 AM	45	331	31	55	391	33	17	105	27	36	100	32	1203
8:15 AM	34	317	28	76	483	26	20	94	26	35	66	31	1236
8:30 AM	23	326	28	52	347	20	22	63	27	44	65	28	1045
8:45 AM	38	317	27	55	421	29	21	80	32	37	64	36	1157
TOTAL VOLUMES :	NL 222	NT 2572	NR 236	SL 456	ST 2980	SR 236	EL 150	ET 650	ER 192	WL 256	WT 537	WR 226	TOTAL 8713
APPROACH %'s :	7.33%	84.88%	7.79%	12.42%	81.15%	6.43%	15.12%	65.52%	19.35%	25.12%	52.70%	22.18%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	133	1324	108	264	1660	136	75	374	105	136	312	119	4746
PEAK HR FACTOR :		0.961			0.880			0.930			0.844		0.960

UTURNS			
NB	SB	EB	WB
1	2		1
4	2		1
4	0		0
8	0		0
8	1		0
9	5		0
9	0		1
10	1		1
NB 53	SB 11	EB 0	WB 4

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_1064_004 **Day:** THURSDAY

City: City of Huntington Beach **Date:** 3/14/2013

PM

NS/EW Streets:	Beach Blvd			Beach Blvd			Talbert Ave			Talbert Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 4	NR 0	SL 1	ST 4	SR 0	EL 1	ET 2	ER 1	WL 1	WT 2	WR 0	TOTAL
4:00 PM	51	512	48	69	403	38	24	91	34	45	94	56	1465
4:15 PM	38	410	39	68	432	28	26	73	42	57	124	65	1402
4:30 PM	44	486	44	61	464	38	36	108	47	53	104	65	1550
4:45 PM	32	426	46	69	436	42	33	78	25	46	116	56	1405
5:00 PM	51	507	55	63	404	22	30	90	33	54	134	105	1548
5:15 PM	40	529	43	58	430	25	25	82	29	53	130	71	1515
5:30 PM	35	474	37	49	419	24	38	93	36	68	124	67	1464
5:45 PM	36	475	45	63	504	29	26	76	29	47	97	70	1497
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	327	3819	357	500	3492	246	238	691	275	423	923	555	11846
APPROACH %'s :	7.26%	84.81%	7.93%	11.80%	82.40%	5.80%	19.77%	57.39%	22.84%	22.25%	48.55%	29.20%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	162	1985	180	233	1757	100	119	341	127	222	485	313	6024
PEAK HR FACTOR :		0.949			0.877			0.879			0.870		0.973

UTURNS			
NB	SB	EB	WB
19	6	0	0
10	9	0	1
16	3	1	1
18	2	0	1
16	5	0	3
13	2	0	2
14	3	1	1
12	10	2	1
NB	SB	EB	WB
118	40	4	10

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_1064_005 **Day:** THURSDAY

City: City of Huntington Beach **Date:** 3/14/2013

AM

NS/EW Streets:	Beach Blvd			Beach Blvd			Main St/Ellis Ave			Main St/Ellis Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 2	NT 4	NR 0	SL 2	ST 3	SR 1	EL 2	ET 2	ER 1	WL 1	WT 2	WR 1	TOTAL
7:00 AM	12	244	26	17	174	50	54	106	9	17	44	24	777
7:15 AM	16	265	30	24	228	71	50	88	17	14	47	22	872
7:30 AM	11	260	48	27	248	76	54	128	12	21	55	20	960
7:45 AM	15	311	21	34	306	74	55	97	21	29	89	29	1081
8:00 AM	15	313	36	23	300	81	51	109	27	33	67	39	1094
8:15 AM	17	275	27	40	343	81	79	110	23	29	76	36	1136
8:30 AM	22	297	30	38	276	80	63	97	14	24	56	24	1021
8:45 AM	22	273	27	33	300	76	67	92	22	37	96	31	1076
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	130	2238	245	236	2175	589	473	827	145	204	530	225	8017
APPROACH %'s :	4.98%	85.65%	9.38%	7.87%	72.50%	19.63%	32.73%	57.23%	10.03%	21.27%	55.27%	23.46%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	69	1196	114	135	1225	316	248	413	85	115	288	128	4332
PEAK HR FACTOR :		0.947			0.903			0.880			0.903		0.953

UTURNS			
NB	SB	EB	WB
3	6	0	
1	7	1	
2	3	0	
0	9	0	
3	3	0	
3	5	0	
3	8	0	
2	10	0	
NB	SB	EB	WB
17	51	1	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_1064_005 **Day:** THURSDAY

City: City of Huntington Beach **Date:** 3/14/2013

PM

NS/EW Streets:	Beach Blvd			Beach Blvd			Main St/Ellis Ave			Main St/Ellis Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 2	NT 4	NR 0	SL 2	ST 3	SR 1	EL 2	ET 2	ER 1	WL 1	WT 2	WR 1	TOTAL
4:00 PM	48	347	44	34	302	118	119	114	37	36	105	37	1341
4:15 PM	52	334	38	49	340	119	94	103	33	21	91	28	1302
4:30 PM	29	377	42	55	362	106	96	105	34	21	73	34	1334
4:45 PM	60	373	33	69	316	101	92	96	31	39	114	31	1355
5:00 PM	37	434	46	67	375	90	119	123	45	25	105	44	1510
5:15 PM	44	391	38	55	338	79	87	110	37	32	114	35	1360
5:30 PM	37	430	48	56	388	109	89	103	45	28	92	47	1472
5:45 PM	52	370	42	60	343	105	106	120	35	33	123	43	1432
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	359	3056	331	445	2764	827	802	874	297	235	817	299	11106
APPROACH %'s :	9.58%	81.58%	8.84%	11.03%	68.48%	20.49%	40.65%	44.30%	15.05%	17.39%	60.47%	22.13%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	170	1625	174	238	1444	383	401	456	162	118	434	169	5774
PEAK HR FACTOR :		0.952			0.934			0.888			0.906		0.956

UTURNS			
NB	SB	EB	WB
6	15		
3	21		
4	17		
7	22		
2	27		
7	28		
1	22		
5	16		
NB	SB	EB	WB
35	168	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_1064_006 **Day:** THURSDAY

City: City of Huntington Beach **Date:** 3/14/2013

AM

NS/EW Streets:	Beach Blvd			Beach Blvd			Garfield Ave			Garfield Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 3	NR 0	SL 1	ST 3	SR 0	EL 1	ET 2	ER 1	WL 1	WT 2	WR 0	TOTAL
7:00 AM	19	266	10	21	171	21	38	71	21	16	52	19	725
7:15 AM	7	219	15	29	196	7	29	95	25	13	55	22	712
7:30 AM	23	234	18	24	218	12	39	122	34	14	60	29	827
7:45 AM	32	285	13	38	314	22	48	150	27	22	85	34	1070
8:00 AM	29	264	21	39	246	26	35	147	35	30	100	40	1012
8:15 AM	44	289	19	41	351	21	37	115	37	27	71	34	1086
8:30 AM	32	274	12	39	238	20	47	111	41	24	79	35	952
8:45 AM	32	251	28	38	305	30	45	133	30	23	64	41	1020
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	218	2082	136	269	2039	159	318	944	250	169	566	254	7404
APPROACH %'s :	8.95%	85.47%	5.58%	10.90%	82.65%	6.45%	21.03%	62.43%	16.53%	17.09%	57.23%	25.68%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	137	1112	65	157	1149	89	167	523	140	103	335	143	4120
PEAK HR FACTOR :		0.933			0.844			0.922			0.854		0.948

UTURNS			
NB	SB	EB	WB
7	3		
1	9		
3	4		
3	7		
5	11		
8	12		
11	14		
3	14		
NB	SB	EB	WB
41	74	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_1064_006 **Day:** THURSDAY

City: City of Huntington Beach **Date:** 3/14/2013

PM

NS/EW Streets:	Beach Blvd			Beach Blvd			Garfield Ave			Garfield Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 3	NR 0	SL 1	ST 3	SR 0	EL 1	ET 2	ER 1	WL 1	WT 2	WR 0	TOTAL
4:00 PM	41	372	16	41	370	42	48	91	36	29	79	30	1195
4:15 PM	44	283	25	34	266	29	42	122	23	26	109	37	1040
4:30 PM	22	335	25	52	403	31	62	103	29	24	89	42	1217
4:45 PM	41	403	24	49	305	49	35	105	28	39	84	26	1188
5:00 PM	41	375	27	48	360	36	49	126	30	26	89	38	1245
5:15 PM	64	446	18	52	334	43	53	107	26	30	124	36	1333
5:30 PM	45	335	20	37	315	40	57	99	38	37	106	26	1155
5:45 PM	49	393	27	66	389	29	31	93	31	27	87	36	1258
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	347	2942	182	379	2742	299	377	846	241	238	767	271	9631
APPROACH %'s :	10.00%	84.76%	5.24%	11.08%	80.18%	8.74%	25.75%	57.79%	16.46%	18.65%	60.11%	21.24%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	199	1549	92	203	1398	148	190	425	125	120	406	136	4991
PEAK HR FACTOR :		0.871			0.903			0.902			0.871		0.936

UTURNS			
NB	SB	EB	WB
9	11		
12	13		
10	22		
6	20		
7	13		
16	14		
8	10		
11	20		
NB	SB	EB	WB
79	123	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_1064_007 **Day:** THURSDAY

City: City of Huntington Beach **Date:** 3/14/2013

AM

NS/EW Streets:	Beach Blvd			Beach Blvd			Adams Ave			Adams Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 3	NR 0	SL 2	ST 3	SR 0	EL 1	ET 3	ER 0	WL 1	WT 2	WR 1	TOTAL
7:00 AM	9	132	28	41	125	13	25	149	12	11	48	40	633
7:15 AM	5	148	40	43	126	16	18	164	10	10	45	34	659
7:30 AM	12	168	48	69	165	10	25	190	12	12	61	38	810
7:45 AM	10	236	58	84	207	13	32	159	15	21	85	38	958
8:00 AM	20	169	43	79	174	23	32	192	16	23	120	63	954
8:15 AM	13	171	50	68	229	24	46	197	18	24	98	57	995
8:30 AM	23	197	39	74	208	18	49	218	24	19	88	49	1006
8:45 AM	36	192	24	75	173	21	30	141	14	20	77	53	856
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	128	1413	330	533	1407	138	257	1410	121	140	622	372	6871
APPROACH %'s :	6.84%	75.52%	17.64%	25.65%	67.71%	6.64%	14.37%	78.86%	6.77%	12.35%	54.85%	32.80%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	66	773	190	305	818	78	159	766	73	87	391	207	3913
PEAK HR FACTOR :		0.846			0.935			0.857			0.831		0.972

UTURNS			
NB	SB	EB	WB
1	1	3	3
0	0	1	1
0	0	5	1
1	1	0	6
3	0	1	6
0	1	2	8
2	0	5	4
3	0	1	12
NB	SB	EB	WB
10	3	18	41

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_1064_007 **Day:** THURSDAY

City: City of Huntington Beach **Date:** 3/14/2013

PM

NS/EW Streets:	Beach Blvd			Beach Blvd			Adams Ave			Adams Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 3	NR 0	SL 2	ST 3	SR 0	EL 1	ET 3	ER 0	WL 1	WT 2	WR 1	TOTAL
4:00 PM	26	187	27	56	223	27	37	84	14	45	180	79	985
4:15 PM	31	207	25	89	209	28	36	96	6	39	151	88	1005
4:30 PM	24	211	27	68	209	33	46	103	14	40	159	71	1005
4:45 PM	36	264	27	74	230	33	31	102	15	34	173	84	1103
5:00 PM	37	248	24	69	279	39	31	99	17	47	175	73	1138
5:15 PM	37	289	26	95	226	33	37	127	17	52	202	84	1225
5:30 PM	32	278	36	89	260	40	33	116	8	53	196	83	1224
5:45 PM	35	247	30	65	223	35	36	109	15	44	193	90	1122
TOTAL VOLUMES :	NL 258	NT 1931	NR 222	SL 605	ST 1859	SR 268	EL 287	ET 836	ER 106	WL 354	WT 1429	WR 652	TOTAL 8807
APPROACH %'s :	10.70%	80.09%	9.21%	22.14%	68.05%	9.81%	23.35%	68.02%	8.62%	14.54%	58.69%	26.78%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	141	1062	116	318	988	147	137	451	57	196	766	330	4709
PEAK HR FACTOR :		0.937			0.934			0.891			0.956		0.961

UTURNS			
NB	SB	EB	WB
2	0	0	15
2	1	2	8
1	0	9	11
1	0	3	9
4	0	7	13
2	1	2	11
2	1	3	7
3	0	4	8
NB 17	SB 3	EB 30	WB 82

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_1064_008 **Day:** THURSDAY

City: City of Huntington Beach **Date:** 3/14/2013

AM

NS/EW Streets:	Beach Blvd			Beach Blvd			Atlanta Ave			Atlanta Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 3	NR 0	SL 1	ST 3	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
7:00 AM	4	49	17	30	86	13	10	56	10	1	32	35	343
7:15 AM	3	50	15	40	98	17	14	72	6	9	44	26	394
7:30 AM	9	83	19	51	129	23	21	75	7	17	40	33	507
7:45 AM	8	112	24	76	141	17	15	96	11	13	56	55	624
8:00 AM	7	94	12	49	123	27	15	61	9	6	59	53	515
8:15 AM	6	64	26	52	144	25	22	94	17	12	59	43	564
8:30 AM	6	76	23	65	135	17	29	98	13	9	84	68	623
8:45 AM	13	77	15	44	107	26	13	64	9	13	88	65	534
TOTAL VOLUMES :	NL 56	NT 605	NR 151	SL 407	ST 963	SR 165	EL 139	ET 616	ER 82	WL 80	WT 462	WR 378	TOTAL 4104
APPROACH %'s :	6.90%	74.51%	18.60%	26.51%	62.74%	10.75%	16.61%	73.60%	9.80%	8.70%	50.22%	41.09%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	27	346	85	242	543	86	81	349	50	40	258	219	2326
PEAK HR FACTOR :		0.795			0.931			0.857			0.803		0.932

UTURNS			
NB	SB	EB	WB
2	2	0	
0	1	1	
4	0	0	
3	1	0	
0	2	0	
1	1	0	
1	2	0	
1	2	0	
NB 12	SB 11	EB 1	WB 0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_1064_008 **Day:** THURSDAY

City: City of Huntington Beach **Date:** 3/14/2013

PM

NS/EW Streets:	Beach Blvd			Beach Blvd			Atlanta Ave			Atlanta Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 3	NR 0	SL 1	ST 3	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
4:00 PM	15	145	18	83	108	28	22	54	12	12	67	38	602
4:15 PM	29	156	22	68	99	27	19	79	6	17	79	45	646
4:30 PM	16	181	18	59	108	18	20	71	9	17	82	56	655
4:45 PM	20	228	12	77	113	24	23	66	16	15	69	49	712
5:00 PM	26	189	28	96	125	31	24	78	17	11	78	51	754
5:15 PM	44	251	29	68	104	28	31	74	13	21	98	68	829
5:30 PM	28	224	26	76	119	29	32	57	16	23	91	44	765
5:45 PM	34	198	19	73	113	27	22	83	7	12	97	48	733
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	212	1572	172	600	889	212	193	562	96	128	661	399	5696
APPROACH %'s :	10.84%	80.37%	8.79%	35.27%	52.26%	12.46%	22.68%	66.04%	11.28%	10.77%	55.64%	33.59%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	132	862	102	313	461	115	109	292	53	67	364	211	3081
PEAK HR FACTOR :		0.846			0.882			0.954			0.858		0.929

UTURNS			
NB	SB	EB	WB
4	4		
0	1		
2	0		
4	3		
5	2		
4	3		
5	5		
4	3		
NB	SB	EB	WB
28	21	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_1064_009 **Day:** THURSDAY

City: City of Huntington Beach **Date:** 3/14/2013

AM

NS/EW Streets:	Beach Blvd			Beach Blvd			Pacific Coast Hwy (SR-1)			Pacific Coast Hwy (SR-1)			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 2	ST 1	SR 1	EL 2	ET 3	ER 0	WL 1	WT 2	WR 1	TOTAL
7:00 AM	0	0	0	58	0	22	12	213	1	0	159	28	493
7:15 AM	0	4	1	98	3	30	12	356	0	0	133	30	667
7:30 AM	0	0	1	107	2	43	28	439	0	5	152	55	832
7:45 AM	1	1	1	123	9	32	30	460	2	2	180	60	901
8:00 AM	2	4	0	106	1	22	12	412	3	2	191	53	808
8:15 AM	1	0	2	135	0	40	21	394	1	0	198	53	845
8:30 AM	1	0	2	131	2	29	18	500	4	0	213	45	945
8:45 AM	0	0	5	106	1	29	28	350	2	2	159	47	729
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	5	9	12	864	18	247	161	3124	13	11	1385	371	6220
APPROACH %'s :	19.23%	34.62%	46.15%	76.53%	1.59%	21.88%	4.88%	94.72%	0.39%	0.62%	78.38%	21.00%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	5	5	5	495	12	123	81	1766	10	4	782	211	3499
PEAK HR FACTOR :		0.625			0.900			0.889			0.966		0.926

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

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_1064_009 **Day:** THURSDAY

City: City of Huntington Beach **Date:** 3/14/2013

PM

NS/EW Streets:	Beach Blvd			Beach Blvd			Pacific Coast Hwy (SR-1)			Pacific Coast Hwy (SR-1)			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 2	ST 1	SR 1	EL 2	ET 3	ER 0	WL 1	WT 2	WR 1	TOTAL
4:00 PM	6	9	5	61	6	60	37	200	5	5	306	119	819
4:15 PM	3	5	10	53	8	38	56	213	3	5	344	125	863
4:30 PM	4	9	7	50	11	43	70	242	5	0	296	116	853
4:45 PM	1	5	4	66	4	44	48	280	0	4	390	140	986
5:00 PM	4	6	1	82	5	47	66	230	2	5	385	148	981
5:15 PM	1	6	5	67	5	45	67	304	7	1	430	201	1139
5:30 PM	2	11	5	72	5	42	60	233	3	2	348	169	952
5:45 PM	0	4	3	63	4	50	50	220	3	3	344	151	895
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	21	55	40	514	48	369	454	1922	28	25	2843	1169	7488
APPROACH %'s :	18.10%	47.41%	34.48%	55.21%	5.16%	39.63%	18.89%	79.95%	1.16%	0.62%	70.42%	28.96%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	8	28	15	287	19	178	241	1047	12	12	1553	658	4058
PEAK HR FACTOR :		0.708			0.903			0.860			0.879		0.891

UTURNS			
NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_1064_016 **Day:** THURSDAY

City: City of Huntington Beach **Date:** 3/14/2013

AM

NS/EW Streets:	Newland St			Newland St			Atlanta Ave			Atlanta Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 3	ER 0	WL 1	WT 2	WR 0	TOTAL
7:00 AM	17	37	5	11	61	3	4	66	37	1	38	8	288
7:15 AM	14	47	4	7	55	5	10	67	58	4	45	12	328
7:30 AM	13	44	6	7	65	11	16	125	51	2	54	6	400
7:45 AM	29	64	8	27	80	16	23	129	64	5	70	35	550
8:00 AM	14	64	12	34	97	23	15	102	51	8	87	25	532
8:15 AM	31	61	12	49	73	14	13	101	60	5	80	39	538
8:30 AM	34	78	5	23	94	17	10	123	53	10	87	31	565
8:45 AM	27	45	4	13	70	12	9	63	42	6	85	10	386
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	179	440	56	171	595	101	100	776	416	41	546	166	3587
APPROACH %'s :	26.52%	65.19%	8.30%	19.72%	68.63%	11.65%	7.74%	60.06%	32.20%	5.44%	72.51%	22.05%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	108	267	37	133	344	70	61	455	228	28	324	130	2185
PEAK HR FACTOR :		0.880			0.888			0.861			0.941		0.967

UTURNS			
NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_1064_016 **Day:** THURSDAY

City: City of Huntington Beach **Date:** 3/14/2013

PM

NS/EW Streets:	Newland St			Newland St			Atlanta Ave			Atlanta Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 3	ER 0	WL 1	WT 2	WR 0	TOTAL
4:00 PM	43	83	5	22	55	23	14	108	36	7	112	28	536
4:15 PM	43	85	12	26	54	18	12	104	39	8	96	24	521
4:30 PM	62	120	9	17	46	24	17	86	43	15	98	35	572
4:45 PM	32	89	15	24	67	23	14	113	29	9	120	25	560
5:00 PM	59	104	7	26	53	25	16	119	42	6	119	26	602
5:15 PM	64	117	7	24	64	16	17	115	42	11	129	22	628
5:30 PM	66	95	3	20	44	20	11	90	44	8	132	30	563
5:45 PM	44	110	7	16	68	29	16	94	39	10	128	34	595
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	413	803	65	175	451	178	117	829	314	74	934	224	4577
APPROACH %'s :	32.24%	62.69%	5.07%	21.77%	56.09%	22.14%	9.29%	65.79%	24.92%	6.01%	75.81%	18.18%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	233	426	24	86	229	90	60	418	167	35	508	112	2388
PEAK HR FACTOR :	0.908			0.896			0.911			0.952			0.951

UTURNS			
NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_1064_015 **Day:** THURSDAY

City: City of Huntington Beach **Date:** 3/14/2013

AM

NS/EW Streets:	Newland St			Newland St			Hamilton Ave			Hamilton Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 1	ST 2	SR 0	EL 0	ET 0	ER 0	WL 1	WT 0	WR 1	TOTAL
7:00 AM		18	9	67	48					21		31	194
7:15 AM		9	17	84	45					13		37	205
7:30 AM		21	23	80	56					25		27	232
7:45 AM		22	30	101	53					16		41	263
8:00 AM		18	23	92	53					30		36	252
8:15 AM		18	22	109	51					26		46	272
8:30 AM		14	26	94	68					23		61	286
8:45 AM		12	14	66	49					16		36	193
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	132	164	693	423	0	0	0	0	170	0	315	1897
APPROACH %'s :	0.00%	44.59%	55.41%	62.10%	37.90%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	35.05%	0.00%	64.95%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	0	72	101	396	225	0	0	0	0	95	0	184	1073
PEAK HR FACTOR :	0.832			0.958			0.000			0.830			0.938

UTURNS			
NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_1064_015 **Day:** THURSDAY

City: City of Huntington Beach **Date:** 3/14/2013

PM

NS/EW Streets:	Newland St			Newland St			Hamilton Ave			Hamilton Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 1	ST 2	SR 0	EL 0	ET 0	ER 0	WL 1	WT 0	WR 1	TOTAL
4:00 PM		53	17	54	38					21		78	261
4:15 PM		46	13	39	47					22		78	245
4:30 PM		58	16	34	36					12		64	220
4:45 PM		52	17	41	33					36		55	234
5:00 PM		72	20	56	27					29		99	303
5:15 PM		72	14	56	30					20		96	288
5:30 PM		68	13	50	24					32		105	292
5:45 PM		60	15	57	34					41		90	297
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	481	125	387	269	0	0	0	0	213	0	665	2140
APPROACH %'s :	0.00%	79.37%	20.63%	58.99%	41.01%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	24.26%	0.00%	75.74%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	272	62	219	115	0	0	0	0	122	0	390	1180
PEAK HR FACTOR :		0.908			0.918			0.000			0.934		0.974

UTURNS			
NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_1064_010 **Day:** THURSDAY

City: City of Huntington Beach **Date:** 3/14/2013

AM

NS/EW Streets:	Newland St			Newland St			Pacific Coast Hwy (SR-1)			Pacific Coast Hwy (SR-1)			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT .5	NR .5	SL 1	ST 1	SR 0	EL 1	ET 3	ER 1	WL 1	WT 3	WR 1	TOTAL
7:00 AM	1	1	0	31	0	34	12	263	0		150	5	497
7:15 AM	0	0	0	40	0	23	7	438	0		144	3	655
7:30 AM	2	0	2	37	0	35	16	514	1		174	5	786
7:45 AM	0	2	0	34	0	22	18	558	0		195	7	836
8:00 AM	0	0	0	38	0	33	14	499	0		213	5	802
8:15 AM	4	0	0	45	1	33	18	520	0		174	7	802
8:30 AM	0	1	1	50	0	32	20	574	0		208	10	896
8:45 AM	1	1	0	36	0	30	13	450	1		184	3	719
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	8	5	3	311	1	242	118	3816	2	0	1442	45	5993
APPROACH %'s :	50.00%	31.25%	18.75%	56.14%	0.18%	43.68%	3.00%	96.95%	0.05%	0.00%	96.97%	3.03%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	4	3	1	167	1	120	70	2151	0	0	790	29	3336
PEAK HR FACTOR :		0.500			0.878			0.935			0.939		0.931

UTURNS			
NB	SB	EB	WB
0	0	0	
		1	
		0	
		3	
		3	
		1	
		1	
		0	
		9	
0	0		0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_1064_010 **Day:** THURSDAY

City: City of Huntington Beach **Date:** 3/14/2013

PM

NS/EW Streets:	Newland St			Newland St			Pacific Coast Hwy (SR-1)			Pacific Coast Hwy (SR-1)			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT .5	NR .5	SL 1	ST 1	SR 0	EL 1	ET 3	ER 1	WL 1	WT 3	WR 1	TOTAL
4:00 PM	8	1	1	12	0	28	32	206	2	5	402	33	730
4:15 PM	2	1	2	23	0	26	24	234	2	3	374	33	724
4:30 PM	0	1	1	9	0	32	27	262	0	1	401	39	773
4:45 PM	5	0	2	10	1	41	26	315	2	1	452	38	893
5:00 PM	2	2	2	7	0	35	32	281	1	5	496	41	904
5:15 PM	1	1	0	17	1	23	23	330	0	0	538	53	987
5:30 PM	0	0	1	14	0	21	27	304	1	0	553	52	973
5:45 PM	1	1	3	22	1	39	24	269	3	0	480	44	887
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	19	7	12	114	3	245	215	2201	11	15	3696	333	6871
APPROACH %'s :	50.00%	18.42%	31.58%	31.49%	0.83%	67.68%	8.86%	90.69%	0.45%	0.37%	91.39%	8.23%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	8	3	5	48	2	120	108	1230	4	6	2039	184	3757
PEAK HR FACTOR :	0.571			0.817			0.950			0.921			0.952

UTURNS			
NB	SB	EB	WB
		2	0
		1	1
		0	0
		3	0
		5	4
		0	0
		2	0
		3	0
NB	SB	EB	WB
0	0	16	5

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_1064_014 **Day:** THURSDAY

City: City of Huntington Beach **Date:** 3/14/2013

AM

NS/EW Streets:	Magnolia St			Magnolia St			Hamilton Ave			Hamilton Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 1	EL 1	ET 1	ER 0	WL 1	WT 1	WR 1	TOTAL
7:00 AM	1	24	3	25	38	4	4	72	8	6	52	41	278
7:15 AM	4	25	3	18	22	1	2	101	4	2	39	21	242
7:30 AM	4	26	5	26	45	3	3	94	2	2	46	39	295
7:45 AM	3	37	10	29	55	3	16	108	5	7	51	62	386
8:00 AM	2	37	8	51	54	10	28	88	11	7	65	96	457
8:15 AM	9	56	4	68	75	15	32	85	16	10	70	121	561
8:30 AM	15	54	23	52	58	10	11	102	19	8	72	45	469
8:45 AM	4	42	7	27	55	5	1	85	8	7	50	30	321
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	42	301	63	296	402	51	97	735	73	49	445	455	3009
APPROACH %'s :	10.34%	74.14%	15.52%	39.52%	53.67%	6.81%	10.72%	81.22%	8.07%	5.16%	46.89%	47.95%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	29	184	45	200	242	38	87	383	51	32	258	324	1873
PEAK HR FACTOR :	0.701			0.759			0.979			0.764			0.835

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

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_1064_014 **Day:** THURSDAY

City: City of Huntington Beach **Date:** 3/14/2013

PM

NS/EW Streets:	Magnolia St			Magnolia St			Hamilton Ave			Hamilton Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 1	EL 1	ET 1	ER 0	WL 1	WT 1	WR 1	TOTAL
4:00 PM	11	45	6	41	35	7	6	60	8	3	86	60	368
4:15 PM	5	63	7	34	35	4	9	60	8	5	102	49	381
4:30 PM	8	62	6	34	30	7	11	57	7	5	94	74	395
4:45 PM	7	78	8	43	32	9	2	59	4	10	107	73	432
5:00 PM	6	81	10	39	40	7	8	85	8	10	119	83	496
5:15 PM	10	74	6	54	50	4	9	64	8	9	116	77	481
5:30 PM	3	69	7	58	47	8	5	63	12	9	137	78	496
5:45 PM	8	68	2	45	36	9	8	58	6	5	114	75	434
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	58	540	52	348	305	55	58	506	61	56	875	569	3483
APPROACH %'s :	8.92%	83.08%	8.00%	49.15%	43.08%	7.77%	9.28%	80.96%	9.76%	3.73%	58.33%	37.93%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	27	292	25	196	173	28	30	270	34	33	486	313	1907
PEAK HR FACTOR :		0.887			0.878			0.827			0.929		0.961

UTURNS			
NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_1064_011 **Day:** THURSDAY

City: City of Huntington Beach **Date:** 3/14/2013

AM

NS/EW Streets:	Magnolia St			Magnolia St			Pacific Coast Hwy (SR-1)			Pacific Coast Hwy (SR-1)			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT .5	NR .5	SL 1.5	ST .5	SR 1	EL 1	ET 3	ER 1	WL 1	WT 3	WR 1	TOTAL
7:00 AM	1	2	0	18	5	30	10	283	2	1	120	8	480
7:15 AM	0	1	0	19	5	7	13	447	2	0	142	6	642
7:30 AM	2	2	1	25	7	14	13	520	2	2	175	10	773
7:45 AM	2	3	0	32	9	26	25	571	3	6	179	10	866
8:00 AM	0	0	1	34	3	26	23	498	5	5	197	16	808
8:15 AM	0	2	0	43	5	16	32	540	5	2	171	14	830
8:30 AM	0	2	1	32	6	37	25	596	3	3	183	6	894
8:45 AM	0	3	0	41	7	29	17	523	4	0	160	12	796
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	5	15	3	244	47	185	158	3978	26	19	1327	82	6089
APPROACH %'s :	21.74%	65.22%	13.04%	51.26%	9.87%	38.87%	3.80%	95.58%	0.62%	1.33%	92.93%	5.74%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	2	7	2	141	23	105	105	2205	16	16	730	46	3398
PEAK HR FACTOR :		0.550			0.897			0.932			0.908		0.950

UTURNS			
NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_1064_011 **Day:** THURSDAY

City: City of Huntington Beach **Date:** 3/14/2013

PM

NS/EW Streets:	Magnolia St			Magnolia St			Pacific Coast Hwy (SR-1)			Pacific Coast Hwy (SR-1)			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT .5	NR .5	SL 1.5	ST .5	SR 1	EL 1	ET 3	ER 1	WL 1	WT 3	WR 1	TOTAL
4:00 PM	4	2	3	12	2	12	17	187	3	7	387	24	660
4:15 PM	3	7	7	10	5	17	19	237	6	9	408	34	762
4:30 PM	5	3	3	13	8	19	21	255	5	2	436	45	815
4:45 PM	7	3	3	8	4	26	30	292	6	7	428	44	858
5:00 PM	2	16	4	18	3	26	34	254	3	4	571	47	982
5:15 PM	1	3	4	26	11	18	17	338	2	5	558	41	1024
5:30 PM	5	2	2	18	2	14	27	284	1	3	601	40	999
5:45 PM	2	4	4	18	1	18	19	277	3	2	518	57	923
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	29	40	30	123	36	150	184	2124	29	39	3907	332	7023
APPROACH %'s :	29.29%	40.40%	30.30%	39.81%	11.65%	48.54%	7.87%	90.89%	1.24%	0.91%	91.33%	7.76%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	10	25	14	80	17	76	97	1153	9	14	2248	185	3928
PEAK HR FACTOR :		0.557			0.786			0.882			0.950		0.959

UTURNS			
NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_1064_013 **Day:** THURSDAY

City: City of Huntington Beach **Date:** 3/14/2013

AM

NS/EW Streets:	Brookhurst St			Brookhurst St			Hamilton Ave			Hamilton Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 3	NR 1	SL 2	ST 2	SR 0	EL 1	ET 3	ER 0	WL 1	WT 2	WR 1	TOTAL
7:00 AM	10	59	54	79	62	5	25	138	8	29	65	39	573
7:15 AM	9	61	78	100	87	9	18	175	11	15	60	41	664
7:30 AM	7	94	89	90	77	12	18	164	8	21	73	56	709
7:45 AM	7	121	62	117	110	25	21	189	7	16	83	69	827
8:00 AM	21	97	81	120	111	43	26	160	13	17	101	63	853
8:15 AM	23	107	86	106	111	44	17	194	12	32	113	72	917
8:30 AM	18	100	99	134	125	9	26	220	16	38	108	73	966
8:45 AM	14	79	58	130	93	19	20	142	14	33	81	58	741
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	109	718	607	876	776	166	171	1382	89	201	684	471	6250
APPROACH %'s :	7.60%	50.07%	42.33%	48.18%	42.68%	9.13%	10.41%	84.17%	5.42%	14.82%	50.44%	34.73%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	69	425	328	477	457	121	90	763	48	103	405	277	3563
PEAK HR FACTOR :		0.947			0.963			0.860			0.896		0.922

UTURNS			
NB	SB	EB	WB
9	19	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_1064_013 **Day:** THURSDAY

City: City of Huntington Beach **Date:** 3/14/2013

PM

NS/EW Streets:	Brookhurst St			Brookhurst St			Hamilton Ave			Hamilton Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 3	NR 1	SL 2	ST 2	SR 0	EL 1	ET 3	ER 0	WL 1	WT 2	WR 1	TOTAL
4:00 PM	18	127	43	92	96	22	21	84	6	48	208	111	876
4:15 PM	16	164	35	91	97	23	30	82	17	42	167	101	865
4:30 PM	21	152	50	75	79	31	29	81	14	65	229	127	953
4:45 PM	19	127	34	94	113	31	31	82	20	43	210	116	920
5:00 PM	22	156	38	86	109	17	24	90	24	69	233	128	996
5:15 PM	17	151	51	87	122	25	25	102	14	60	249	122	1025
5:30 PM	28	154	51	74	93	24	25	72	14	62	242	136	975
5:45 PM	18	139	37	93	103	28	21	83	14	67	254	139	996
TOTAL VOLUMES :	NL 159	NT 1170	NR 339	SL 692	ST 812	SR 201	EL 206	ET 676	ER 123	WL 456	WT 1792	WR 980	TOTAL 7606
APPROACH %'s :	9.53%	70.14%	20.32%	40.59%	47.62%	11.79%	20.50%	67.26%	12.24%	14.13%	55.51%	30.36%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	85	600	177	340	427	94	95	347	66	258	978	525	3992
PEAK HR FACTOR :		0.925			0.920			0.901			0.957		0.974

UTURNS			
NB	SB	EB	WB
2	9		1
1	10		0
3	10		0
2	13		0
4	12		0
2	5		0
2	8		1
4	10		0
NB 20	SB 77	EB 0	WB 2

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_1064_012 **Day:** THURSDAY

City: City of Huntington Beach **Date:** 3/14/2013

AM

NS/EW Streets:	Brookhurst St			Brookhurst St			Pacific Coast Hwy (SR-1)			Pacific Coast Hwy (SR-1)			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT .5	NR .5	SL 2	ST 1	SR 1	EL 1	ET 3	ER 1	WL 1	WT 3	WR 1	TOTAL
7:00 AM	1	2	1	70	1	28	13	258	1	0	95	39	509
7:15 AM	0	1	1	108	1	20	25	384	2	0	133	28	703
7:30 AM	1	1	0	104	0	22	42	543	1	3	160	57	934
7:45 AM	0	2	0	138	1	28	51	556	0	1	169	70	1016
8:00 AM	1	6	0	122	1	16	30	474	0	2	203	84	939
8:15 AM	0	0	0	123	2	34	44	563	0	5	168	79	1018
8:30 AM	1	2	1	144	0	32	64	584	0	0	168	55	1051
8:45 AM	0	2	1	125	0	14	34	517	0	0	152	50	895
TOTAL VOLUMES :	NL 4	NT 16	NR 4	SL 934	ST 6	SR 194	EL 303	ET 3879	ER 4	WL 11	WT 1248	WR 462	TOTAL 7065
APPROACH %'s :	16.67%	66.67%	16.67%	82.36%	0.53%	17.11%	7.24%	92.67%	0.10%	0.64%	72.52%	26.84%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	2	10	1	527	4	110	189	2177	0	8	708	288	4024
PEAK HR FACTOR :		0.464			0.911			0.913			0.869		0.957

UTURNS			
NB	SB	EB	WB
		1	0
		0	0
		0	3
		0	1
		0	1
		0	4
		0	0
		1	0
NB 0	SB 0	EB 2	WB 9

CONTROL : Signalized

I□tersectio□T□r□□□Mo□e□e□t

Pre□ie□□y:

N□tio□□□D□t□□S□r□ayi□□Ser□ices

Project ID: CA13_1064_012 **D□y:** THURSDA□

City: City of Huntington Beach **D□te:** 3□4□2013

PM

NS/EW Streets:	Brookhurst St			Brookhurst St			Pacific Coast Hwy (SR-1)			Pacific Coast Hwy (SR-1)			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES[	1	.5	.5	2	1	1	1	3	1	1	3	1	
4□00 PM	3	5	0	76	3	40	24	194	1	1	405	136	888
4□15 PM	5	1	0	66	3	32	22	231	1	3	411	175	950
4□30 PM	3	5	2	81	1	46	33	248	1	3	473	163	1059
4□45 PM	4	1	0	93	0	35	31	274	0	4	447	141	1030
5□00 PM	2	2	2	66	2	43	36	247	0	3	544	181	1128
5□15 PM	1	0	3	73	1	42	48	299	0	0	605	167	1239
5□30 PM	3	1	4	68	3	41	44	276	1	8	551	155	1155
5□45 PM	2	3	3	57	2	40	22	243	0	4	565	180	1121
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOL□MES :	23	18	14	580	15	319	260	2012	4	26	4001	1298	8570
APPROACH □ ■ :	41.82□	32.73□	25.45□	63.46□	1.64□	34.90□	11.42□	88.40□	0.18□	0.49□	75.14□	24.38□	

UTURNS			
NB	SB	EB	WB
		0	1
		0	1
		0	0
		1	2
		0	2
		0	0
		0	4
		0	3
NB	SB	EB	WB
0	0	1	13

PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	8	6	12	264	8	166	150	1065	1	15	2265	683	4643
PEAK HR FACTOR :	0.813			0.944			0.876			0.960			0.937

CONTROL : Signalized

APPENDIX B: EXISTING LOS RESULTS

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	77	506	0	1978	2841	820
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	4.5		6.0	6.0	4.0
Lane Util. Factor	0.97	0.88		0.86	0.86	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	2787		6408	6408	1583
Flt Permitted	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	2787		6408	6408	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	82	538	0	2104	3022	872
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	82	538	0	2104	3022	872
Turn Type	NA	custom		NA	NA	Free
Protected Phases	4	5		2	6	
Permitted Phases		4		5		Free
Actuated Green, G (s)	13.0	34.2		115.7	90.0	140.0
Effective Green, g (s)	13.0	34.2		115.7	90.0	140.0
Actuated g/C Ratio	0.09	0.24		0.83	0.64	1.00
Clearance Time (s)	5.3	4.5		6.0	6.0	
Vehicle Extension (s)	4.0	3.8		4.0	4.0	
Lane Grp Cap (vph)	318	680		5295	4119	1583
v/s Ratio Prot	0.02	c0.12		0.33	c0.47	
v/s Ratio Perm		0.07				0.55
v/c Ratio	0.26	0.79		0.40	0.73	0.55
Uniform Delay, d1	59.0	49.6		3.1	16.9	0.0
Progression Factor	1.00	1.00		0.63	1.00	1.00
Incremental Delay, d2	0.6	6.5		0.0	1.2	1.4
Delay (s)	59.6	56.1		2.0	18.1	1.4
Level of Service	E	E		A	B	A
Approach Delay (s)	56.6			2.0	14.3	
Approach LOS	E			A	B	

Intersection Summary			
HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.8
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	193	765	110	121	492	260	113	1499	259	430	2324	522
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.5	4.6	4.4	5.5	5.5	4.6	5.8	5.8	4.4	6.0	4.6
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.86	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	6408	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	6408	2787
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	205	814	117	129	523	277	120	1595	276	457	2472	555
RTOR Reduction (vph)	0	0	67	0	0	227	0	0	130	0	0	57
Lane Group Flow (vph)	205	814	50	129	523	50	120	1595	146	457	2472	498
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2		1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	14.0	26.3	38.3	13.0	25.1	25.1	12.0	60.2	60.2	20.4	68.2	82.2
Effective Green, g (s)	14.0	26.3	38.3	13.0	25.1	25.1	12.0	60.2	60.2	20.4	68.2	82.2
Actuated g/C Ratio	0.10	0.19	0.27	0.09	0.18	0.18	0.09	0.43	0.43	0.15	0.49	0.59
Clearance Time (s)	4.6	5.5	4.6	4.4	5.5	5.5	4.6	5.8	5.8	4.4	6.0	4.6
Vehicle Extension (s)	1.0	3.0	1.0	1.0	3.0	3.0	1.0	4.0	4.0	1.0	4.0	1.0
Lane Grp Cap (vph)	343	955	433	318	634	283	294	2186	680	500	3121	1727
v/s Ratio Prot	0.06	c0.16	0.01	0.04	c0.15		0.03	c0.31		c0.13	c0.39	0.03
v/s Ratio Perm			0.02			0.03			0.09			0.15
v/c Ratio	0.60	0.85	0.12	0.41	0.82	0.18	0.41	0.73	0.21	0.91	0.79	0.29
Uniform Delay, d1	60.3	55.0	38.1	59.9	55.3	48.7	60.6	33.1	25.1	58.9	30.0	14.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.73	0.52	0.16	1.04	0.65	0.49
Incremental Delay, d2	1.9	7.4	0.0	0.3	8.6	0.3	0.3	2.0	0.7	16.0	1.5	0.0
Delay (s)	62.2	62.4	38.2	60.2	63.9	49.0	44.8	19.3	4.8	77.5	21.0	7.1
Level of Service	E	E	D	E	E	D	D	B	A	E	C	A
Approach Delay (s)		59.9			58.9			18.8			26.2	
Approach LOS		E			E			B			C	

Intersection Summary			
HCM 2000 Control Delay	33.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	86.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	226	1148	119	198	607	59	123	1209	135	362	1719	223
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.3		4.2	5.3		4.2	5.3		4.2	5.3	5.3
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.86		0.97	0.86	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	5014		3433	5018		3433	6311		3433	6408	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	5014		3433	5018		3433	6311		3433	6408	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	231	1171	121	202	619	60	126	1234	138	369	1754	228
RTOR Reduction (vph)	0	9	0	0	7	0	0	14	0	0	0	121
Lane Group Flow (vph)	231	1283	0	202	672	0	126	1358	0	369	1754	107
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	14.7	39.4		11.5	36.2		13.0	53.4		16.7	57.1	57.1
Effective Green, g (s)	14.7	39.4		11.5	36.2		13.0	53.4		16.7	57.1	57.1
Actuated g/C Ratio	0.10	0.28		0.08	0.26		0.09	0.38		0.12	0.41	0.41
Clearance Time (s)	4.2	5.3		4.2	5.3		4.2	5.3		4.2	5.3	5.3
Vehicle Extension (s)	1.1	3.0		1.1	3.0		1.1	6.0		1.1	6.0	6.0
Lane Grp Cap (vph)	360	1411		281	1297		318	2407		409	2613	645
v/s Ratio Prot	c0.07	c0.26		0.06	0.13		0.04	0.22		c0.11	c0.27	
v/s Ratio Perm												0.07
v/c Ratio	0.64	0.91		0.72	0.52		0.40	0.56		0.90	0.67	0.17
Uniform Delay, d1	60.1	48.6		62.7	44.4		59.8	34.1		60.8	33.8	26.3
Progression Factor	1.00	1.00		1.00	1.00		1.45	0.16		1.54	0.32	0.05
Incremental Delay, d2	2.9	8.9		7.1	0.4		0.2	0.8		15.7	0.9	0.4
Delay (s)	63.0	57.4		69.8	44.8		86.9	6.3		109.3	11.8	1.7
Level of Service	E	E		E	D		F	A		F	B	A
Approach Delay (s)		58.3			50.5			13.1			26.1	
Approach LOS		E			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	34.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	84.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	374	105	136	312	119	133	1324	108	264	1660	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.5		4.7	5.5		4.7	5.8		4.7	5.8	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.86		1.00	0.86	
Frt	1.00	0.97		1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3423		1770	3393		1770	6336		1770	6335	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3423		1770	3393		1770	6336		1770	6335	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	78	390	109	142	325	124	139	1379	112	275	1729	142
RTOR Reduction (vph)	0	19	0	0	29	0	0	10	0	0	9	0
Lane Group Flow (vph)	78	480	0	142	420	0	139	1481	0	275	1862	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	12.0	24.8		14.3	27.1		13.3	51.2		29.0	66.9	
Effective Green, g (s)	12.0	24.8		14.3	27.1		13.3	51.2		29.0	66.9	
Actuated g/C Ratio	0.09	0.18		0.10	0.19		0.10	0.37		0.21	0.48	
Clearance Time (s)	4.7	5.5		4.7	5.5		4.7	5.8		4.7	5.8	
Vehicle Extension (s)	1.0	3.5		1.0	3.5		1.0	5.0		1.0	5.0	
Lane Grp Cap (vph)	151	606		180	656		168	2317		366	3027	
v/s Ratio Prot	0.04	c0.14		c0.08	0.12		c0.08	c0.23		c0.16	0.29	
v/s Ratio Perm												
v/c Ratio	0.52	0.79		0.79	0.64		0.83	0.64		0.75	0.62	
Uniform Delay, d1	61.2	55.1		61.4	52.0		62.2	36.8		52.1	27.0	
Progression Factor	1.00	1.00		1.00	1.00		0.75	0.70		0.62	0.26	
Incremental Delay, d2	1.2	7.2		18.7	2.2		24.0	1.2		5.9	0.7	
Delay (s)	62.5	62.3		80.1	54.2		70.9	27.0		38.4	7.8	
Level of Service	E	E		F	D		E	C		D	A	
Approach Delay (s)		62.4			60.4			30.8			11.7	
Approach LOS		E			E			C			B	

Intersection Summary			
HCM 2000 Control Delay	29.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	248	413	85	115	288	128	69	1196	114	135	1225	316
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.7	6.0		4.7	6.0	6.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.86		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3539	1583	3433	6324		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3539	1583	3433	6324		3433	5085	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	261	435	89	121	303	135	73	1259	120	142	1289	333
RTOR Reduction (vph)	0	0	70	0	0	120	0	10	0	0	0	46
Lane Group Flow (vph)	261	435	19	121	303	15	73	1369	0	142	1289	287
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	pt+ov
Protected Phases	7	7		8	8		5	2		1	6	6 7
Permitted Phases			7			8						
Actuated Green, G (s)	29.4	29.4	29.4	15.6	15.6	15.6	8.0	61.7		10.6	64.3	99.7
Effective Green, g (s)	29.4	29.4	29.4	15.6	15.6	15.6	8.0	61.7		10.6	64.3	99.7
Actuated g/C Ratio	0.21	0.21	0.21	0.11	0.11	0.11	0.06	0.44		0.08	0.46	0.71
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.7	6.0		4.7	6.0	
Vehicle Extension (s)	2.2	2.2	2.2	1.2	1.2	1.2	1.2	5.0		1.2	5.0	
Lane Grp Cap (vph)	720	743	332	197	394	176	196	2787		259	2335	1127
v/s Ratio Prot	0.08	c0.12		0.07	c0.09		0.02	0.22		c0.04	c0.25	0.18
v/s Ratio Perm			0.01			0.01						
v/c Ratio	0.36	0.59	0.06	0.61	0.77	0.09	0.37	0.49		0.55	0.55	0.25
Uniform Delay, d1	47.3	49.8	44.2	59.3	60.4	55.8	63.6	27.9		62.4	27.4	7.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.97	0.80	2.37
Incremental Delay, d2	0.2	0.9	0.0	4.0	7.9	0.1	0.4	0.6		1.0	0.7	0.0
Delay (s)	47.4	50.7	44.2	63.3	68.4	55.9	64.0	28.6		61.5	22.6	16.8
Level of Service	D	D	D	E	E	E	E	C		E	C	B
Approach Delay (s)		48.9			64.2			30.4			24.6	
Approach LOS		D			E			C			C	

Intersection Summary				
HCM 2000 Control Delay	35.5	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.60			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.7	
Intersection Capacity Utilization	70.7%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	167	523	140	103	335	143	137	1112	65	157	1149	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.8	5.8	4.6	5.8		4.6	6.2		4.6	6.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3380		1770	5043		1770	5030	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3380		1770	5043		1770	5030	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	176	551	147	108	353	151	144	1171	68	165	1209	94
RTOR Reduction (vph)	0	0	115	0	42	0	0	5	0	0	7	0
Lane Group Flow (vph)	176	551	32	108	462	0	144	1234	0	165	1296	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	15.4	26.1	26.1	11.9	22.6		13.8	46.7		14.1	47.0	
Effective Green, g (s)	15.4	26.1	26.1	11.9	22.6		13.8	46.7		14.1	47.0	
Actuated g/C Ratio	0.13	0.22	0.22	0.10	0.19		0.12	0.39		0.12	0.39	
Clearance Time (s)	4.6	5.8	5.8	4.6	5.8		4.6	6.2		4.6	6.2	
Vehicle Extension (s)	1.5	4.0	4.0	1.5	4.0		1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	227	769	344	175	636		203	1962		207	1970	
v/s Ratio Prot	0.10	c0.16		0.06	c0.14		c0.08	0.24		c0.09	c0.26	
v/s Ratio Perm			0.02									
v/c Ratio	0.78	0.72	0.09	0.62	0.73		0.71	0.63		0.80	0.66	
Uniform Delay, d1	50.6	43.5	37.5	51.9	45.8		51.2	29.6		51.6	29.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.31	1.46		1.00	1.00	
Incremental Delay, d2	13.9	3.4	0.2	4.5	4.4		8.2	1.4		17.7	1.7	
Delay (s)	64.6	46.9	37.7	56.4	50.2		75.5	44.6		69.3	31.7	
Level of Service	E	D	D	E	D		E	D		E	C	
Approach Delay (s)		48.9			51.3			47.8			35.9	
Approach LOS		D			D			D			D	

Intersection Summary				
HCM 2000 Control Delay	44.5	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.71			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.2	
Intersection Capacity Utilization	73.3%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	159	766	73	87	391	207	66	773	190	305	818	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	6.2		4.7	6.2	6.2	4.7	6.2		4.7	6.2	
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00	1.00	0.91		0.97	0.91	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5019		1770	3539	1583	1770	4935		3433	5019	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5019		1770	3539	1583	1770	4935		3433	5019	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	164	790	75	90	403	213	68	797	196	314	843	80
RTOR Reduction (vph)	0	10	0	0	0	171	0	35	0	0	9	0
Lane Group Flow (vph)	164	855	0	90	403	42	68	958	0	314	914	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	16.1	28.5		11.4	23.8	23.8	10.6	43.1		15.2	47.7	
Effective Green, g (s)	16.1	28.5		11.4	23.8	23.8	10.6	43.1		15.2	47.7	
Actuated g/C Ratio	0.13	0.24		0.10	0.20	0.20	0.09	0.36		0.13	0.40	
Clearance Time (s)	4.7	6.2		4.7	6.2	6.2	4.7	6.2		4.7	6.2	
Vehicle Extension (s)	1.8	5.0		1.8	5.0	5.0	1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	237	1192		168	701	313	156	1772		434	1995	
v/s Ratio Prot	c0.09	c0.17		0.05	0.11		0.04	c0.19		c0.09	0.18	
v/s Ratio Perm						0.03						
v/c Ratio	0.69	0.72		0.54	0.57	0.13	0.44	0.54		0.72	0.46	
Uniform Delay, d1	49.6	42.0		51.8	43.5	39.6	51.9	30.6		50.4	26.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		0.54	0.87	
Incremental Delay, d2	6.9	2.6		1.6	1.8	0.4	0.7	1.2		4.0	0.6	
Delay (s)	56.4	44.6		53.4	45.3	40.0	52.6	31.8		31.2	23.7	
Level of Service	E	D		D	D	D	D	C		C	C	
Approach Delay (s)		46.5			44.8			33.1			25.6	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	36.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.8
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	81	349	50	40	258	219	27	346	85	242	543	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.5		4.7	5.5		4.7	6.2		4.7	6.2	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.98		1.00	0.93		1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3472		1770	3296		1770	4935		1770	4981	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3472		1770	3296		1770	4935		1770	4981	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	87	375	54	43	277	235	29	372	91	260	584	92
RTOR Reduction (vph)	0	7	0	0	94	0	0	24	0	0	9	0
Lane Group Flow (vph)	87	422	0	43	418	0	29	439	0	260	667	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	9.4	22.1		5.8	18.5		3.7	20.2		25.5	42.0	
Effective Green, g (s)	9.4	22.1		5.8	18.5		3.7	20.2		25.5	42.0	
Actuated g/C Ratio	0.10	0.23		0.06	0.20		0.04	0.21		0.27	0.44	
Clearance Time (s)	4.7	5.5		4.7	5.5		4.7	6.2		4.7	6.2	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	175	810		108	643		69	1052		476	2209	
v/s Ratio Prot	c0.05	c0.12		0.02	c0.13		0.02	c0.09		c0.15	0.13	
v/s Ratio Perm												
v/c Ratio	0.50	0.52		0.40	0.65		0.42	0.42		0.55	0.30	
Uniform Delay, d1	40.4	31.7		42.8	35.1		44.5	32.2		29.6	16.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.3		0.9	1.7		1.5	0.6		0.7	0.2	
Delay (s)	41.2	32.0		43.6	36.8		46.0	32.7		30.3	17.1	
Level of Service	D	C		D	D		D	C		C	B	
Approach Delay (s)		33.5			37.4			33.5			20.8	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	29.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	94.7	Sum of lost time (s)	21.1
Intersection Capacity Utilization	58.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis — Existing (2013) Conditions
9: Huntington Beach Parking/Beach Blvd & Pacific Coast Highway — AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	81	1766	10	4	782	211	5	5	5	495	12	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	6.0		4.5	6.0	6.0	5.0	5.0	5.0	5.0	5.0	4.0
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5081		1770	3539	1583	1770	3539	1583	3433	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5081		1770	3539	1583	1770	3539	1583	3433	1863	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	87	1899	11	4	841	227	5	5	5	532	13	132
RTOR Reduction (vph)	0	0	0	0	0	108	0	0	5	0	0	0
Lane Group Flow (vph)	87	1910	0	4	841	119	5	5	0	532	13	132
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases						2			4			Free
Actuated Green, G (s)	5.6	56.3		1.4	52.4	52.4	1.1	6.8	6.8	15.0	20.7	100.0
Effective Green, g (s)	5.6	56.3		1.4	52.4	52.4	1.1	6.8	6.8	15.0	20.7	100.0
Actuated g/C Ratio	0.06	0.56		0.01	0.52	0.52	0.01	0.07	0.07	0.15	0.21	1.00
Clearance Time (s)	4.2	6.0		4.5	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	1.5	4.6		2.0	4.5	4.5	2.0	1.8	1.8	2.0	1.8	
Lane Grp Cap (vph)	192	2860		24	1854	829	19	240	107	514	385	1583
v/s Ratio Prot	c0.03	c0.38		0.00	0.24		0.00	0.00		c0.15	0.01	
v/s Ratio Perm						0.08			0.00			c0.08
v/c Ratio	0.45	0.67		0.17	0.45	0.14	0.26	0.02	0.00	1.04	0.03	0.08
Uniform Delay, d1	45.7	15.3		48.7	14.9	12.2	49.0	43.5	43.4	42.5	31.7	0.0
Progression Factor	1.00	1.00		0.58	1.32	3.65	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	1.3		1.2	0.8	0.4	2.7	0.0	0.0	49.0	0.0	0.1
Delay (s)	46.3	16.6		29.5	20.4	45.1	51.7	43.5	43.4	91.5	31.7	0.1
Level of Service	D	B		C	C	D	D	D	D	F	C	A
Approach Delay (s)		17.9			25.7			46.2			72.6	
Approach LOS		B			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	30.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis — Existing (2013) Conditions
12: Huntington Beach Parking/Newland St & Pacific Coast Highway — AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	2151	0	0	790	29	4	3	1	167	1	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.7			5.7	5.7	4.2	4.2		4.2	4.2	
Lane Util. Factor	1.00	0.91			0.91	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00			1.00	0.85	1.00	0.96		1.00	0.85	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5085			5085	1583	1770	1793		1770	1585	
Flt Permitted	0.95	1.00			1.00	1.00	0.65	1.00		0.76	1.00	
Satd. Flow (perm)	1770	5085			5085	1583	1203	1793		1407	1585	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	75	2313	0	0	849	31	4	3	1	180	1	129
RTOR Reduction (vph)	0	0	0	0	0	16	0	1	0	0	90	0
Lane Group Flow (vph)	75	2313	0	0	849	15	4	3	0	180	40	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases			2			6	4			8		
Actuated Green, G (s)	7.4	60.1			48.7	48.7	30.0	30.0		30.0	30.0	
Effective Green, g (s)	7.4	60.1			48.7	48.7	30.0	30.0		30.0	30.0	
Actuated g/C Ratio	0.07	0.60			0.49	0.49	0.30	0.30		0.30	0.30	
Clearance Time (s)	4.0	5.7			5.7	5.7	4.2	4.2		4.2	4.2	
Vehicle Extension (s)	1.7	4.6			4.6	4.6	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	130	3056			2476	770	360	537		422	475	
v/s Ratio Prot	0.04	c0.45			0.17			0.00			0.03	
v/s Ratio Perm						0.01	0.00			c0.13		
v/c Ratio	0.58	0.76			0.34	0.02	0.01	0.01		0.43	0.08	
Uniform Delay, d1	44.8	14.6			15.8	13.3	24.6	24.5		28.1	25.1	
Progression Factor	1.08	1.23			1.65	6.28	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.7	1.3			0.4	0.0	0.1	0.0		3.1	0.3	
Delay (s)	51.0	19.3			26.5	83.4	24.6	24.6		31.2	25.5	
Level of Service	D	B			C	F	C	C		C	C	
Approach Delay (s)		20.3			28.5			24.6			28.8	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	23.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.9
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	105	2205	16	16	730	46	2	7	2	141	23	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	5.7	5.7	3.7	5.7	5.7	4.2	4.2		4.6	4.6	4.6
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1801		1681	1708	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1770	1801		1681	1708	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	111	2321	17	17	768	48	2	7	2	148	24	111
RTOR Reduction (vph)	0	0	5	0	0	19	0	2	0	0	0	100
Lane Group Flow (vph)	111	2321	12	17	768	29	2	7	0	86	86	11
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	1	6		5	2		7	7		8	8	
Permitted Phases			6			2						8
Actuated Green, G (s)	10.3	68.6	68.6	2.5	60.8	60.8	1.2	1.2		9.5	9.5	9.5
Effective Green, g (s)	10.3	68.6	68.6	2.5	60.8	60.8	1.2	1.2		9.5	9.5	9.5
Actuated g/C Ratio	0.10	0.69	0.69	0.02	0.61	0.61	0.01	0.01		0.10	0.10	0.10
Clearance Time (s)	3.7	5.7	5.7	3.7	5.7	5.7	4.2	4.2		4.6	4.6	4.6
Vehicle Extension (s)	1.7	4.6	4.6	1.7	4.6	4.6	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	182	3488	1085	44	3091	962	21	21		159	162	150
v/s Ratio Prot	c0.06	c0.46		0.01	0.15		0.00	c0.00		c0.05	0.05	
v/s Ratio Perm			0.01			0.02						0.01
v/c Ratio	0.61	0.67	0.01	0.39	0.25	0.03	0.10	0.33		0.54	0.53	0.07
Uniform Delay, d1	42.9	9.1	5.0	48.0	9.1	7.8	48.9	49.0		43.2	43.1	41.2
Progression Factor	1.32	0.45	1.00	1.14	1.62	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.6	0.7	0.0	2.0	0.1	0.0	0.7	3.4		2.0	1.7	0.1
Delay (s)	59.4	4.7	5.0	56.8	14.8	7.8	49.6	52.4		45.2	44.8	41.3
Level of Service	E	A	A	E	B	A	D	D		D	D	D
Approach Delay (s)		7.2			15.2			51.9			43.5	
Approach LOS		A			B			D			D	

Intersection Summary				
HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.66			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.2	
Intersection Capacity Utilization	69.0%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	189	2177	0	8	708	288	2	10	1	527	4	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.7		4.5	5.7	5.7	4.5	4.5		6.0	6.0	6.0
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		0.97	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5085		1770	5085	1583	1770	1837		3433	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5085		1770	5085	1583	1770	1837		3433	1863	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	197	2268	0	8	738	300	2	10	1	549	4	115
RTOR Reduction (vph)	0	0	0	0	0	182	0	1	0	0	0	90
Lane Group Flow (vph)	197	2268	0	8	738	118	2	10	0	549	4	25
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases			6			2						3
Actuated Green, G (s)	16.1	54.2		1.2	39.3	39.3	2.4	2.4		21.5	21.5	21.5
Effective Green, g (s)	16.1	54.2		1.2	39.3	39.3	2.4	2.4		21.5	21.5	21.5
Actuated g/C Ratio	0.16	0.54		0.01	0.39	0.39	0.02	0.02		0.22	0.22	0.22
Clearance Time (s)	4.5	5.7		4.5	5.7	5.7	4.5	4.5		6.0	6.0	6.0
Vehicle Extension (s)	1.7	4.6		1.7	4.6	4.6	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	284	2756		21	1998	622	42	44		738	400	340
v/s Ratio Prot	c0.11	c0.45		0.00	0.15		0.00	c0.01		c0.16	0.00	
v/s Ratio Perm						0.07						0.02
v/c Ratio	0.69	0.82		0.38	0.37	0.19	0.05	0.23		0.74	0.01	0.07
Uniform Delay, d1	39.6	18.9		49.0	21.6	19.9	47.7	47.9		36.7	30.9	31.3
Progression Factor	1.29	0.78		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	4.8	1.9		4.2	0.5	0.7	0.2	1.0		3.6	0.0	0.0
Delay (s)	56.0	16.6		53.2	22.1	20.6	47.9	48.9		40.3	30.9	31.3
Level of Service	E	B		D	C	C	D	D		D	C	C
Approach Delay (s)		19.7			21.9			48.7			38.7	
Approach LOS		B			C			D			D	

Intersection Summary				
HCM 2000 Control Delay	23.4	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.80			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.7	
Intersection Capacity Utilization	80.6%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Existing Conditions (2013)
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #10 Newland St & Atlanta Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.428
Loss Time (sec): 0 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 40 Level Of Service: A

Street Name:	Newland Street						Atlanta Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1	1 0	1 0	1	1 0	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	108	267	37	133	344	70	61	455	228	28	324	130
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:	108	267	37	133	344	70	61	455	228	28	324	130
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:	108	267	37	133	344	70	61	455	228	28	324	130
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	108	267	37	133	344	70	61	455	228	28	324	130
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:	108	267	37	133	344	70	61	455	228	28	324	130
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.76	0.24	1.00	1.66	0.34	1.00	1.33	0.67	1.00	1.43	0.57
Final Sat.:	1600	2811	389	1600	2659	541	1600	2132	1068	1600	2284	916
Capacity Analysis Module:												
Vol/Sat:	0.07	0.09	0.10	0.08	0.13	0.13	0.04	0.21	0.21	0.02	0.14	0.14
Crit Moves:	****				****			****		****		

Existing Conditions (2013)
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #11 Newland St & Hamilton Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.471
Loss Time (sec): 0 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 43 Level Of Service: A

Street Name:	Newland Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0	1 0	1 0	1	0 0	0 0	0	0 0	1 0	0	0 1
Volume Module:												
Base Vol:	0	72	101	396	225	0	0	0	0	95	0	184
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	72	101	396	225	0	0	0	0	95	0	184
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	72	101	396	225	0	0	0	0	95	0	184
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	72	101	396	225	0	0	0	0	95	0	184
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	72	101	396	225	0	0	0	0	95	0	184
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.42	0.58	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	666	934	1600	1600	0	0	0	0	1600	0	1600
Capacity Analysis Module:												
Vol/Sat:	0.00	0.11	0.11	0.25	0.14	0.00	0.00	0.00	0.00	0.06	0.00	0.12
Crit Moves:		****		****								****

Existing Conditions (2013)
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #13 Magnolia St & Hamilton Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.488
Loss Time (sec): 0 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 36 Level Of Service: A

Street Name:	Magnolia Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Prot+Permit			Prot+Permit			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0 1	1 0	1	0 2	0 1	1	0 0	1 0	1	0 1	0 1
Volume Module:												
Base Vol:	29	184	45	200	242	38	87	383	51	32	258	324
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:	29	184	45	200	242	38	87	383	51	32	258	324
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:	29	184	45	200	242	38	87	383	51	32	258	324
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	29	184	45	200	242	38	87	383	51	32	258	324
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:	29	184	45	200	242	38	87	383	51	32	258	324
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.61	0.39	1.00	2.00	1.00	1.00	0.88	0.12	1.00	1.00	1.00
Final Sat.:	1600	2571	629	1600	3200	1600	1600	1412	188	1600	1600	1600
Capacity Analysis Module:												
Vol/Sat:	0.02	0.07	0.07	0.13	0.08	0.02	0.05	0.27	0.27	0.02	0.16	0.20
Crit Moves:		****		****				****		****		

Existing Conditions (2013)
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #15 Brookhurst St & Hamilton Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.672
Loss Time (sec): 0 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 69 Level Of Service: B

Street Name:	Brookhurst Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Protected			Protected			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0 3	0 1	2	0 2	1 0	1	0 1	1 0	1	0 2	0 1
Volume Module:												
Base Vol:	69	425	328	477	457	121	90	763	48	103	405	277
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:	69	425	328	477	457	121	90	763	48	103	405	277
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:	69	425	328	477	457	121	90	763	48	103	405	277
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	69	425	328	477	457	121	90	763	48	103	405	277
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:	69	425	328	477	457	121	90	763	48	103	405	277
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	3.00	1.00	2.00	2.37	0.63	1.00	1.88	0.12	1.00	2.00	1.00
Final Sat.:	1600	4800	1600	3200	3795	1005	1600	3011	189	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.04	0.09	0.21	0.15	0.12	0.12	0.06	0.25	0.25	0.06	0.13	0.17
Crit Moves:			****	****				****		****		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	288	927	0	2415	2247	885
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	4.5		6.0	6.0	4.0
Lane Util. Factor	0.97	0.88		0.86	0.86	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	2787		6408	6408	1583
Flt Permitted	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	2787		6408	6408	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	297	956	0	2490	2316	912
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	297	956	0	2490	2316	912
Turn Type	NA	custom		NA	NA	Free
Protected Phases	4	5		2	6	
Permitted Phases		4		5		Free
Actuated Green, G (s)	17.7	57.8		111.0	66.4	140.0
Effective Green, g (s)	17.7	57.8		111.0	66.4	140.0
Actuated g/C Ratio	0.13	0.41		0.79	0.47	1.00
Clearance Time (s)	5.3	4.5		6.0	6.0	
Vehicle Extension (s)	4.0	3.8		4.0	4.0	
Lane Grp Cap (vph)	434	1150		5080	3039	1583
v/s Ratio Prot	0.09	c0.24		0.39	c0.36	
v/s Ratio Perm		0.11				0.58
v/c Ratio	0.68	0.83		0.49	0.76	0.58
Uniform Delay, d1	58.5	36.7		4.9	30.3	0.0
Progression Factor	1.00	1.00		1.03	1.00	1.00
Incremental Delay, d2	4.8	5.4		0.1	1.9	1.5
Delay (s)	63.3	42.2		5.1	32.2	1.5
Level of Service	E	D		A	C	A
Approach Delay (s)	47.2			5.1	23.5	
Approach LOS	D			A	C	

Intersection Summary			
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.8
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	292	718	225	261	631	213	321	1854	494	346	2046	549
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.5	4.6	4.4	5.5	5.5	4.6	5.8	5.8	4.4	6.0	4.6
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.86	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	6408	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	6408	2787
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	301	740	232	269	651	220	331	1911	509	357	2109	566
RTOR Reduction (vph)	0	0	61	0	0	148	0	0	158	0	0	47
Lane Group Flow (vph)	301	740	171	269	651	72	331	1911	351	357	2109	519
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2		1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	13.5	28.5	46.7	13.1	27.9	27.9	18.2	63.1	63.1	15.2	59.7	73.2
Effective Green, g (s)	13.5	28.5	46.7	13.1	27.9	27.9	18.2	63.1	63.1	15.2	59.7	73.2
Actuated g/C Ratio	0.10	0.20	0.33	0.09	0.20	0.20	0.13	0.45	0.45	0.11	0.43	0.52
Clearance Time (s)	4.6	5.5	4.6	4.4	5.5	5.5	4.6	5.8	5.8	4.4	6.0	4.6
Vehicle Extension (s)	1.0	3.0	1.0	1.0	3.0	3.0	1.0	4.0	4.0	1.0	4.0	1.0
Lane Grp Cap (vph)	331	1035	528	321	705	315	446	2291	713	372	2732	1548
v/s Ratio Prot	c0.09	0.15	0.04	0.08	c0.18		0.10	c0.38		c0.10	0.33	0.03
v/s Ratio Perm			0.07			0.05			0.22			0.15
v/c Ratio	0.91	0.71	0.32	0.84	0.92	0.23	0.74	0.83	0.49	0.96	0.77	0.34
Uniform Delay, d1	62.6	52.0	34.8	62.4	55.0	47.0	58.6	33.8	27.2	62.1	34.3	19.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.71	0.46	0.18	1.29	0.62	0.63
Incremental Delay, d2	26.9	2.4	0.1	16.4	17.7	0.4	3.4	2.2	1.4	27.4	1.4	0.0
Delay (s)	89.6	54.3	35.0	78.8	72.7	47.4	45.2	18.0	6.4	107.4	22.8	12.3
Level of Service	F	D	C	E	E	D	D	B	A	F	C	B
Approach Delay (s)		59.1			69.3			19.1			30.8	
Approach LOS		E			E			B			C	

Intersection Summary			
HCM 2000 Control Delay	36.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	338	898	168	186	945	148	293	2062	204	205	1703	292
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.3		4.2	5.3		4.2	5.3		4.2	5.3	5.3
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.86		0.97	0.86	1.00
Frt	1.00	0.98		1.00	0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	4965		3433	4982		3433	6321		3433	6408	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	4965		3433	4982		3433	6321		3433	6408	1583
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	341	907	170	188	955	149	296	2083	206	207	1720	295
RTOR Reduction (vph)	0	19	0	0	15	0	0	11	0	0	0	151
Lane Group Flow (vph)	341	1059	0	188	1089	0	296	2278	0	207	1720	144
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	14.7	36.4		11.7	33.4		13.0	60.9		12.0	59.9	59.9
Effective Green, g (s)	14.7	36.4		11.7	33.4		13.0	60.9		12.0	59.9	59.9
Actuated g/C Ratio	0.10	0.26		0.08	0.24		0.09	0.44		0.09	0.43	0.43
Clearance Time (s)	4.2	5.3		4.2	5.3		4.2	5.3		4.2	5.3	5.3
Vehicle Extension (s)	1.1	3.0		1.1	3.0		1.1	6.0		1.1	6.0	6.0
Lane Grp Cap (vph)	360	1290		286	1188		318	2749		294	2741	677
v/s Ratio Prot	c0.10	c0.21		0.05	c0.22		c0.09	c0.36		0.06	0.27	
v/s Ratio Perm												0.09
v/c Ratio	0.95	0.82		0.66	0.92		0.93	0.83		0.70	0.63	0.21
Uniform Delay, d1	62.3	48.7		62.2	51.9		63.1	34.9		62.3	31.3	25.2
Progression Factor	1.00	1.00		1.00	1.00		1.38	0.24		1.47	0.39	0.12
Incremental Delay, d2	33.3	4.3		4.1	11.0		16.9	1.2		4.3	0.8	0.5
Delay (s)	95.6	53.0		66.3	62.9		103.9	9.7		95.8	13.0	3.4
Level of Service	F	D		E	E		F	A		F	B	A
Approach Delay (s)		63.3			63.4			20.5			19.4	
Approach LOS		E			E			C			B	

Intersection Summary				
HCM 2000 Control Delay	35.6	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.88			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0	
Intersection Capacity Utilization	92.3%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	119	341	127	222	485	313	162	1985	180	233	1757	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.5		4.7	5.5		4.7	5.8		4.7	5.8	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.86		1.00	0.86	
Frt	1.00	0.96		1.00	0.94		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3395		1770	3331		1770	6328		1770	6356	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3395		1770	3331		1770	6328		1770	6356	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	123	352	131	229	500	323	167	2046	186	240	1811	103
RTOR Reduction (vph)	0	29	0	0	74	0	0	10	0	0	6	0
Lane Group Flow (vph)	123	454	0	229	749	0	167	2222	0	240	1908	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	13.1	24.1		23.0	34.0		14.4	51.0		21.2	57.8	
Effective Green, g (s)	13.1	24.1		23.0	34.0		14.4	51.0		21.2	57.8	
Actuated g/C Ratio	0.09	0.17		0.16	0.24		0.10	0.36		0.15	0.41	
Clearance Time (s)	4.7	5.5		4.7	5.5		4.7	5.8		4.7	5.8	
Vehicle Extension (s)	1.0	3.5		1.0	3.5		1.0	5.0		1.0	5.0	
Lane Grp Cap (vph)	165	584		290	808		182	2305		268	2624	
v/s Ratio Prot	0.07	c0.13		0.13	c0.22		0.09	c0.35		c0.14	0.30	
v/s Ratio Perm												
v/c Ratio	0.75	0.78		0.79	0.93		0.92	0.96		0.90	0.73	
Uniform Delay, d1	61.8	55.4		56.2	51.8		62.2	43.6		58.3	34.5	
Progression Factor	1.00	1.00		1.00	1.00		0.85	0.53		0.70	0.46	
Incremental Delay, d2	14.7	6.6		12.4	16.6		34.8	9.6		24.2	1.4	
Delay (s)	76.5	62.0		68.5	68.4		87.7	32.9		65.1	17.3	
Level of Service	E	E		E	E		F	C		E	B	
Approach Delay (s)		65.0			68.4			36.7			22.7	
Approach LOS		E			E			D			C	

Intersection Summary				
HCM 2000 Control Delay	40.0	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.93			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.7	
Intersection Capacity Utilization	95.4%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	401	456	162	118	434	169	170	1625	174	238	1444	383
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.7	6.0		4.7	6.0	6.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.86		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3539	1583	3433	6315		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3539	1583	3433	6315		3433	5085	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	418	475	169	123	452	176	177	1693	181	248	1504	399
RTOR Reduction (vph)	0	0	112	0	0	130	0	12	0	0	0	21
Lane Group Flow (vph)	418	475	57	123	452	46	177	1862	0	248	1504	378
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	pt+ov
Protected Phases	7	7		8	8		5	2		1	6	6 7
Permitted Phases			7			8						
Actuated Green, G (s)	30.1	30.1	30.1	20.6	20.6	20.6	10.6	53.0		13.6	56.0	92.1
Effective Green, g (s)	30.1	30.1	30.1	20.6	20.6	20.6	10.6	53.0		13.6	56.0	92.1
Actuated g/C Ratio	0.22	0.22	0.22	0.15	0.15	0.15	0.08	0.38		0.10	0.40	0.66
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.7	6.0		4.7	6.0	
Vehicle Extension (s)	2.2	2.2	2.2	1.2	1.2	1.2	1.2	5.0		1.2	5.0	
Lane Grp Cap (vph)	738	760	340	260	520	232	259	2390		333	2034	1041
v/s Ratio Prot	0.12	c0.13		0.07	c0.13		0.05	c0.29		c0.07	c0.30	0.24
v/s Ratio Perm			0.04			0.03						
v/c Ratio	0.57	0.62	0.17	0.47	0.87	0.20	0.68	0.78		0.74	0.74	0.36
Uniform Delay, d1	49.1	49.8	44.7	54.7	58.4	52.5	63.1	38.3		61.5	35.8	10.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.50		1.24	0.60	0.80
Incremental Delay, d2	0.7	1.3	0.1	0.5	13.9	0.2	2.9	1.3		5.3	1.7	0.1
Delay (s)	49.8	51.1	44.9	55.2	72.3	52.6	64.0	58.7		81.3	23.2	8.7
Level of Service	D	D	D	E	E	D	E	E		F	C	A
Approach Delay (s)		49.6			64.9			59.2			27.2	
Approach LOS		D			E			E			C	

Intersection Summary					
HCM 2000 Control Delay	46.8	HCM 2000 Level of Service	D		
HCM 2000 Volume to Capacity ratio	0.75				
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.7		
Intersection Capacity Utilization	78.6%	ICU Level of Service	D		
Analysis Period (min)	15				
c Critical Lane Group					

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	190	425	125	120	406	136	199	1549	92	203	1398	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.8	5.8	4.6	5.8		4.6	6.2		4.6	6.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3406		1770	5042		1770	5012	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3406		1770	5042		1770	5012	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	202	452	133	128	432	145	212	1648	98	216	1487	157
RTOR Reduction (vph)	0	0	102	0	24	0	0	4	0	0	9	0
Lane Group Flow (vph)	202	452	31	128	553	0	212	1742	0	216	1635	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	17.5	32.9	32.9	11.6	27.0		19.4	54.4		19.9	54.9	
Effective Green, g (s)	17.5	32.9	32.9	11.6	27.0		19.4	54.4		19.9	54.9	
Actuated g/C Ratio	0.12	0.24	0.24	0.08	0.19		0.14	0.39		0.14	0.39	
Clearance Time (s)	4.6	5.8	5.8	4.6	5.8		4.6	6.2		4.6	6.2	
Vehicle Extension (s)	1.5	4.0	4.0	1.5	4.0		1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	221	831	372	146	656		245	1959		251	1965	
v/s Ratio Prot	c0.11	0.13		0.07	c0.16		0.12	c0.35		0.12	c0.33	
v/s Ratio Perm			0.02									
v/c Ratio	0.91	0.54	0.08	0.88	0.84		0.87	0.89		0.86	0.83	
Uniform Delay, d1	60.5	47.0	41.8	63.5	54.5		59.0	40.0		58.7	38.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.73	0.60		1.14	1.94	
Incremental Delay, d2	37.1	0.9	0.1	39.3	10.0		22.4	5.7		19.0	3.2	
Delay (s)	97.6	47.9	41.9	102.8	64.4		65.7	29.9		86.1	77.7	
Level of Service	F	D	D	F	E		E	C		F	E	
Approach Delay (s)		59.6			71.4			33.8			78.6	
Approach LOS		E			E			C			E	

Intersection Summary					
HCM 2000 Control Delay	58.3	HCM 2000 Level of Service	E		
HCM 2000 Volume to Capacity ratio	0.89				
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.2		
Intersection Capacity Utilization	87.0%	ICU Level of Service	E		
Analysis Period (min)	15				
c Critical Lane Group					

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	137	451	57	196	766	330	141	1062	116	318	988	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	6.2		4.7	6.2	6.2	4.7	6.2		4.7	6.2	
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00	1.00	0.91		0.97	0.91	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5000		1770	3539	1583	1770	5010		3433	4987	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5000		1770	3539	1583	1770	5010		3433	4987	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	143	470	59	204	798	344	147	1106	121	331	1029	153
RTOR Reduction (vph)	0	12	0	0	0	228	0	9	0	0	14	0
Lane Group Flow (vph)	143	517	0	204	798	116	147	1218	0	331	1168	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	14.8	32.3		19.1	36.6	36.6	18.2	50.5		16.3	48.6	
Effective Green, g (s)	14.8	32.3		19.1	36.6	36.6	18.2	50.5		16.3	48.6	
Actuated g/C Ratio	0.11	0.23		0.14	0.26	0.26	0.13	0.36		0.12	0.35	
Clearance Time (s)	4.7	6.2		4.7	6.2	6.2	4.7	6.2		4.7	6.2	
Vehicle Extension (s)	1.8	5.0		1.8	5.0	5.0	1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	187	1153		241	925	413	230	1807		399	1731	
v/s Ratio Prot	0.08	0.10		c0.12	c0.23		0.08	c0.24		c0.10	0.23	
v/s Ratio Perm						0.07						
v/c Ratio	0.76	0.45		0.85	0.86	0.28	0.64	0.67		0.83	0.67	
Uniform Delay, d1	60.9	46.2		59.0	49.3	41.2	57.8	37.8		60.5	39.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.36	0.46	
Incremental Delay, d2	15.3	0.6		22.2	9.1	0.8	4.2	2.0		8.3	1.3	
Delay (s)	76.2	46.8		81.2	58.4	42.0	62.0	39.8		90.7	19.3	
Level of Service	E	D		F	E	D	E	D		F	B	
Approach Delay (s)		53.1			57.7			42.2			35.0	
Approach LOS		D			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	45.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.8
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	109	292	53	67	364	211	132	862	102	313	461	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.5		4.7	5.5		4.7	6.2		4.7	6.2	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.98		1.00	0.94		1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3458		1770	3344		1770	5004		1770	4933	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3458		1770	3344		1770	5004		1770	4933	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	117	314	57	72	391	227	142	927	110	337	496	124
RTOR Reduction (vph)	0	8	0	0	50	0	0	7	0	0	20	0
Lane Group Flow (vph)	117	363	0	72	568	0	142	1030	0	337	600	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	14.0	32.6		10.4	29.0		15.5	44.6		25.7	54.8	
Effective Green, g (s)	14.0	32.6		10.4	29.0		15.5	44.6		25.7	54.8	
Actuated g/C Ratio	0.10	0.24		0.08	0.22		0.12	0.33		0.19	0.41	
Clearance Time (s)	4.7	5.5		4.7	5.5		4.7	6.2		4.7	6.2	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	184	838		136	721		204	1660		338	2011	
v/s Ratio Prot	c0.07	c0.10		0.04	c0.17		0.08	c0.21		c0.19	0.12	
v/s Ratio Perm												
v/c Ratio	0.64	0.43		0.53	0.79		0.70	0.62		1.00	0.30	
Uniform Delay, d1	57.8	43.1		59.6	49.8		57.2	37.8		54.3	26.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.2	0.1		1.7	5.3		8.1	1.0		47.8	0.2	
Delay (s)	63.0	43.2		61.4	55.1		65.2	38.8		102.1	27.0	
Level of Service	E	D		E	E		E	D		F	C	
Approach Delay (s)		47.9			55.7			42.0			53.5	
Approach LOS		D			E			D			D	

Intersection Summary			
HCM 2000 Control Delay	49.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	134.4	Sum of lost time (s)	21.1
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

9: Huntington Beach Parking/Beach Blvd & Pacific Coast Highway

PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	241	1047	12	12	1553	658	8	28	15	287	19	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	6.0		4.5	6.0	6.0	5.0	5.0	5.0	5.0	5.0	4.0
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5077		1770	3539	1583	1770	3539	1583	3433	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5077		1770	3539	1583	1770	3539	1583	3433	1863	1583
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	271	1176	13	13	1745	739	9	31	17	322	21	200
RTOR Reduction (vph)	0	0	0	0	0	195	0	0	16	0	0	0
Lane Group Flow (vph)	271	1189	0	13	1745	544	9	31	1	322	21	200
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases						2			4			Free
Actuated Green, G (s)	12.8	74.4		2.8	64.7	64.7	1.3	8.2	8.2	14.1	21.0	120.0
Effective Green, g (s)	12.8	74.4		2.8	64.7	64.7	1.3	8.2	8.2	14.1	21.0	120.0
Actuated g/C Ratio	0.11	0.62		0.02	0.54	0.54	0.01	0.07	0.07	0.12	0.18	1.00
Clearance Time (s)	4.2	6.0		4.5	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	1.5	4.6		2.0	4.5	4.5	2.0	1.8	1.8	2.0	1.8	
Lane Grp Cap (vph)	366	3147		41	1908	853	19	241	108	403	326	1583
v/s Ratio Prot	c0.08	0.23		0.01	c0.49		0.01	0.01		c0.09	0.01	
v/s Ratio Perm						0.34			0.00			c0.13
v/c Ratio	0.74	0.38		0.32	0.91	0.64	0.47	0.13	0.01	0.80	0.06	0.13
Uniform Delay, d1	52.0	11.3		57.7	25.1	19.4	59.0	52.5	52.1	51.6	41.3	0.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.9	0.3		1.6	8.3	3.6	6.6	0.1	0.0	9.9	0.0	0.2
Delay (s)	58.9	11.7		59.3	33.4	23.0	65.6	52.6	52.1	61.5	41.3	0.2
Level of Service	E	B		E	C	C	E	D	D	E	D	A
Approach Delay (s)		20.4			30.5			54.5			38.1	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	28.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

12: Huntington Beach Parking/Newland St & Pacific Coast Highway

PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	108	1230	4	6	2039	184	8	3	5	48	2	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.7	5.7	4.0	5.7	5.7	4.2	4.2		4.2	4.2	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1688		1770	1588	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.65	1.00		0.75	1.00	
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1209	1688		1402	1588	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	114	1295	4	6	2146	194	8	3	5	51	2	126
RTOR Reduction (vph)	0	0	2	0	0	104	0	4	0	0	88	0
Lane Group Flow (vph)	114	1295	2	6	2146	90	8	5	0	51	40	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases			2			6	4			8		
Actuated Green, G (s)	9.8	55.0	55.0	1.1	46.3	46.3	30.0	30.0		30.0	30.0	
Effective Green, g (s)	9.8	55.0	55.0	1.1	46.3	46.3	30.0	30.0		30.0	30.0	
Actuated g/C Ratio	0.10	0.55	0.55	0.01	0.46	0.46	0.30	0.30		0.30	0.30	
Clearance Time (s)	4.0	5.7	5.7	4.0	5.7	5.7	4.2	4.2		4.2	4.2	
Vehicle Extension (s)	1.7	4.6	4.6	1.7	4.6	4.6	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	173	2796	870	19	2354	732	362	506		420	476	
v/s Ratio Prot	c0.06	0.25		0.00	c0.42			0.00			0.03	
v/s Ratio Perm			0.00			0.06	0.01			c0.04		
v/c Ratio	0.66	0.46	0.00	0.32	0.91	0.12	0.02	0.01		0.12	0.08	
Uniform Delay, d1	43.5	13.6	10.1	49.1	24.9	15.3	24.7	24.6		25.4	25.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.7	0.6	0.0	3.5	6.7	0.3	0.1	0.0		0.6	0.3	
Delay (s)	50.2	14.1	10.1	52.5	31.7	15.6	24.8	24.6		26.0	25.5	
Level of Service	D	B	B	D	C	B	C	C		C	C	
Approach Delay (s)		17.0			30.4			24.7			25.6	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.9
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	97	1153	9	14	2248	185	10	25	14	80	17	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	5.7	5.7	3.7	5.7	5.7	4.2	4.2		4.6	4.6	4.6
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1761		1681	1714	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1770	1761		1681	1714	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	101	1201	9	15	2342	193	10	26	15	83	18	79
RTOR Reduction (vph)	0	0	3	0	0	53	0	14	0	0	0	74
Lane Group Flow (vph)	101	1201	6	15	2342	140	10	27	0	50	51	5
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	1	6		5	2		7	7		8	8	
Permitted Phases			6			2						8
Actuated Green, G (s)	10.9	86.5	86.5	2.6	78.2	78.2	5.6	5.6		7.1	7.1	7.1
Effective Green, g (s)	10.9	86.5	86.5	2.6	78.2	78.2	5.6	5.6		7.1	7.1	7.1
Actuated g/C Ratio	0.09	0.72	0.72	0.02	0.65	0.65	0.05	0.05		0.06	0.06	0.06
Clearance Time (s)	3.7	5.7	5.7	3.7	5.7	5.7	4.2	4.2		4.6	4.6	4.6
Vehicle Extension (s)	1.7	4.6	4.6	1.7	4.6	4.6	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	160	3665	1141	38	3313	1031	82	82		99	101	93
v/s Ratio Prot	c0.06	0.24		0.01	c0.46		0.01	c0.02		0.03	c0.03	
v/s Ratio Perm			0.00			0.09						0.00
v/c Ratio	0.63	0.33	0.01	0.39	0.71	0.14	0.12	0.33		0.51	0.50	0.05
Uniform Delay, d1	52.6	6.1	4.7	57.9	13.5	8.0	54.8	55.4		54.7	54.7	53.3
Progression Factor	1.00	1.00	1.00	0.69	1.26	2.71	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.8	0.2	0.0	1.3	0.4	0.1	0.2	0.8		1.5	1.4	0.1
Delay (s)	58.5	6.4	4.7	41.1	17.5	21.7	55.1	56.2		56.2	56.2	53.4
Level of Service	E	A	A	D	B	C	E	E		E	E	D
Approach Delay (s)		10.4			17.9			56.0			55.0	
Approach LOS		B			B			E			D	

Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.2
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	150	1065	1	15	2265	683	8	6	12	264	8	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.7	5.7	4.5	5.7	5.7	4.5	4.5		6.0	6.0	6.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1672		3433	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1770	1672		3433	1863	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	160	1133	1	16	2410	727	9	6	13	281	9	177
RTOR Reduction (vph)	0	0	0	0	0	184	0	13	0	0	0	153
Lane Group Flow (vph)	160	1133	1	16	2410	543	9	6	0	281	9	24
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases			6			2						3
Actuated Green, G (s)	15.0	76.5	76.5	2.6	64.1	64.1	3.6	3.6		16.6	16.6	16.6
Effective Green, g (s)	15.0	76.5	76.5	2.6	64.1	64.1	3.6	3.6		16.6	16.6	16.6
Actuated g/C Ratio	0.12	0.64	0.64	0.02	0.53	0.53	0.03	0.03		0.14	0.14	0.14
Clearance Time (s)	4.5	5.7	5.7	4.5	5.7	5.7	4.5	4.5		6.0	6.0	6.0
Vehicle Extension (s)	1.7	4.6	4.6	1.7	4.6	4.6	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	221	3241	1009	38	2716	845	53	50		474	257	218
v/s Ratio Prot	c0.09	0.22		0.01	c0.47		c0.01	0.00		c0.08	0.00	
v/s Ratio Perm			0.00			0.34						0.02
v/c Ratio	0.72	0.35	0.00	0.42	0.89	0.64	0.17	0.13		0.59	0.04	0.11
Uniform Delay, d1	50.5	10.1	7.9	58.0	24.8	19.8	56.7	56.7		48.5	44.8	45.3
Progression Factor	0.94	1.31	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	9.3	0.1	0.0	2.7	4.8	3.8	0.6	0.4		1.3	0.0	0.1
Delay (s)	57.0	13.4	7.9	60.7	29.5	23.6	57.3	57.1		49.9	44.8	45.3
Level of Service	E	B	A	E	C	C	E	E		D	D	D
Approach Delay (s)		18.8			28.3			57.2			48.0	
Approach LOS		B			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	27.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Existing Conditions (2013)
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #10 Newland St & Atlanta Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.477
Loss Time (sec): 0 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 44 Level Of Service: A

Street Name:	Newland Street						Atlanta Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1	1 0	1 0	1	1 0	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	233	426	24	86	229	90	60	418	167	35	508	112
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:	233	426	24	86	229	90	60	418	167	35	508	112
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:	233	426	24	86	229	90	60	418	167	35	508	112
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	233	426	24	86	229	90	60	418	167	35	508	112
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:	233	426	24	86	229	90	60	418	167	35	508	112
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.89	0.11	1.00	1.44	0.56	1.00	1.43	0.57	1.00	1.64	0.36
Final Sat.:	1600	3029	171	1600	2297	903	1600	2286	914	1600	2622	578
Capacity Analysis Module:												
Vol/Sat:	0.15	0.14	0.14	0.05	0.10	0.10	0.04	0.18	0.18	0.02	0.19	0.19
Crit Moves:	****				****		****				****	

Existing Conditions (2013)
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #11 Newland St & Hamilton Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.589
Loss Time (sec): 0 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 56 Level Of Service: A

Street Name:	Newland Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0	1 0	1 0	1	1 0	0 0	0	0 0	1 0	0	0 1
Volume Module:												
Base Vol:	0	272	62	219	115	0	0	0	0	122	0	390
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	272	62	219	115	0	0	0	0	122	0	390
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	272	62	219	115	0	0	0	0	122	0	390
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	272	62	219	115	0	0	0	0	122	0	390
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	272	62	219	115	0	0	0	0	122	0	390
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.81	0.19	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	1303	297	1600	1600	0	0	0	0	1600	0	1600
Capacity Analysis Module:												
Vol/Sat:	0.00	0.21	0.21	0.14	0.07	0.00	0.00	0.00	0.00	0.08	0.00	0.24
Crit Moves:		****		****								****

Existing Conditions (2013)
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #13 Magnolia St & Hamilton Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.544
Loss Time (sec): 0 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 41 Level Of Service: A

Street Name:	Magnolia Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Prot+Permit			Prot+Permit			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0 1	1 0	1	0 2	0 1	1	0 0	1 0	1	0 1	0 1
Volume Module:												
Base Vol:	27	292	25	196	173	28	30	270	34	33	486	313
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:	27	292	25	196	173	28	30	270	34	33	486	313
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:	27	292	25	196	173	28	30	270	34	33	486	313
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	27	292	25	196	173	28	30	270	34	33	486	313
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:	27	292	25	196	173	28	30	270	34	33	486	313
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.84	0.16	1.00	2.00	1.00	1.00	0.89	0.11	1.00	1.00	1.00
Final Sat.:	1600	2948	252	1600	3200	1600	1600	1421	179	1600	1600	1600
Capacity Analysis Module:												
Vol/Sat:	0.02	0.10	0.10	0.12	0.05	0.02	0.02	0.19	0.19	0.02	0.30	0.20
Crit Moves:		****		****			****				****	

Existing Conditions (2013)
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #15 Brookhurst St & Hamilton Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.619
Loss Time (sec): 0 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 60 Level Of Service: B

Street Name:	Brookhurst Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Protected			Protected			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0 3	0 1	2	0 2	1 0	1	0 1	1 0	1	0 2	0 1
Volume Module:												
Base Vol:	85	600	177	340	427	94	95	347	66	258	978	525
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	600	177	340	427	94	95	347	66	258	978	525
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	600	177	340	427	94	95	347	66	258	978	525
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	85	600	177	340	427	94	95	347	66	258	978	525
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	600	177	340	427	94	95	347	66	258	978	525
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	3.00	1.00	2.00	2.46	0.54	1.00	1.68	0.32	1.00	2.00	1.00
Final Sat.:	1600	4800	1600	3200	3934	866	1600	2689	511	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.05	0.13	0.11	0.11	0.11	0.11	0.06	0.13	0.13	0.16	0.31	0.33
Crit Moves:		****		****			****					****

APPENDIX C: EXISTING PLUS PROJECT LOS RESULTS

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	77	663	0	2125	2841	820
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	4.5		6.0	6.0	4.0
Lane Util. Factor	0.97	0.88		0.86	0.86	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	2787		6408	6408	1583
Flt Permitted	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	2787		6408	6408	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	82	705	0	2261	3022	872
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	82	705	0	2261	3022	872
Turn Type	NA	custom		NA	NA	Free
Protected Phases	4	5		2	6	
Permitted Phases		4		5		Free
Actuated Green, G (s)	13.0	43.7		115.7	80.5	140.0
Effective Green, g (s)	13.0	43.7		115.7	80.5	140.0
Actuated g/C Ratio	0.09	0.31		0.83	0.57	1.00
Clearance Time (s)	5.3	4.5		6.0	6.0	
Vehicle Extension (s)	4.0	3.8		4.0	4.0	
Lane Grp Cap (vph)	318	869		5295	3684	1583
v/s Ratio Prot	0.02	c0.18		0.35	c0.47	
v/s Ratio Perm		0.08				0.55
v/c Ratio	0.26	0.81		0.43	0.82	0.55
Uniform Delay, d1	59.0	44.4		3.3	23.9	0.0
Progression Factor	1.00	1.00		0.84	1.00	1.00
Incremental Delay, d2	0.6	6.0		0.0	2.2	1.4
Delay (s)	59.6	50.4		2.8	26.1	1.4
Level of Service	E	D		A	C	A
Approach Delay (s)	51.4			2.8	20.6	
Approach LOS	D			A	C	

Intersection Summary			
HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.8
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	193	765	110	121	492	260	113	1646	259	430	2481	522
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.5	4.6	4.4	5.5	5.5	4.6	5.8	5.8	4.4	6.0	4.6
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.86	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	6408	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	6408	2787
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	205	814	117	129	523	277	120	1751	276	457	2639	555
RTOR Reduction (vph)	0	0	67	0	0	227	0	0	119	0	0	57
Lane Group Flow (vph)	205	814	50	129	523	50	120	1751	157	457	2639	498
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2		1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	14.0	26.3	38.5	13.0	25.1	25.1	12.2	60.2	60.2	20.4	68.0	82.0
Effective Green, g (s)	14.0	26.3	38.5	13.0	25.1	25.1	12.2	60.2	60.2	20.4	68.0	82.0
Actuated g/C Ratio	0.10	0.19	0.28	0.09	0.18	0.18	0.09	0.43	0.43	0.15	0.49	0.59
Clearance Time (s)	4.6	5.5	4.6	4.4	5.5	5.5	4.6	5.8	5.8	4.4	6.0	4.6
Vehicle Extension (s)	1.0	3.0	1.0	1.0	3.0	3.0	1.0	4.0	4.0	1.0	4.0	1.0
Lane Grp Cap (vph)	343	955	435	318	634	283	299	2186	680	500	3112	1723
v/s Ratio Prot	0.06	c0.16	0.01	0.04	c0.15		0.03	c0.34		0.13	c0.41	0.03
v/s Ratio Perm			0.02			0.03			0.10			0.15
v/c Ratio	0.60	0.85	0.12	0.41	0.82	0.18	0.40	0.80	0.23	0.91	0.85	0.29
Uniform Delay, d1	60.3	55.0	38.0	59.9	55.3	48.7	60.4	34.7	25.3	58.9	31.5	14.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.74	0.56	0.17	1.16	0.61	0.58
Incremental Delay, d2	1.9	7.4	0.0	0.3	8.6	0.3	0.3	2.9	0.7	14.1	1.9	0.0
Delay (s)	62.2	62.4	38.0	60.2	63.9	49.0	45.2	22.3	5.0	82.7	21.2	8.5
Level of Service	E	E	D	E	E	D	D	C	A	F	C	A
Approach Delay (s)		59.9			58.9			21.4			26.9	
Approach LOS		E			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	34.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	88.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	226	1148	119	198	607	59	123	1356	135	362	1876	223
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.3		4.2	5.3		4.2	5.3		4.2	5.3	5.3
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.86		0.97	0.86	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	5014		3433	5018		3433	6321		3433	6408	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	5014		3433	5018		3433	6321		3433	6408	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	231	1171	121	202	619	60	126	1384	138	369	1914	228
RTOR Reduction (vph)	0	9	0	0	8	0	0	12	0	0	0	109
Lane Group Flow (vph)	231	1283	0	202	671	0	126	1510	0	369	1914	119
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	14.7	38.6		10.9	34.8		13.0	55.1		16.4	58.5	58.5
Effective Green, g (s)	14.7	38.6		10.9	34.8		13.0	55.1		16.4	58.5	58.5
Actuated g/C Ratio	0.10	0.28		0.08	0.25		0.09	0.39		0.12	0.42	0.42
Clearance Time (s)	4.2	5.3		4.2	5.3		4.2	5.3		4.2	5.3	5.3
Vehicle Extension (s)	1.1	3.0		1.1	3.0		1.1	6.0		1.1	6.0	6.0
Lane Grp Cap (vph)	360	1382		267	1247		318	2487		402	2677	661
v/s Ratio Prot	0.07	c0.26		c0.06	0.13		0.04	0.24		c0.11	c0.30	
v/s Ratio Perm												0.07
v/c Ratio	0.64	0.93		0.76	0.54		0.40	0.61		0.92	0.71	0.18
Uniform Delay, d1	60.1	49.4		63.2	45.6		59.8	33.8		61.1	33.8	25.6
Progression Factor	1.00	1.00		1.00	1.00		1.43	0.18		1.51	0.33	0.09
Incremental Delay, d2	2.9	11.0		10.3	0.5		0.2	0.9		16.5	1.0	0.3
Delay (s)	63.0	60.4		73.6	46.1		85.8	7.0		109.1	12.1	2.8
Level of Service	E	E		E	D		F	A		F	B	A
Approach Delay (s)		60.8			52.4			13.0			25.5	
Approach LOS		E			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	34.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	87.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	374	105	136	312	119	133	1471	108	264	1817	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.5		4.7	5.5		4.7	5.8		4.7	5.8	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.86		1.00	0.86	
Frt	1.00	0.97		1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3423		1770	3393		1770	6342		1770	6341	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3423		1770	3393		1770	6342		1770	6341	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	78	390	109	142	325	124	139	1532	112	275	1893	142
RTOR Reduction (vph)	0	19	0	0	29	0	0	8	0	0	8	0
Lane Group Flow (vph)	78	480	0	142	420	0	139	1636	0	275	2027	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	12.0	24.8		14.0	26.8		12.8	52.7		27.8	67.7	
Effective Green, g (s)	12.0	24.8		14.0	26.8		12.8	52.7		27.8	67.7	
Actuated g/C Ratio	0.09	0.18		0.10	0.19		0.09	0.38		0.20	0.48	
Clearance Time (s)	4.7	5.5		4.7	5.5		4.7	5.8		4.7	5.8	
Vehicle Extension (s)	1.0	3.5		1.0	3.5		1.0	5.0		1.0	5.0	
Lane Grp Cap (vph)	151	606		177	649		161	2387		351	3066	
v/s Ratio Prot	0.04	c0.14		c0.08	0.12		c0.08	c0.26		c0.16	0.32	
v/s Ratio Perm												
v/c Ratio	0.52	0.79		0.80	0.65		0.86	0.69		0.78	0.66	
Uniform Delay, d1	61.2	55.1		61.6	52.2		62.7	36.7		53.2	27.4	
Progression Factor	1.00	1.00		1.00	1.00		0.76	0.65		0.62	0.26	
Incremental Delay, d2	1.2	7.2		21.3	2.3		30.8	1.4		7.4	0.8	
Delay (s)	62.5	62.3		83.0	54.6		78.7	25.2		40.3	7.9	
Level of Service	E	E		F	D		E	C		D	A	
Approach Delay (s)		62.4			61.4			29.4			11.7	
Approach LOS		E			E			C			B	

Intersection Summary			
HCM 2000 Control Delay	28.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	248	413	85	115	288	128	69	1343	114	135	1382	316
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.7	6.0		4.7	6.0	6.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.86		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3539	1583	3433	6333		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3539	1583	3433	6333		3433	5085	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	261	435	89	121	303	135	73	1414	120	142	1455	333
RTOR Reduction (vph)	0	0	70	0	0	120	0	8	0	0	0	46
Lane Group Flow (vph)	261	435	19	121	303	15	73	1526	0	142	1455	287
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	pt+ov
Protected Phases	7	7		8	8		5	2		1	6	6 7
Permitted Phases			7			8						
Actuated Green, G (s)	29.4	29.4	29.4	15.6	15.6	15.6	8.0	61.7		10.6	64.3	99.7
Effective Green, g (s)	29.4	29.4	29.4	15.6	15.6	15.6	8.0	61.7		10.6	64.3	99.7
Actuated g/C Ratio	0.21	0.21	0.21	0.11	0.11	0.11	0.06	0.44		0.08	0.46	0.71
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.7	6.0		4.7	6.0	
Vehicle Extension (s)	2.2	2.2	2.2	1.2	1.2	1.2	1.2	5.0		1.2	5.0	
Lane Grp Cap (vph)	720	743	332	197	394	176	196	2791		259	2335	1127
v/s Ratio Prot	0.08	c0.12		0.07	c0.09		0.02	0.24		c0.04	c0.29	0.18
v/s Ratio Perm			0.01			0.01						
v/c Ratio	0.36	0.59	0.06	0.61	0.77	0.09	0.37	0.55		0.55	0.62	0.25
Uniform Delay, d1	47.3	49.8	44.2	59.3	60.4	55.8	63.6	28.8		62.4	28.7	7.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.05	0.75	2.00
Incremental Delay, d2	0.2	0.9	0.0	4.0	7.9	0.1	0.4	0.8		0.9	0.9	0.0
Delay (s)	47.4	50.7	44.2	63.3	68.4	55.9	64.0	29.6		66.6	22.3	14.2
Level of Service	D	D	D	E	E	E	E	C		E	C	B
Approach Delay (s)		48.9			64.2			31.2			24.2	
Approach LOS		D			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	35.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.7
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	167	523	140	103	335	143	137	1259	65	157	1306	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.8	5.8	4.6	5.8		4.6	6.2		4.6	6.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3380		1770	5048		1770	5036	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3380		1770	5048		1770	5036	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	176	551	147	108	353	151	144	1325	68	165	1375	94
RTOR Reduction (vph)	0	0	115	0	42	0	0	4	0	0	5	0
Lane Group Flow (vph)	176	551	32	108	462	0	144	1389	0	165	1464	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	15.4	26.1	26.1	11.9	22.6		13.8	46.9		13.9	47.0	
Effective Green, g (s)	15.4	26.1	26.1	11.9	22.6		13.8	46.9		13.9	47.0	
Actuated g/C Ratio	0.13	0.22	0.22	0.10	0.19		0.12	0.39		0.12	0.39	
Clearance Time (s)	4.6	5.8	5.8	4.6	5.8		4.6	6.2		4.6	6.2	
Vehicle Extension (s)	1.5	4.0	4.0	1.5	4.0		1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	227	769	344	175	636		203	1972		205	1972	
v/s Ratio Prot	0.10	c0.16		0.06	c0.14		0.08	c0.28		0.09	c0.29	
v/s Ratio Perm			0.02									
v/c Ratio	0.78	0.72	0.09	0.62	0.73		0.71	0.70		0.80	0.74	
Uniform Delay, d1	50.6	43.5	37.5	51.9	45.8		51.2	30.7		51.7	31.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.31	1.45		1.00	1.00	
Incremental Delay, d2	13.9	3.4	0.2	4.5	4.4		7.9	1.9		19.0	2.6	
Delay (s)	64.6	46.9	37.7	56.4	50.2		74.8	46.6		70.8	33.9	
Level of Service	E	D	D	E	D		E	D		E	C	
Approach Delay (s)		48.9			51.3			49.2			37.6	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	45.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.2
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	159	766	73	87	391	207	66	920	190	305	975	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	6.2		4.7	6.2	6.2	4.7	6.2		4.7	6.2	
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00	1.00	0.91		0.97	0.91	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5019		1770	3539	1583	1770	4955		3433	5029	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5019		1770	3539	1583	1770	4955		3433	5029	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	164	790	75	90	403	213	68	948	196	314	1005	80
RTOR Reduction (vph)	0	10	0	0	0	171	0	27	0	0	7	0
Lane Group Flow (vph)	164	855	0	90	403	42	68	1117	0	314	1078	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	15.2	27.8		11.2	23.8	23.8	10.8	44.0		15.2	48.4	
Effective Green, g (s)	15.2	27.8		11.2	23.8	23.8	10.8	44.0		15.2	48.4	
Actuated g/C Ratio	0.13	0.23		0.09	0.20	0.20	0.09	0.37		0.13	0.40	
Clearance Time (s)	4.7	6.2		4.7	6.2	6.2	4.7	6.2		4.7	6.2	
Vehicle Extension (s)	1.8	5.0		1.8	5.0	5.0	1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	224	1162		165	701	313	159	1816		434	2028	
v/s Ratio Prot	c0.09	c0.17		0.05	0.11		0.04	c0.23		c0.09	0.21	
v/s Ratio Perm						0.03						
v/c Ratio	0.73	0.74		0.55	0.57	0.13	0.43	0.62		0.72	0.53	
Uniform Delay, d1	50.4	42.7		52.0	43.5	39.6	51.7	31.1		50.4	27.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		0.52	0.89	
Incremental Delay, d2	10.1	3.0		2.0	1.8	0.4	0.7	1.6		3.6	0.7	
Delay (s)	60.6	45.7		53.9	45.3	40.0	52.3	32.6		30.0	24.9	
Level of Service	E	D		D	D	D	D	C		C	C	
Approach Delay (s)		48.1			44.8			33.8			26.0	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	36.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.8
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	81	349	50	40	258	219	27	493	85	252	690	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.5		4.7	5.5		4.7	6.2		4.7	6.2	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.98		1.00	0.93		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3472		1770	3296		1770	4974		1770	5001	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3472		1770	3296		1770	4974		1770	5001	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	87	375	54	43	277	235	29	530	91	271	742	92
RTOR Reduction (vph)	0	7	0	0	95	0	0	14	0	0	6	0
Lane Group Flow (vph)	87	422	0	43	417	0	29	607	0	271	828	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	9.8	23.1		6.0	19.3		3.8	25.0		25.4	46.6	
Effective Green, g (s)	9.8	23.1		6.0	19.3		3.8	25.0		25.4	46.6	
Actuated g/C Ratio	0.10	0.23		0.06	0.19		0.04	0.25		0.25	0.46	
Clearance Time (s)	4.7	5.5		4.7	5.5		4.7	6.2		4.7	6.2	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	172	797		105	632		66	1236		446	2316	
v/s Ratio Prot	c0.05	c0.12		0.02	c0.13		0.02	c0.12		c0.15	0.17	
v/s Ratio Perm												
v/c Ratio	0.51	0.53		0.41	0.66		0.44	0.49		0.61	0.36	
Uniform Delay, d1	43.1	34.0		45.6	37.6		47.4	32.4		33.2	17.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.9	0.3		0.9	2.0		1.7	0.6		1.6	0.2	
Delay (s)	44.0	34.3		46.5	39.6		49.1	33.0		34.8	17.6	
Level of Service	D	C		D	D		D	C		C	B	
Approach Delay (s)		35.9			40.2			33.7			21.8	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	30.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	100.6	Sum of lost time (s)	21.1
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	81	1766	10	4	782	358	5	5	5	642	12	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	6.0		4.5	6.0	6.0	5.0	5.0	5.0	5.0	5.0	4.0
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5081		1770	3539	1583	1770	3539	1583	3433	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5081		1770	3539	1583	1770	3539	1583	3433	1863	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	87	1899	11	4	841	385	5	5	5	690	13	132
RTOR Reduction (vph)	0	0	0	0	0	183	0	0	5	0	0	0
Lane Group Flow (vph)	87	1910	0	4	841	202	5	5	0	690	13	132
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases						2			4			Free
Actuated Green, G (s)	5.6	56.3		1.4	52.4	52.4	1.1	6.8	6.8	15.0	20.7	100.0
Effective Green, g (s)	5.6	56.3		1.4	52.4	52.4	1.1	6.8	6.8	15.0	20.7	100.0
Actuated g/C Ratio	0.06	0.56		0.01	0.52	0.52	0.01	0.07	0.07	0.15	0.21	1.00
Clearance Time (s)	4.2	6.0		4.5	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	1.5	4.6		2.0	4.5	4.5	2.0	1.8	1.8	2.0	1.8	
Lane Grp Cap (vph)	192	2860		24	1854	829	19	240	107	514	385	1583
v/s Ratio Prot	c0.03	c0.38		0.00	0.24		0.00	0.00		c0.20	0.01	
v/s Ratio Perm						0.13			0.00			c0.08
v/c Ratio	0.45	0.67		0.17	0.45	0.24	0.26	0.02	0.00	1.34	0.03	0.08
Uniform Delay, d1	45.7	15.3		48.7	14.9	13.0	49.0	43.5	43.4	42.5	31.7	0.0
Progression Factor	1.00	1.00		0.73	1.06	4.15	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	1.3		1.1	0.8	0.7	2.7	0.0	0.0	166.8	0.0	0.1
Delay (s)	46.3	16.6		36.8	16.5	54.5	51.7	43.5	43.4	209.3	31.7	0.1
Level of Service	D	B		D	B	D	D	D	D	F	C	A
Approach Delay (s)		17.9			28.5			46.2			173.4	
Approach LOS		B			C			D			F	

Intersection Summary			
HCM 2000 Control Delay	53.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	217	2151	0	0	937	29	4	3	1	167	1	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.7			5.7	5.7	4.2	4.2		4.2	4.2	
Lane Util. Factor	1.00	0.91			0.91	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00			1.00	0.85	1.00	0.96		1.00	0.85	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5085			5085	1583	1770	1793		1770	1585	
Flt Permitted	0.95	1.00			1.00	1.00	0.65	1.00		0.76	1.00	
Satd. Flow (perm)	1770	5085			5085	1583	1203	1793		1407	1585	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	233	2313	0	0	1008	31	4	3	1	180	1	129
RTOR Reduction (vph)	0	0	0	0	0	17	0	1	0	0	90	0
Lane Group Flow (vph)	233	2313	0	0	1008	14	4	3	0	180	40	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases			2			6	4			8		
Actuated Green, G (s)	12.0	60.1			44.1	44.1	30.0	30.0		30.0	30.0	
Effective Green, g (s)	12.0	60.1			44.1	44.1	30.0	30.0		30.0	30.0	
Actuated g/C Ratio	0.12	0.60			0.44	0.44	0.30	0.30		0.30	0.30	
Clearance Time (s)	4.0	5.7			5.7	5.7	4.2	4.2		4.2	4.2	
Vehicle Extension (s)	1.7	4.6			4.6	4.6	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	212	3056			2242	698	360	537		422	475	
v/s Ratio Prot	c0.13	c0.45			0.20			0.00			0.03	
v/s Ratio Perm						0.01	0.00			c0.13		
v/c Ratio	1.10	0.76			0.45	0.02	0.01	0.01		0.43	0.08	
Uniform Delay, d1	44.0	14.6			19.5	15.8	24.6	24.5		28.1	25.1	
Progression Factor	0.98	1.31			1.56	5.26	1.00	1.00		1.00	1.00	
Incremental Delay, d2	76.5	1.1			0.6	0.1	0.1	0.0		3.1	0.3	
Delay (s)	119.6	20.2			31.0	82.9	24.6	24.6		31.2	25.5	
Level of Service	F	C			C	F	C	C		C	C	
Approach Delay (s)		29.3			32.6			24.6			28.8	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	30.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.9
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	105	2205	16	16	730	46	2	7	2	141	23	252
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	5.7	5.7	3.7	5.7	5.7	4.2	4.2		4.6	4.6	4.6
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1801		1681	1708	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1770	1801		1681	1708	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	111	2321	17	17	768	48	2	7	2	148	24	265
RTOR Reduction (vph)	0	0	5	0	0	19	0	2	0	0	0	239
Lane Group Flow (vph)	111	2321	12	17	768	29	2	7	0	86	86	26
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	1	6		5	2		7	7		8	8	
Permitted Phases			6			2						8
Actuated Green, G (s)	10.3	68.4	68.4	2.5	60.6	60.6	1.2	1.2		9.7	9.7	9.7
Effective Green, g (s)	10.3	68.4	68.4	2.5	60.6	60.6	1.2	1.2		9.7	9.7	9.7
Actuated g/C Ratio	0.10	0.68	0.68	0.02	0.61	0.61	0.01	0.01		0.10	0.10	0.10
Clearance Time (s)	3.7	5.7	5.7	3.7	5.7	5.7	4.2	4.2		4.6	4.6	4.6
Vehicle Extension (s)	1.7	4.6	4.6	1.7	4.6	4.6	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	182	3478	1082	44	3081	959	21	21		163	165	153
v/s Ratio Prot	c0.06	c0.46		0.01	0.15		0.00	c0.00		c0.05	0.05	
v/s Ratio Perm			0.01			0.02						0.02
v/c Ratio	0.61	0.67	0.01	0.39	0.25	0.03	0.10	0.33		0.53	0.52	0.17
Uniform Delay, d1	42.9	9.2	5.0	48.0	9.1	7.9	48.9	49.0		43.0	42.9	41.4
Progression Factor	1.32	0.46	1.00	1.10	1.62	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.6	0.7	0.0	2.0	0.1	0.0	0.7	3.4		1.4	1.4	0.2
Delay (s)	59.3	4.9	5.0	54.8	14.9	7.9	49.6	52.4		44.4	44.3	41.6
Level of Service	E	A	A	D	B	A	D	D		D	D	D
Approach Delay (s)		7.4			15.3			51.9			42.7	
Approach LOS		A			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.2
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	189	2177	0	8	708	288	2	10	1	527	4	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.7		4.5	5.7	5.7	4.5	4.5		6.0	6.0	6.0
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		0.97	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5085		1770	5085	1583	1770	1837		3433	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5085		1770	5085	1583	1770	1837		3433	1863	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	197	2268	0	8	738	300	2	10	1	549	4	115
RTOR Reduction (vph)	0	0	0	0	0	182	0	1	0	0	0	90
Lane Group Flow (vph)	197	2268	0	8	738	118	2	10	0	549	4	25
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases			6			2						3
Actuated Green, G (s)	16.1	54.2		1.2	39.3	39.3	2.4	2.4		21.5	21.5	21.5
Effective Green, g (s)	16.1	54.2		1.2	39.3	39.3	2.4	2.4		21.5	21.5	21.5
Actuated g/C Ratio	0.16	0.54		0.01	0.39	0.39	0.02	0.02		0.22	0.22	0.22
Clearance Time (s)	4.5	5.7		4.5	5.7	5.7	4.5	4.5		6.0	6.0	6.0
Vehicle Extension (s)	1.7	4.6		1.7	4.6	4.6	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	284	2756		21	1998	622	42	44		738	400	340
v/s Ratio Prot	c0.11	c0.45		0.00	0.15		0.00	c0.01		c0.16	0.00	
v/s Ratio Perm						0.07						0.02
v/c Ratio	0.69	0.82		0.38	0.37	0.19	0.05	0.23		0.74	0.01	0.07
Uniform Delay, d1	39.6	18.9		49.0	21.6	19.9	47.7	47.9		36.7	30.9	31.3
Progression Factor	1.29	0.78		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	4.7	1.9		4.2	0.5	0.7	0.2	1.0		3.6	0.0	0.0
Delay (s)	55.8	16.7		53.2	22.1	20.6	47.9	48.9		40.3	30.9	31.3
Level of Service	E	B		D	C	C	D	D		D	C	C
Approach Delay (s)		19.8			21.9			48.7			38.7	
Approach LOS		B			C			D			D	

Intersection Summary				
HCM 2000 Control Delay	23.4	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.80			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.7	
Intersection Capacity Utilization	80.6%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				


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Default Scenario           Tue May 28, 2013 11:12:54                Page 3-1
-------------------------------------------------------------------------------
                    Existing (2013) Plus Project Conditions
                                  AM Peak
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
       ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)
*******************************************************************************
Intersection #10 Newland St & Atlanta Ave
*******************************************************************************
Cycle (sec):          100                Critical Vol./Cap.(X):         0.431
Loss Time (sec):        0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:         40                Level Of Service:                   A
*******************************************************************************
Street Name:          Newland Street                    Atlanta Avenue
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0    0     0    0    0     0    0    0     0    0    0
Y+R:          4.0  4.0  4.0   4.0  4.0  4.0   4.0  4.0  4.0   4.0  4.0  4.0
Lanes:        1  0  1  1  0   1  0  1  1  0   1  0  1  1  0   1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     108  267   37  133  344   70   61  455  238   28  324  130
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:  108  267   37  133  344   70   61  455  238   28  324  130
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:   108  267   37  133  344   70   61  455  238   28  324  130
Reduct Vol:     0    0    0    0    0    0    0    0    0    0    0    0
Reduced Vol:  108  267   37  133  344   70   61  455  238   28  324  130
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:  108  267   37  133  344   70   61  455  238   28  324  130
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600
Adjustment:  1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes:       1.00 1.76 0.24 1.00 1.66 0.34 1.00 1.31 0.69 1.00 1.43 0.57
Final Sat.:  1600 2811  389 1600 2659  541 1600 2101 1099 1600 2284  916
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.07 0.09 0.10 0.08 0.13 0.13 0.04 0.22 0.22 0.02 0.14 0.14
Crit Moves:  ****                ****             ****        ****
*******************************************************************************
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Existing (2013) Plus Project Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #11 Newland St & Hamilton Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.569
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	53	Level Of Service:	A

Street Name:	Newland Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0	1 0	1 0	1	0 0	0 0	0	0 0	1 0	0	0 1
Volume Module:												
Base Vol:	0	72	248	406	225	0	0	0	0	95	0	184
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	72	248	406	225	0	0	0	0	95	0	184
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	72	248	406	225	0	0	0	0	95	0	184
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	72	248	406	225	0	0	0	0	95	0	184
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	72	248	406	225	0	0	0	0	95	0	184
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.22	0.78	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	360	1240	1600	1600	0	0	0	0	1600	0	1600
Capacity Analysis Module:												
Vol/Sat:	0.00	0.20	0.20	0.25	0.14	0.00	0.00	0.00	0.00	0.06	0.00	0.12
Crit Moves:		****		****								****

Existing (2013) Plus Project Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #13 Magnolia St & Hamilton Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.488
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	36	Level Of Service:	A

Street Name:	Magnolia Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Prot+Permit			Prot+Permit			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1	1 0	1 0	2	0 1	1 0	0	1 0	1 0	1	0 1
Volume Module:												
Base Vol:	29	184	45	200	242	38	87	383	51	32	258	324
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:	29	184	45	200	242	38	87	383	51	32	258	324
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:	29	184	45	200	242	38	87	383	51	32	258	324
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	29	184	45	200	242	38	87	383	51	32	258	324
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:	29	184	45	200	242	38	87	383	51	32	258	324
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.61	0.39	1.00	2.00	1.00	1.00	0.88	0.12	1.00	1.00	1.00
Final Sat.:	1600	2571	629	1600	3200	1600	1600	1412	188	1600	1600	1600
Capacity Analysis Module:												
Vol/Sat:	0.02	0.07	0.07	0.13	0.08	0.02	0.05	0.27	0.27	0.02	0.16	0.20
Crit Moves:		****		****				****		****		

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Default Scenario           Tue May 28, 2013 11:12:54                Page 6-1
--------------------------------------------------------------------------------
                    Existing (2013) Plus Project Conditions
                                   AM Peak
--------------------------------------------------------------------------------
                       Level Of Service Computation Report
        ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)
********************************************************************************
Intersection #15 Brookhurst St & Hamilton Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.672
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        69                Level Of Service:                   B
********************************************************************************
Street Name:        Brookhurst Street                  Hamilton Avenue
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Prot+Permit      Prot+Permit
Rights:           Include          Include          Include          Include
Min. Green:     0    0    0    0    0    0    0    0    0    0    0    0
Y+R:          4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0
Lanes:        1  0  3  0  1    2  0  2  1  0    1  0  1  1  0    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      69  425   328   477  457   121    90  763    48   103  405   277
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:   69  425   328   477  457   121    90  763    48   103  405   277
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:    69  425   328   477  457   121    90  763    48   103  405   277
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   69  425   328   477  457   121    90  763    48   103  405   277
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:   69  425   328   477  457   121    90  763    48   103  405   277
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1600 1600  1600  1600 1600  1600  1600 1600  1600  1600 1600  1600
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 3.00  1.00  2.00 2.37  0.63  1.00 1.88  0.12  1.00 2.00  1.00
Final Sat.:  1600 4800  1600  3200 3795  1005  1600 3011   189  1600 3200  1600
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.04 0.09  0.21  0.15 0.12  0.12  0.06 0.25  0.25  0.06 0.13  0.17
Crit Moves:              ****  ****                   ****        ****
********************************************************************************
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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	288	1014	0	2549	2247	885
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	4.5		6.0	6.0	4.0
Lane Util. Factor	0.97	0.88		0.86	0.86	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	2787		6408	6408	1583
Flt Permitted	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	2787		6408	6408	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	297	1045	0	2628	2316	912
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	297	1045	0	2628	2316	912
Turn Type	NA	custom		NA	NA	Free
Protected Phases	4	5		2	6	
Permitted Phases		4		5		Free
Actuated Green, G (s)	17.7	61.8		111.0	62.4	140.0
Effective Green, g (s)	17.7	61.8		111.0	62.4	140.0
Actuated g/C Ratio	0.13	0.44		0.79	0.45	1.00
Clearance Time (s)	5.3	4.5		6.0	6.0	
Vehicle Extension (s)	4.0	3.8		4.0	4.0	
Lane Grp Cap (vph)	434	1230		5080	2856	1583
v/s Ratio Prot	0.09	c0.27		0.41	c0.36	
v/s Ratio Perm		0.11				0.58
v/c Ratio	0.68	0.85		0.52	0.81	0.58
Uniform Delay, d1	58.5	34.9		5.1	33.7	0.0
Progression Factor	1.00	1.00		1.22	1.00	1.00
Incremental Delay, d2	4.8	5.9		0.1	2.6	1.5
Delay (s)	63.3	40.8		6.3	36.3	1.5
Level of Service	E	D		A	D	A
Approach Delay (s)	45.8			6.3	26.5	
Approach LOS	D			A	C	

Intersection Summary			
HCM 2000 Control Delay	22.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.8
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

o e ent	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Lane Con uration	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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Lane til actor	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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lt rotecte	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
at lo prot	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
lt er itte	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
at lo per	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
ea our actor	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
lo p	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
e uction p	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Lane Group lo p	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
urn pe	rot	[illegible]	p o	rot	[illegible]	er	rot	[illegible]	er	rot	[illegible]	p o
rotecte a e	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
er itte a e			[illegible]			[illegible]			[illegible]			[illegible]
ctuate Green G	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
ecti e Green	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
ctuate C atio	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Clearance i e	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
e icle ten ion	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Lane Grp Cap p	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
atio rot	c[illegible]	[illegible]	[illegible]	[illegible]	c[illegible]		[illegible]	c[illegible]		c[illegible]	[illegible]	[illegible]
atio er			[illegible]			[illegible]			[illegible]			[illegible]
c atio	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
ni or ela	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
ro re ion actor	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
ncre ental ela	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
ela	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Le el o er ice	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	C	[illegible]
pproac ela		[illegible]			[illegible]			[illegible]			[illegible]	
pproac L		[illegible]			[illegible]			[illegible]			C	

nter ection u ar			
C Control ela	[illegible]	C Le el o er ice	[illegible]
C olu e to Capacit ratio	[illegible]		
ctuate C cle Len t	[illegible]	u o lo t ti e	[illegible]
nter ection Capacit tili ation	[illegible]	C Le el o er ice	[illegible]
nal i erio in	[illegible]		
c Critical Lane Group			

o e ent	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Lane Con uration	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
olu e p	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
eal lo p pl	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
otal Lo t ti e	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
Lane til actor	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
rt	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
lt rotecte	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
at lo prot	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
lt er itte	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
at lo per	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
ea our actor	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
lo p	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
e uction p	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Lane Group lo p	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
urn pe	rot	[illegible]		rot	[illegible]		rot	[illegible]		rot	[illegible]	er
rotecte a e	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	
er itte a e												[illegible]
ctuate Green G	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
ecti e Green	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
ctuate C atio	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
Clearance i e	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
e icle ten ion	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
Lane Grp Cap p	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
atio rot	c[illegible]	c[illegible]		[illegible]	c[illegible]		c[illegible]	c[illegible]		[illegible]	[illegible]	
atio er												[illegible]
c atio	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
ni or ela	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
ro re ion actor	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
ncre ental ela	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
ela	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
Le el o er ice	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
pproac ela		[illegible]			[illegible]			[illegible]			[illegible]	
pproac L		[illegible]			[illegible]			C			[illegible]	

nter ection u ar			
C Control ela	[illegible]	C Le el o er ice	[illegible]
C olu e to Capacit ratio	[illegible]		
ctuate C cle Len t	[illegible]	u o lo t ti e	[illegible]
nter ection Capacit tili ation	[illegible]	C Le el o er ice	[illegible]
nal i erio in	[illegible]		
c Critical Lane Group			

Movement	L			L			L			L		
Lane Configurations												
Volume (vph)												
Ideal Flow (vphpl)												
Total Lost Time (s)												
Lane Utilization Factor												
Frt												
Flt Protected												
Satd. Flow (prot)												
Flt Permitted												
Satd. Flow (perm)												
Peak-hour factor, PHF												
Adj. Flow (vph)												
Shared Lane Traffic (%)												
Lane Group Flow (vph)												
Turn Type	rot			rot			rot			rot		
Protected Phases												
Permitted Phases												
Actuated Green, G (s)												
Effective Green, g (s)												
Actuated g/C Ratio												
Clearance Interval (s)												
Vehicle Extension (s)												
Lane Grp Cap (vph)												
v/s Ratio Prot		c			c			c			c	
v/s Ratio Perm												
v/c Ratio												
Uniform Delay, d1												
Progression Factor												
Incremental Delay, d2												
Delay (s)												
Level of Service												
Approach Delay (s)												
Approach LOS												

Intersection Summary	
HCM 2000 Control Delay	
HCM 2000 Volume to Capacity ratio	
Actuated Cycle Length (s)	
Intersection Capacity Utilization	ICU Level of Service
Analysis Period (min)	
c Critical Lane Group	

Movement	L			L			L			L		
Lane Configurations												
Volume (vph)												
Ideal Flow (vphpl)												
Total Lost Time (s)												
Lane Utilization Factor												
Frt												
Flt Protected												
Satd. Flow (prot)												
Flt Permitted												
Satd. Flow (perm)												
Peak-hour factor, PHF												
Adj. Flow (vph)												
Shared Lane Traffic (%)												
Lane Group Flow (vph)												
Turn Type	split		perm	split		perm	rot			rot		pt+ov
Protected Phases												
Permitted Phases												
Actuated Green, G (s)												
Effective Green, g (s)												
Actuated g/C Ratio												
Clearance Interval (s)												
Vehicle Extension (s)												
Lane Grp Cap (vph)												
v/s Ratio Prot		c			c			c			c	
v/s Ratio Perm												
v/c Ratio												
Uniform Delay, d1												
Progression Factor												
Incremental Delay, d2												
Delay (s)												
Level of Service											C	
Approach Delay (s)												
Approach LOS											C	

Intersection Summary	
HCM 2000 Control Delay	ICU Level of Service
HCM 2000 Volume to Capacity ratio	
Actuated Cycle Length (s)	
Intersection Capacity Utilization	ICU Level of Service
Analysis Period (min)	
c Critical Lane Group	

HCM Signalized Intersection Capacity Analysis
6: Beach Blvd & Garfield Ave

Existing (2013) Plus Project
[illegible]

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↱		↰	↑↑↱		↰	↑↑↱	
Volume (vph)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Ideal Flow (vphpl)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total Lost time (s)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	
Lane Util. Factor	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	
Frt	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	
Flt Protected	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	
Satd. Flow (prot)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	
Flt Permitted	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	
Satd. Flow (perm)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	
Peak-hour factor, PHF	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Adj. Flow (vph)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
RTOR Reduction (vph)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Lane Group Flow (vph)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Turn Type	Prot	[illegible]	Perm	Prot	[illegible]		Prot	[illegible]		Prot	[illegible]	
Protected Phases	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	
Permitted Phases			[illegible]									
Actuated Green, G (s)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	
Effective Green, g (s)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	
Actuated g/C Ratio	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	
Clearance Time (s)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	
Vehicle Extension (s)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	
Lane Grp Cap (vph)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	
v/s Ratio Prot	c[illegible]	[illegible]		[illegible]	c[illegible]		[illegible]	c[illegible]		[illegible]	c[illegible]	
v/s Ratio Perm			[illegible]									
v/c Ratio	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	
Uniform Delay, d1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	
Progression Factor	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	
Incremental Delay, d2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	
Delay (s)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	
Level of Service	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	C		[illegible]	[illegible]	
Approach Delay (s)		[illegible]			[illegible]			[illegible]			[illegible]	
Approach LOS		[illegible]			[illegible]			[illegible]			[illegible]	

Intersection Summary			
HCM 2000 Control Delay	[illegible]	HCM 2000 Level of Service	[illegible]
HCM 2000 Volume to Capacity ratio	[illegible]		
Actuated Cycle Length (s)	[illegible]	Sum of lost time (s)	[illegible]
Intersection Capacity Utilization	[illegible]	ICU Level of Service	[illegible]
Analysis Period (min)	[illegible]		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
7: Beach Blvd & Adams Ave

Existing (2013) Plus Project
[illegible]

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑↱		↰	↑↑	↱	↰	↑↑↱		↰↰	↑↑↱	
Volume (vph)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Ideal Flow (vphpl)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total Lost time (s)	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
Lane Util. Factor	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
Frt	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
Flt Protected	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
Satd. Flow (prot)	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
Flt Permitted	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
Satd. Flow (perm)	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
Peak-hour factor, PHF	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Adj. Flow (vph)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
RTOR Reduction (vph)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Lane Group Flow (vph)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Turn Type	Prot	[illegible]		Prot	[illegible]	Perm	Prot	[illegible]		Prot	[illegible]	
Protected Phases	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	
Permitted Phases						[illegible]						
Actuated Green, G (s)	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
Effective Green, g (s)	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
Actuated g/C Ratio	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
Clearance Time (s)	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
Vehicle Extension (s)	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
Lane Grp Cap (vph)	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
v/s Ratio Prot	[illegible]	[illegible]		c[illegible]	c[illegible]		[illegible]	c[illegible]		c[illegible]	[illegible]	
v/s Ratio Perm						[illegible]						
v/c Ratio	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
Uniform Delay, d1	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
Progression Factor	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
Incremental Delay, d2	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
Delay (s)	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
Level of Service	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	C	
Approach Delay (s)		[illegible]			[illegible]			[illegible]			[illegible]	
Approach LOS		[illegible]			[illegible]			[illegible]			C	

Intersection Summary			
HCM 2000 Control Delay	[illegible]	HCM 2000 Level of Service	[illegible]
HCM 2000 Volume to Capacity ratio	[illegible]		
Actuated Cycle Length (s)	[illegible]	Sum of lost time (s)	[illegible]
Intersection Capacity Utilization	[illegible]	ICU Level of Service	[illegible]
Analysis Period (min)	[illegible]		
c Critical Lane Group			

8: Beach Blvd & Atlanta Ave

Movement	L			L			L			L		
Lane Configurations												
Volume (vph)												
Ideal Flow (vphpl)												
Total Lost Time (s)												
Lane Utilization Factor												
Frt												
Flt Protected												
Satd. Flow (prot)												
Flt Permitted												
Satd. Flow (perm)												
Peak-hour factor, PHF												
Adj. Flow (vph)												
Shared Lane Traffic (%)												
Lane Group Flow (vph)												
Turn Type	rot			rot			rot			rot		
Protected Phases												
Permitted Phases												
Actuated Green, G (s)												
Effective Green, g (s)												
Actuated g/C Ratio												
Clearance Interval (s)												
Vehicle Extension (s)												
Lane Grp Cap (vph)												
v/s Ratio Prot												
v/s Ratio Perm												
v/c Ratio												
Uniform Delay, d1												
Progression Factor												
Incremental Delay, d2												
Delay (s)												
Level of Service												C
Approach Delay (s)												
Approach LOS												

Intersection Summary	
HCM Control Delay	
HCM Volume to Capacity ratio	
Actuated Cycle Length (s)	
Intersection Capacity Utilization	
Analysis Period (min)	
c Critical Lane Group	

9: Huntington Beach Parking/Beach Blvd & Pacific Coast Highway

Movement	L			L			L			L		
Lane Configurations												
Volume (vph)												
Ideal Flow (vphpl)												
Total Lost Time (s)												
Lane Utilization Factor												
Frt												
Flt Protected												
Satd. Flow (prot)												
Flt Permitted												
Satd. Flow (perm)												
Peak-hour factor, PHF												
Adj. Flow (vph)												
Shared Lane Traffic (%)												
Lane Group Flow (vph)												
Turn Type	rot			rot		perm	rot		perm	rot		free
Protected Phases												
Permitted Phases												free
Actuated Green, G (s)												
Effective Green, g (s)												
Actuated g/C Ratio												
Clearance Interval (s)												
Vehicle Extension (s)												
Lane Grp Cap (vph)												
v/s Ratio Prot												
v/s Ratio Perm												
v/c Ratio												
Uniform Delay, d1												
Progression Factor												
Incremental Delay, d2												
Delay (s)												
Level of Service						C						
Approach Delay (s)												
Approach LOS		C			C							

Intersection Summary	
HCM Control Delay	C
HCM Volume to Capacity ratio	
Actuated Cycle Length (s)	
Intersection Capacity Utilization	
Analysis Period (min)	
c Critical Lane Group	

12: Huntington Beach Parking/Newland St & Pacific Coast Highway

Movement	L			L			L				L			
Lane Configurations														
Volume (vph)														
Ideal Flow (vphpl)														
Total Lost Time (s)														
Lane Utilization Factor														
Frpb, ped/bikes														
Flpb, ped/bikes														
Frt														
Flt Protected														
Satd. Flow (prot)														
Flt Permitted														
Satd. Flow (perm)														
Peak-hour factor, PHF														
Adj. Flow (vph)														
Shared lane traffic (%)														
Lane Group Flow (vph)														
Turn Type	rot			rot										
Protected Phases														
Permitted Phases														
Actuated Green, G (s)														
Effective Green, ge (s)														
Actuated g/C Ratio														
Clearance Interval (s)														
Vehicle Extension (s)														
Lane Grp Cap (vph)														
v/s Ratio Prot														
v/s Ratio Perm														
v/c Ratio														
Uniform Delay, d1														
Progression Factor														
Incremental Delay, d2														
Delay (s)														
Level of Service								C	C		C	C		
Approach Delay (s)														
Approach LOS		C							C			C		

Intersection Summary	
HCM Control Delay	C, Level of Service
HCM Volume to Capacity ratio	
Actuated Cycle Length (s)	Sum of lost time (s)
Intersection Capacity Utilization	ICU Level of Service C
Analysis Period (min)	
c Critical Lane Group	

14: Magnolia Ave & Pacific Coast Highway

Movement	L			L			L				L			
Lane Configurations														
Volume (vph)														
Ideal Flow (vphpl)														
Total Lost Time (s)														
Lane Utilization Factor														
Frpb, ped/bikes														
Flpb, ped/bikes														
Frt														
Flt Protected														
Satd. Flow (prot)														
Flt Permitted														
Satd. Flow (perm)														
Peak-hour factor, PHF														
Adj. Flow (vph)														
Shared lane traffic (%)														
Lane Group Flow (vph)														
Turn Type	rot			rot			plit				plit			
Protected Phases														
Permitted Phases														
Actuated Green, G (s)														
Effective Green, ge (s)														
Actuated g/C Ratio														
Clearance Interval (s)														
Vehicle Extension (s)														
Lane Grp Cap (vph)														
v/s Ratio Prot														
v/s Ratio Perm														
v/c Ratio														
Uniform Delay, d1														
Progression Factor														
Incremental Delay, d2														
Delay (s)														
Level of Service							C							
Approach Delay (s)														
Approach LOS														

Intersection Summary	
HCM Control Delay	C, Level of Service
HCM Volume to Capacity ratio	
Actuated Cycle Length (s)	Sum of lost time (s)
Intersection Capacity Utilization	ICU Level of Service C
Analysis Period (min)	
c Critical Lane Group	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Ideal Flow (vphpl)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total Lost time (s)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
Lane Util. Factor	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
Frt	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
Flt Protected	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
Satd. Flow (prot)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
Flt Permitted	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
Satd. Flow (perm)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
Peak-hour factor, PHF	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Adj. Flow (vph)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
RTOR Reduction (vph)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Lane Group Flow (vph)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Turn Type	Prot	[illegible]	Perm	Prot	[illegible]	Perm	Split	[illegible]		Split	[illegible]	Perm
Protected Phases	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	
Permitted Phases			[illegible]			[illegible]						[illegible]
Actuated Green, G (s)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
Effective Green, g (s)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
Actuated g/C Ratio	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
Clearance Time (s)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
Vehicle Extension (s)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
Lane Grp Cap (vph)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
v/s Ratio Prot	c[illegible]	[illegible]		[illegible]	c[illegible]		c[illegible]	[illegible]		c[illegible]	[illegible]	
v/s Ratio Perm			[illegible]			[illegible]						[illegible]
v/c Ratio	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
Uniform Delay, d1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
Progression Factor	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
Incremental Delay, d2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
Delay (s)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
Level of Service	[illegible]	[illegible]	[illegible]	[illegible]	C	C	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
Approach Delay (s)		[illegible]			[illegible]			[illegible]			[illegible]	
Approach LOS		[illegible]			C			[illegible]			[illegible]	

Intersection Summary			
HCM [illegible] Control Delay	[illegible]	HCM [illegible] Level of Service	C
HCM [illegible] Volume to Capacity ratio	[illegible]		
Actuated Cycle Length (s)	[illegible]	Sum of lost time (s)	[illegible]
Intersection Capacity Utilization	[illegible]	ICU Level of Service	[illegible]
Analysis Period (min)	[illegible]		
c Critical Lane Group			


```
Default Scenario            Tue May 28, 2013 11:13:34                  Page 3-1
--------------------------------------------------------------------------------
                    Existing (2013) Plus Project Conditions
                                    PM Peak
--------------------------------------------------------------------------------
                       Level Of Service Computation Report
        ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)
********************************************************************************
Intersection #10 Newland St & Atlanta Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.506
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        46                Level Of Service:                  A
********************************************************************************
Street Name:             Newland Street                   Atlanta Avenue
Approach:       North Bound      South Bound      East Bound       West Bound
Movement:      L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0     0     0    0     0     0    0     0     0    0     0     0
Y+R:          4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0
Lanes:        1  0  1  1  0    1  0  1  1  0    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     280   426    24   86   229    90   60   418   167   35   508   112
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:  280   426    24   86   229    90   60   418   167   35   508   112
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:   280   426    24   86   229    90   60   418   167   35   508   112
Reduct Vol:     0     0     0    0     0     0    0     0     0    0     0     0
Reduced Vol:  280   426    24   86   229    90   60   418   167   35   508   112
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:  280   426    24   86   229    90   60   418   167   35   508   112
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1600  1600  1600 1600  1600  1600 1600  1600  1600 1600  1600  1600
Adjustment:  1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
Lanes:       1.00  1.89  0.11 1.00  1.44  0.56 1.00  1.43  0.57 1.00  1.64  0.36
Final Sat.:  1600  3029   171 1600  2297   903 1600  2286   914 1600  2622   578
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.17  0.14  0.14 0.05  0.10  0.10 0.04  0.18  0.18 0.02  0.19  0.19
Crit Moves:  ****                   ****       ****                   ****
********************************************************************************
```

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Existing (2013) Plus Project Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #11 Newland St & Hamilton Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.673
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	70	Level Of Service:	B

Street Name:	Newland Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0 0	1 0	1	0 1	0 0	0	0 0	0 0	1	0 0	0 1
Volume Module:												
Base Vol:	0	272	149	219	115	0	0	0	0	122	0	437
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	272	149	219	115	0	0	0	0	122	0	437
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	272	149	219	115	0	0	0	0	122	0	437
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	272	149	219	115	0	0	0	0	122	0	437
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	272	149	219	115	0	0	0	0	122	0	437
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.65	0.35	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	1034	566	1600	1600	0	0	0	0	1600	0	1600
Capacity Analysis Module:												
Vol/Sat:	0.00	0.26	0.26	0.14	0.07	0.00	0.00	0.00	0.00	0.08	0.00	0.27
Crit Moves:		****		****								****

Existing (2013) Plus Project Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #13 Magnolia St & Hamilton Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.544
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	41	Level Of Service:	A

Street Name:	Magnolia Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Prot+Permit			Prot+Permit			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0 1	1 0	1	0 2	0 1	1	0 0	1 0	1	0 1	0 1
Volume Module:												
Base Vol:	27	292	25	196	173	28	30	270	34	33	486	313
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:	27	292	25	196	173	28	30	270	34	33	486	313
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:	27	292	25	196	173	28	30	270	34	33	486	313
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	27	292	25	196	173	28	30	270	34	33	486	313
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:	27	292	25	196	173	28	30	270	34	33	486	313
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.84	0.16	1.00	2.00	1.00	1.00	0.89	0.11	1.00	1.00	1.00
Final Sat.:	1600	2948	252	1600	3200	1600	1600	1421	179	1600	1600	1600
Capacity Analysis Module:												
Vol/Sat:	0.02	0.10	0.10	0.12	0.05	0.02	0.02	0.19	0.19	0.02	0.30	0.20
Crit Moves:		****		****			****				****	

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Default Scenario           Tue May 28, 2013 11:13:34                Page 6-1
-------------------------------------------------------------------------------
                    Existing (2013) Plus Project Conditions
                                     PM Peak
-------------------------------------------------------------------------------
                       Level Of Service Computation Report
        ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)
*******************************************************************************
Intersection #15 Brookhurst St & Hamilton Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.619
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        60                Level Of Service:                   B
*******************************************************************************
Street Name:        Brookhurst Street                  Hamilton Avenue
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Prot+Permit      Prot+Permit
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  3  0  1    2  0  2  1  0    1  0  1  1  0    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      85  600   177   340  427    94    95  347    66   258  978   525
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  600   177   340  427    94    95  347    66   258  978   525
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  600   177   340  427    94    95  347    66   258  978   525
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   85  600   177   340  427    94    95  347    66   258  978   525
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  600   177   340  427    94    95  347    66   258  978   525
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1600 1600  1600  1600 1600  1600  1600 1600  1600  1600 1600  1600
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 3.00  1.00  2.00 2.46  0.54  1.00 1.68  0.32  1.00 2.00  1.00
Final Sat.:  1600 4800  1600  3200 3934   866  1600 2689   511  1600 3200  1600
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.05 0.13  0.11  0.11 0.11  0.11  0.06 0.13  0.13  0.16 0.31  0.33
Crit Moves:       ****         ****              ****                        ****
*******************************************************************************

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APPENDIX D: PENDING AND APPROVED DEVELOPMENT PROJECTS

Related Projects List

Map No.	Name	Location	Description	Could Project be in Operation by 2015?	Could Project be in Operation by 2020?
1	Poseidon Desalination Facility	21730 Newland Street (off of Pacific Coast Highway)	A 50 million gallon per day seawater desalination facility, including potential water distribution line along Hamilton Avenue north of Ascon Landfill Site.	No	Yes
2	Plaines All American Pipeline Tanks (Removal)	West of Magnolia, south of Ascon site	Removal of three above ground crude oil storage tanks.	Yes	--
3	Beach Promenade	Southeast corner of Beach Boulevard and Atlanta Avenue	The Beach Promenade consists of two options for development; Option A and Option B. Maximum development square footage approved is 38,634 sf (Option B) to the existing 85,107 sf commercial center. The development project includes 2.07 acre frontage road and 0.61 acre adjacent to westerly property to enlarge site from 6.24 acres to 9.42 acres.	Yes	--
4	Hilton Waterfront Beach Resort Expansion	21100 Pacific Coast Highway (bounded on the north by Pacific Avenue, on the east by Twin Dolphin Drive, on the south by Pacific Coast Highway, and on the west by the existing Hilton Waterfront Beach Resort)	The project consists of an additional 156 new guestrooms and related facilities.	No	Yes
5	Pacific City	Along Pacific Coast Highway, between Huntington Street and First Street	The project consists of 516 residential apartment units, 191,000 square feet of commercial, retail, restaurant, entertainment, office, and hotel development. The hotel would be a 250-room, luxury boutique hotel, spa and health club, with 12,000 square feet of restaurant.	No	Yes
6	Atlanta Avenue Widening Project	South side of Altanta Avenue, between Huntington Street and Delaware Street	Widen the south side of Altanta Avenue, between Huntington Street and Delaware Street.	Yes	--
7	Pierside Pavilion Expansion	300 Pacific Coast Highway (northeast corner of Pacific Coast Highway and Main Street)	The project consists of 27,772 square feet of mixed use, visitor serving office building, 9,401 square feet of infill expansion by extending existing storefronts, 10,527 square feet of retail, 5,705 square feet of restaurant, 21,441 square feet of office, 6,146 square feet of outdoor dining.	Yes	--
8	Beach Walk	19891 and 19895 Beach Boulevard (west side of Beach Boulevard between Utica and Adams Avenue – across from Newland Shopping Center)	The project consists of 173 multi-family apartment units.	Yes	--
9	Hoag Medical Building	19582 Beach Boulevard (east side of Beach Boulevard, south of Yorktown Avenue)	The project involves the construction of an approximately 52,775-square-foot, three-story addition to an existing 52,177-square-foot medical office building and a 486-space parking structure.	No	Yes
10	Beach & Ellis – Elan Apartments	18502 and 18508-18552 Beach Boulevard (southeast corner of Beach Boulevard and Ellis Avenue)	The project consists of 274 residential units, 8,500 square feet of commercial, 17,540 square feet of public open space, and 31,006 square feet of residential private open space.	No	Yes
11	Casa Rincon	18431 Beach Boulevard (west side of Beach Boulevard, north of Ellis Avenue)	The project involves the construction of a four-story, 24-unit multi-family development.	No	Yes
12	Oceana Apartments	18151 Beach Boulevard (west side of Beach Boulevard)	The project consists of 91 affordable housing units.	No	Yes
13	Gun Range	Central Park (proximate to Gothard Street and Talbert Avenue)	Clean-up and re-use of the site.	Yes	--

Map No.	Name	Location	Description	Could Project be in Operation by 2015?	Could Project be in Operation by 2020?
14	Huntington Beach Senior Center	Central Park (southwest of intersection of Goldenwest Street and Tablet Avenue).	The project consists of a 45,000 square feet of senior center.	No	Yes
15	Longs Drugs	17725 Beach Boulevard (Northwest corner of Beach Boulevard and Newman Avenue)	The project involves the construction of an 8,800 sf drugstore with a drive-through pharmacy.	Yes	--
16	Fein Medical Office Building	7922 Liberty Avenue (south side of Liberty Avenue, west of Beach Boulevard).	The project involves the construction of a 6,480 square feet medical office building.	Yes	--
17	Rainbow Disposal	17121 Nichols Street	Master plan for Rainbow to expand the existing Material Recovery Facility (MRF) and Transfer Station from the current 2,800 tons per day (TPD) to 4,000 TPD. These new buildings and operations would enable Rainbow to continue to process curbside recyclables, construction and demolition (C&D) debris, greenwaste, and commercial municipal solid waste (MSW), and to do so while improving environmental conditions around the facility as compared to current operations.	Yes	--
18	Warner Nichols	Warner Avenue and Nichols Lane	General Plan and Zoning Map Amendments from residential to commercial on approximately 1.1 gross acres and industrial on approximately 3.3 gross acres and demolition or removal of existing historic structures.	Yes	--
19	Edinger Hotel	Southeast corner of Edinger Avenue and Parkside Lane	The proposed Edinger Hotel project consists of a 200-room, 115,000-square-foot, six-story hotel on a 84,829-square-foot lot in the Town Center Boulevard area of the Beach and Edinger Corridors Specific Plan (BECSP).	No	Yes
20	The Village at Bella Terra	West of Bella Terra Mall between Edinger Avenue and Center Avenue	Mixed-use project with 467 residential units with 13,500 square feet of residential amenities, 17,500 square feet of mixed-used retail and restaurant uses on ground floor of the residential building, 12,000 square feet of freestanding retail and restaurants as well as 1,920 square feet of pavilion building within a landscaped greenbelt area.	Yes	--
21	Archstone II	Southwest corner of Edinger Avenue and Gothard Street.	The project consists of a 500 unit apartment complex (approximately 466,230 square feet).	Yes	--
22	Edinger Walmart	6912 Edinger Avenue (southwest corner of Edinger Avenue and Goldenwest Street).	The project involves the re-use of a vacant 100,865-square-foot retail building for a Walmart store.	Yes	--
23	The Boardwalk	Northeast corner of Gothard Street and Center Avenue	The project consists of 487 dwelling units and 14,500 square feet of commercial area with a ½ acre public park.	Yes	--
24	Skate Park Project	7461 Center Avenue (east of Gothard Street)	The project consists of 15,900 square feet of skate plaza area, 11,850 square feet of skate bowl area, and 3,500 square feet of skate shop/concession building.	Yes	--
25	Amstar/Red Oak Project (formerly known as The Ripcurl)	Southeast corner of Gothard Street and Center Avenue.	A mixed-use project consists of 10,000 square feet of commercial uses on the ground floor and 440 residential units above the ground floor (five stories).	Yes	--

Notes:

Source: PCR Services Corporation, 2012.

Pending & Approved Development Projects Trip Generation Estimates

	Project Name	Daily	AM In	AM Out	AM Total	PM In	PM Out	PM Total
1	Poseidon Desalination Facility [b]	130	130	9	9	18	9	9
3	Beach Promenade [a]	1650	23	14	37	69	74	143
4	Hilton Waterfront Beach Resort Expansion [a]	1392	61	44	105	53	56	109
5	Pacific City [c]	12002	345	283	628	505	546	1051
7	Pierside Pavilion Expansion [a]	2460	87	19	106	108	128	236
8	Beach Walk [a]	1150	18	70	88	70	37	107
9	Hoag Medical Building [a]	1907	100	26	126	53	135	188
10	Beach & Ellis – Elan Apartments [a]	2185	33	115	148	126	76	202
11	Casa Rincon [a]	160	2	10	12	10	5	15
12	Oceana Apartments [a]	605	9	37	46	36	20	56
13	Gun Range [d]	200	15	10	25	15	10	25
14	Huntington Beach Senior Center [e]	3395	252	63	315	40	110	150
15	Longs Drugs [a]	853	16	14	30	44	43	87
16	Fein Medical Office Building [a]	231	12	3	15	6	17	23
17	Rainbow Disposal [f]	574	53	9	106	18	18	35
18	Warner Nichols [g]	0	0	0	0	0	0	0
19	Edinger Hotel [a]	1784	78	56	134	69	71	140
20	The Village at Bella Terra [h]	4448	67	201	268	245	162	407
21	Archstone II [a]	3325	51	204	255	202	108	310
22	Edinger Walmart [a]	5119	105	82	187	215	224	439
23	The Boardwalk [a]	3859	60	204	264	223	135	358
24	Skate Park Project [i]	416	7	6	13	29	33	62
25	Amstar/Red Oak Project (Formerly Ripcul) [j]	1666	-9	150	141	120	24	144

Source: [a] Trip Generation, 8th Edition (ITE, 2008).
[b] Poseidon Seawater Desalination Facility EIR
[c] Pacific City EIR
[d] Redmediation and Reuse of the Former Gun Range within Huntington Central Park Initial Study/Environmental Checklist
[e] Huntington Beach Senior Center EIR
[f] Rainbow Disposal Project TIA
[g] Warner-Nichols Project EIR
[h] The Village at Bella Terra TIA
[i] Center Avenue Skate Park EIR
[j] The Ripcurl TIA

APPENDIX E: PROJECT OPERATING YEAR (2015) BASE LOS RESULTS

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	111	570	0	2173	2946	836
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	4.5		6.0	6.0	4.0
Lane Util. Factor	0.97	0.88		0.86	0.86	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	2787		6408	6408	1583
Flt Permitted	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	2787		6408	6408	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	118	606	0	2312	3134	889
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	118	606	0	2312	3134	889
Turn Type	NA	custom		NA	NA	Free
Protected Phases	4	5		2	6	
Permitted Phases		4		5		Free
Actuated Green, G (s)	13.2	38.1		115.5	86.1	140.0
Effective Green, g (s)	13.2	38.1		115.5	86.1	140.0
Actuated g/C Ratio	0.09	0.27		0.82	0.62	1.00
Clearance Time (s)	5.3	4.5		6.0	6.0	
Vehicle Extension (s)	4.0	3.8		4.0	4.0	
Lane Grp Cap (vph)	323	758		5286	3940	1583
v/s Ratio Prot	0.03	c0.14		0.36	c0.49	
v/s Ratio Perm		0.08				0.56
v/c Ratio	0.37	0.80		0.44	0.80	0.56
Uniform Delay, d1	59.5	47.4		3.4	20.3	0.0
Progression Factor	1.00	1.00		0.69	1.00	1.00
Incremental Delay, d2	1.0	6.2		0.0	1.7	1.4
Delay (s)	60.4	53.6		2.4	22.1	1.4
Level of Service	E	D		A	C	A
Approach Delay (s)	54.7			2.4	17.5	
Approach LOS	D			A	B	

Intersection Summary			
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.8
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	298	938	219	163	535	305	174	1555	270	463	2396	573
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.5	4.6	4.4	5.5	5.5	4.6	5.8	5.8	4.4	6.0	4.6
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.86	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	6408	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	6408	2787
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	317	998	233	173	569	324	185	1654	287	493	2549	610
RTOR Reduction (vph)	0	0	65	0	0	223	0	0	135	0	0	42
Lane Group Flow (vph)	317	998	168	173	569	101	185	1654	152	493	2549	568
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2		1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	15.2	28.6	40.7	13.0	26.2	26.2	12.1	57.4	57.4	20.9	65.8	81.0
Effective Green, g (s)	15.2	28.6	40.7	13.0	26.2	26.2	12.1	57.4	57.4	20.9	65.8	81.0
Actuated g/C Ratio	0.11	0.20	0.29	0.09	0.19	0.19	0.09	0.41	0.41	0.15	0.47	0.58
Clearance Time (s)	4.6	5.5	4.6	4.4	5.5	5.5	4.6	5.8	5.8	4.4	6.0	4.6
Vehicle Extension (s)	1.0	3.0	1.0	1.0	3.0	3.0	1.0	4.0	4.0	1.0	4.0	1.0
Lane Grp Cap (vph)	372	1038	460	318	662	296	296	2084	649	512	3011	1704
v/s Ratio Prot	0.09	c0.20	0.03	0.05	c0.16		0.05	c0.33		c0.14	c0.40	0.04
v/s Ratio Perm			0.07			0.06			0.10			0.17
v/c Ratio	0.85	0.96	0.36	0.54	0.86	0.34	0.62	0.79	0.23	0.96	0.85	0.33
Uniform Delay, d1	61.3	55.2	39.4	60.7	55.1	49.4	61.8	36.1	27.0	59.2	32.7	15.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.74	0.55	0.19	1.05	0.66	0.58
Incremental Delay, d2	16.3	19.2	0.2	1.0	10.8	0.7	2.7	2.9	0.8	22.8	2.0	0.0
Delay (s)	77.6	74.4	39.6	61.7	65.9	50.1	48.6	22.8	5.9	85.1	23.7	8.9
Level of Service	E	E	D	E	E	D	D	C	A	F	C	A
Approach Delay (s)		69.8			60.4			22.8			29.5	
Approach LOS		E			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	39.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	90.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	231	1212	126	210	656	77	130	1312	144	385	1887	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.3		4.2	5.3		4.2	5.3		4.2	5.3	5.3
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.86		0.97	0.86	1.00
Frt	1.00	0.99		1.00	0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	5013		3433	5005		3433	6313		3433	6408	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	5013		3433	5005		3433	6313		3433	6408	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	236	1237	129	214	669	79	133	1339	147	393	1926	232
RTOR Reduction (vph)	0	9	0	0	10	0	0	14	0	0	0	113
Lane Group Flow (vph)	236	1357	0	214	738	0	133	1472	0	393	1926	119
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	14.8	40.0		11.2	36.4		13.0	53.1		16.7	56.8	56.8
Effective Green, g (s)	14.8	40.0		11.2	36.4		13.0	53.1		16.7	56.8	56.8
Actuated g/C Ratio	0.11	0.29		0.08	0.26		0.09	0.38		0.12	0.41	0.41
Clearance Time (s)	4.2	5.3		4.2	5.3		4.2	5.3		4.2	5.3	5.3
Vehicle Extension (s)	1.1	3.0		1.1	3.0		1.1	6.0		1.1	6.0	6.0
Lane Grp Cap (vph)	362	1432		274	1301		318	2394		409	2599	642
v/s Ratio Prot	0.07	c0.27		c0.06	0.15		0.04	0.23		c0.11	c0.30	
v/s Ratio Perm												0.08
v/c Ratio	0.65	0.95		0.78	0.57		0.42	0.62		0.96	0.74	0.19
Uniform Delay, d1	60.1	49.0		63.2	45.0		59.9	35.2		61.3	35.4	26.7
Progression Factor	1.00	1.00		1.00	1.00		1.41	0.17		1.49	0.36	0.06
Incremental Delay, d2	3.2	13.2		12.5	0.6		0.3	0.9		24.6	1.2	0.4
Delay (s)	63.3	62.2		75.7	45.5		84.9	7.0		115.7	14.0	1.9
Level of Service	E	E		E	D		F	A		F	B	A
Approach Delay (s)		62.4			52.2			13.4			28.6	
Approach LOS		E			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	36.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	88.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	80	384	112	140	322	128	144	1432	115	290	1811	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.5		4.7	5.5		4.7	5.8		4.7	5.8	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.86		1.00	0.86	
Frt	1.00	0.97		1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3419		1770	3388		1770	6336		1770	6337	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3419		1770	3388		1770	6336		1770	6337	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	83	400	117	146	335	133	150	1492	120	302	1886	149
RTOR Reduction (vph)	0	20	0	0	31	0	0	10	0	0	8	0
Lane Group Flow (vph)	83	497	0	146	437	0	150	1602	0	302	2027	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	12.0	25.3		13.9	27.2		13.4	48.4		31.7	66.7	
Effective Green, g (s)	12.0	25.3		13.9	27.2		13.4	48.4		31.7	66.7	
Actuated g/C Ratio	0.09	0.18		0.10	0.19		0.10	0.35		0.23	0.48	
Clearance Time (s)	4.7	5.5		4.7	5.5		4.7	5.8		4.7	5.8	
Vehicle Extension (s)	1.0	3.5		1.0	3.5		1.0	5.0		1.0	5.0	
Lane Grp Cap (vph)	151	617		175	658		169	2190		400	3019	
v/s Ratio Prot	0.05	c0.15		c0.08	0.13		c0.08	c0.25		c0.17	0.32	
v/s Ratio Perm												
v/c Ratio	0.55	0.81		0.83	0.66		0.89	0.73		0.76	0.67	
Uniform Delay, d1	61.4	55.0		61.9	52.2		62.6	40.1		50.5	28.2	
Progression Factor	1.00	1.00		1.00	1.00		0.76	0.69		0.64	0.31	
Incremental Delay, d2	2.2	7.8		26.5	2.6		34.4	1.9		5.0	0.8	
Delay (s)	63.6	62.8		88.4	54.8		82.0	29.6		37.4	9.6	
Level of Service	E	E		F	D		F	C		D	A	
Approach Delay (s)		62.9			62.8			34.1			13.2	
Approach LOS		E			E			C			B	

Intersection Summary			
HCM 2000 Control Delay	31.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	254	421	88	118	294	138	70	1307	121	154	1357	323
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.7	6.0		4.7	6.0	6.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.86		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3539	1583	3433	6327		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3539	1583	3433	6327		3433	5085	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	267	443	93	124	309	145	74	1376	127	162	1428	340
RTOR Reduction (vph)	0	0	73	0	0	129	0	9	0	0	0	45
Lane Group Flow (vph)	267	443	20	124	309	16	74	1494	0	162	1428	295
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	pt+ov
Protected Phases	7	7		8	8		5	2		1	6	6 7
Permitted Phases			7			8						
Actuated Green, G (s)	29.5	29.5	29.5	15.8	15.8	15.8	8.0	60.9		11.1	64.0	99.5
Effective Green, g (s)	29.5	29.5	29.5	15.8	15.8	15.8	8.0	60.9		11.1	64.0	99.5
Actuated g/C Ratio	0.21	0.21	0.21	0.11	0.11	0.11	0.06	0.44		0.08	0.46	0.71
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.7	6.0		4.7	6.0	
Vehicle Extension (s)	2.2	2.2	2.2	1.2	1.2	1.2	1.2	5.0		1.2	5.0	
Lane Grp Cap (vph)	723	745	333	199	399	178	196	2752		272	2324	1125
v/s Ratio Prot	0.08	c0.13		0.07	c0.09		0.02	0.24		c0.05	c0.28	0.19
v/s Ratio Perm			0.01			0.01						
v/c Ratio	0.37	0.59	0.06	0.62	0.77	0.09	0.38	0.54		0.60	0.61	0.26
Uniform Delay, d1	47.3	49.9	44.2	59.3	60.4	55.7	63.6	29.3		62.3	28.7	7.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.09	0.67	1.70
Incremental Delay, d2	0.2	0.9	0.0	4.3	8.3	0.1	0.4	0.8		1.7	0.9	0.0
Delay (s)	47.5	50.8	44.2	63.6	68.7	55.8	64.0	30.0		69.9	20.1	12.3
Level of Service	D	D	D	E	E	E	E	C		E	C	B
Approach Delay (s)		48.9			64.3			31.6			22.9	
Approach LOS		D			E			C			C	

Intersection Summary				
HCM 2000 Control Delay	34.9	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.64			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.7	
Intersection Capacity Utilization	73.4%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	170	533	144	106	342	152	140	1220	68	171	1270	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.8	5.8	4.6	5.8		4.6	6.2		4.6	6.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3376		1770	5045		1770	5034	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3376		1770	5045		1770	5034	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	179	561	152	112	360	160	147	1284	72	180	1337	96
RTOR Reduction (vph)	0	0	118	0	45	0	0	5	0	0	6	0
Lane Group Flow (vph)	179	561	34	112	475	0	147	1351	0	180	1427	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	15.6	26.5	26.5	12.0	22.9		14.0	44.6		15.7	46.3	
Effective Green, g (s)	15.6	26.5	26.5	12.0	22.9		14.0	44.6		15.7	46.3	
Actuated g/C Ratio	0.13	0.22	0.22	0.10	0.19		0.12	0.37		0.13	0.39	
Clearance Time (s)	4.6	5.8	5.8	4.6	5.8		4.6	6.2		4.6	6.2	
Vehicle Extension (s)	1.5	4.0	4.0	1.5	4.0		1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	230	781	349	177	644		206	1875		231	1942	
v/s Ratio Prot	c0.10	c0.16		0.06	c0.14		0.08	c0.27		0.10	c0.28	
v/s Ratio Perm			0.02									
v/c Ratio	0.78	0.72	0.10	0.63	0.74		0.71	0.72		0.78	0.73	
Uniform Delay, d1	50.5	43.3	37.2	51.9	45.7		51.1	32.4		50.5	31.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.28	1.40		1.00	1.00	
Incremental Delay, d2	14.0	3.4	0.2	5.3	4.7		8.4	2.2		14.0	2.5	
Delay (s)	64.5	46.7	37.4	57.2	50.4		74.0	47.5		64.5	34.1	
Level of Service	E	D	D	E	D		E	D		E	C	
Approach Delay (s)		48.7			51.6			50.1			37.5	
Approach LOS		D			D			D			D	

Intersection Summary				
HCM 2000 Control Delay	45.6	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.76			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.2	
Intersection Capacity Utilization	76.3%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	163	781	74	91	399	224	67	839	195	333	938	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	6.2		4.7	6.2	6.2	4.7	6.2		4.7	6.2	
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00	1.00	0.91		0.97	0.91	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5019		1770	3539	1583	1770	4941		3433	5026	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5019		1770	3539	1583	1770	4941		3433	5026	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	168	805	76	94	411	231	69	865	201	343	967	82
RTOR Reduction (vph)	0	10	0	0	0	185	0	34	0	0	8	0
Lane Group Flow (vph)	168	871	0	94	411	46	69	1032	0	343	1041	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	15.8	28.2		11.5	23.9	23.9	10.5	41.1		17.4	48.0	
Effective Green, g (s)	15.8	28.2		11.5	23.9	23.9	10.5	41.1		17.4	48.0	
Actuated g/C Ratio	0.13	0.24		0.10	0.20	0.20	0.09	0.34		0.14	0.40	
Clearance Time (s)	4.7	6.2		4.7	6.2	6.2	4.7	6.2		4.7	6.2	
Vehicle Extension (s)	1.8	5.0		1.8	5.0	5.0	1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	233	1179		169	704	315	154	1692		497	2010	
v/s Ratio Prot	c0.09	c0.17		0.05	0.12		0.04	c0.21		c0.10	0.21	
v/s Ratio Perm						0.03						
v/c Ratio	0.72	0.74		0.56	0.58	0.15	0.45	0.61		0.69	0.52	
Uniform Delay, d1	50.0	42.5		51.8	43.5	39.6	52.0	32.8		48.7	27.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		0.52	0.88	
Incremental Delay, d2	8.9	3.0		2.2	1.9	0.4	0.8	1.6		2.4	0.7	
Delay (s)	58.9	45.5		54.1	45.5	40.1	52.8	34.4		27.6	24.7	
Level of Service	E	D		D	D	D	D	C		C	C	
Approach Delay (s)		47.6			44.9			35.6			25.4	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	36.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.8
Intersection Capacity Utilization	73.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	83	356	51	44	263	229	28	386	89	249	633	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.5		4.7	5.5		4.7	6.2		4.7	6.2	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.98		1.00	0.93		1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3473		1770	3292		1770	4942		1770	4992	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3473		1770	3292		1770	4942		1770	4992	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	89	383	55	47	283	246	30	415	96	268	681	95
RTOR Reduction (vph)	0	7	0	0	97	0	0	23	0	0	8	0
Lane Group Flow (vph)	89	431	0	47	432	0	30	488	0	268	768	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	9.7	22.8		6.1	19.2		3.8	21.5		25.5	43.2	
Effective Green, g (s)	9.7	22.8		6.1	19.2		3.8	21.5		25.5	43.2	
Actuated g/C Ratio	0.10	0.24		0.06	0.20		0.04	0.22		0.26	0.45	
Clearance Time (s)	4.7	5.5		4.7	5.5		4.7	6.2		4.7	6.2	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	177	816		111	651		69	1095		465	2223	
v/s Ratio Prot	c0.05	c0.12		0.03	c0.13		0.02	c0.10		c0.15	0.15	
v/s Ratio Perm												
v/c Ratio	0.50	0.53		0.42	0.66		0.43	0.45		0.58	0.35	
Uniform Delay, d1	41.4	32.4		43.8	35.9		45.6	32.6		31.1	17.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.3		0.9	2.0		1.6	0.6		1.1	0.2	
Delay (s)	42.2	32.7		44.7	37.9		47.1	33.2		32.1	17.8	
Level of Service	D	C		D	D		D	C		C	B	
Approach Delay (s)		34.3			38.5			34.0			21.5	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	30.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	97.0	Sum of lost time (s)	21.1
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

9: Huntington Beach Parking/Beach Blvd & Pacific Coast Highway

AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	98	1811	10	4	828	233	5	5	5	549	37	158
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	6.0		4.5	6.0	6.0	5.0	5.0	5.0	5.0	5.0	4.0
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5081		1770	3539	1583	1770	3539	1583	3433	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5081		1770	3539	1583	1770	3539	1583	3433	1863	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	105	1947	11	4	890	251	5	5	5	590	40	170
RTOR Reduction (vph)	0	0	0	0	0	123	0	0	5	0	0	0
Lane Group Flow (vph)	105	1958	0	4	890	128	5	5	0	590	40	170
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases						2			4			Free
Actuated Green, G (s)	7.0	56.3		1.4	51.0	51.0	1.1	6.8	6.8	15.0	20.7	100.0
Effective Green, g (s)	7.0	56.3		1.4	51.0	51.0	1.1	6.8	6.8	15.0	20.7	100.0
Actuated g/C Ratio	0.07	0.56		0.01	0.51	0.51	0.01	0.07	0.07	0.15	0.21	1.00
Clearance Time (s)	4.2	6.0		4.5	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	1.5	4.6		2.0	4.5	4.5	2.0	1.8	1.8	2.0	1.8	
Lane Grp Cap (vph)	240	2860		24	1804	807	19	240	107	514	385	1583
v/s Ratio Prot	c0.03	c0.39		0.00	0.25		0.00	0.00		c0.17	0.02	
v/s Ratio Perm						0.08			0.00			c0.11
v/c Ratio	0.44	0.68		0.17	0.49	0.16	0.26	0.02	0.00	1.15	0.10	0.11
Uniform Delay, d1	44.6	15.5		48.7	16.0	13.1	49.0	43.5	43.4	42.5	32.1	0.0
Progression Factor	1.00	1.00		0.64	1.34	3.83	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	1.4		1.2	0.9	0.4	2.7	0.0	0.0	87.3	0.0	0.1
Delay (s)	45.1	16.9		32.4	22.4	50.4	51.7	43.5	43.4	129.8	32.2	0.1
Level of Service	D	B		C	C	D	D	D	D	F	C	A
Approach Delay (s)		18.3			28.6			46.2			97.3	
Approach LOS		B			C			D			F	

Intersection Summary			
HCM 2000 Control Delay	37.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

12: Huntington Beach Parking/Newland St & Pacific Coast Highway

AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	76	2240	0	0	848	30	4	3	1	170	1	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.7			5.7	5.7	4.2	4.2		4.2	4.2	
Lane Util. Factor	1.00	0.91			0.91	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00			1.00	0.85	1.00	0.96		1.00	0.85	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5085			5085	1583	1770	1793		1770	1585	
Flt Permitted	0.95	1.00			1.00	1.00	0.63	1.00		0.76	1.00	
Satd. Flow (perm)	1770	5085			5085	1583	1176	1793		1407	1585	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	82	2409	0	0	912	32	4	3	1	183	1	138
RTOR Reduction (vph)	0	0	0	0	0	16	0	1	0	0	97	0
Lane Group Flow (vph)	82	2409	0	0	912	16	4	3	0	183	42	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases			2			6	4			8		
Actuated Green, G (s)	7.6	60.1			48.5	48.5	30.0	30.0		30.0	30.0	
Effective Green, g (s)	7.6	60.1			48.5	48.5	30.0	30.0		30.0	30.0	
Actuated g/C Ratio	0.08	0.60			0.48	0.48	0.30	0.30		0.30	0.30	
Clearance Time (s)	4.0	5.7			5.7	5.7	4.2	4.2		4.2	4.2	
Vehicle Extension (s)	1.7	4.6			4.6	4.6	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	134	3056			2466	767	352	537		422	475	
v/s Ratio Prot	0.05	c0.47			0.18			0.00			0.03	
v/s Ratio Perm						0.01	0.00			c0.13		
v/c Ratio	0.61	0.79			0.37	0.02	0.01	0.01		0.43	0.09	
Uniform Delay, d1	44.8	15.1			16.2	13.4	24.6	24.5		28.2	25.2	
Progression Factor	1.07	1.27			1.63	5.60	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.8	1.4			0.4	0.0	0.1	0.0		3.2	0.4	
Delay (s)	51.6	20.6			26.8	75.1	24.6	24.6		31.4	25.5	
Level of Service	D	C			C	E	C	C		C	C	
Approach Delay (s)		21.6			28.4			24.6			28.9	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.9
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	107	2295	16	16	787	47	2	7	2	144	23	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	5.7	5.7	3.7	5.7	5.7	4.2	4.2		4.6	4.6	4.6
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1801		1681	1708	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1770	1801		1681	1708	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	113	2416	17	17	828	49	2	7	2	152	24	113
RTOR Reduction (vph)	0	0	5	0	0	19	0	2	0	0	0	102
Lane Group Flow (vph)	113	2416	12	17	828	30	2	7	0	88	88	11
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	1	6		5	2		7	7		8	8	
Permitted Phases			6			2						8
Actuated Green, G (s)	10.4	68.4	68.4	2.5	60.5	60.5	1.2	1.2		9.7	9.7	9.7
Effective Green, g (s)	10.4	68.4	68.4	2.5	60.5	60.5	1.2	1.2		9.7	9.7	9.7
Actuated g/C Ratio	0.10	0.68	0.68	0.02	0.60	0.60	0.01	0.01		0.10	0.10	0.10
Clearance Time (s)	3.7	5.7	5.7	3.7	5.7	5.7	4.2	4.2		4.6	4.6	4.6
Vehicle Extension (s)	1.7	4.6	4.6	1.7	4.6	4.6	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	184	3478	1082	44	3076	957	21	21		163	165	153
v/s Ratio Prot	c0.06	c0.48		0.01	0.16		0.00	c0.00		c0.05	0.05	
v/s Ratio Perm			0.01			0.02						0.01
v/c Ratio	0.61	0.69	0.01	0.39	0.27	0.03	0.10	0.33		0.54	0.53	0.07
Uniform Delay, d1	42.9	9.5	5.0	48.0	9.3	8.0	48.9	49.0		43.0	43.0	41.1
Progression Factor	1.33	0.46	1.00	1.18	1.58	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.7	0.7	0.0	1.9	0.1	0.0	0.7	3.4		1.7	1.7	0.1
Delay (s)	59.7	5.1	5.0	58.7	14.8	8.0	49.6	52.4		44.7	44.7	41.1
Level of Service	E	A	A	E	B	A	D	D		D	D	D
Approach Delay (s)		7.6			15.2			51.9			43.3	
Approach LOS		A			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.2
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	196	2264	0	8	763	294	2	10	1	538	4	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.7		4.5	5.7	5.7	4.5	4.5		6.0	6.0	6.0
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		0.97	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5085		1770	5085	1583	1770	1837		3433	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5085		1770	5085	1583	1770	1837		3433	1863	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	204	2358	0	8	795	306	2	10	1	560	4	118
RTOR Reduction (vph)	0	0	0	0	0	188	0	1	0	0	0	92
Lane Group Flow (vph)	204	2358	0	8	795	118	2	10	0	560	4	26
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases			6			2						3
Actuated Green, G (s)	16.8	54.0		1.2	38.4	38.4	2.4	2.4		21.7	21.7	21.7
Effective Green, g (s)	16.8	54.0		1.2	38.4	38.4	2.4	2.4		21.7	21.7	21.7
Actuated g/C Ratio	0.17	0.54		0.01	0.38	0.38	0.02	0.02		0.22	0.22	0.22
Clearance Time (s)	4.5	5.7		4.5	5.7	5.7	4.5	4.5		6.0	6.0	6.0
Vehicle Extension (s)	1.7	4.6		1.7	4.6	4.6	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	297	2745		21	1952	607	42	44		744	404	343
v/s Ratio Prot	c0.12	c0.46		0.00	0.16		0.00	c0.01		c0.16	0.00	
v/s Ratio Perm						0.07						0.02
v/c Ratio	0.69	0.86		0.38	0.41	0.19	0.05	0.23		0.75	0.01	0.07
Uniform Delay, d1	39.1	19.7		49.0	22.5	20.5	47.7	47.9		36.6	30.7	31.2
Progression Factor	1.28	0.81		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	4.1	2.5		4.2	0.6	0.7	0.2	1.0		3.8	0.0	0.0
Delay (s)	54.4	18.4		53.2	23.1	21.2	47.9	48.9		40.5	30.7	31.2
Level of Service	D	B		D	C	C	D	D		D	C	C
Approach Delay (s)		21.3			22.8			48.7			38.8	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	24.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	82.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Operating Year (2015) Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #10 Newland St & Atlanta Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.441
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	41	Level Of Service:	A

Street Name:	Newland Street						Atlanta Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1	1 0	1 0	1	1 0	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	115	272	38	136	351	71	62	467	233	29	332	133
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:	115	272	38	136	351	71	62	467	233	29	332	133
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:	115	272	38	136	351	71	62	467	233	29	332	133
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	115	272	38	136	351	71	62	467	233	29	332	133
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:	115	272	38	136	351	71	62	467	233	29	332	133
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.75	0.25	1.00	1.66	0.34	1.00	1.33	0.67	1.00	1.43	0.57
Final Sat.:	1600	2808	392	1600	2662	538	1600	2135	1065	1600	2285	915
Capacity Analysis Module:												
Vol/Sat:	0.07	0.10	0.10	0.09	0.13	0.13	0.04	0.22	0.22	0.02	0.15	0.15
Crit Moves:	****				****			****		****		

Operating Year (2015) Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #11 Newland St & Hamilton Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.485
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	44	Level Of Service:	A

Street Name:	Newland Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0	1 0	1 0	1	0 0	0 0	0	0 0	1 0	0	0 1
Volume Module:												
Base Vol:	0	73	106	404	230	0	0	0	0	103	0	193
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	73	106	404	230	0	0	0	0	103	0	193
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	73	106	404	230	0	0	0	0	103	0	193
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	73	106	404	230	0	0	0	0	103	0	193
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	73	106	404	230	0	0	0	0	103	0	193
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.41	0.59	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	653	947	1600	1600	0	0	0	0	1600	0	1600
Capacity Analysis Module:												
Vol/Sat:	0.00	0.11	0.11	0.25	0.14	0.00	0.00	0.00	0.00	0.06	0.00	0.12
Crit Moves:		****		****								****

Operating Year (2015) Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #13 Magnolia St & Hamilton Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.501
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	37	Level Of Service:	A

Street Name:	Magnolia Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Prot+Permit			Prot+Permit			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0 1	1 0	1	0 2	0 1	1	0 0	1 0	1	0 1	0 1
Volume Module:												
Base Vol:	30	188	46	204	247	39	89	396	52	33	274	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:	30	188	46	204	247	39	89	396	52	33	274	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:	30	188	46	204	247	39	89	396	52	33	274	330
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	30	188	46	204	247	39	89	396	52	33	274	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:	30	188	46	204	247	39	89	396	52	33	274	330
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.61	0.39	1.00	2.00	1.00	1.00	0.88	0.12	1.00	1.00	1.00
Final Sat.:	1600	2571	629	1600	3200	1600	1600	1414	186	1600	1600	1600
Capacity Analysis Module:												
Vol/Sat:	0.02	0.07	0.07	0.13	0.08	0.02	0.06	0.28	0.28	0.02	0.17	0.21
Crit Moves:		****		****				****		****		

Operating Year (2015) Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #15 Brookhurst St & Hamilton Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.687
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	73	Level Of Service:	B

Street Name:	Brookhurst Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Protected			Protected			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0 3	0 1	2	0 2	1 0	1	0 1	1 0	1	0 2	0 1
Volume Module:												
Base Vol:	70	434	335	487	466	123	92	783	49	105	424	283
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:	70	434	335	487	466	123	92	783	49	105	424	283
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:	70	434	335	487	466	123	92	783	49	105	424	283
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	70	434	335	487	466	123	92	783	49	105	424	283
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:	70	434	335	487	466	123	92	783	49	105	424	283
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	3.00	1.00	2.00	2.37	0.63	1.00	1.88	0.12	1.00	2.00	1.00
Final Sat.:	1600	4800	1600	3200	3798	1002	1600	3012	188	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.04	0.09	0.21	0.15	0.12	0.12	0.06	0.26	0.26	0.07	0.13	0.18
Crit Moves:			****	****				****		****		

HCM Signalized Intersection Capacity Analysis Operating Year (2015) Plus Project Conditions
1: Beach Blvd & Center Ave

AM Peak

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	111	752	0	2320	2946	836
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	4.5		6.0	6.0	4.0
Lane Util. Factor	0.97	0.88		0.86	0.86	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	2787		6408	6408	1583
Flt Permitted	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	2787		6408	6408	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	118	800	0	2468	3134	889
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	118	800	0	2468	3134	889
Turn Type	NA	custom		NA	NA	Free
Protected Phases	4	5		2	6	
Permitted Phases		4		5		Free
Actuated Green, G (s)	13.2	48.7		115.5	75.5	140.0
Effective Green, g (s)	13.2	48.7		115.5	75.5	140.0
Actuated g/C Ratio	0.09	0.35		0.82	0.54	1.00
Clearance Time (s)	5.3	4.5		6.0	6.0	
Vehicle Extension (s)	4.0	3.8		4.0	4.0	
Lane Grp Cap (vph)	323	969		5286	3455	1583
v/s Ratio Prot	0.03	c0.21		0.39	c0.49	
v/s Ratio Perm		0.08				0.56
v/c Ratio	0.37	0.83		0.47	0.91	0.56
Uniform Delay, d1	59.5	41.8		3.5	29.1	0.0
Progression Factor	1.00	1.00		0.90	1.00	1.00
Incremental Delay, d2	1.0	6.1		0.0	4.6	1.4
Delay (s)	60.4	47.8		3.2	33.7	1.4
Level of Service	E	D		A	C	A
Approach Delay (s)	49.4			3.2	26.5	
Approach LOS	D			A	C	

Intersection Summary			
HCM 2000 Control Delay	21.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.8
Intersection Capacity Utilization	77.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis Operating Year (2015) Conditions
2: Beach Blvd & Edinger Ave

PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	350	842	343	298	735	249	482	1966	531	433	2136	710
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.5	4.6	4.4	5.5	5.5	4.6	5.8	5.8	4.4	6.0	4.6
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.86	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	6408	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	6408	2787
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	361	868	354	307	758	257	497	2027	547	446	2202	732
RTOR Reduction (vph)	0	0	61	0	0	146	0	0	154	0	0	47
Lane Group Flow (vph)	361	868	293	307	758	111	497	2027	393	446	2202	685
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2		1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	13.8	29.0	46.7	13.0	28.0	28.0	17.7	63.9	63.9	14.0	59.8	73.6
Effective Green, g (s)	13.8	29.0	46.7	13.0	28.0	28.0	17.7	63.9	63.9	14.0	59.8	73.6
Actuated g/C Ratio	0.10	0.21	0.33	0.09	0.20	0.20	0.13	0.46	0.46	0.10	0.43	0.53
Clearance Time (s)	4.6	5.5	4.6	4.4	5.5	5.5	4.6	5.8	5.8	4.4	6.0	4.6
Vehicle Extension (s)	1.0	3.0	1.0	1.0	3.0	3.0	1.0	4.0	4.0	1.0	4.0	1.0
Lane Grp Cap (vph)	338	1053	528	318	707	316	434	2320	722	343	2737	1556
v/s Ratio Prot	c0.11	0.17	0.07	0.09	c0.21		c0.14	c0.40		c0.13	0.34	0.04
v/s Ratio Perm			0.11			0.07			0.25			0.20
v/c Ratio	1.07	0.82	0.55	0.97	1.07	0.35	1.15	0.87	0.54	1.30	0.80	0.44
Uniform Delay, d1	63.1	53.1	38.1	63.3	56.0	48.2	61.2	34.4	27.5	63.0	35.0	20.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.70	0.44	0.17	1.29	0.68	0.72
Incremental Delay, d2	68.2	5.3	0.7	40.6	54.9	0.7	77.6	2.3	1.3	144.9	1.2	0.0
Delay (s)	131.3	58.4	38.9	103.9	110.9	48.8	120.1	17.3	5.9	226.2	25.0	14.8
Level of Service	F	E	D	F	F	D	F	B	A	F	C	B
Approach Delay (s)		70.7			97.2			31.9			49.3	
Approach LOS		E			F			C			D	

Intersection Summary			
HCM 2000 Control Delay	54.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	97.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	345	919	182	205	1001	195	311	2314	223	233	1890	298
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.3		4.2	5.3		4.2	5.3		4.2	5.3	5.3
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.86		0.97	0.86	1.00
Frt	1.00	0.98		1.00	0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	4959		3433	4961		3433	6323		3433	6408	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	4959		3433	4961		3433	6323		3433	6408	1583
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	348	928	184	207	1011	197	314	2337	225	235	1909	301
RTOR Reduction (vph)	0	21	0	0	20	0	0	11	0	0	0	142
Lane Group Flow (vph)	348	1091	0	207	1188	0	314	2551	0	235	1909	159
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	14.0	35.8		12.2	34.0		13.0	61.0		12.0	60.0	60.0
Effective Green, g (s)	14.0	35.8		12.2	34.0		13.0	61.0		12.0	60.0	60.0
Actuated g/C Ratio	0.10	0.26		0.09	0.24		0.09	0.44		0.09	0.43	0.43
Clearance Time (s)	4.2	5.3		4.2	5.3		4.2	5.3		4.2	5.3	5.3
Vehicle Extension (s)	1.1	3.0		1.1	3.0		1.1	6.0		1.1	6.0	6.0
Lane Grp Cap (vph)	343	1268		299	1204		318	2755		294	2746	678
v/s Ratio Prot	c0.10	0.22		0.06	c0.24		c0.09	c0.40		0.07	0.30	
v/s Ratio Perm												0.10
v/c Ratio	1.01	0.86		0.69	0.99		0.99	0.93		0.80	0.70	0.23
Uniform Delay, d1	63.0	49.7		62.1	52.8		63.4	37.4		62.8	32.6	25.4
Progression Factor	1.00	1.00		1.00	1.00		1.38	0.26		1.41	0.45	0.11
Incremental Delay, d2	52.3	6.2		5.5	22.5		12.2	0.7		8.6	0.9	0.5
Delay (s)	115.3	55.9		67.6	75.2		100.0	10.4		97.2	15.7	3.3
Level of Service	F	E		E	E		F	B		F	B	A
Approach Delay (s)		70.1			74.1			20.2			22.0	
Approach LOS		E			E			C			C	

Intersection Summary				
HCM 2000 Control Delay	38.9	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.97			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0	
Intersection Capacity Utilization	98.4%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	124	351	140	234	499	346	171	2234	191	266	1953	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.5		4.7	5.5		4.7	5.8		4.7	5.8	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.86		1.00	0.86	
Frt	1.00	0.96		1.00	0.94		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3388		1770	3322		1770	6332		1770	6358	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3388		1770	3322		1770	6332		1770	6358	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	128	362	144	241	514	357	176	2303	197	274	2013	109
RTOR Reduction (vph)	0	31	0	0	89	0	0	10	0	0	5	0
Lane Group Flow (vph)	128	475	0	241	782	0	176	2490	0	274	2117	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	13.2	24.7		22.3	33.8		14.8	49.2		23.1	57.5	
Effective Green, g (s)	13.2	24.7		22.3	33.8		14.8	49.2		23.1	57.5	
Actuated g/C Ratio	0.09	0.18		0.16	0.24		0.11	0.35		0.16	0.41	
Clearance Time (s)	4.7	5.5		4.7	5.5		4.7	5.8		4.7	5.8	
Vehicle Extension (s)	1.0	3.5		1.0	3.5		1.0	5.0		1.0	5.0	
Lane Grp Cap (vph)	166	597		281	802		187	2225		292	2611	
v/s Ratio Prot	0.07	c0.14		0.14	c0.24		0.10	c0.39		c0.15	0.33	
v/s Ratio Perm												
v/c Ratio	0.77	0.80		0.86	0.98		0.94	1.12		0.94	0.81	
Uniform Delay, d1	61.9	55.2		57.3	52.7		62.2	45.4		57.7	36.4	
Progression Factor	1.00	1.00		1.00	1.00		0.82	0.55		0.68	0.47	
Incremental Delay, d2	18.0	7.4		21.2	25.7		35.5	57.9		29.3	2.1	
Delay (s)	80.0	62.7		78.5	78.4		86.3	82.9		68.8	19.2	
Level of Service	E	E		E	E		F	F		E	B	
Approach Delay (s)		66.1			78.4			83.1			24.9	
Approach LOS		E			E			F			C	

Intersection Summary				
HCM 2000 Control Delay	60.3	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	1.02			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.7	
Intersection Capacity Utilization	102.4%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	410	465	169	130	443	184	175	1867	183	259	1634	393
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.7	6.0		4.7	6.0	6.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.86		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3539	1583	3433	6322		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3539	1583	3433	6322		3433	5085	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	427	484	176	135	461	192	182	1945	191	270	1702	409
RTOR Reduction (vph)	0	0	112	0	0	139	0	11	0	0	0	21
Lane Group Flow (vph)	427	484	64	135	461	53	182	2125	0	270	1702	388
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	pt+ov
Protected Phases	7	7		8	8		5	2		1	6	6 7
Permitted Phases			7			8						
Actuated Green, G (s)	30.2	30.2	30.2	20.8	20.8	20.8	10.6	52.1		14.2	55.7	91.9
Effective Green, g (s)	30.2	30.2	30.2	20.8	20.8	20.8	10.6	52.1		14.2	55.7	91.9
Actuated g/C Ratio	0.22	0.22	0.22	0.15	0.15	0.15	0.08	0.37		0.10	0.40	0.66
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.7	6.0		4.7	6.0	
Vehicle Extension (s)	2.2	2.2	2.2	1.2	1.2	1.2	1.2	5.0		1.2	5.0	
Lane Grp Cap (vph)	740	763	341	262	525	235	259	2352		348	2023	1039
v/s Ratio Prot	0.12	c0.14		0.08	c0.13		0.05	c0.34		c0.08	c0.33	0.25
v/s Ratio Perm			0.04			0.03						
v/c Ratio	0.58	0.63	0.19	0.52	0.88	0.23	0.70	0.90		0.78	0.84	0.37
Uniform Delay, d1	49.2	49.9	44.9	55.0	58.4	52.5	63.2	41.6		61.3	38.2	10.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.94	1.53		1.28	0.56	0.64
Incremental Delay, d2	0.8	1.4	0.1	0.7	14.9	0.2	2.0	1.9		5.6	2.6	0.1
Delay (s)	49.9	51.3	45.0	55.7	73.2	52.7	61.5	65.6		84.3	24.0	7.1
Level of Service	D	D	D	E	E	D	E	E		F	C	A
Approach Delay (s)		49.7			65.2			65.2			27.9	
Approach LOS		D			E			E			C	

Intersection Summary				
HCM 2000 Control Delay	49.2	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.81			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.7	
Intersection Capacity Utilization	82.8%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	195	434	131	126	414	151	205	1784	98	214	1593	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.8	5.8	4.6	5.8		4.6	6.2		4.6	6.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3397		1770	5046		1770	5019	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3397		1770	5046		1770	5019	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	207	462	139	134	440	161	218	1898	104	228	1695	162
RTOR Reduction (vph)	0	0	106	0	27	0	0	4	0	0	8	0
Lane Group Flow (vph)	207	462	33	134	574	0	218	1998	0	228	1849	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	17.5	33.3	33.3	11.7	27.5		17.7	54.4		19.4	56.1	
Effective Green, g (s)	17.5	33.3	33.3	11.7	27.5		17.7	54.4		19.4	56.1	
Actuated g/C Ratio	0.12	0.24	0.24	0.08	0.20		0.13	0.39		0.14	0.40	
Clearance Time (s)	4.6	5.8	5.8	4.6	5.8		4.6	6.2		4.6	6.2	
Vehicle Extension (s)	1.5	4.0	4.0	1.5	4.0		1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	221	841	376	147	667		223	1960		245	2011	
v/s Ratio Prot	c0.12	0.13		0.08	c0.17		0.12	c0.40		0.13	c0.37	
v/s Ratio Perm			0.02									
v/c Ratio	0.94	0.55	0.09	0.91	0.86		0.98	1.02		0.93	0.92	
Uniform Delay, d1	60.7	46.8	41.5	63.6	54.4		61.0	42.8		59.6	39.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.68	0.54		1.12	1.82	
Incremental Delay, d2	42.3	0.9	0.1	48.0	11.3		46.3	22.9		28.8	5.7	
Delay (s)	103.0	47.7	41.7	111.6	65.7		88.0	46.2		95.3	77.9	
Level of Service	F	D	D	F	E		F	D		F	E	
Approach Delay (s)		60.8			74.1			50.3			79.8	
Approach LOS		E			E			D			E	

Intersection Summary				
HCM 2000 Control Delay	65.3	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	0.97			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.2	
Intersection Capacity Utilization	93.2%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	143	460	58	203	781	373	144	1270	121	344	1144	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	6.2		4.7	6.2	6.2	4.7	6.2		4.7	6.2	
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00	1.00	0.91		0.97	0.91	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5000		1770	3539	1583	1770	5019		3433	4997	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5000		1770	3539	1583	1770	5019		3433	4997	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	149	479	60	211	814	389	150	1323	126	358	1192	156
RTOR Reduction (vph)	0	11	0	0	0	233	0	8	0	0	12	0
Lane Group Flow (vph)	149	528	0	211	814	156	150	1441	0	358	1336	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	15.1	32.7		18.3	35.9	35.9	18.2	50.3		16.9	49.0	
Effective Green, g (s)	15.1	32.7		18.3	35.9	35.9	18.2	50.3		16.9	49.0	
Actuated g/C Ratio	0.11	0.23		0.13	0.26	0.26	0.13	0.36		0.12	0.35	
Clearance Time (s)	4.7	6.2		4.7	6.2	6.2	4.7	6.2		4.7	6.2	
Vehicle Extension (s)	1.8	5.0		1.8	5.0	5.0	1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	190	1167		231	907	405	230	1803		414	1748	
v/s Ratio Prot	0.08	0.11		c0.12	c0.23		0.08	c0.29		c0.10	0.27	
v/s Ratio Perm						0.10						
v/c Ratio	0.78	0.45		0.91	0.90	0.38	0.65	0.80		0.86	0.76	
Uniform Delay, d1	60.9	46.0		60.1	50.3	42.9	57.9	40.3		60.4	40.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.30	0.52	
Incremental Delay, d2	17.5	0.6		35.9	12.2	1.3	5.0	3.8		8.7	1.6	
Delay (s)	78.4	46.6		95.9	62.5	44.2	62.9	44.1		87.5	22.6	
Level of Service	E	D		F	E	D	E	D		F	C	
Approach Delay (s)		53.4			62.4			45.9			36.2	
Approach LOS		D			E			D			D	

Intersection Summary			
HCM 2000 Control Delay	48.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.8
Intersection Capacity Utilization	85.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	111	298	54	78	371	227	135	1027	113	333	585	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.5		4.7	5.5		4.7	6.2		4.7	6.2	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.98		1.00	0.94		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3458		1770	3338		1770	5009		1770	4958	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3458		1770	3338		1770	5009		1770	4958	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	119	320	58	84	399	244	145	1104	122	358	629	126
RTOR Reduction (vph)	0	8	0	0	56	0	0	6	0	0	13	0
Lane Group Flow (vph)	119	370	0	84	587	0	145	1220	0	358	742	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	14.6	34.2		11.7	31.3		16.4	53.2		25.5	62.3	
Effective Green, g (s)	14.6	34.2		11.7	31.3		16.4	53.2		25.5	62.3	
Actuated g/C Ratio	0.10	0.23		0.08	0.21		0.11	0.37		0.18	0.43	
Clearance Time (s)	4.7	5.5		4.7	5.5		4.7	6.2		4.7	6.2	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	177	811		142	717		199	1828		309	2119	
v/s Ratio Prot	c0.07	c0.11		0.05	c0.18		0.08	c0.24		c0.20	0.15	
v/s Ratio Perm												
v/c Ratio	0.67	0.46		0.59	0.82		0.73	0.67		1.16	0.35	
Uniform Delay, d1	63.2	47.8		64.7	54.5		62.5	38.8		60.1	28.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.7	0.1		4.3	6.9		10.7	1.2		101.3	0.2	
Delay (s)	70.9	47.9		69.0	61.4		73.2	40.1		161.4	28.3	
Level of Service	E	D		E	E		E	D		F	C	
Approach Delay (s)		53.4			62.3			43.6			71.1	
Approach LOS		D			E			D			E	

Intersection Summary			
HCM 2000 Control Delay	56.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	145.7	Sum of lost time (s)	21.1
Intersection Capacity Utilization	82.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

9: Huntington Beach Parking/Beach Blvd & Pacific Coast Highway

PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	306	1123	12	12	1622	735	8	29	15	335	19	223
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	6.0		4.5	6.0	6.0	5.0	5.0	5.0	5.0	5.0	4.0
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5078		1770	3539	1583	1770	3539	1583	3433	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5078		1770	3539	1583	1770	3539	1583	3433	1863	1583
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	344	1262	13	13	1822	826	9	33	17	376	21	251
RTOR Reduction (vph)	0	0	0	0	0	226	0	0	16	0	0	0
Lane Group Flow (vph)	344	1275	0	13	1822	600	9	33	1	376	21	251
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases						2			4			Free
Actuated Green, G (s)	16.6	73.8		2.8	60.3	60.3	1.3	8.2	8.2	14.7	21.6	120.0
Effective Green, g (s)	16.6	73.8		2.8	60.3	60.3	1.3	8.2	8.2	14.7	21.6	120.0
Actuated g/C Ratio	0.14	0.62		0.02	0.50	0.50	0.01	0.07	0.07	0.12	0.18	1.00
Clearance Time (s)	4.2	6.0		4.5	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	1.5	4.6		2.0	4.5	4.5	2.0	1.8	1.8	2.0	1.8	
Lane Grp Cap (vph)	474	3122		41	1778	795	19	241	108	420	335	1583
v/s Ratio Prot	c0.10	0.25		0.01	c0.51		0.01	0.01		c0.11	0.01	
v/s Ratio Perm						0.38			0.00			c0.16
v/c Ratio	0.73	0.41		0.32	1.02	0.75	0.47	0.14	0.01	0.90	0.06	0.16
Uniform Delay, d1	49.5	11.9		57.7	29.8	23.9	59.0	52.6	52.1	51.9	40.8	0.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.6	0.4		1.6	27.9	6.6	6.6	0.1	0.0	20.5	0.0	0.2
Delay (s)	54.2	12.3		59.3	57.7	30.5	65.6	52.7	52.1	72.4	40.8	0.2
Level of Service	D	B		E	E	C	E	D	D	E	D	A
Approach Delay (s)		21.2			49.3			54.5			43.4	
Approach LOS		C			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	39.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

12: Huntington Beach Parking/Newland St & Pacific Coast Highway

PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	126	1326	4	6	2170	188	8	3	5	49	2	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.7	5.7	4.0	5.7	5.7	4.2	4.2		4.2	4.2	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1688		1770	1587	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.62	1.00		0.75	1.00	
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1164	1688		1402	1587	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	133	1396	4	6	2284	198	8	3	5	52	2	141
RTOR Reduction (vph)	0	0	2	0	0	108	0	4	0	0	99	0
Lane Group Flow (vph)	133	1396	2	6	2284	90	8	5	0	52	44	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases			2			6	4			8		
Actuated Green, G (s)	10.4	55.0	55.0	1.1	45.7	45.7	30.0	30.0		30.0	30.0	
Effective Green, g (s)	10.4	55.0	55.0	1.1	45.7	45.7	30.0	30.0		30.0	30.0	
Actuated g/C Ratio	0.10	0.55	0.55	0.01	0.46	0.46	0.30	0.30		0.30	0.30	
Clearance Time (s)	4.0	5.7	5.7	4.0	5.7	5.7	4.2	4.2		4.2	4.2	
Vehicle Extension (s)	1.7	4.6	4.6	1.7	4.6	4.6	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	184	2796	870	19	2323	723	349	506		420	476	
v/s Ratio Prot	c0.08	0.27		0.00	c0.45			0.00			0.03	
v/s Ratio Perm			0.00			0.06	0.01			c0.04		
v/c Ratio	0.72	0.50	0.00	0.32	0.98	0.13	0.02	0.01		0.12	0.09	
Uniform Delay, d1	43.4	14.0	10.1	49.1	26.8	15.6	24.7	24.6		25.4	25.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.2	0.6	0.0	3.5	15.1	0.4	0.1	0.0		0.6	0.4	
Delay (s)	54.6	14.6	10.1	52.5	41.9	16.0	24.8	24.6		26.0	25.6	
Level of Service	D	B	B	D	D	B	C	C		C	C	
Approach Delay (s)		18.1			39.9			24.7			25.7	
Approach LOS		B			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	31.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.9
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	99	1247	9	14	2383	189	10	26	14	82	17	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	5.7	5.7	3.7	5.7	5.7	4.2	4.2		4.6	4.6	4.6
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1763		1681	1714	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1770	1763		1681	1714	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	103	1299	9	15	2482	197	10	27	15	85	18	81
RTOR Reduction (vph)	0	0	3	0	0	52	0	14	0	0	0	76
Lane Group Flow (vph)	103	1299	6	15	2482	145	10	28	0	51	52	5
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	1	6		5	2		7	7		8	8	
Permitted Phases			6			2						8
Actuated Green, G (s)	11.0	86.3	86.3	2.6	77.9	77.9	5.7	5.7		7.2	7.2	7.2
Effective Green, g (s)	11.0	86.3	86.3	2.6	77.9	77.9	5.7	5.7		7.2	7.2	7.2
Actuated g/C Ratio	0.09	0.72	0.72	0.02	0.65	0.65	0.05	0.05		0.06	0.06	0.06
Clearance Time (s)	3.7	5.7	5.7	3.7	5.7	5.7	4.2	4.2		4.6	4.6	4.6
Vehicle Extension (s)	1.7	4.6	4.6	1.7	4.6	4.6	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	162	3656	1138	38	3301	1027	84	83		100	102	94
v/s Ratio Prot	c0.06	0.26		0.01	c0.49		0.01	c0.02		c0.03	0.03	
v/s Ratio Perm			0.00			0.09						0.00
v/c Ratio	0.64	0.36	0.01	0.39	0.75	0.14	0.12	0.33		0.51	0.51	0.05
Uniform Delay, d1	52.6	6.4	4.8	57.9	14.4	8.1	54.7	55.3		54.7	54.7	53.2
Progression Factor	1.00	1.00	1.00	0.68	1.25	2.60	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.9	0.3	0.0	1.1	0.5	0.1	0.2	0.9		1.8	1.5	0.1
Delay (s)	58.4	6.6	4.8	40.5	18.6	21.2	55.0	56.2		56.5	56.1	53.3
Level of Service	E	A	A	D	B	C	D	E		E	E	D
Approach Delay (s)		10.4			18.9			55.9			55.0	
Approach LOS		B			B			E			D	

Intersection Summary			
HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.2
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	154	1156	1	15	2398	697	8	6	12	269	8	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.7	5.7	4.5	5.7	5.7	4.5	4.5		6.0	6.0	6.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1672		3433	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1770	1672		3433	1863	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	164	1230	1	16	2551	741	9	6	13	286	9	182
RTOR Reduction (vph)	0	0	0	0	0	178	0	13	0	0	0	157
Lane Group Flow (vph)	164	1230	1	16	2551	563	9	6	0	286	9	25
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases			6			2						3
Actuated Green, G (s)	15.3	76.4	76.4	2.6	63.7	63.7	3.6	3.6		16.7	16.7	16.7
Effective Green, g (s)	15.3	76.4	76.4	2.6	63.7	63.7	3.6	3.6		16.7	16.7	16.7
Actuated g/C Ratio	0.13	0.64	0.64	0.02	0.53	0.53	0.03	0.03		0.14	0.14	0.14
Clearance Time (s)	4.5	5.7	5.7	4.5	5.7	5.7	4.5	4.5		6.0	6.0	6.0
Vehicle Extension (s)	1.7	4.6	4.6	1.7	4.6	4.6	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	225	3237	1007	38	2699	840	53	50		477	259	220
v/s Ratio Prot	c0.09	0.24		0.01	c0.50		c0.01	0.00		c0.08	0.00	
v/s Ratio Perm			0.00			0.36						0.02
v/c Ratio	0.73	0.38	0.00	0.42	0.95	0.67	0.17	0.13		0.60	0.03	0.12
Uniform Delay, d1	50.4	10.4	7.9	58.0	26.5	20.5	56.7	56.7		48.5	44.7	45.2
Progression Factor	0.94	1.38	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	9.2	0.1	0.0	2.7	8.5	4.2	0.6	0.4		1.4	0.0	0.1
Delay (s)	56.5	14.5	7.9	60.7	35.0	24.7	57.3	57.1		49.9	44.7	45.3
Level of Service	E	B	A	E	D	C	E	E		D	D	D
Approach Delay (s)		19.4			32.9			57.2			48.0	
Approach LOS		B			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	30.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	82.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Operating Year (2015) Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #10 Newland St & Atlanta Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.494
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	45	Level Of Service:	A

Street Name:	Newland Street						Atlanta Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1	1 0	1 0	1	1 0	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	248	435	24	88	234	92	61	432	180	36	523	114
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:	248	435	24	88	234	92	61	432	180	36	523	114
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:	248	435	24	88	234	92	61	432	180	36	523	114
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	248	435	24	88	234	92	61	432	180	36	523	114
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:	248	435	24	88	234	92	61	432	180	36	523	114
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.90	0.10	1.00	1.44	0.56	1.00	1.41	0.59	1.00	1.64	0.36
Final Sat.:	1600	3033	167	1600	2297	903	1600	2259	941	1600	2627	573
Capacity Analysis Module:												
Vol/Sat:	0.16	0.14	0.14	0.06	0.10	0.10	0.04	0.19	0.19	0.02	0.20	0.20
Crit Moves:	****				****		****				****	

Operating Year (2015) Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #11 Newland St & Hamilton Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.614
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	59	Level Of Service:	B

Street Name:	Newland Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0	1 0	1 0	1	0 0	0 0	0	0 0	1 0	0	0 1
Volume Module:												
Base Vol:	0	277	64	233	117	0	0	0	0	136	0	408
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	277	64	233	117	0	0	0	0	136	0	408
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	277	64	233	117	0	0	0	0	136	0	408
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	277	64	233	117	0	0	0	0	136	0	408
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	277	64	233	117	0	0	0	0	136	0	408
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.81	0.19	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	1300	300	1600	1600	0	0	0	0	1600	0	1600
Capacity Analysis Module:												
Vol/Sat:	0.00	0.21	0.21	0.15	0.07	0.00	0.00	0.00	0.00	0.09	0.00	0.26
Crit Moves:		****		****								****

Operating Year (2015) Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #13 Magnolia St & Hamilton Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.569
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	43	Level Of Service:	A

Street Name:	Magnolia Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Prot+Permit			Prot+Permit			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0 1	1 0	1	0 2	0 1	1	0 0	1 0	1	0 1	0 1
Volume Module:												
Base Vol:	28	298	26	200	176	29	31	301	35	34	518	319
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	298	26	200	176	29	31	301	35	34	518	319
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	298	26	200	176	29	31	301	35	34	518	319
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	28	298	26	200	176	29	31	301	35	34	518	319
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:	28	298	26	200	176	29	31	301	35	34	518	319
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.84	0.16	1.00	2.00	1.00	1.00	0.90	0.10	1.00	1.00	1.00
Final Sat.:	1600	2943	257	1600	3200	1600	1600	1433	167	1600	1600	1600
Capacity Analysis Module:												
Vol/Sat:	0.02	0.10	0.10	0.13	0.06	0.02	0.02	0.21	0.21	0.02	0.32	0.20
Crit Moves:		****		****			****				****	

Operating Year (2015) Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #15 Brookhurst St & Hamilton Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.632
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	62	Level Of Service:	B

Street Name:	Brookhurst Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Protected			Protected			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0 3	0 1	2	0 2	1 0	1	0 1	1 0	1	0 2	0 1
Volume Module:												
Base Vol:	87	612	181	347	436	96	97	380	67	263	1020	536
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:	87	612	181	347	436	96	97	380	67	263	1020	536
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	87	612	181	347	436	96	97	380	67	263	1020	536
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	87	612	181	347	436	96	97	380	67	263	1020	536
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	87	612	181	347	436	96	97	380	67	263	1020	536
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	3.00	1.00	2.00	2.46	0.54	1.00	1.70	0.30	1.00	2.00	1.00
Final Sat.:	1600	4800	1600	3200	3934	866	1600	2720	480	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.05	0.13	0.11	0.11	0.11	0.11	0.06	0.14	0.14	0.16	0.32	0.34
Crit Moves:		****		****			****					****

APPENDIX F: PROJECT OPERATING YEAR (2015) PLUS PROJECT LOS RESULTS

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	111	727	0	2320	2946	836
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	4.5		6.0	6.0	4.0
Lane Util. Factor	0.97	0.88		0.86	0.86	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	2787		6408	6408	1583
Flt Permitted	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	2787		6408	6408	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	118	773	0	2468	3134	889
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	118	773	0	2468	3134	889
Turn Type	NA	custom		NA	NA	Free
Protected Phases	4	5		2	6	
Permitted Phases		4		5		Free
Actuated Green, G (s)	13.2	47.4		115.5	76.8	140.0
Effective Green, g (s)	13.2	47.4		115.5	76.8	140.0
Actuated g/C Ratio	0.09	0.34		0.82	0.55	1.00
Clearance Time (s)	5.3	4.5		6.0	6.0	
Vehicle Extension (s)	4.0	3.8		4.0	4.0	
Lane Grp Cap (vph)	323	943		5286	3515	1583
v/s Ratio Prot	0.03	c0.20		0.39	c0.49	
v/s Ratio Perm		0.08				0.56
v/c Ratio	0.37	0.82		0.47	0.89	0.56
Uniform Delay, d1	59.5	42.4		3.5	27.9	0.0
Progression Factor	1.00	1.00		0.90	1.00	1.00
Incremental Delay, d2	1.0	5.9		0.0	3.9	1.4
Delay (s)	60.4	48.3		3.2	31.8	1.4
Level of Service	E	D		A	C	A
Approach Delay (s)	49.9			3.2	25.1	
Approach LOS	D			A	C	

Intersection Summary			
HCM 2000 Control Delay	20.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.8
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis Operating Year (2015) Plus Project Conditions
2: Beach Blvd & Edinger Ave

AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	298	938	219	163	535	305	174	1702	270	463	2553	573
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.5	4.6	4.4	5.5	5.5	4.6	5.8	5.8	4.4	6.0	4.6
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.86	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	6408	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	6408	2787
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	317	998	233	173	569	324	185	1811	287	493	2716	610
RTOR Reduction (vph)	0	0	65	0	0	222	0	0	123	0	0	42
Lane Group Flow (vph)	317	998	168	173	569	102	185	1811	164	493	2716	568
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2		1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	15.0	28.4	40.5	13.0	26.2	26.2	12.1	57.6	57.6	20.9	66.0	81.0
Effective Green, g (s)	15.0	28.4	40.5	13.0	26.2	26.2	12.1	57.6	57.6	20.9	66.0	81.0
Actuated g/C Ratio	0.11	0.20	0.29	0.09	0.19	0.19	0.09	0.41	0.41	0.15	0.47	0.58
Clearance Time (s)	4.6	5.5	4.6	4.4	5.5	5.5	4.6	5.8	5.8	4.4	6.0	4.6
Vehicle Extension (s)	1.0	3.0	1.0	1.0	3.0	3.0	1.0	4.0	4.0	1.0	4.0	1.0
Lane Grp Cap (vph)	367	1031	457	318	662	296	296	2092	651	512	3020	1704
v/s Ratio Prot	0.09	c0.20	0.03	0.05	c0.16		0.05	c0.36		0.14	c0.42	0.04
v/s Ratio Perm			0.07			0.06			0.10			0.17
v/c Ratio	0.86	0.97	0.37	0.54	0.86	0.34	0.62	0.87	0.25	0.96	0.90	0.33
Uniform Delay, d1	61.5	55.3	39.6	60.7	55.1	49.4	61.8	37.7	27.1	59.2	34.0	15.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.75	0.59	0.18	1.17	0.64	0.67
Incremental Delay, d2	18.0	20.4	0.2	1.0	10.8	0.7	2.6	4.6	0.8	19.5	2.5	0.0
Delay (s)	79.5	75.8	39.7	61.7	65.9	50.1	49.1	26.9	5.8	89.0	24.2	10.3
Level of Service	E	E	D	E	E	D	D	C	A	F	C	B
Approach Delay (s)		71.1			60.4			26.0			30.4	
Approach LOS		E			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	40.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	93.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis Operating Year (2015) Plus Project Conditions
3: Beach Blvd & Warner Ave

AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	231	1212	126	210	656	77	130	1459	144	385	2044	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.3		4.2	5.3		4.2	5.3		4.2	5.3	5.3
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.86		0.97	0.86	1.00
Frt	1.00	0.99		1.00	0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	5013		3433	5005		3433	6321		3433	6408	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	5013		3433	5005		3433	6321		3433	6408	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	236	1237	129	214	669	79	133	1489	147	393	2086	232
RTOR Reduction (vph)	0	9	0	0	10	0	0	12	0	0	0	102
Lane Group Flow (vph)	236	1357	0	214	738	0	133	1624	0	393	2086	130
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	14.8	39.1		10.3	34.6		13.0	54.9		16.7	58.6	58.6
Effective Green, g (s)	14.8	39.1		10.3	34.6		13.0	54.9		16.7	58.6	58.6
Actuated g/C Ratio	0.11	0.28		0.07	0.25		0.09	0.39		0.12	0.42	0.42
Clearance Time (s)	4.2	5.3		4.2	5.3		4.2	5.3		4.2	5.3	5.3
Vehicle Extension (s)	1.1	3.0		1.1	3.0		1.1	6.0		1.1	6.0	6.0
Lane Grp Cap (vph)	362	1400		252	1236		318	2478		409	2682	662
v/s Ratio Prot	0.07	c0.27		c0.06	0.15		0.04	0.26		c0.11	c0.33	
v/s Ratio Perm												0.08
v/c Ratio	0.65	0.97		0.85	0.60		0.42	0.66		0.96	0.78	0.20
Uniform Delay, d1	60.1	49.9		64.1	46.5		59.9	34.8		61.3	35.1	25.8
Progression Factor	1.00	1.00		1.00	1.00		1.39	0.21		1.47	0.39	0.14
Incremental Delay, d2	3.2	17.1		21.7	0.8		0.2	1.0		22.5	1.2	0.3
Delay (s)	63.3	66.9		85.8	47.3		83.7	8.2		112.4	14.9	4.0
Level of Service	E	E		F	D		F	A		F	B	A
Approach Delay (s)		66.4			55.9			13.9			28.1	
Approach LOS		E			E			B			C	

Intersection Summary			
HCM 2000 Control Delay	37.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	90.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis Operating Year (2015) Plus Project Conditions
4: Beach Blvd & Talbert Ave

AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	80	384	112	140	322	128	144	1579	115	290	1968	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.5		4.7	5.5		4.7	5.8		4.7	5.8	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.86		1.00	0.86	
Frt	1.00	0.97		1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3419		1770	3388		1770	6342		1770	6343	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3419		1770	3388		1770	6342		1770	6343	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	83	400	117	146	335	133	150	1645	120	302	2050	149
RTOR Reduction (vph)	0	20	0	0	31	0	0	8	0	0	8	0
Lane Group Flow (vph)	83	497	0	146	437	0	150	1757	0	302	2191	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	12.0	25.3		13.9	27.2		12.9	51.3		28.8	67.2	
Effective Green, g (s)	12.0	25.3		13.9	27.2		12.9	51.3		28.8	67.2	
Actuated g/C Ratio	0.09	0.18		0.10	0.19		0.09	0.37		0.21	0.48	
Clearance Time (s)	4.7	5.5		4.7	5.5		4.7	5.8		4.7	5.8	
Vehicle Extension (s)	1.0	3.5		1.0	3.5		1.0	5.0		1.0	5.0	
Lane Grp Cap (vph)	151	617		175	658		163	2323		364	3044	
v/s Ratio Prot	0.05	c0.15		c0.08	0.13		c0.08	c0.28		c0.17	0.35	
v/s Ratio Perm												
v/c Ratio	0.55	0.81		0.83	0.66		0.92	0.76		0.83	0.72	
Uniform Delay, d1	61.4	55.0		61.9	52.2		63.0	38.9		53.3	28.9	
Progression Factor	1.00	1.00		1.00	1.00		0.76	0.62		0.64	0.30	
Incremental Delay, d2	2.2	7.8		26.5	2.6		42.3	2.0		9.2	1.0	
Delay (s)	63.6	62.8		88.4	54.8		90.4	25.9		43.2	9.7	
Level of Service	E	E		F	D		F	C		D	A	
Approach Delay (s)		62.9			62.8			31.0			13.8	
Approach LOS		E			E			C			B	

Intersection Summary			
HCM 2000 Control Delay	30.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	82.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis Operating Year (2015) Plus Project Conditions
5: Beach Blvd & Main St/Ellis Ave

AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	254	421	88	118	294	138	70	1454	121	154	1514	323
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.7	6.0		4.7	6.0	6.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.86		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3539	1583	3433	6334		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3539	1583	3433	6334		3433	5085	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	267	443	93	124	309	145	74	1531	127	162	1594	340
RTOR Reduction (vph)	0	0	73	0	0	129	0	8	0	0	0	45
Lane Group Flow (vph)	267	443	20	124	309	16	74	1650	0	162	1594	295
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	pt+ov
Protected Phases	7	7		8	8		5	2		1	6	6 7
Permitted Phases			7			8						
Actuated Green, G (s)	29.5	29.5	29.5	15.8	15.8	15.8	8.0	60.9		11.1	64.0	99.5
Effective Green, g (s)	29.5	29.5	29.5	15.8	15.8	15.8	8.0	60.9		11.1	64.0	99.5
Actuated g/C Ratio	0.21	0.21	0.21	0.11	0.11	0.11	0.06	0.44		0.08	0.46	0.71
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.7	6.0		4.7	6.0	
Vehicle Extension (s)	2.2	2.2	2.2	1.2	1.2	1.2	1.2	5.0		1.2	5.0	
Lane Grp Cap (vph)	723	745	333	199	399	178	196	2755		272	2324	1125
v/s Ratio Prot	0.08	c0.13		0.07	c0.09		0.02	0.26		c0.05	c0.31	0.19
v/s Ratio Perm			0.01			0.01						
v/c Ratio	0.37	0.59	0.06	0.62	0.77	0.09	0.38	0.60		0.60	0.69	0.26
Uniform Delay, d1	47.3	49.9	44.2	59.3	60.4	55.7	63.6	30.2		62.3	30.1	7.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.14	0.65	1.52
Incremental Delay, d2	0.2	0.9	0.0	4.3	8.3	0.1	0.4	1.0		1.6	1.1	0.0
Delay (s)	47.5	50.8	44.2	63.6	68.7	55.8	64.0	31.2		72.9	20.6	11.0
Level of Service	D	D	D	E	E	E	E	C		E	C	B
Approach Delay (s)		48.9			64.3			32.6			23.1	
Approach LOS		D			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	34.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.7
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis Operating Year (2015) Plus Project Conditions
6: Beach Blvd & Garfield Ave

AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	170	533	144	106	342	152	140	1367	68	171	1427	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.8	5.8	4.6	5.8		4.6	6.2		4.6	6.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3376		1770	5049		1770	5039	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3376		1770	5049		1770	5039	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	179	561	152	112	360	160	147	1439	72	180	1502	96
RTOR Reduction (vph)	0	0	119	0	45	0	0	4	0	0	6	0
Lane Group Flow (vph)	179	561	33	112	475	0	147	1507	0	180	1592	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	15.5	26.4	26.4	12.0	22.9		14.6	45.3		15.1	45.8	
Effective Green, g (s)	15.5	26.4	26.4	12.0	22.9		14.6	45.3		15.1	45.8	
Actuated g/C Ratio	0.13	0.22	0.22	0.10	0.19		0.12	0.38		0.13	0.38	
Clearance Time (s)	4.6	5.8	5.8	4.6	5.8		4.6	6.2		4.6	6.2	
Vehicle Extension (s)	1.5	4.0	4.0	1.5	4.0		1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	228	778	348	177	644		215	1905		222	1923	
v/s Ratio Prot	c0.10	c0.16		0.06	c0.14		0.08	c0.30		0.10	c0.32	
v/s Ratio Perm			0.02									
v/c Ratio	0.79	0.72	0.10	0.63	0.74		0.68	0.79		0.81	0.83	
Uniform Delay, d1	50.6	43.4	37.3	51.9	45.7		50.5	33.1		51.1	33.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.29	1.41		1.00	1.00	
Incremental Delay, d2	15.0	3.5	0.2	5.3	4.7		6.0	3.0		18.7	4.3	
Delay (s)	65.6	46.9	37.5	57.2	50.4		71.2	49.8		69.8	37.8	
Level of Service	E	D	D	E	D		E	D		E	D	
Approach Delay (s)		49.1			51.6			51.7			41.1	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	47.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.2
Intersection Capacity Utilization	79.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis Operating Year (2015) Plus Project Conditions
7: Beach Blvd & Adams Ave

AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	163	781	74	91	399	224	67	986	195	333	1095	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	6.2		4.7	6.2	6.2	4.7	6.2		4.7	6.2	
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00	1.00	0.91		0.97	0.91	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5019		1770	3539	1583	1770	4959		3433	5034	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5019		1770	3539	1583	1770	4959		3433	5034	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	168	805	76	94	411	231	69	1016	201	343	1129	82
RTOR Reduction (vph)	0	10	0	0	0	184	0	25	0	0	7	0
Lane Group Flow (vph)	168	871	0	94	411	47	69	1192	0	343	1204	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	14.8	28.3		10.8	24.3	24.3	10.4	42.5		16.6	48.7	
Effective Green, g (s)	14.8	28.3		10.8	24.3	24.3	10.4	42.5		16.6	48.7	
Actuated g/C Ratio	0.12	0.24		0.09	0.20	0.20	0.09	0.35		0.14	0.41	
Clearance Time (s)	4.7	6.2		4.7	6.2	6.2	4.7	6.2		4.7	6.2	
Vehicle Extension (s)	1.8	5.0		1.8	5.0	5.0	1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	218	1183		159	716	320	153	1756		474	2042	
v/s Ratio Prot	c0.09	c0.17		0.05	0.12		0.04	c0.24		c0.10	0.24	
v/s Ratio Perm						0.03						
v/c Ratio	0.77	0.74		0.59	0.57	0.15	0.45	0.68		0.72	0.59	
Uniform Delay, d1	51.0	42.4		52.5	43.2	39.3	52.1	32.9		49.5	27.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		0.49	0.87	
Incremental Delay, d2	14.2	2.9		3.9	1.8	0.4	0.8	2.1		2.9	0.8	
Delay (s)	65.1	45.3		56.4	45.0	39.8	52.9	35.1		27.2	25.0	
Level of Service	E	D		E	D	D	D	D		C	C	
Approach Delay (s)		48.5			44.8			36.0			25.5	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	36.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.8
Intersection Capacity Utilization	76.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis Operating Year (2015) Plus Project Conditions
8: Beach Blvd & Atlanta Ave

AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	83	356	51	44	263	229	28	533	89	259	780	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.5		4.7	5.5		4.7	6.2		4.7	6.2	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.98		1.00	0.93		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3473		1770	3292		1770	4976		1770	5008	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3473		1770	3292		1770	4976		1770	5008	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	89	383	55	47	283	246	30	573	96	278	839	95
RTOR Reduction (vph)	0	7	0	0	98	0	0	13	0	0	6	0
Lane Group Flow (vph)	89	431	0	47	431	0	30	656	0	278	928	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	10.1	23.9		6.3	20.1		3.9	26.7		25.5	48.3	
Effective Green, g (s)	10.1	23.9		6.3	20.1		3.9	26.7		25.5	48.3	
Actuated g/C Ratio	0.10	0.23		0.06	0.19		0.04	0.26		0.25	0.47	
Clearance Time (s)	4.7	5.5		4.7	5.5		4.7	6.2		4.7	6.2	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	172	801		107	639		66	1283		436	2337	
v/s Ratio Prot	c0.05	c0.12		0.03	c0.13		0.02	c0.13		c0.16	0.19	
v/s Ratio Perm												
v/c Ratio	0.52	0.54		0.44	0.68		0.45	0.51		0.64	0.40	
Uniform Delay, d1	44.4	35.0		46.9	38.7		48.8	32.8		34.9	18.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.1	0.4		1.0	2.2		1.8	0.7		2.2	0.2	
Delay (s)	45.5	35.3		47.9	40.9		50.6	33.5		37.1	18.3	
Level of Service	D	D		D	D		D	C		D	B	
Approach Delay (s)		37.0			41.5			34.2			22.6	
Approach LOS		D			D			C			C	

Intersection Summary				
HCM 2000 Control Delay	31.4	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.59			
Actuated Cycle Length (s)	103.5	Sum of lost time (s)	21.1	
Intersection Capacity Utilization	63.4%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis Operating Year (2015) Plus Project Conditions
9: Huntington Beach Parking/Beach Blvd & Pacific Coast Highway

AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	98	1811	10	4	828	380	5	5	5	696	37	158
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	6.0		4.5	6.0	6.0	5.0	5.0	5.0	5.0	5.0	4.0
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5081		1770	3539	1583	1770	3539	1583	3433	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5081		1770	3539	1583	1770	3539	1583	3433	1863	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	105	1947	11	4	890	409	5	5	5	748	40	170
RTOR Reduction (vph)	0	0	0	0	0	200	0	0	5	0	0	0
Lane Group Flow (vph)	105	1958	0	4	890	209	5	5	0	748	40	170
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases						2			4			Free
Actuated Green, G (s)	7.0	56.3		1.4	51.0	51.0	1.1	6.8	6.8	15.0	20.7	100.0
Effective Green, g (s)	7.0	56.3		1.4	51.0	51.0	1.1	6.8	6.8	15.0	20.7	100.0
Actuated g/C Ratio	0.07	0.56		0.01	0.51	0.51	0.01	0.07	0.07	0.15	0.21	1.00
Clearance Time (s)	4.2	6.0		4.5	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	1.5	4.6		2.0	4.5	4.5	2.0	1.8	1.8	2.0	1.8	
Lane Grp Cap (vph)	240	2860		24	1804	807	19	240	107	514	385	1583
v/s Ratio Prot	c0.03	c0.39		0.00	0.25		0.00	0.00		c0.22	0.02	
v/s Ratio Perm						0.13			0.00			c0.11
v/c Ratio	0.44	0.68		0.17	0.49	0.26	0.26	0.02	0.00	1.46	0.10	0.11
Uniform Delay, d1	44.6	15.5		48.7	16.0	13.8	49.0	43.5	43.4	42.5	32.1	0.0
Progression Factor	1.00	1.00		0.74	1.07	4.30	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	1.4		1.1	0.9	0.7	2.7	0.0	0.0	215.5	0.0	0.1
Delay (s)	45.1	16.9		37.3	18.1	60.2	51.7	43.5	43.4	258.0	32.2	0.1
Level of Service	D	B		D	B	E	D	D	D	F	C	A
Approach Delay (s)		18.3			31.4			46.2			202.8	
Approach LOS		B			C			D			F	

Intersection Summary				
HCM 2000 Control Delay	63.1	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	0.79			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.5	
Intersection Capacity Utilization	77.6%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis Operating Year (2015) Plus Project Conditions
12: Huntington Beach Parking/Newland St & Pacific Coast Highway

AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	223	2240	0	0	995	30	4	3	1	170	1	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.7			5.7	5.7	4.2	4.2		4.2	4.2	
Lane Util. Factor	1.00	0.91			0.91	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00			1.00	0.85	1.00	0.96		1.00	0.85	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5085			5085	1583	1770	1793		1770	1585	
Flt Permitted	0.95	1.00			1.00	1.00	0.63	1.00		0.76	1.00	
Satd. Flow (perm)	1770	5085			5085	1583	1176	1793		1407	1585	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	240	2409	0	0	1070	32	4	3	1	183	1	138
RTOR Reduction (vph)	0	0	0	0	0	18	0	1	0	0	97	0
Lane Group Flow (vph)	240	2409	0	0	1070	14	4	3	0	183	42	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases			2			6	4			8		
Actuated Green, G (s)	12.0	60.1			44.1	44.1	30.0	30.0		30.0	30.0	
Effective Green, g (s)	12.0	60.1			44.1	44.1	30.0	30.0		30.0	30.0	
Actuated g/C Ratio	0.12	0.60			0.44	0.44	0.30	0.30		0.30	0.30	
Clearance Time (s)	4.0	5.7			5.7	5.7	4.2	4.2		4.2	4.2	
Vehicle Extension (s)	1.7	4.6			4.6	4.6	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	212	3056			2242	698	352	537		422	475	
v/s Ratio Prot	c0.14	c0.47			0.21			0.00			0.03	
v/s Ratio Perm						0.01	0.00			c0.13		
v/c Ratio	1.13	0.79			0.48	0.02	0.01	0.01		0.43	0.09	
Uniform Delay, d1	44.0	15.1			19.8	15.8	24.6	24.5		28.2	25.2	
Progression Factor	0.98	1.34			1.55	4.75	1.00	1.00		1.00	1.00	
Incremental Delay, d2	85.2	1.1			0.7	0.1	0.1	0.0		3.2	0.4	
Delay (s)	128.1	21.3			31.3	75.0	24.6	24.6		31.4	25.5	
Level of Service	F	C			C	E	C	C		C	C	
Approach Delay (s)		31.0			32.6			24.6			28.9	
Approach LOS		C			C			C			C	

Intersection Summary				
HCM 2000 Control Delay	31.3	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.74			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.9	
Intersection Capacity Utilization	74.3%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis Operating Year (2015) Plus Project Conditions
14: Magnolia Ave & Pacific Coast Highway

AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	107	2295	16	16	787	47	2	7	2	144	23	254
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	5.7	5.7	3.7	5.7	5.7	4.2	4.2		4.6	4.6	4.6
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1801		1681	1708	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1770	1801		1681	1708	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	113	2416	17	17	828	49	2	7	2	152	24	267
RTOR Reduction (vph)	0	0	5	0	0	19	0	2	0	0	0	241
Lane Group Flow (vph)	113	2416	12	17	828	30	2	7	0	88	88	26
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	1	6		5	2		7	7		8	8	
Permitted Phases			6			2						8
Actuated Green, G (s)	10.4	68.3	68.3	2.5	60.4	60.4	1.2	1.2		9.8	9.8	9.8
Effective Green, g (s)	10.4	68.3	68.3	2.5	60.4	60.4	1.2	1.2		9.8	9.8	9.8
Actuated g/C Ratio	0.10	0.68	0.68	0.02	0.60	0.60	0.01	0.01		0.10	0.10	0.10
Clearance Time (s)	3.7	5.7	5.7	3.7	5.7	5.7	4.2	4.2		4.6	4.6	4.6
Vehicle Extension (s)	1.7	4.6	4.6	1.7	4.6	4.6	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	184	3473	1081	44	3071	956	21	21		164	167	155
v/s Ratio Prot	c0.06	c0.48		0.01	0.16		0.00	c0.00		c0.05	0.05	
v/s Ratio Perm			0.01			0.02						0.02
v/c Ratio	0.61	0.70	0.01	0.39	0.27	0.03	0.10	0.33		0.54	0.53	0.17
Uniform Delay, d1	42.9	9.6	5.1	48.0	9.4	8.0	48.9	49.0		42.9	42.9	41.4
Progression Factor	1.33	0.47	1.00	1.15	1.57	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.7	0.7	0.0	1.9	0.1	0.0	0.7	3.4		1.7	1.4	0.2
Delay (s)	59.6	5.2	5.1	57.1	14.8	8.0	49.6	52.4		44.6	44.3	41.6
Level of Service	E	A	A	E	B	A	D	D		D	D	D
Approach Delay (s)		7.6			15.3			51.9			42.7	
Approach LOS		A			B			D			D	

Intersection Summary				
HCM 2000 Control Delay	13.5	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.68			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.2	
Intersection Capacity Utilization	70.9%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis Operating Year (2015) Plus Project Conditions
16: Brookhurst St & Pacific Coast Highway

AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	196	2264	0	8	763	294	2	10	1	538	4	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.7		4.5	5.7	5.7	4.5	4.5		6.0	6.0	6.0
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		0.97	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5085		1770	5085	1583	1770	1837		3433	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5085		1770	5085	1583	1770	1837		3433	1863	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	204	2358	0	8	795	306	2	10	1	560	4	118
RTOR Reduction (vph)	0	0	0	0	0	188	0	1	0	0	0	92
Lane Group Flow (vph)	204	2358	0	8	795	118	2	10	0	560	4	26
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases			6			2						3
Actuated Green, G (s)	16.8	54.0		1.2	38.4	38.4	2.4	2.4		21.7	21.7	21.7
Effective Green, g (s)	16.8	54.0		1.2	38.4	38.4	2.4	2.4		21.7	21.7	21.7
Actuated g/C Ratio	0.17	0.54		0.01	0.38	0.38	0.02	0.02		0.22	0.22	0.22
Clearance Time (s)	4.5	5.7		4.5	5.7	5.7	4.5	4.5		6.0	6.0	6.0
Vehicle Extension (s)	1.7	4.6		1.7	4.6	4.6	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	297	2745		21	1952	607	42	44		744	404	343
v/s Ratio Prot	c0.12	c0.46		0.00	0.16		0.00	c0.01		c0.16	0.00	
v/s Ratio Perm						0.07						0.02
v/c Ratio	0.69	0.86		0.38	0.41	0.19	0.05	0.23		0.75	0.01	0.07
Uniform Delay, d1	39.1	19.7		49.0	22.5	20.5	47.7	47.9		36.6	30.7	31.2
Progression Factor	1.28	0.82		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	4.1	2.5		4.2	0.6	0.7	0.2	1.0		3.8	0.0	0.0
Delay (s)	54.3	18.6		53.2	23.1	21.2	47.9	48.9		40.5	30.7	31.2
Level of Service	D	B		D	C	C	D	D		D	C	C
Approach Delay (s)		21.4			22.8			48.7			38.8	
Approach LOS		C			C			D			D	

Intersection Summary				
HCM 2000 Control Delay	24.6	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.83			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.7	
Intersection Capacity Utilization	82.6%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				


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Default Scenario           Tue May 28, 2013 11:14:33                Page 3-1
-------------------------------------------------------------------------------
                 Operating Year (2015) Plus Project Conditions
                                  AM Peak
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
       ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)
*******************************************************************************
Intersection #10 Newland St & Atlanta Ave
*******************************************************************************
Cycle (sec):          100                Critical Vol./Cap.(X):         0.444
Loss Time (sec):        0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:         41                Level Of Service:                   A
*******************************************************************************
Street Name:          Newland Street                    Atlanta Avenue
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0    0     0    0    0     0    0    0     0    0    0
Y+R:          4.0  4.0  4.0   4.0  4.0  4.0   4.0  4.0  4.0   4.0  4.0  4.0
Lanes:        1  0  1  1  0   1  0  1  1  0   1  0  1  1  0   1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     115  272   38  136  351   71   62  467  243   29  332  133
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:  115  272   38  136  351   71   62  467  243   29  332  133
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:   115  272   38  136  351   71   62  467  243   29  332  133
Reduct Vol:     0    0    0    0    0    0    0    0    0    0    0    0
Reduced Vol:  115  272   38  136  351   71   62  467  243   29  332  133
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:  115  272   38  136  351   71   62  467  243   29  332  133
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600
Adjustment:  1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes:       1.00 1.75 0.25 1.00 1.66 0.34 1.00 1.32 0.68 1.00 1.43 0.57
Final Sat.:  1600 2808  392 1600 2662  538 1600 2105 1095 1600 2285  915
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.07 0.10 0.10 0.09 0.13 0.13 0.04 0.22 0.22 0.02 0.15 0.15
Crit Moves:  ****                ****             ****        ****
*******************************************************************************
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Operating Year (2015) Plus Project Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #11 Newland St & Hamilton Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.583
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	55	Level Of Service:	A

Street Name:	Newland Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0 0	1 0	1	0 1	0 0	0	0 0	0 0	1	0 0	0 1
Volume Module:												
Base Vol:	0	73	253	414	230	0	0	0	0	103	0	193
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	73	253	414	230	0	0	0	0	103	0	193
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	73	253	414	230	0	0	0	0	103	0	193
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	73	253	414	230	0	0	0	0	103	0	193
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	73	253	414	230	0	0	0	0	103	0	193
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.22	0.78	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	358	1242	1600	1600	0	0	0	0	1600	0	1600
Capacity Analysis Module:												
Vol/Sat:	0.00	0.20	0.20	0.26	0.14	0.00	0.00	0.00	0.00	0.06	0.00	0.12
Crit Moves:		****		****								****

Operating Year (2015) Plus Project Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #13 Magnolia St & Hamilton Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.501
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	37	Level Of Service:	A

Street Name:	Magnolia Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Prot+Permit			Prot+Permit			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0 1	1 0	1	0 2	0 1	1	0 0	1 0	1	0 1	0 1
Volume Module:												
Base Vol:	30	188	46	204	247	39	89	396	52	33	274	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:	30	188	46	204	247	39	89	396	52	33	274	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:	30	188	46	204	247	39	89	396	52	33	274	330
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	30	188	46	204	247	39	89	396	52	33	274	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:	30	188	46	204	247	39	89	396	52	33	274	330
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.61	0.39	1.00	2.00	1.00	1.00	0.88	0.12	1.00	1.00	1.00
Final Sat.:	1600	2571	629	1600	3200	1600	1600	1414	186	1600	1600	1600
Capacity Analysis Module:												
Vol/Sat:	0.02	0.07	0.07	0.13	0.08	0.02	0.06	0.28	0.28	0.02	0.17	0.21
Crit Moves:		****		****				****		****		

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Default Scenario           Tue May 28, 2013 11:14:34                Page 6-1
--------------------------------------------------------------------------------
                 Operating Year (2015) Plus Project Conditions
                                   AM Peak
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                      Level Of Service Computation Report
        ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)
********************************************************************************
Intersection #15 Brookhurst St & Hamilton Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.687
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        73                Level Of Service:                   B
********************************************************************************
Street Name:        Brookhurst Street                  Hamilton Avenue
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Prot+Permit      Prot+Permit
Rights:           Include          Include          Include          Include
Min. Green:     0    0    0    0    0    0    0    0    0    0    0    0
Y+R:          4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0
Lanes:        1  0  3  0  1    2  0  2  1  0    1  0  1  1  0    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      70  434  335  487  466  123   92  783   49  105  424  283
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:   70  434  335  487  466  123   92  783   49  105  424  283
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:    70  434  335  487  466  123   92  783   49  105  424  283
Reduct Vol:     0    0    0    0    0    0    0    0    0    0    0    0
Reduced Vol:   70  434  335  487  466  123   92  783   49  105  424  283
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:   70  434  335  487  466  123   92  783   49  105  424  283
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600
Adjustment:  1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes:       1.00 3.00 1.00 2.00 2.37 0.63 1.00 1.88 0.12 1.00 2.00 1.00
Final Sat.:  1600 4800 1600 3200 3798 1002 1600 3012  188 1600 3200 1600
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.04 0.09 0.21 0.15 0.12 0.12 0.06 0.26 0.26 0.07 0.13 0.18
Crit Moves:             ****  ****                ****        ****
********************************************************************************
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HCM Signalized Intersection Capacity Analysis Operating Year (2015) Plus Project Conditions

1: Beach Blvd & Center Ave

PM Peak

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	301	1169	0	2715	2437	903
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	4.5		6.0	6.0	4.0
Lane Util. Factor	0.97	0.88		0.86	0.86	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	2787		6408	6408	1583
Flt Permitted	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	2787		6408	6408	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	310	1205	0	2799	2512	931
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	310	1205	0	2799	2512	931
Turn Type	NA	custom		NA	NA	Free
Protected Phases	4	5		2	6	
Permitted Phases		4		5		Free
Actuated Green, G (s)	18.0	66.6		110.7	57.6	140.0
Effective Green, g (s)	18.0	66.6		110.7	57.6	140.0
Actuated g/C Ratio	0.13	0.48		0.79	0.41	1.00
Clearance Time (s)	5.3	4.5		6.0	6.0	
Vehicle Extension (s)	4.0	3.8		4.0	4.0	
Lane Grp Cap (vph)	441	1325		5066	2636	1583
v/s Ratio Prot	0.09	c0.32		0.44	c0.39	
v/s Ratio Perm		0.12				0.59
v/c Ratio	0.70	0.91		0.55	0.95	0.59
Uniform Delay, d1	58.4	33.9		5.4	39.9	0.0
Progression Factor	1.00	1.00		1.07	1.00	1.00
Incremental Delay, d2	5.4	9.5		0.1	9.5	1.6
Delay (s)	63.8	43.4		5.9	49.4	1.6
Level of Service	E	D		A	D	A
Approach Delay (s)	47.6			5.9	36.5	
Approach LOS	D			A	D	

Intersection Summary			
HCM 2000 Control Delay	27.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.8
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis Operating Year (2015) Plus Project Conditions
2: Beach Blvd & Edinger Ave

PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	350	842	343	298	735	249	482	2100	531	433	2223	710
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.5	4.6	4.4	5.5	5.5	4.6	5.8	5.8	4.4	6.0	4.6
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.86	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	6408	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	6408	2787
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	361	868	354	307	758	257	497	2165	547	446	2292	732
RTOR Reduction (vph)	0	0	62	0	0	146	0	0	154	0	0	46
Lane Group Flow (vph)	361	868	292	307	758	111	497	2165	393	446	2292	686
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2		1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	13.8	29.0	45.5	13.0	28.0	28.0	16.5	63.9	63.9	14.0	61.0	74.8
Effective Green, g (s)	13.8	29.0	45.5	13.0	28.0	28.0	16.5	63.9	63.9	14.0	61.0	74.8
Actuated g/C Ratio	0.10	0.21	0.32	0.09	0.20	0.20	0.12	0.46	0.46	0.10	0.44	0.53
Clearance Time (s)	4.6	5.5	4.6	4.4	5.5	5.5	4.6	5.8	5.8	4.4	6.0	4.6
Vehicle Extension (s)	1.0	3.0	1.0	1.0	3.0	3.0	1.0	4.0	4.0	1.0	4.0	1.0
Lane Grp Cap (vph)	338	1053	514	318	707	316	404	2320	722	343	2792	1580
v/s Ratio Prot	c0.11	0.17	0.07	0.09	c0.21		c0.14	c0.43		c0.13	0.36	0.04
v/s Ratio Perm			0.12			0.07			0.25			0.20
v/c Ratio	1.07	0.82	0.57	0.97	1.07	0.35	1.23	0.93	0.54	1.30	0.82	0.43
Uniform Delay, d1	63.1	53.1	39.1	63.3	56.0	48.2	61.8	36.0	27.5	63.0	34.7	19.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.68	0.41	0.14	1.26	0.70	0.75
Incremental Delay, d2	68.2	5.3	0.9	40.6	54.9	0.7	111.9	3.6	1.1	143.4	1.1	0.0
Delay (s)	131.3	58.4	40.0	103.9	110.9	48.9	153.6	18.6	5.1	223.0	25.3	14.9
Level of Service	F	E	D	F	F	D	F	B	A	F	C	B
Approach Delay (s)		70.9			97.2			37.2			48.5	
Approach LOS		E			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	55.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	100.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis Operating Year (2015) Plus Project Conditions
3: Beach Blvd & Warner Ave

PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	345	919	182	205	1001	195	311	2448	223	233	1977	298
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.3		4.2	5.3		4.2	5.3		4.2	5.3	5.3
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.86		0.97	0.86	1.00
Frt	1.00	0.98		1.00	0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	4959		3433	4961		3433	6328		3433	6408	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	4959		3433	4961		3433	6328		3433	6408	1583
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	348	928	184	207	1011	197	314	2473	225	235	1997	301
RTOR Reduction (vph)	0	21	0	0	20	0	0	10	0	0	0	136
Lane Group Flow (vph)	348	1091	0	207	1188	0	314	2688	0	235	1997	165
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	14.0	35.8		12.2	34.0		13.0	61.0		12.0	60.0	60.0
Effective Green, g (s)	14.0	35.8		12.2	34.0		13.0	61.0		12.0	60.0	60.0
Actuated g/C Ratio	0.10	0.26		0.09	0.24		0.09	0.44		0.09	0.43	0.43
Clearance Time (s)	4.2	5.3		4.2	5.3		4.2	5.3		4.2	5.3	5.3
Vehicle Extension (s)	1.1	3.0		1.1	3.0		1.1	6.0		1.1	6.0	6.0
Lane Grp Cap (vph)	343	1268		299	1204		318	2757		294	2746	678
v/s Ratio Prot	c0.10	0.22		0.06	c0.24		c0.09	c0.42		0.07	0.31	
v/s Ratio Perm												0.10
v/c Ratio	1.01	0.86		0.69	0.99		0.99	0.97		0.80	0.73	0.24
Uniform Delay, d1	63.0	49.7		62.1	52.8		63.4	38.7		62.8	33.2	25.5
Progression Factor	1.00	1.00		1.00	1.00		1.39	0.26		1.41	0.44	0.10
Incremental Delay, d2	52.3	6.2		5.5	22.5		12.2	1.9		8.2	1.0	0.5
Delay (s)	115.3	55.9		67.6	75.2		100.4	12.1		96.8	15.8	3.0
Level of Service	F	E		E	E		F	B		F	B	A
Approach Delay (s)		70.1			74.1			21.3			21.8	
Approach LOS		E			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	38.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	100.4%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis Operating Year (2015) Plus Project Conditions
4: Beach Blvd & Talbert Ave

PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	124	351	140	234	499	346	171	2368	191	266	2040	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.5		4.7	5.5		4.7	5.8		4.7	5.8	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.86		1.00	0.86	
Frt	1.00	0.96		1.00	0.94		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3388		1770	3322		1770	6336		1770	6360	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3388		1770	3322		1770	6336		1770	6360	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	128	362	144	241	514	357	176	2441	197	274	2103	109
RTOR Reduction (vph)	0	31	0	0	89	0	0	9	0	0	5	0
Lane Group Flow (vph)	128	475	0	241	782	0	176	2629	0	274	2207	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	13.2	24.7		22.3	33.8		14.8	49.2		23.1	57.5	
Effective Green, g (s)	13.2	24.7		22.3	33.8		14.8	49.2		23.1	57.5	
Actuated g/C Ratio	0.09	0.18		0.16	0.24		0.11	0.35		0.16	0.41	
Clearance Time (s)	4.7	5.5		4.7	5.5		4.7	5.8		4.7	5.8	
Vehicle Extension (s)	1.0	3.5		1.0	3.5		1.0	5.0		1.0	5.0	
Lane Grp Cap (vph)	166	597		281	802		187	2226		292	2612	
v/s Ratio Prot	0.07	c0.14		0.14	c0.24		0.10	c0.41		c0.15	0.35	
v/s Ratio Perm												
v/c Ratio	0.77	0.80		0.86	0.98		0.94	1.18		0.94	0.84	
Uniform Delay, d1	61.9	55.2		57.3	52.7		62.2	45.4		57.7	37.2	
Progression Factor	1.00	1.00		1.00	1.00		0.82	0.54		0.66	0.45	
Incremental Delay, d2	18.0	7.4		21.2	25.7		32.7	84.2		28.6	2.6	
Delay (s)	80.0	62.7		78.5	78.4		83.5	108.9		66.8	19.2	
Level of Service	E	E		E	E		F	F		E	B	
Approach Delay (s)		66.1			78.4			107.3			24.5	
Approach LOS		E			E			F			C	

Intersection Summary				
HCM 2000 Control Delay	69.8	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	1.05			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.7	
Intersection Capacity Utilization	104.4%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis Operating Year (2015) Plus Project Conditions
5: Beach Blvd & Main St/Ellis Ave

PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	410	465	169	130	443	184	175	2001	183	259	1721	393
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.7	6.0		4.7	6.0	6.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.86		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3539	1583	3433	6327		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3539	1583	3433	6327		3433	5085	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	427	484	176	135	461	192	182	2084	191	270	1793	409
RTOR Reduction (vph)	0	0	112	0	0	139	0	10	0	0	0	21
Lane Group Flow (vph)	427	484	64	135	461	53	182	2265	0	270	1793	388
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	pt+ov
Protected Phases	7	7		8	8		5	2		1	6	6 7
Permitted Phases			7			8						
Actuated Green, G (s)	30.2	30.2	30.2	20.8	20.8	20.8	10.6	52.1		14.2	55.7	91.9
Effective Green, g (s)	30.2	30.2	30.2	20.8	20.8	20.8	10.6	52.1		14.2	55.7	91.9
Actuated g/C Ratio	0.22	0.22	0.22	0.15	0.15	0.15	0.08	0.37		0.10	0.40	0.66
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.7	6.0		4.7	6.0	
Vehicle Extension (s)	2.2	2.2	2.2	1.2	1.2	1.2	1.2	5.0		1.2	5.0	
Lane Grp Cap (vph)	740	763	341	262	525	235	259	2354		348	2023	1039
v/s Ratio Prot	0.12	c0.14		0.08	c0.13		0.05	c0.36		c0.08	c0.35	0.25
v/s Ratio Perm			0.04			0.03						
v/c Ratio	0.58	0.63	0.19	0.52	0.88	0.23	0.70	0.96		0.78	0.89	0.37
Uniform Delay, d1	49.2	49.9	44.9	55.0	58.4	52.5	63.2	43.0		61.3	39.2	10.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.94	1.54		1.29	0.54	0.59
Incremental Delay, d2	0.8	1.4	0.1	0.7	14.9	0.2	0.6	1.6		5.3	3.5	0.1
Delay (s)	49.9	51.3	45.0	55.7	73.2	52.7	59.8	67.6		84.5	24.8	6.5
Level of Service	D	D	D	E	E	D	E	E		F	C	A
Approach Delay (s)		49.7			65.2			67.0			28.3	
Approach LOS		D			E			E			C	

Intersection Summary				
HCM 2000 Control Delay	50.0	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.84			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.7	
Intersection Capacity Utilization	84.4%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis Operating Year (2015) Plus Project Conditions
6: Beach Blvd & Garfield Ave

PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	195	434	131	126	414	151	205	1918	98	214	1680	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.8	5.8	4.6	5.8		4.6	6.2		4.6	6.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3397		1770	5048		1770	5022	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3397		1770	5048		1770	5022	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	207	462	139	134	440	161	218	2040	104	228	1787	162
RTOR Reduction (vph)	0	0	106	0	27	0	0	4	0	0	8	0
Lane Group Flow (vph)	207	462	33	134	574	0	218	2140	0	228	1941	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	17.5	33.3	33.3	11.7	27.5		17.2	54.4		19.4	56.6	
Effective Green, g (s)	17.5	33.3	33.3	11.7	27.5		17.2	54.4		19.4	56.6	
Actuated g/C Ratio	0.12	0.24	0.24	0.08	0.20		0.12	0.39		0.14	0.40	
Clearance Time (s)	4.6	5.8	5.8	4.6	5.8		4.6	6.2		4.6	6.2	
Vehicle Extension (s)	1.5	4.0	4.0	1.5	4.0		1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	221	841	376	147	667		217	1961		245	2030	
v/s Ratio Prot	c0.12	0.13		0.08	c0.17		0.12	c0.42		0.13	c0.39	
v/s Ratio Perm			0.02									
v/c Ratio	0.94	0.55	0.09	0.91	0.86		1.00	1.09		0.93	0.96	
Uniform Delay, d1	60.7	46.8	41.5	63.6	54.4		61.4	42.8		59.6	40.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.66	0.52		1.11	1.78	
Incremental Delay, d2	42.3	0.9	0.1	48.0	11.3		53.0	47.9		27.1	8.1	
Delay (s)	103.0	47.7	41.7	111.6	65.7		93.3	70.3		93.0	80.3	
Level of Service	F	D	D	F	E		F	E		F	F	
Approach Delay (s)		60.8			74.1			72.4			81.7	
Approach LOS		E			E			E			F	

Intersection Summary				
HCM 2000 Control Delay	74.4	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	1.01			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.2	
Intersection Capacity Utilization	95.8%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis Operating Year (2015) Plus Project Conditions
7: Beach Blvd & Adams Ave

PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	143	460	58	203	781	373	144	1404	121	344	1231	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	6.2		4.7	6.2	6.2	4.7	6.2		4.7	6.2	
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00	1.00	0.91		0.97	0.91	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5000		1770	3539	1583	1770	5025		3433	5003	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5000		1770	3539	1583	1770	5025		3433	5003	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	149	479	60	211	814	389	150	1462	126	358	1282	156
RTOR Reduction (vph)	0	11	0	0	0	232	0	7	0	0	10	0
Lane Group Flow (vph)	149	528	0	211	814	157	150	1581	0	358	1428	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	15.1	33.2		17.8	35.9	35.9	18.3	50.3		16.9	48.9	
Effective Green, g (s)	15.1	33.2		17.8	35.9	35.9	18.3	50.3		16.9	48.9	
Actuated g/C Ratio	0.11	0.24		0.13	0.26	0.26	0.13	0.36		0.12	0.35	
Clearance Time (s)	4.7	6.2		4.7	6.2	6.2	4.7	6.2		4.7	6.2	
Vehicle Extension (s)	1.8	5.0		1.8	5.0	5.0	1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	190	1185		225	907	405	231	1805		414	1747	
v/s Ratio Prot	0.08	0.11		c0.12	c0.23		0.08	c0.31		0.10	c0.29	
v/s Ratio Perm						0.10						
v/c Ratio	0.78	0.45		0.94	0.90	0.39	0.65	0.88		0.86	0.82	
Uniform Delay, d1	60.9	45.5		60.6	50.3	43.0	57.8	41.9		60.4	41.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.31	0.51	
Incremental Delay, d2	17.5	0.6		42.1	12.2	1.3	4.7	6.3		7.6	1.8	
Delay (s)	78.4	46.1		102.6	62.5	44.3	62.5	48.3		86.8	23.1	
Level of Service	E	D		F	E	D	E	D		F	C	
Approach Delay (s)		53.1			63.5			49.5			35.8	
Approach LOS		D			E			D			D	

Intersection Summary				
HCM 2000 Control Delay	49.1	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.91			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.8	
Intersection Capacity Utilization	87.7%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis Operating Year (2015) Plus Project Conditions
8: Beach Blvd & Atlanta Ave

PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	111	298	54	78	371	274	135	1114	113	333	672	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.5		4.7	5.5		4.7	6.2		4.7	6.2	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.98		1.00	0.94		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3458		1770	3314		1770	5015		1770	4972	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3458		1770	3314		1770	5015		1770	4972	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	119	320	58	84	399	295	145	1198	122	358	723	126
RTOR Reduction (vph)	0	8	0	0	80	0	0	6	0	0	11	0
Lane Group Flow (vph)	119	370	0	84	614	0	145	1314	0	358	838	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	14.8	36.4		11.8	33.4		16.6	56.6		25.3	65.3	
Effective Green, g (s)	14.8	36.4		11.8	33.4		16.6	56.6		25.3	65.3	
Actuated g/C Ratio	0.10	0.24		0.08	0.22		0.11	0.37		0.17	0.43	
Clearance Time (s)	4.7	5.5		4.7	5.5		4.7	6.2		4.7	6.2	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	173	832		138	732		194	1877		296	2147	
v/s Ratio Prot	c0.07	c0.11		0.05	c0.19		0.08	c0.26		c0.20	0.17	
v/s Ratio Perm												
v/c Ratio	0.69	0.44		0.61	0.84		0.75	0.70		1.21	0.39	
Uniform Delay, d1	66.0	48.8		67.5	56.3		65.3	40.1		63.0	29.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.7	0.1		5.1	8.0		12.8	1.5		121.5	0.2	
Delay (s)	74.7	48.9		72.6	64.3		78.1	41.6		184.4	29.6	
Level of Service	E	D		E	E		E	D		F	C	
Approach Delay (s)		55.1			65.2			45.2			75.5	
Approach LOS		E			E			D			E	

Intersection Summary				
HCM 2000 Control Delay	59.7	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	0.83			
Actuated Cycle Length (s)	151.2	Sum of lost time (s)	21.1	
Intersection Capacity Utilization	85.3%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis Operating Year (2015) Plus Project Conditions
9: Huntington Beach Parking/Beach Blvd & Pacific Coast Highway

PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	306	1123	12	12	1622	822	8	29	15	422	19	223
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	6.0		4.5	6.0	6.0	5.0	5.0	5.0	5.0	5.0	4.0
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5078		1770	3539	1583	1770	3539	1583	3433	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5078		1770	3539	1583	1770	3539	1583	3433	1863	1583
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	344	1262	13	13	1822	924	9	33	17	474	21	251
RTOR Reduction (vph)	0	0	0	0	0	254	0	0	16	0	0	0
Lane Group Flow (vph)	344	1275	0	13	1822	671	9	33	1	474	21	251
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases						2			4			Free
Actuated Green, G (s)	16.6	73.5		2.8	60.0	60.0	1.3	8.2	8.2	15.0	21.9	120.0
Effective Green, g (s)	16.6	73.5		2.8	60.0	60.0	1.3	8.2	8.2	15.0	21.9	120.0
Actuated g/C Ratio	0.14	0.61		0.02	0.50	0.50	0.01	0.07	0.07	0.12	0.18	1.00
Clearance Time (s)	4.2	6.0		4.5	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	1.5	4.6		2.0	4.5	4.5	2.0	1.8	1.8	2.0	1.8	
Lane Grp Cap (vph)	474	3110		41	1769	791	19	241	108	429	339	1583
v/s Ratio Prot	c0.10	0.25		0.01	c0.51		0.01	0.01		c0.14	0.01	
v/s Ratio Perm						0.42			0.00			c0.16
v/c Ratio	0.73	0.41		0.32	1.03	0.85	0.47	0.14	0.01	1.10	0.06	0.16
Uniform Delay, d1	49.5	12.0		57.7	30.0	26.0	59.0	52.6	52.1	52.5	40.6	0.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.6	0.4		1.6	29.5	10.9	6.6	0.1	0.0	75.0	0.0	0.2
Delay (s)	54.2	12.4		59.3	59.5	37.0	65.6	52.7	52.1	127.5	40.6	0.2
Level of Service	D	B		E	E	D	E	D	D	F	D	A
Approach Delay (s)		21.3			51.9			54.5			82.2	
Approach LOS		C			D			D			F	

Intersection Summary				
HCM 2000 Control Delay	46.8	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.93			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.5	
Intersection Capacity Utilization	84.9%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis Operating Year (2015) Plus Project Conditions
12: Huntington Beach Parking/Newland St & Pacific Coast Highway

PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	213	1326	4	6	2257	188	8	3	5	49	2	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.7	5.7	4.0	5.7	5.7	4.2	4.2		4.2	4.2	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1688		1770	1587	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.62	1.00		0.75	1.00	
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1164	1688		1402	1587	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	224	1396	4	6	2376	198	8	3	5	52	2	141
RTOR Reduction (vph)	0	0	2	0	0	110	0	4	0	0	99	0
Lane Group Flow (vph)	224	1396	2	6	2376	88	8	5	0	52	44	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases			2			6	4			8		
Actuated Green, G (s)	12.0	55.0	55.0	1.1	44.1	44.1	30.0	30.0		30.0	30.0	
Effective Green, g (s)	12.0	55.0	55.0	1.1	44.1	44.1	30.0	30.0		30.0	30.0	
Actuated g/C Ratio	0.12	0.55	0.55	0.01	0.44	0.44	0.30	0.30		0.30	0.30	
Clearance Time (s)	4.0	5.7	5.7	4.0	5.7	5.7	4.2	4.2		4.2	4.2	
Vehicle Extension (s)	1.7	4.6	4.6	1.7	4.6	4.6	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	212	2796	870	19	2242	698	349	506		420	476	
v/s Ratio Prot	c0.13	0.27		0.00	c0.47			0.00			0.03	
v/s Ratio Perm			0.00			0.06	0.01			c0.04		
v/c Ratio	1.06	0.50	0.00	0.32	1.06	0.13	0.02	0.01		0.12	0.09	
Uniform Delay, d1	44.0	14.0	10.1	49.1	27.9	16.5	24.7	24.6		25.4	25.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	77.5	0.6	0.0	3.5	37.2	0.4	0.1	0.0		0.6	0.4	
Delay (s)	121.5	14.6	10.1	52.5	65.1	16.9	24.8	24.6		26.0	25.6	
Level of Service	F	B	B	D	E	B	C	C		C	C	
Approach Delay (s)		29.3			61.4			24.7			25.7	
Approach LOS		C			E			C			C	

Intersection Summary				
HCM 2000 Control Delay	47.9	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.73			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.9	
Intersection Capacity Utilization	76.4%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis Operating Year (2015) Plus Project Conditions
14: Magnolia Ave & Pacific Coast Highway

PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	99	1247	9	14	2383	189	10	26	14	82	17	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	5.7	5.7	3.7	5.7	5.7	4.2	4.2		4.6	4.6	4.6
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1763		1681	1714	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1770	1763		1681	1714	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	103	1299	9	15	2482	197	10	27	15	85	18	172
RTOR Reduction (vph)	0	0	3	0	0	53	0	14	0	0	0	160
Lane Group Flow (vph)	103	1299	6	15	2482	144	10	28	0	51	52	12
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	1	6		5	2		7	7		8	8	
Permitted Phases			6			2						8
Actuated Green, G (s)	11.0	85.2	85.2	2.6	76.8	76.8	5.7	5.7		8.3	8.3	8.3
Effective Green, g (s)	11.0	85.2	85.2	2.6	76.8	76.8	5.7	5.7		8.3	8.3	8.3
Actuated g/C Ratio	0.09	0.71	0.71	0.02	0.64	0.64	0.05	0.05		0.07	0.07	0.07
Clearance Time (s)	3.7	5.7	5.7	3.7	5.7	5.7	4.2	4.2		4.6	4.6	4.6
Vehicle Extension (s)	1.7	4.6	4.6	1.7	4.6	4.6	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	162	3610	1123	38	3254	1013	84	83		116	118	109
v/s Ratio Prot	c0.06	0.26		0.01	c0.49		0.01	c0.02		c0.03	0.03	
v/s Ratio Perm			0.00			0.09						0.01
v/c Ratio	0.64	0.36	0.01	0.39	0.76	0.14	0.12	0.33		0.44	0.44	0.11
Uniform Delay, d1	52.6	6.8	5.1	57.9	15.2	8.6	54.7	55.3		53.6	53.6	52.4
Progression Factor	1.00	1.00	1.00	0.68	1.23	2.58	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.9	0.3	0.0	1.1	0.6	0.1	0.2	0.9		1.0	1.0	0.2
Delay (s)	58.4	7.1	5.1	40.8	19.2	22.2	55.0	56.2		54.6	54.6	52.5
Level of Service	E	A	A	D	B	C	D	E		D	D	D
Approach Delay (s)		10.8			19.6			55.9			53.3	
Approach LOS		B			B			E			D	

Intersection Summary				
HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.70			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.2	
Intersection Capacity Utilization	72.8%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis Operating Year (2015) Plus Project Conditions
16: Brookhurst St & Pacific Coast Highway

PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	154	1156	1	15	2398	697	8	6	12	269	8	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.7	5.7	4.5	5.7	5.7	4.5	4.5		6.0	6.0	6.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1672		3433	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1770	1672		3433	1863	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	164	1230	1	16	2551	741	9	6	13	286	9	182
RTOR Reduction (vph)	0	0	0	0	0	178	0	13	0	0	0	157
Lane Group Flow (vph)	164	1230	1	16	2551	563	9	6	0	286	9	25
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases			6			2						3
Actuated Green, G (s)	15.3	76.4	76.4	2.6	63.7	63.7	3.6	3.6		16.7	16.7	16.7
Effective Green, g (s)	15.3	76.4	76.4	2.6	63.7	63.7	3.6	3.6		16.7	16.7	16.7
Actuated g/C Ratio	0.13	0.64	0.64	0.02	0.53	0.53	0.03	0.03		0.14	0.14	0.14
Clearance Time (s)	4.5	5.7	5.7	4.5	5.7	5.7	4.5	4.5		6.0	6.0	6.0
Vehicle Extension (s)	1.7	4.6	4.6	1.7	4.6	4.6	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	225	3237	1007	38	2699	840	53	50		477	259	220
v/s Ratio Prot	c0.09	0.24		0.01	c0.50		c0.01	0.00		c0.08	0.00	
v/s Ratio Perm			0.00			0.36						0.02
v/c Ratio	0.73	0.38	0.00	0.42	0.95	0.67	0.17	0.13		0.60	0.03	0.12
Uniform Delay, d1	50.4	10.4	7.9	58.0	26.5	20.5	56.7	56.7		48.5	44.7	45.2
Progression Factor	0.93	1.40	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	9.2	0.1	0.0	2.7	8.5	4.2	0.6	0.4		1.4	0.0	0.1
Delay (s)	56.3	14.8	7.9	60.7	35.0	24.7	57.3	57.1		49.9	44.7	45.3
Level of Service	E	B	A	E	D	C	E	E		D	D	D
Approach Delay (s)		19.7			32.9			57.2			48.0	
Approach LOS		B			C			E			D	

Intersection Summary				
HCM 2000 Control Delay	30.8	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.83			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.7	
Intersection Capacity Utilization	82.7%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				


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Default Scenario           Tue May 28, 2013 11:15:13                Page 3-1
-------------------------------------------------------------------------------
                 Operating Year (2015) Plus Project Conditions
                                  PM Peak
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
       ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)
*******************************************************************************
Intersection #10 Newland St & Atlanta Ave
*******************************************************************************
Cycle (sec):          100                Critical Vol./Cap.(X):          0.523
Loss Time (sec):        0                Average Delay (sec/veh):       xxxxxx
Optimal Cycle:         48                Level Of Service:                    A
*******************************************************************************
Street Name:          Newland Street                    Atlanta Avenue
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0    0    0    0    0    0    0    0    0    0    0
Y+R:          4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0
Lanes:        1  0  1  1  0    1  0  1  1  0    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     295  435   24   88  234   92   61  432  180   36  523  114
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:  295  435   24   88  234   92   61  432  180   36  523  114
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:   295  435   24   88  234   92   61  432  180   36  523  114
Reduct Vol:     0    0    0    0    0    0    0    0    0    0    0    0
Reduced Vol:  295  435   24   88  234   92   61  432  180   36  523  114
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:  295  435   24   88  234   92   61  432  180   36  523  114
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600
Adjustment:  1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes:       1.00 1.90 0.10 1.00 1.44 0.56 1.00 1.41 0.59 1.00 1.64 0.36
Final Sat.:  1600 3033  167 1600 2297  903 1600 2259  941 1600 2627  573
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.18 0.14 0.14 0.06 0.10 0.10 0.04 0.19 0.19 0.02 0.20 0.20
Crit Moves:  ****                ****          ****                ****
*******************************************************************************

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Operating Year (2015) Plus Project Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #11 Newland St & Hamilton Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.697
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	75	Level Of Service:	B

Street Name:	Newland Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0 0	1 0	1	0 1	0 0	0	0 0	0 0	1	0 0	0 1
Volume Module:												
Base Vol:	0	277	151	233	117	0	0	0	0	136	0	455
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	277	151	233	117	0	0	0	0	136	0	455
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	277	151	233	117	0	0	0	0	136	0	455
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	277	151	233	117	0	0	0	0	136	0	455
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	277	151	233	117	0	0	0	0	136	0	455
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.65	0.35	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	1036	564	1600	1600	0	0	0	0	1600	0	1600
Capacity Analysis Module:												
Vol/Sat:	0.00	0.27	0.27	0.15	0.07	0.00	0.00	0.00	0.00	0.09	0.00	0.28
Crit Moves:		****		****								****

Operating Year (2015) Plus Project Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #13 Magnolia St & Hamilton Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.569
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	43	Level Of Service:	A

Street Name:	Magnolia Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Prot+Permit			Prot+Permit			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0 1	1 0	1	0 2	0 1	1	0 0	1 0	1	0 1	0 1
Volume Module:												
Base Vol:	28	298	26	200	176	29	31	301	35	34	518	319
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	298	26	200	176	29	31	301	35	34	518	319
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	298	26	200	176	29	31	301	35	34	518	319
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	28	298	26	200	176	29	31	301	35	34	518	319
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:	28	298	26	200	176	29	31	301	35	34	518	319
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.84	0.16	1.00	2.00	1.00	1.00	0.90	0.10	1.00	1.00	1.00
Final Sat.:	1600	2943	257	1600	3200	1600	1600	1433	167	1600	1600	1600
Capacity Analysis Module:												
Vol/Sat:	0.02	0.10	0.10	0.13	0.06	0.02	0.02	0.21	0.21	0.02	0.32	0.20
Crit Moves:		****		****			****				****	

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Default Scenario           Tue May 28, 2013 11:15:14                Page 6-1
-------------------------------------------------------------------------------
                 Operating Year (2015) Plus Project Conditions
                                    PM Peak
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
        ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)
*******************************************************************************
Intersection #15 Brookhurst St & Hamilton Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.632
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        62                Level Of Service:                   B
*******************************************************************************
Street Name:        Brookhurst Street                  Hamilton Avenue
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Prot+Permit      Prot+Permit
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  3  0  1    2  0  2  1  0    1  0  1  1  0    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      87  612   181   347  436    96    97  380    67   263 1020   536
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:   87  612   181   347  436    96    97  380    67   263 1020   536
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    87  612   181   347  436    96    97  380    67   263 1020   536
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   87  612   181   347  436    96    97  380    67   263 1020   536
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   87  612   181   347  436    96    97  380    67   263 1020   536
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1600 1600  1600  1600 1600  1600  1600 1600  1600  1600 1600  1600
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 3.00  1.00  2.00 2.46  0.54  1.00 1.70  0.30  1.00 2.00  1.00
Final Sat.:  1600 4800  1600  3200 3934   866  1600 2720   480  1600 3200  1600
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.05 0.13  0.11  0.11 0.11  0.11  0.06 0.14  0.14  0.16 0.32  0.34
Crit Moves:       ****         ****              ****                        ****
*******************************************************************************
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APPENDIX G: PROJECT OPERATING YEAR (2017) BASE RESULTS

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	112	674	0	2327	3089	853
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	4.5		6.0	6.0	4.0
Lane Util. Factor	0.97	0.88		0.86	0.86	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	2787		6408	6408	1583
Flt Permitted	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	2787		6408	6408	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	119	717	0	2476	3286	907
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	119	717	0	2476	3286	907
Turn Type	NA	custom		NA	NA	Free
Protected Phases	4	5		2	6	
Permitted Phases		4		5		Free
Actuated Green, G (s)	13.2	44.4		115.5	79.8	140.0
Effective Green, g (s)	13.2	44.4		115.5	79.8	140.0
Actuated g/C Ratio	0.09	0.32		0.82	0.57	1.00
Clearance Time (s)	5.3	4.5		6.0	6.0	
Vehicle Extension (s)	4.0	3.8		4.0	4.0	
Lane Grp Cap (vph)	323	883		5286	3652	1583
v/s Ratio Prot	0.03	c0.18		0.39	c0.51	
v/s Ratio Perm		0.08				0.57
v/c Ratio	0.37	0.81		0.47	0.90	0.57
Uniform Delay, d1	59.5	44.0		3.5	26.6	0.0
Progression Factor	1.00	1.00		0.83	1.00	1.00
Incremental Delay, d2	1.0	6.0		0.0	4.1	1.5
Delay (s)	60.5	49.9		2.9	30.6	1.5
Level of Service	E	D		A	C	A
Approach Delay (s)	51.4			2.9	24.3	
Approach LOS	D			A	C	

Intersection Summary			
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.8
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	322	974	231	168	550	310	183	1681	354	471	2608	609
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.5	4.6	4.4	5.5	5.5	4.6	5.8	5.8	4.4	6.0	4.6
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.86	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	6408	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	6408	2787
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	343	1036	246	179	585	330	195	1788	377	501	2774	648
RTOR Reduction (vph)	0	0	66	0	0	221	0	0	150	0	0	42
Lane Group Flow (vph)	343	1036	180	179	585	109	195	1788	227	501	2774	606
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2		1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	14.4	28.1	40.2	13.0	26.5	26.5	12.1	57.8	57.8	21.0	66.3	80.7
Effective Green, g (s)	14.4	28.1	40.2	13.0	26.5	26.5	12.1	57.8	57.8	21.0	66.3	80.7
Actuated g/C Ratio	0.10	0.20	0.29	0.09	0.19	0.19	0.09	0.41	0.41	0.15	0.47	0.58
Clearance Time (s)	4.6	5.5	4.6	4.4	5.5	5.5	4.6	5.8	5.8	4.4	6.0	4.6
Vehicle Extension (s)	1.0	3.0	1.0	1.0	3.0	3.0	1.0	4.0	4.0	1.0	4.0	1.0
Lane Grp Cap (vph)	353	1020	454	318	669	299	296	2099	653	514	3034	1698
v/s Ratio Prot	0.10	c0.20	0.03	0.05	c0.17		0.06	c0.35		0.15	c0.43	0.04
v/s Ratio Perm			0.08			0.07			0.14			0.18
v/c Ratio	0.97	1.02	0.40	0.56	0.87	0.36	0.66	0.85	0.35	0.97	0.91	0.36
Uniform Delay, d1	62.6	56.0	40.2	60.8	55.1	49.4	62.0	37.2	28.2	59.2	34.2	15.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.75	0.58	0.17	1.15	0.64	0.64
Incremental Delay, d2	40.0	32.1	0.2	1.4	12.2	0.8	3.5	4.0	1.3	21.8	2.9	0.0
Delay (s)	102.6	88.1	40.4	62.1	67.3	50.2	49.8	25.5	6.1	89.6	24.9	10.1
Level of Service	F	F	D	E	E	D	D	C	A	F	C	B
Approach Delay (s)		83.9			61.3			24.4			30.7	
Approach LOS		F			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	42.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	94.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	235	1235	129	214	668	78	133	1535	146	392	2116	232
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.3		4.2	5.3		4.2	5.3		4.2	5.3	5.3
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.86		0.97	0.86	1.00
Frt	1.00	0.99		1.00	0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	5013		3433	5005		3433	6324		3433	6408	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	5013		3433	5005		3433	6324		3433	6408	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	240	1260	132	218	682	80	136	1566	149	400	2159	237
RTOR Reduction (vph)	0	9	0	0	10	0	0	11	0	0	0	101
Lane Group Flow (vph)	240	1383	0	218	752	0	136	1704	0	400	2159	136
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	14.9	39.2		10.3	34.6		13.0	55.5		16.0	58.5	58.5
Effective Green, g (s)	14.9	39.2		10.3	34.6		13.0	55.5		16.0	58.5	58.5
Actuated g/C Ratio	0.11	0.28		0.07	0.25		0.09	0.40		0.11	0.42	0.42
Clearance Time (s)	4.2	5.3		4.2	5.3		4.2	5.3		4.2	5.3	5.3
Vehicle Extension (s)	1.1	3.0		1.1	3.0		1.1	6.0		1.1	6.0	6.0
Lane Grp Cap (vph)	365	1403		252	1236		318	2507		392	2677	661
v/s Ratio Prot	0.07	c0.28		c0.06	0.15		0.04	0.27		c0.12	c0.34	
v/s Ratio Perm												0.09
v/c Ratio	0.66	0.99		0.87	0.61		0.43	0.68		1.02	0.81	0.21
Uniform Delay, d1	60.1	50.1		64.2	46.7		60.0	34.9		62.0	35.8	26.0
Progression Factor	1.00	1.00		1.00	1.00		1.38	0.24		1.46	0.39	0.14
Incremental Delay, d2	3.2	20.5		24.4	0.9		0.2	1.0		36.8	1.3	0.3
Delay (s)	63.3	70.7		88.6	47.6		83.2	9.5		127.2	15.3	4.0
Level of Service	E	E		F	D		F	A		F	B	A
Approach Delay (s)		69.6			56.7			14.9			30.4	
Approach LOS		E			E			B			C	

Intersection Summary			
HCM 2000 Control Delay	38.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	92.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	81	395	117	142	344	131	164	1679	117	296	2060	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.5		4.7	5.5		4.7	5.8		4.7	5.8	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.86		1.00	0.86	
Frt	1.00	0.97		1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3418		1770	3393		1770	6345		1770	6345	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3418		1770	3393		1770	6345		1770	6345	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	84	411	122	148	358	136	171	1749	122	308	2146	151
RTOR Reduction (vph)	0	20	0	0	29	0	0	8	0	0	7	0
Lane Group Flow (vph)	84	513	0	148	465	0	171	1863	0	308	2290	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	12.0	25.8		13.9	27.7		13.3	53.2		26.4	66.3	
Effective Green, g (s)	12.0	25.8		13.9	27.7		13.3	53.2		26.4	66.3	
Actuated g/C Ratio	0.09	0.18		0.10	0.20		0.10	0.38		0.19	0.47	
Clearance Time (s)	4.7	5.5		4.7	5.5		4.7	5.8		4.7	5.8	
Vehicle Extension (s)	1.0	3.5		1.0	3.5		1.0	5.0		1.0	5.0	
Lane Grp Cap (vph)	151	629		175	671		168	2411		333	3004	
v/s Ratio Prot	0.05	c0.15		c0.08	0.14		c0.10	0.29		c0.17	c0.36	
v/s Ratio Perm												
v/c Ratio	0.56	0.81		0.85	0.69		1.02	0.77		0.92	0.76	
Uniform Delay, d1	61.4	54.8		62.0	52.2		63.4	38.1		55.8	30.4	
Progression Factor	1.00	1.00		1.00	1.00		0.80	0.59		0.64	0.32	
Incremental Delay, d2	2.5	8.2		28.5	3.2		67.4	2.0		21.3	1.2	
Delay (s)	64.0	63.0		90.5	55.4		118.2	24.7		57.2	10.9	
Level of Service	E	E		F	E		F	C		E	B	
Approach Delay (s)		63.1			63.5			32.5			16.3	
Approach LOS		E			E			C			B	

Intersection Summary			
HCM 2000 Control Delay	31.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	84.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	267	432	91	154	306	226	72	1466	143	180	1590	332
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.7	6.0		4.7	6.0	6.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.86		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3539	1583	3433	6322		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3539	1583	3433	6322		3433	5085	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	281	455	96	162	322	238	76	1543	151	189	1674	349
RTOR Reduction (vph)	0	0	76	0	0	186	0	10	0	0	0	43
Lane Group Flow (vph)	281	455	20	162	322	52	76	1684	0	189	1674	306
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	pt+ov
Protected Phases	7	7		8	8		5	2		1	6	6 7
Permitted Phases			7			8						
Actuated Green, G (s)	29.8	29.8	29.8	16.6	16.6	16.6	8.0	59.3		11.6	62.9	98.7
Effective Green, g (s)	29.8	29.8	29.8	16.6	16.6	16.6	8.0	59.3		11.6	62.9	98.7
Actuated g/C Ratio	0.21	0.21	0.21	0.12	0.12	0.12	0.06	0.42		0.08	0.45	0.70
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.7	6.0		4.7	6.0	
Vehicle Extension (s)	2.2	2.2	2.2	1.2	1.2	1.2	1.2	5.0		1.2	5.0	
Lane Grp Cap (vph)	730	753	336	209	419	187	196	2677		284	2284	1116
v/s Ratio Prot	0.08	c0.13		c0.09	0.09		0.02	0.27		c0.06	c0.33	0.19
v/s Ratio Perm			0.01			0.03						
v/c Ratio	0.38	0.60	0.06	0.78	0.77	0.28	0.39	0.63		0.67	0.73	0.27
Uniform Delay, d1	47.2	49.8	43.9	59.9	59.8	56.2	63.6	31.7		62.3	31.7	7.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.14	0.64	1.45
Incremental Delay, d2	0.2	1.0	0.0	15.0	7.5	0.3	0.5	1.1		2.8	1.3	0.0
Delay (s)	47.4	50.8	44.0	74.9	67.3	56.5	64.1	32.8		73.9	21.6	11.0
Level of Service	D	D	D	E	E	E	E	C		E	C	B
Approach Delay (s)		48.9			65.4			34.2			24.4	
Approach LOS		D			E			C			C	

Intersection Summary				
HCM 2000 Control Delay	36.6	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.71			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.7	
Intersection Capacity Utilization	78.4%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	174	544	147	113	348	155	142	1404	76	174	1552	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.8	5.8	4.6	5.8		4.6	6.2		4.6	6.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3376		1770	5046		1770	5042	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3376		1770	5046		1770	5042	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	183	573	155	119	366	163	149	1478	80	183	1634	98
RTOR Reduction (vph)	0	0	121	0	45	0	0	5	0	0	5	0
Lane Group Flow (vph)	183	573	34	119	484	0	149	1553	0	183	1727	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	15.7	26.6	26.6	12.2	23.1		15.0	44.8		15.2	45.0	
Effective Green, g (s)	15.7	26.6	26.6	12.2	23.1		15.0	44.8		15.2	45.0	
Actuated g/C Ratio	0.13	0.22	0.22	0.10	0.19		0.12	0.37		0.13	0.38	
Clearance Time (s)	4.6	5.8	5.8	4.6	5.8		4.6	6.2		4.6	6.2	
Vehicle Extension (s)	1.5	4.0	4.0	1.5	4.0		1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	231	784	350	179	649		221	1883		224	1890	
v/s Ratio Prot	0.10	c0.16		0.07	c0.14		0.08	c0.31		0.10	c0.34	
v/s Ratio Perm			0.02									
v/c Ratio	0.79	0.73	0.10	0.66	0.75		0.67	0.82		0.82	0.91	
Uniform Delay, d1	50.6	43.4	37.2	51.9	45.7		50.2	34.0		51.0	35.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.27	1.37		1.00	1.00	
Incremental Delay, d2	15.8	3.8	0.2	7.0	5.0		5.2	3.6		19.1	8.3	
Delay (s)	66.3	47.1	37.3	58.9	50.6		68.9	50.2		70.2	44.0	
Level of Service	E	D	D	E	D		E	D		E	D	
Approach Delay (s)		49.3			52.2			51.9			46.5	
Approach LOS		D			D			D			D	

Intersection Summary				
HCM 2000 Control Delay	49.5	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.85			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.2	
Intersection Capacity Utilization	82.3%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	166	797	76	106	407	228	69	1026	212	339	1146	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	6.2		4.7	6.2	6.2	4.7	6.2		4.7	6.2	
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00	1.00	0.91		0.97	0.91	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5019		1770	3539	1583	1770	4954		3433	5035	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5019		1770	3539	1583	1770	4954		3433	5035	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	171	822	78	109	420	235	71	1058	219	349	1181	84
RTOR Reduction (vph)	0	10	0	0	0	186	0	27	0	0	7	0
Lane Group Flow (vph)	171	890	0	109	420	49	71	1250	0	349	1258	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	14.8	28.6		11.3	25.1	25.1	10.1	42.0		16.3	48.2	
Effective Green, g (s)	14.8	28.6		11.3	25.1	25.1	10.1	42.0		16.3	48.2	
Actuated g/C Ratio	0.12	0.24		0.09	0.21	0.21	0.08	0.35		0.14	0.40	
Clearance Time (s)	4.7	6.2		4.7	6.2	6.2	4.7	6.2		4.7	6.2	
Vehicle Extension (s)	1.8	5.0		1.8	5.0	5.0	1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	218	1196		166	740	331	148	1733		466	2022	
v/s Ratio Prot	c0.10	c0.18		0.06	0.12		0.04	c0.25		c0.10	0.25	
v/s Ratio Perm						0.03						
v/c Ratio	0.78	0.74		0.66	0.57	0.15	0.48	0.72		0.75	0.62	
Uniform Delay, d1	51.1	42.3		52.5	42.6	38.7	52.4	33.9		49.9	28.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		0.49	0.88	
Incremental Delay, d2	15.5	3.1		6.9	1.6	0.4	0.9	2.6		3.0	0.8	
Delay (s)	66.6	45.4		59.4	44.2	39.2	53.3	36.5		27.5	26.1	
Level of Service	E	D		E	D	D	D	D		C	C	
Approach Delay (s)		48.8			44.8			37.4			26.4	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	37.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.8
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	124	376	52	45	286	234	28	543	90	254	824	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.5		4.7	5.5		4.7	6.2		4.7	6.2	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.98		1.00	0.93		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3475		1770	3300		1770	4977		1770	4991	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3475		1770	3300		1770	4977		1770	4991	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	133	404	56	48	308	252	30	584	97	273	886	125
RTOR Reduction (vph)	0	6	0	0	90	0	0	13	0	0	8	0
Lane Group Flow (vph)	133	454	0	48	470	0	30	668	0	273	1003	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	13.5	29.4		6.6	22.5		4.0	28.7		25.6	50.3	
Effective Green, g (s)	13.5	29.4		6.6	22.5		4.0	28.7		25.6	50.3	
Actuated g/C Ratio	0.12	0.26		0.06	0.20		0.04	0.26		0.23	0.45	
Clearance Time (s)	4.7	5.5		4.7	5.5		4.7	6.2		4.7	6.2	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	214	917		104	666		63	1282		406	2253	
v/s Ratio Prot	c0.08	0.13		0.03	c0.14		0.02	c0.13		c0.15	0.20	
v/s Ratio Perm												
v/c Ratio	0.62	0.50		0.46	0.71		0.48	0.52		0.67	0.45	
Uniform Delay, d1	46.5	34.7		50.7	41.4		52.7	35.5		39.1	21.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.0	0.2		1.2	2.8		2.1	0.7		3.4	0.3	
Delay (s)	50.5	34.9		51.9	44.2		54.7	36.2		42.5	21.3	
Level of Service	D	C		D	D		D	D		D	C	
Approach Delay (s)		38.4			44.8			37.0			25.8	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	34.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	111.4	Sum of lost time (s)	21.1
Intersection Capacity Utilization	66.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

9: Huntington Beach Parking/Beach Blvd & Pacific Coast Highway

AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	150	1948	10	4	937	275	5	5	5	581	37	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	6.0		4.5	6.0	6.0	5.0	5.0	5.0	5.0	5.0	4.0
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5081		1770	3539	1583	1770	3539	1583	3433	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5081		1770	3539	1583	1770	3539	1583	3433	1863	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	161	2095	11	4	1008	296	5	5	5	625	40	247
RTOR Reduction (vph)	0	0	0	0	0	149	0	0	5	0	0	0
Lane Group Flow (vph)	161	2106	0	4	1008	147	5	5	0	625	40	247
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases						2			4			Free
Actuated Green, G (s)	8.6	56.3		1.4	49.4	49.4	1.1	6.8	6.8	15.0	20.7	100.0
Effective Green, g (s)	8.6	56.3		1.4	49.4	49.4	1.1	6.8	6.8	15.0	20.7	100.0
Actuated g/C Ratio	0.09	0.56		0.01	0.49	0.49	0.01	0.07	0.07	0.15	0.21	1.00
Clearance Time (s)	4.2	6.0		4.5	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	1.5	4.6		2.0	4.5	4.5	2.0	1.8	1.8	2.0	1.8	
Lane Grp Cap (vph)	295	2860		24	1748	782	19	240	107	514	385	1583
v/s Ratio Prot	c0.05	c0.41		0.00	0.28		0.00	0.00		c0.18	0.02	
v/s Ratio Perm						0.09			0.00			c0.16
v/c Ratio	0.55	0.74		0.17	0.58	0.19	0.26	0.02	0.00	1.22	0.10	0.16
Uniform Delay, d1	43.8	16.3		48.7	17.9	14.1	49.0	43.5	43.4	42.5	32.1	0.0
Progression Factor	1.00	1.00		0.69	1.32	3.86	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	1.7		1.1	1.3	0.5	2.7	0.0	0.0	114.0	0.0	0.2
Delay (s)	44.9	18.0		34.7	24.9	55.0	51.7	43.5	43.4	156.5	32.2	0.2
Level of Service	D	B		C	C	D	D	D	D	F	C	A
Approach Delay (s)		19.9			31.7			46.2			108.7	
Approach LOS		B			C			D			F	

Intersection Summary			
HCM 2000 Control Delay	41.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

12: Huntington Beach Parking/Newland St & Pacific Coast Highway

AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	90	2393	0	0	978	30	4	3	1	174	1	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.7			5.7	5.7	4.2	4.2		4.2	4.2	
Lane Util. Factor	1.00	0.91			0.91	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00			1.00	0.85	1.00	0.96		1.00	0.85	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5085			5085	1583	1770	1793		1770	1585	
Flt Permitted	0.95	1.00			1.00	1.00	0.60	1.00		0.76	1.00	
Satd. Flow (perm)	1770	5085			5085	1583	1111	1793		1407	1585	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	97	2573	0	0	1052	32	4	3	1	187	1	160
RTOR Reduction (vph)	0	0	0	0	0	17	0	1	0	0	112	0
Lane Group Flow (vph)	97	2573	0	0	1052	15	4	3	0	187	49	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases			2			6	4			8		
Actuated Green, G (s)	8.1	60.1			48.0	48.0	30.0	30.0		30.0	30.0	
Effective Green, g (s)	8.1	60.1			48.0	48.0	30.0	30.0		30.0	30.0	
Actuated g/C Ratio	0.08	0.60			0.48	0.48	0.30	0.30		0.30	0.30	
Clearance Time (s)	4.0	5.7			5.7	5.7	4.2	4.2		4.2	4.2	
Vehicle Extension (s)	1.7	4.6			4.6	4.6	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	143	3056			2440	759	333	537		422	475	
v/s Ratio Prot	0.05	c0.51			0.21			0.00			0.03	
v/s Ratio Perm						0.01	0.00			c0.13		
v/c Ratio	0.68	0.84			0.43	0.02	0.01	0.01		0.44	0.10	
Uniform Delay, d1	44.7	16.1			17.0	13.7	24.6	24.5		28.3	25.3	
Progression Factor	1.06	1.27			1.59	5.10	1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.8	1.8			0.5	0.0	0.1	0.0		3.3	0.4	
Delay (s)	53.2	22.3			27.6	69.7	24.7	24.6		31.6	25.7	
Level of Service	D	C			C	E	C	C		C	C	
Approach Delay (s)		23.4			28.9			24.6			28.9	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.9
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	110	2448	17	17	911	48	2	7	2	147	24	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	5.7	5.7	3.7	5.7	5.7	4.2	4.2		4.6	4.6	4.6
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1801		1681	1708	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1770	1801		1681	1708	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	116	2577	18	18	959	51	2	7	2	155	25	117
RTOR Reduction (vph)	0	0	6	0	0	20	0	2	0	0	0	106
Lane Group Flow (vph)	116	2577	12	18	959	31	2	7	0	90	90	11
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	1	6		5	2		7	7		8	8	
Permitted Phases			6			2						8
Actuated Green, G (s)	10.6	68.2	68.2	2.6	60.2	60.2	1.2	1.2		9.8	9.8	9.8
Effective Green, g (s)	10.6	68.2	68.2	2.6	60.2	60.2	1.2	1.2		9.8	9.8	9.8
Actuated g/C Ratio	0.11	0.68	0.68	0.03	0.60	0.60	0.01	0.01		0.10	0.10	0.10
Clearance Time (s)	3.7	5.7	5.7	3.7	5.7	5.7	4.2	4.2		4.6	4.6	4.6
Vehicle Extension (s)	1.7	4.6	4.6	1.7	4.6	4.6	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	187	3467	1079	46	3061	952	21	21		164	167	155
v/s Ratio Prot	c0.07	c0.51		0.01	0.19		0.00	c0.00		c0.05	0.05	
v/s Ratio Perm			0.01			0.02						0.01
v/c Ratio	0.62	0.74	0.01	0.39	0.31	0.03	0.10	0.33		0.55	0.54	0.07
Uniform Delay, d1	42.8	10.3	5.1	47.9	9.8	8.1	48.9	49.0		43.0	42.9	41.0
Progression Factor	1.33	0.46	1.00	1.24	1.46	46.75	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.5	0.8	0.0	1.8	0.1	0.0	0.7	3.4		2.0	1.7	0.1
Delay (s)	59.5	5.5	5.1	61.4	14.3	377.6	49.6	52.4		45.0	44.6	41.1
Level of Service	E	A	A	E	B	F	D	D		D	D	D
Approach Delay (s)		7.8			33.2			51.9			43.3	
Approach LOS		A			C			D			D	

Intersection Summary				
HCM 2000 Control Delay	17.0	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.72			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.2	
Intersection Capacity Utilization	73.9%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	211	2391	0	8	886	300	2	10	1	548	4	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.7		4.5	5.7	5.7	4.5	4.5		6.0	6.0	6.0
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		0.97	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5085		1770	5085	1583	1770	1837		3433	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5085		1770	5085	1583	1770	1837		3433	1863	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	220	2491	0	8	923	312	2	10	1	571	4	133
RTOR Reduction (vph)	0	0	0	0	0	199	0	1	0	0	0	104
Lane Group Flow (vph)	220	2491	0	8	923	113	2	10	0	571	4	29
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases			6			2						3
Actuated Green, G (s)	18.8	53.8		1.2	36.2	36.2	2.4	2.4		21.9	21.9	21.9
Effective Green, g (s)	18.8	53.8		1.2	36.2	36.2	2.4	2.4		21.9	21.9	21.9
Actuated g/C Ratio	0.19	0.54		0.01	0.36	0.36	0.02	0.02		0.22	0.22	0.22
Clearance Time (s)	4.5	5.7		4.5	5.7	5.7	4.5	4.5		6.0	6.0	6.0
Vehicle Extension (s)	1.7	4.6		1.7	4.6	4.6	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	332	2735		21	1840	573	42	44		751	407	346
v/s Ratio Prot	c0.12	c0.49		0.00	0.18		0.00	c0.01		c0.17	0.00	
v/s Ratio Perm						0.07						0.02
v/c Ratio	0.66	0.91		0.38	0.50	0.20	0.05	0.23		0.76	0.01	0.08
Uniform Delay, d1	37.7	20.9		49.0	24.9	21.9	47.7	47.9		36.6	30.6	31.1
Progression Factor	1.30	0.86		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.9	4.1		4.2	1.0	0.8	0.2	1.0		4.1	0.0	0.0
Delay (s)	52.0	22.1		53.2	25.8	22.7	47.9	48.9		40.7	30.6	31.1
Level of Service	D	C		D	C	C	D	D		D	C	C
Approach Delay (s)		24.5			25.2			48.7			38.8	
Approach LOS		C			C			D			D	

Intersection Summary				
HCM 2000 Control Delay	26.9	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.86			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.7	
Intersection Capacity Utilization	85.3%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

Operating Year (2017) Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #10 Newland St & Atlanta Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.452
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	42	Level Of Service:	A

Street Name:	Newland Street						Atlanta Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1	1 0	1 0	1	1 0	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	117	278	38	138	358	75	65	485	237	29	352	135
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:	117	278	38	138	358	75	65	485	237	29	352	135
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:	117	278	38	138	358	75	65	485	237	29	352	135
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	117	278	38	138	358	75	65	485	237	29	352	135
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:	117	278	38	138	358	75	65	485	237	29	352	135
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.76	0.24	1.00	1.65	0.35	1.00	1.34	0.66	1.00	1.45	0.55
Final Sat.:	1600	2815	385	1600	2646	554	1600	2150	1050	1600	2313	887
Capacity Analysis Module:												
Vol/Sat:	0.07	0.10	0.10	0.09	0.14	0.14	0.04	0.23	0.23	0.02	0.15	0.15
Crit Moves:	****				****			****		****		

Operating Year (2017) Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #11 Newland St & Hamilton Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.494
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	45	Level Of Service:	A

Street Name:	Newland Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0	1 0	1 0	1	0 0	0 0	0	0 0	1 0	0	0 1
Volume Module:												
Base Vol:	0	75	108	412	234	0	0	0	0	105	0	196
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	75	108	412	234	0	0	0	0	105	0	196
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	75	108	412	234	0	0	0	0	105	0	196
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	75	108	412	234	0	0	0	0	105	0	196
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	75	108	412	234	0	0	0	0	105	0	196
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.41	0.59	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	656	944	1600	1600	0	0	0	0	1600	0	1600
Capacity Analysis Module:												
Vol/Sat:	0.00	0.11	0.11	0.26	0.15	0.00	0.00	0.00	0.00	0.07	0.00	0.12
Crit Moves:		****		****								****

Operating Year (2017) Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #13 Magnolia St & Hamilton Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.510
Loss Time (sec): 0 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 38 Level Of Service: A

Street Name:	Magnolia Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Prot+Permit			Prot+Permit			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0 1	1 0	1	0 2	0 1	1	0 0	1 0	1	0 1	0 1
Volume Module:												
Base Vol:	30	191	47	208	252	40	90	403	53	33	279	337
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	191	47	208	252	40	90	403	53	33	279	337
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	191	47	208	252	40	90	403	53	33	279	337
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	30	191	47	208	252	40	90	403	53	33	279	337
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:	30	191	47	208	252	40	90	403	53	33	279	337
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.61	0.39	1.00	2.00	1.00	1.00	0.88	0.12	1.00	1.00	1.00
Final Sat.:	1600	2568	632	1600	3200	1600	1600	1414	186	1600	1600	1600
Capacity Analysis Module:												
Vol/Sat:	0.02	0.07	0.07	0.13	0.08	0.03	0.06	0.28	0.29	0.02	0.17	0.21
Crit Moves:		****		****					****	****		

Operating Year (2017) Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #15 Brookhurst St & Hamilton Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.700
Loss Time (sec): 0 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 76 Level Of Service: C

Street Name:	Brookhurst Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Protected			Protected			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0 3	0 1	2	0 2	1 0	1	0 1	1 0	1	0 2	0 1
Volume Module:												
Base Vol:	72	442	341	496	475	126	94	799	50	107	432	288
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:	72	442	341	496	475	126	94	799	50	107	432	288
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:	72	442	341	496	475	126	94	799	50	107	432	288
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	72	442	341	496	475	126	94	799	50	107	432	288
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:	72	442	341	496	475	126	94	799	50	107	432	288
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	3.00	1.00	2.00	2.37	0.63	1.00	1.88	0.12	1.00	2.00	1.00
Final Sat.:	1600	4800	1600	3200	3794	1006	1600	3012	188	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.05	0.09	0.21	0.16	0.13	0.13	0.06	0.27	0.27	0.07	0.14	0.18
Crit Moves:			****	****				****		****		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	307	1227	0	2768	2595	920
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	4.5		6.0	6.0	4.0
Lane Util. Factor	0.97	0.88		0.86	0.86	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	2787		6408	6408	1583
Flt Permitted	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	2787		6408	6408	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	316	1265	0	2854	2675	948
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	316	1265	0	2854	2675	948
Turn Type	NA	custom		NA	NA	Free
Protected Phases	4	5		2	6	
Permitted Phases		4		5		Free
Actuated Green, G (s)	18.1	67.5		110.6	56.7	140.0
Effective Green, g (s)	18.1	67.5		110.6	56.7	140.0
Actuated g/C Ratio	0.13	0.48		0.79	0.40	1.00
Clearance Time (s)	5.3	4.5		6.0	6.0	
Vehicle Extension (s)	4.0	3.8		4.0	4.0	
Lane Grp Cap (vph)	443	1343		5062	2595	1583
v/s Ratio Prot	0.09	c0.33		0.45	c0.42	
v/s Ratio Perm		0.12				0.60
v/c Ratio	0.71	0.94		0.56	1.03	0.60
Uniform Delay, d1	58.5	34.4		5.6	41.6	0.0
Progression Factor	1.00	1.00		1.09	1.00	1.00
Incremental Delay, d2	5.7	13.2		0.1	26.2	1.7
Delay (s)	64.2	47.6		6.1	67.8	1.7
Level of Service	E	D		A	E	A
Approach Delay (s)	50.9			6.1	50.5	
Approach LOS	D			A	D	

Intersection Summary			
HCM 2000 Control Delay	34.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.8
Intersection Capacity Utilization	89.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	376	877	357	306	752	254	495	2122	646	440	2398	746
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.5	4.6	4.4	5.5	5.5	4.6	5.8	5.8	4.4	6.0	4.6
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.86	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	6408	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	6408	2787
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	388	904	368	315	775	262	510	2188	666	454	2472	769
RTOR Reduction (vph)	0	0	63	0	0	146	0	0	153	0	0	45
Lane Group Flow (vph)	388	904	305	315	775	116	510	2188	513	454	2472	724
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2		1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	13.8	29.0	44.0	13.0	28.0	28.0	15.0	63.9	63.9	14.0	62.5	76.3
Effective Green, g (s)	13.8	29.0	44.0	13.0	28.0	28.0	15.0	63.9	63.9	14.0	62.5	76.3
Actuated g/C Ratio	0.10	0.21	0.31	0.09	0.20	0.20	0.11	0.46	0.46	0.10	0.45	0.54
Clearance Time (s)	4.6	5.5	4.6	4.4	5.5	5.5	4.6	5.8	5.8	4.4	6.0	4.6
Vehicle Extension (s)	1.0	3.0	1.0	1.0	3.0	3.0	1.0	4.0	4.0	1.0	4.0	1.0
Lane Grp Cap (vph)	338	1053	497	318	707	316	367	2320	722	343	2860	1610
v/s Ratio Prot	c0.11	0.18	0.07	0.09	c0.22		c0.15	c0.43		c0.13	0.39	0.04
v/s Ratio Perm			0.13			0.07			0.32			0.22
v/c Ratio	1.15	0.86	0.61	0.99	1.10	0.37	1.39	0.94	0.71	1.32	0.86	0.45
Uniform Delay, d1	63.1	53.5	40.8	63.4	56.0	48.4	62.5	36.3	30.6	63.0	34.9	19.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.66	0.39	0.15	1.27	0.69	0.75
Incremental Delay, d2	95.4	7.1	1.6	47.7	63.2	0.7	179.8	3.0	1.6	151.1	1.0	0.0
Delay (s)	158.5	60.6	42.4	111.1	119.2	49.1	221.1	17.2	6.1	230.8	25.3	14.5
Level of Service	F	E	D	F	F	D	F	B	A	F	C	B
Approach Delay (s)		79.4			103.7			45.9			48.3	
Approach LOS		E			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	60.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	102.0%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	352	937	186	208	1020	198	317	2610	227	237	2181	304
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.3		4.2	5.3		4.2	5.3		4.2	5.3	5.3
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.86		0.97	0.86	1.00
Frt	1.00	0.98		1.00	0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	4959		3433	4961		3433	6331		3433	6408	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	4959		3433	4961		3433	6331		3433	6408	1583
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	356	946	188	210	1030	200	320	2636	229	239	2203	307
RTOR Reduction (vph)	0	21	0	0	20	0	0	10	0	0	0	126
Lane Group Flow (vph)	356	1113	0	210	1210	0	320	2855	0	239	2203	181
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	14.0	35.8		12.2	34.0		13.0	61.0		12.0	60.0	60.0
Effective Green, g (s)	14.0	35.8		12.2	34.0		13.0	61.0		12.0	60.0	60.0
Actuated g/C Ratio	0.10	0.26		0.09	0.24		0.09	0.44		0.09	0.43	0.43
Clearance Time (s)	4.2	5.3		4.2	5.3		4.2	5.3		4.2	5.3	5.3
Vehicle Extension (s)	1.1	3.0		1.1	3.0		1.1	6.0		1.1	6.0	6.0
Lane Grp Cap (vph)	343	1268		299	1204		318	2758		294	2746	678
v/s Ratio Prot	c0.10	0.22		0.06	c0.24		c0.09	c0.45		0.07	0.34	
v/s Ratio Perm												0.11
v/c Ratio	1.04	0.88		0.70	1.00		1.01	1.04		0.81	0.80	0.27
Uniform Delay, d1	63.0	50.0		62.1	53.0		63.5	39.5		62.9	34.8	25.8
Progression Factor	1.00	1.00		1.00	1.00		1.40	0.26		1.40	0.43	0.09
Incremental Delay, d2	58.8	7.2		6.0	27.1		16.7	17.5		8.1	1.3	0.5
Delay (s)	121.8	57.2		68.1	80.1		105.6	27.6		95.9	16.5	2.8
Level of Service	F	E		E	F		F	C		F	B	A
Approach Delay (s)		72.6			78.3			35.4			21.8	
Approach LOS		E			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	44.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	103.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	127	358	152	239	511	362	178	2556	194	270	2271	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.5		4.7	5.5		4.7	5.8		4.7	5.8	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.86		1.00	0.86	
Frt	1.00	0.96		1.00	0.94		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3381		1770	3319		1770	6340		1770	6364	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3381		1770	3319		1770	6340		1770	6364	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	131	369	157	246	527	373	184	2635	200	278	2341	111
RTOR Reduction (vph)	0	34	0	0	90	0	0	8	0	0	5	0
Lane Group Flow (vph)	131	492	0	246	810	0	184	2827	0	278	2447	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	13.2	25.3		20.7	32.8		15.0	49.3		24.0	58.3	
Effective Green, g (s)	13.2	25.3		20.7	32.8		15.0	49.3		24.0	58.3	
Actuated g/C Ratio	0.09	0.18		0.15	0.23		0.11	0.35		0.17	0.42	
Clearance Time (s)	4.7	5.5		4.7	5.5		4.7	5.8		4.7	5.8	
Vehicle Extension (s)	1.0	3.5		1.0	3.5		1.0	5.0		1.0	5.0	
Lane Grp Cap (vph)	166	610		261	777		189	2232		303	2650	
v/s Ratio Prot	0.07	c0.15		0.14	c0.24		0.10	c0.45		0.16	c0.38	
v/s Ratio Perm												
v/c Ratio	0.79	0.81		0.94	1.04		0.97	1.27		0.92	0.92	
Uniform Delay, d1	62.0	55.0		59.1	53.6		62.3	45.4		57.0	38.7	
Progression Factor	1.00	1.00		1.00	1.00		0.83	0.52		0.63	0.44	
Incremental Delay, d2	20.1	7.9		39.8	43.7		29.6	121.1		22.1	4.6	
Delay (s)	82.1	62.9		98.8	97.3		81.4	144.6		58.1	21.5	
Level of Service	F	E		F	F		F	F		E	C	
Approach Delay (s)		66.7			97.7			140.7			25.2	
Approach LOS		E			F			F			C	

Intersection Summary			
HCM 2000 Control Delay	86.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	108.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	423	480	172	169	455	245	181	2136	230	358	1848	408
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.7	6.0		4.7	6.0	6.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.86		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3539	1583	3433	6314		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3539	1583	3433	6314		3433	5085	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	441	500	179	176	474	255	189	2225	240	373	1925	425
RTOR Reduction (vph)	0	0	112	0	0	152	0	12	0	0	0	21
Lane Group Flow (vph)	441	500	67	176	474	103	189	2453	0	373	1925	404
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	pt+ov
Protected Phases	7	7		8	8		5	2		1	6	6 7
Permitted Phases			7			8						
Actuated Green, G (s)	30.5	30.5	30.5	21.2	21.2	21.2	10.7	48.7		16.9	54.9	91.4
Effective Green, g (s)	30.5	30.5	30.5	21.2	21.2	21.2	10.7	48.7		16.9	54.9	91.4
Actuated g/C Ratio	0.22	0.22	0.22	0.15	0.15	0.15	0.08	0.35		0.12	0.39	0.65
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.7	6.0		4.7	6.0	
Vehicle Extension (s)	2.2	2.2	2.2	1.2	1.2	1.2	1.2	5.0		1.2	5.0	
Lane Grp Cap (vph)	747	770	344	268	535	239	262	2196		414	1994	1033
v/s Ratio Prot	0.13	c0.14		0.10	c0.13		0.06	c0.39		c0.11	0.38	0.26
v/s Ratio Perm			0.04			0.07						
v/c Ratio	0.59	0.65	0.20	0.66	0.89	0.43	0.72	1.12		0.90	0.97	0.39
Uniform Delay, d1	49.1	49.9	44.7	56.0	58.2	53.9	63.2	45.6		60.7	41.6	11.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.94	1.51		1.26	0.51	0.52
Incremental Delay, d2	0.9	1.5	0.1	4.4	15.7	0.5	0.8	53.3		10.3	6.8	0.0
Delay (s)	50.1	51.4	44.9	60.3	73.9	54.4	60.1	122.1		86.5	28.1	6.0
Level of Service	D	D	D	E	E	D	E	F		F	C	A
Approach Delay (s)		49.8			65.8			117.7			32.6	
Approach LOS		D			E			F			C	

Intersection Summary				
HCM 2000 Control Delay	69.8	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	0.92			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.7	
Intersection Capacity Utilization	88.6%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	199	442	133	138	422	153	209	2102	109	218	1856	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.8	5.8	4.6	5.8		4.6	6.2		4.6	6.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3398		1770	5048		1770	5026	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3398		1770	5048		1770	5026	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	212	470	141	147	449	163	222	2236	116	232	1974	165
RTOR Reduction (vph)	0	0	108	0	26	0	0	4	0	0	7	0
Lane Group Flow (vph)	212	470	33	147	586	0	222	2348	0	232	2132	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	17.3	33.0	33.0	12.0	27.7		17.0	54.3		19.5	56.8	
Effective Green, g (s)	17.3	33.0	33.0	12.0	27.7		17.0	54.3		19.5	56.8	
Actuated g/C Ratio	0.12	0.24	0.24	0.09	0.20		0.12	0.39		0.14	0.41	
Clearance Time (s)	4.6	5.8	5.8	4.6	5.8		4.6	6.2		4.6	6.2	
Vehicle Extension (s)	1.5	4.0	4.0	1.5	4.0		1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	218	834	373	151	672		214	1957		246	2039	
v/s Ratio Prot	c0.12	0.13		0.08	c0.17		0.13	c0.47		0.13	c0.42	
v/s Ratio Perm			0.02									
v/c Ratio	0.97	0.56	0.09	0.97	0.87		1.04	1.20		0.94	1.05	
Uniform Delay, d1	61.1	47.2	41.8	63.8	54.4		61.5	42.8		59.7	41.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.64	0.51		1.10	1.74	
Incremental Delay, d2	52.6	1.1	0.1	64.6	12.2		60.5	93.6		26.0	27.7	
Delay (s)	113.7	48.2	41.9	128.4	66.7		99.7	115.3		91.7	100.2	
Level of Service	F	D	D	F	E		F	F		F	F	
Approach Delay (s)		64.0			78.6			114.0			99.4	
Approach LOS		E			E			F			F	

Intersection Summary				
HCM 2000 Control Delay	98.2	HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio	1.08			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.2	
Intersection Capacity Utilization	100.4%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	145	469	59	233	797	379	147	1510	152	351	1395	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	6.2		4.7	6.2	6.2	4.7	6.2		4.7	6.2	
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00	1.00	0.91		0.97	0.91	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5001		1770	3539	1583	1770	5016		3433	5010	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5001		1770	3539	1583	1770	5016		3433	5010	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	151	489	61	243	830	395	153	1573	158	366	1453	159
RTOR Reduction (vph)	0	11	0	0	0	230	0	8	0	0	9	0
Lane Group Flow (vph)	151	539	0	243	830	165	153	1723	0	366	1603	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	15.1	33.4		18.0	36.3	36.3	17.8	49.7		17.1	49.0	
Effective Green, g (s)	15.1	33.4		18.0	36.3	36.3	17.8	49.7		17.1	49.0	
Actuated g/C Ratio	0.11	0.24		0.13	0.26	0.26	0.13	0.36		0.12	0.35	
Clearance Time (s)	4.7	6.2		4.7	6.2	6.2	4.7	6.2		4.7	6.2	
Vehicle Extension (s)	1.8	5.0		1.8	5.0	5.0	1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	190	1193		227	917	410	225	1780		419	1753	
v/s Ratio Prot	0.09	0.11		c0.14	c0.23		0.09	c0.34		0.11	c0.32	
v/s Ratio Perm						0.10						
v/c Ratio	0.79	0.45		1.07	0.91	0.40	0.68	0.97		0.87	0.91	
Uniform Delay, d1	60.9	45.5		61.0	50.2	42.9	58.4	44.4		60.4	43.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.31	0.54	
Incremental Delay, d2	18.9	0.6		79.7	12.9	1.3	6.6	14.9		4.9	2.4	
Delay (s)	79.8	46.1		140.7	63.1	44.2	64.9	59.3		83.8	25.8	
Level of Service	E	D		F	E	D	E	E		F	C	
Approach Delay (s)		53.3			70.9			59.8			36.6	
Approach LOS		D			E			E			D	

Intersection Summary			
HCM 2000 Control Delay	54.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.8
Intersection Capacity Utilization	91.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	163	337	55	80	408	231	137	1244	115	340	799	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.5		4.7	5.5		4.7	6.2		4.7	6.2	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.98		1.00	0.95		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3465		1770	3348		1770	5021		1770	4951	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3465		1770	3348		1770	5021		1770	4951	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	175	362	59	86	439	248	147	1338	124	366	859	183
RTOR Reduction (vph)	0	7	0	0	47	0	0	5	0	0	15	0
Lane Group Flow (vph)	175	414	0	86	640	0	147	1457	0	366	1027	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	20.1	43.6		12.3	35.8		17.3	59.9		25.1	67.7	
Effective Green, g (s)	20.1	43.6		12.3	35.8		17.3	59.9		25.1	67.7	
Actuated g/C Ratio	0.12	0.27		0.08	0.22		0.11	0.37		0.15	0.42	
Clearance Time (s)	4.7	5.5		4.7	5.5		4.7	6.2		4.7	6.2	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	219	932		134	739		189	1856		274	2069	
v/s Ratio Prot	c0.10	0.12		0.05	c0.19		0.08	c0.29		c0.21	0.21	
v/s Ratio Perm												
v/c Ratio	0.80	0.44		0.64	0.87		0.78	0.78		1.34	0.50	
Uniform Delay, d1	69.0	49.1		72.7	60.8		70.5	45.3		68.4	34.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	17.1	0.1		7.6	10.1		16.6	2.6		173.8	0.4	
Delay (s)	86.0	49.3		80.3	70.9		87.1	48.0		242.3	35.0	
Level of Service	F	D		F	E		F	D		F	D	
Approach Delay (s)		60.1			72.0			51.5			88.9	
Approach LOS		E			E			D			F	

Intersection Summary			
HCM 2000 Control Delay	68.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	162.0	Sum of lost time (s)	21.1
Intersection Capacity Utilization	90.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

9: Huntington Beach Parking/Beach Blvd & Pacific Coast Highway

PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	381	1304	12	12	1800	772	10	29	18	374	20	301
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	6.0		4.5	6.0	6.0	5.0	5.0	5.0	5.0	5.0	4.0
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5079		1770	3539	1583	1770	3539	1583	3433	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5079		1770	3539	1583	1770	3539	1583	3433	1863	1583
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	428	1465	13	13	2022	867	11	33	20	420	22	338
RTOR Reduction (vph)	0	0	0	0	0	241	0	0	18	0	0	0
Lane Group Flow (vph)	428	1478	0	13	2022	626	11	33	2	420	22	338
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases						2			4			Free
Actuated Green, G (s)	22.7	72.1		2.8	52.5	52.5	1.3	9.6	9.6	15.0	23.3	120.0
Effective Green, g (s)	22.7	72.1		2.8	52.5	52.5	1.3	9.6	9.6	15.0	23.3	120.0
Actuated g/C Ratio	0.19	0.60		0.02	0.44	0.44	0.01	0.08	0.08	0.12	0.19	1.00
Clearance Time (s)	4.2	6.0		4.5	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	1.5	4.6		2.0	4.5	4.5	2.0	1.8	1.8	2.0	1.8	
Lane Grp Cap (vph)	649	3051		41	1548	692	19	283	126	429	361	1583
v/s Ratio Prot	c0.12	0.29		0.01	c0.57		0.01	0.01		c0.12	0.01	
v/s Ratio Perm						0.40			0.00			c0.21
v/c Ratio	0.66	0.48		0.32	1.31	0.90	0.58	0.12	0.01	0.98	0.06	0.21
Uniform Delay, d1	45.1	13.5		57.7	33.8	31.4	59.1	51.3	50.8	52.3	39.4	0.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.9	0.6		1.6	142.6	17.5	23.8	0.1	0.0	37.4	0.0	0.3
Delay (s)	46.9	14.0		59.3	176.3	48.9	82.9	51.3	50.9	89.7	39.5	0.3
Level of Service	D	B		E	F	D	F	D	D	F	D	A
Approach Delay (s)		21.4			137.7			56.6			49.5	
Approach LOS		C			F			E			D	

Intersection Summary			
HCM 2000 Control Delay	85.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	90.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

12: Huntington Beach Parking/Newland St & Pacific Coast Highway

PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	151	1522	4	6	2364	191	8	3	5	50	2	156
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.7	5.7	4.0	5.7	5.7	4.2	4.2		4.2	4.2	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1688		1770	1587	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.59	1.00		0.75	1.00	
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1097	1688		1402	1587	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	159	1602	4	6	2488	201	8	3	5	53	2	164
RTOR Reduction (vph)	0	0	2	0	0	105	0	4	0	0	115	0
Lane Group Flow (vph)	159	1602	2	6	2488	97	8	5	0	53	51	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases			2			6	4			8		
Actuated Green, G (s)	11.1	55.0	55.0	1.1	45.0	45.0	30.0	30.0		30.0	30.0	
Effective Green, g (s)	11.1	55.0	55.0	1.1	45.0	45.0	30.0	30.0		30.0	30.0	
Actuated g/C Ratio	0.11	0.55	0.55	0.01	0.45	0.45	0.30	0.30		0.30	0.30	
Clearance Time (s)	4.0	5.7	5.7	4.0	5.7	5.7	4.2	4.2		4.2	4.2	
Vehicle Extension (s)	1.7	4.6	4.6	1.7	4.6	4.6	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	196	2796	870	19	2288	712	329	506		420	476	
v/s Ratio Prot	c0.09	0.32		0.00	c0.49			0.00			0.03	
v/s Ratio Perm			0.00			0.06	0.01			c0.04		
v/c Ratio	0.81	0.57	0.00	0.32	1.09	0.14	0.02	0.01		0.13	0.11	
Uniform Delay, d1	43.4	14.8	10.1	49.1	27.5	16.1	24.7	24.6		25.5	25.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	20.9	0.9	0.0	3.5	47.4	0.4	0.1	0.0		0.6	0.5	
Delay (s)	64.3	15.6	10.1	52.5	74.9	16.5	24.8	24.6		26.1	25.8	
Level of Service	E	B	B	D	E	B	C	C		C	C	
Approach Delay (s)		20.0			70.5			24.7			25.8	
Approach LOS		C			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	49.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.9
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	105	1437	9	15	2577	192	10	26	15	83	18	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	5.7	5.7	3.7	5.7	5.7	4.2	4.2		4.6	4.6	4.6
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1759		1681	1715	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1770	1759		1681	1715	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	109	1497	9	16	2684	200	10	27	16	86	19	85
RTOR Reduction (vph)	0	0	3	0	0	50	0	15	0	0	0	79
Lane Group Flow (vph)	109	1497	6	16	2684	150	10	28	0	52	53	6
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	1	6		5	2		7	7		8	8	
Permitted Phases			6			2						8
Actuated Green, G (s)	11.5	85.3	85.3	2.6	76.4	76.4	5.7	5.7		8.2	8.2	8.2
Effective Green, g (s)	11.5	85.3	85.3	2.6	76.4	76.4	5.7	5.7		8.2	8.2	8.2
Actuated g/C Ratio	0.10	0.71	0.71	0.02	0.64	0.64	0.05	0.05		0.07	0.07	0.07
Clearance Time (s)	3.7	5.7	5.7	3.7	5.7	5.7	4.2	4.2		4.6	4.6	4.6
Vehicle Extension (s)	1.7	4.6	4.6	1.7	4.6	4.6	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	169	3614	1125	38	3237	1007	84	83		114	117	108
v/s Ratio Prot	c0.06	0.29		0.01	c0.53		0.01	c0.02		c0.03	0.03	
v/s Ratio Perm			0.00			0.09						0.00
v/c Ratio	0.64	0.41	0.01	0.42	0.83	0.15	0.12	0.33		0.46	0.45	0.05
Uniform Delay, d1	52.3	7.1	5.0	58.0	16.8	8.7	54.7	55.3		53.8	53.7	52.3
Progression Factor	1.00	1.00	1.00	0.66	1.31	2.62	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	6.2	0.4	0.0	0.7	0.6	0.0	0.2	0.9		1.1	1.0	0.1
Delay (s)	58.5	7.5	5.0	38.9	22.5	23.0	55.0	56.2		54.8	54.8	52.3
Level of Service	E	A	A	D	C	C	D	E		D	D	D
Approach Delay (s)		10.9			22.6			56.0			53.7	
Approach LOS		B			C			E			D	

Intersection Summary				
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.75			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.2	
Intersection Capacity Utilization	77.0%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	182	1314	1	16	2570	710	8	6	12	275	8	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.7	5.7	4.5	5.7	5.7	4.5	4.5		6.0	6.0	6.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1672		3433	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1770	1672		3433	1863	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	194	1398	1	17	2734	755	9	6	13	293	9	213
RTOR Reduction (vph)	0	0	0	0	0	178	0	13	0	0	0	183
Lane Group Flow (vph)	194	1398	1	17	2734	577	9	6	0	293	9	30
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases			6			2						3
Actuated Green, G (s)	18.0	76.1	76.1	2.7	60.8	60.8	3.6	3.6		16.9	16.9	16.9
Effective Green, g (s)	18.0	76.1	76.1	2.7	60.8	60.8	3.6	3.6		16.9	16.9	16.9
Actuated g/C Ratio	0.15	0.63	0.63	0.02	0.51	0.51	0.03	0.03		0.14	0.14	0.14
Clearance Time (s)	4.5	5.7	5.7	4.5	5.7	5.7	4.5	4.5		6.0	6.0	6.0
Vehicle Extension (s)	1.7	4.6	4.6	1.7	4.6	4.6	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	265	3224	1003	39	2576	802	53	50		483	262	222
v/s Ratio Prot	c0.11	0.27		0.01	c0.54		c0.01	0.00		c0.09	0.00	
v/s Ratio Perm			0.00			0.36						0.02
v/c Ratio	0.73	0.43	0.00	0.44	1.06	0.72	0.17	0.13		0.61	0.03	0.14
Uniform Delay, d1	48.7	11.1	8.0	57.9	29.6	23.0	56.7	56.7		48.4	44.5	45.1
Progression Factor	0.93	1.47	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	8.2	0.2	0.0	2.8	36.7	5.5	0.6	0.4		1.5	0.0	0.1
Delay (s)	53.6	16.5	8.0	60.7	66.3	28.5	57.3	57.1		49.9	44.5	45.3
Level of Service	D	B	A	E	E	C	E	E		D	D	D
Approach Delay (s)		21.0			58.1			57.2			47.9	
Approach LOS		C			E			E			D	

Intersection Summary				
HCM 2000 Control Delay	46.7	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.89			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.7	
Intersection Capacity Utilization	87.8%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

Operating Year (2015) Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #10 Newland St & Atlanta Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.514
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	47	Level Of Service:	A

Street Name:	Newland Street						Atlanta Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1	1 0	1 0	1	1 0	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	252	443	25	89	238	98	67	468	184	36	555	116
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:	252	443	25	89	238	98	67	468	184	36	555	116
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:	252	443	25	89	238	98	67	468	184	36	555	116
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	252	443	25	89	238	98	67	468	184	36	555	116
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:	252	443	25	89	238	98	67	468	184	36	555	116
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.89	0.11	1.00	1.42	0.58	1.00	1.44	0.56	1.00	1.65	0.35
Final Sat.:	1600	3029	171	1600	2267	933	1600	2297	903	1600	2647	553
Capacity Analysis Module:												
Vol/Sat:	0.16	0.15	0.15	0.06	0.10	0.11	0.04	0.20	0.20	0.02	0.21	0.21
Crit Moves:	****					****	****				****	

Operating Year (2015) Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #11 Newland St & Hamilton Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.626
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	61	Level Of Service:	B

Street Name:	Newland Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0	1 0	1 0	1	0 0	0 0	0	0 0	1 0	0	0 1
Volume Module:												
Base Vol:	0	283	65	238	120	0	0	0	0	139	0	416
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	283	65	238	120	0	0	0	0	139	0	416
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	283	65	238	120	0	0	0	0	139	0	416
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	283	65	238	120	0	0	0	0	139	0	416
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	283	65	238	120	0	0	0	0	139	0	416
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.81	0.19	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	1301	299	1600	1600	0	0	0	0	1600	0	1600
Capacity Analysis Module:												
Vol/Sat:	0.00	0.22	0.22	0.15	0.08	0.00	0.00	0.00	0.00	0.09	0.00	0.26
Crit Moves:		****		****								****

Operating Year (2015) Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #13 Magnolia St & Hamilton Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.579
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	44	Level Of Service:	A

Street Name:	Magnolia Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Prot+Permit			Prot+Permit			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0 1	1 0	1	0 2	0 1	1	0 0	1 0	1	0 1	0 1
Volume Module:												
Base Vol:	28	304	26	204	180	29	31	307	35	34	527	326
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	304	26	204	180	29	31	307	35	34	527	326
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	304	26	204	180	29	31	307	35	34	527	326
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	28	304	26	204	180	29	31	307	35	34	527	326
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:	28	304	26	204	180	29	31	307	35	34	527	326
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.84	0.16	1.00	2.00	1.00	1.00	0.90	0.10	1.00	1.00	1.00
Final Sat.:	1600	2948	252	1600	3200	1600	1600	1436	164	1600	1600	1600
Capacity Analysis Module:												
Vol/Sat:	0.02	0.10	0.10	0.13	0.06	0.02	0.02	0.21	0.21	0.02	0.33	0.20
Crit Moves:		****		****			****				****	

Operating Year (2015) Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #15 Brookhurst St & Hamilton Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.644
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	64	Level Of Service:	B

Street Name:	Brookhurst Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Protected			Protected			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0 3	0 1	2	0 2	1 0	1	0 1	1 0	1	0 2	0 1
Volume Module:												
Base Vol:	88	624	184	354	444	98	99	387	69	268	1039	546
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	624	184	354	444	98	99	387	69	268	1039	546
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	624	184	354	444	98	99	387	69	268	1039	546
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	88	624	184	354	444	98	99	387	69	268	1039	546
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	624	184	354	444	98	99	387	69	268	1039	546
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	3.00	1.00	2.00	2.46	0.54	1.00	1.70	0.30	1.00	2.00	1.00
Final Sat.:	1600	4800	1600	3200	3932	868	1600	2716	484	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.06	0.13	0.12	0.11	0.11	0.11	0.06	0.14	0.14	0.17	0.32	0.34
Crit Moves:		****		****			****					****

APPENDIX H: PROJECT OPERATING YEAR (2017) PLUS PROJECT LOS RESULTS

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	112	831	0	2474	3089	853
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	4.5		6.0	6.0	4.0
Lane Util. Factor	0.97	0.88		0.86	0.86	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	2787		6408	6408	1583
Flt Permitted	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	2787		6408	6408	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	119	884	0	2632	3286	907
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	119	884	0	2632	3286	907
Turn Type	NA	custom		NA	NA	Free
Protected Phases	4	5		2	6	
Permitted Phases		4		5		Free
Actuated Green, G (s)	13.2	52.2		115.5	72.0	140.0
Effective Green, g (s)	13.2	52.2		115.5	72.0	140.0
Actuated g/C Ratio	0.09	0.37		0.82	0.51	1.00
Clearance Time (s)	5.3	4.5		6.0	6.0	
Vehicle Extension (s)	4.0	3.8		4.0	4.0	
Lane Grp Cap (vph)	323	1039		5286	3295	1583
v/s Ratio Prot	0.03	c0.24		0.41	c0.51	
v/s Ratio Perm		0.08				0.57
v/c Ratio	0.37	0.85		0.50	1.00	0.57
Uniform Delay, d1	59.5	40.3		3.6	33.9	0.0
Progression Factor	1.00	1.00		1.03	1.00	1.00
Incremental Delay, d2	1.0	7.0		0.0	15.1	1.5
Delay (s)	60.5	47.4		3.8	49.0	1.5
Level of Service	E	D		A	D	A
Approach Delay (s)	48.9			3.8	38.7	
Approach LOS	D			A	D	

Intersection Summary			
HCM 2000 Control Delay	28.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.8
Intersection Capacity Utilization	82.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	322	974	231	168	550	310	183	1828	354	471	2765	609
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.5	4.6	4.4	5.5	5.5	4.6	5.8	5.8	4.4	6.0	4.6
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.86	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	6408	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	6408	2787
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	343	1036	246	179	585	330	195	1945	377	501	2941	648
RTOR Reduction (vph)	0	0	66	0	0	221	0	0	150	0	0	42
Lane Group Flow (vph)	343	1036	180	179	585	109	195	1945	227	501	2941	606
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2		1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	14.3	28.0	40.2	13.0	26.5	26.5	12.2	57.9	57.9	21.0	66.3	80.6
Effective Green, g (s)	14.3	28.0	40.2	13.0	26.5	26.5	12.2	57.9	57.9	21.0	66.3	80.6
Actuated g/C Ratio	0.10	0.20	0.29	0.09	0.19	0.19	0.09	0.41	0.41	0.15	0.47	0.58
Clearance Time (s)	4.6	5.5	4.6	4.4	5.5	5.5	4.6	5.8	5.8	4.4	6.0	4.6
Vehicle Extension (s)	1.0	3.0	1.0	1.0	3.0	3.0	1.0	4.0	4.0	1.0	4.0	1.0
Lane Grp Cap (vph)	350	1017	454	318	669	299	299	2103	654	514	3034	1696
v/s Ratio Prot	0.10	c0.20	0.03	0.05	c0.17		0.06	c0.38		0.15	c0.46	0.04
v/s Ratio Perm			0.08			0.07			0.14			0.18
v/c Ratio	0.98	1.02	0.40	0.56	0.87	0.37	0.65	0.92	0.35	0.97	0.97	0.36
Uniform Delay, d1	62.7	56.0	40.2	60.8	55.1	49.4	61.8	39.0	28.1	59.2	35.9	15.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.73	0.58	0.14	1.24	0.65	0.73
Incremental Delay, d2	42.5	33.0	0.2	1.4	12.2	0.8	3.2	7.2	1.2	17.1	4.7	0.0
Delay (s)	105.2	89.0	40.4	62.1	67.3	50.2	48.3	29.9	5.3	90.5	28.0	11.6
Level of Service	F	F	D	E	E	D	D	C	A	F	C	B
Approach Delay (s)		85.1			61.3			27.6			33.1	
Approach LOS		F			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	44.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	96.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	235	1235	129	214	668	78	133	1682	146	392	2273	232
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.3		4.2	5.3		4.2	5.3		4.2	5.3	5.3
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.86		0.97	0.86	1.00
Frt	1.00	0.99		1.00	0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	5013		3433	5005		3433	6331		3433	6408	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	5013		3433	5005		3433	6331		3433	6408	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	240	1260	132	218	682	80	136	1716	149	400	2319	237
RTOR Reduction (vph)	0	9	0	0	10	0	0	10	0	0	0	93
Lane Group Flow (vph)	240	1383	0	218	752	0	136	1855	0	400	2319	144
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	14.9	38.6		10.0	33.7		13.0	56.4		16.0	59.4	59.4
Effective Green, g (s)	14.9	38.6		10.0	33.7		13.0	56.4		16.0	59.4	59.4
Actuated g/C Ratio	0.11	0.28		0.07	0.24		0.09	0.40		0.11	0.42	0.42
Clearance Time (s)	4.2	5.3		4.2	5.3		4.2	5.3		4.2	5.3	5.3
Vehicle Extension (s)	1.1	3.0		1.1	3.0		1.1	6.0		1.1	6.0	6.0
Lane Grp Cap (vph)	365	1382		245	1204		318	2550		392	2718	671
v/s Ratio Prot	0.07	c0.28		c0.06	0.15		0.04	0.29		c0.12	c0.36	
v/s Ratio Perm												0.09
v/c Ratio	0.66	1.00		0.89	0.62		0.43	0.73		1.02	0.85	0.22
Uniform Delay, d1	60.1	50.7		64.5	47.5		60.0	35.3		62.0	36.4	25.5
Progression Factor	1.00	1.00		1.00	1.00		1.37	0.26		1.45	0.42	0.19
Incremental Delay, d2	3.2	24.4		29.3	1.0		0.2	1.2		33.9	1.5	0.3
Delay (s)	63.3	75.1		93.7	48.5		82.5	10.2		123.6	16.9	5.2
Level of Service	E	E		F	D		F	B		F	B	A
Approach Delay (s)		73.4			58.6			15.1			30.4	
Approach LOS		E			E			B			C	

Intersection Summary			
HCM 2000 Control Delay	39.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	94.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

4: Beach Blvd & Talbert Ave

AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	81	395	117	142	344	131	164	1826	117	296	2217	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.5		4.7	5.5		4.7	5.8		4.7	5.8	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.86		1.00	0.86	
Frt	1.00	0.97		1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3418		1770	3393		1770	6350		1770	6349	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3418		1770	3393		1770	6350		1770	6349	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	84	411	122	148	358	136	171	1902	122	308	2309	151
RTOR Reduction (vph)	0	20	0	0	29	0	0	7	0	0	7	0
Lane Group Flow (vph)	84	513	0	148	465	0	171	2017	0	308	2453	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	12.0	25.8		13.9	27.7		13.3	55.5		24.1	66.3	
Effective Green, g (s)	12.0	25.8		13.9	27.7		13.3	55.5		24.1	66.3	
Actuated g/C Ratio	0.09	0.18		0.10	0.20		0.10	0.40		0.17	0.47	
Clearance Time (s)	4.7	5.5		4.7	5.5		4.7	5.8		4.7	5.8	
Vehicle Extension (s)	1.0	3.5		1.0	3.5		1.0	5.0		1.0	5.0	
Lane Grp Cap (vph)	151	629		175	671		168	2517		304	3006	
v/s Ratio Prot	0.05	c0.15		c0.08	0.14		c0.10	0.32		c0.17	c0.39	
v/s Ratio Perm												
v/c Ratio	0.56	0.81		0.85	0.69		1.02	0.80		1.01	0.82	
Uniform Delay, d1	61.4	54.8		62.0	52.2		63.4	37.4		58.0	31.6	
Progression Factor	1.00	1.00		1.00	1.00		0.81	0.54		0.64	0.32	
Incremental Delay, d2	2.5	8.2		28.5	3.2		65.8	2.2		41.1	1.4	
Delay (s)	64.0	63.0		90.5	55.4		117.3	22.5		78.1	11.6	
Level of Service	E	E		F	E		F	C		E	B	
Approach Delay (s)		63.1			63.5			29.9			19.0	
Approach LOS		E			E			C			B	

Intersection Summary			
HCM 2000 Control Delay	31.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

5: Beach Blvd & Main St/Ellis Ave

AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	267	432	91	154	306	226	72	1613	143	180	1747	332
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.7	6.0		4.7	6.0	6.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.86		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3539	1583	3433	6329		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3539	1583	3433	6329		3433	5085	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	281	455	96	162	322	238	76	1698	151	189	1839	349
RTOR Reduction (vph)	0	0	76	0	0	186	0	9	0	0	0	43
Lane Group Flow (vph)	281	455	20	162	322	52	76	1840	0	189	1839	306
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	pt+ov
Protected Phases	7	7		8	8		5	2		1	6	6 7
Permitted Phases			7			8						
Actuated Green, G (s)	29.8	29.8	29.8	16.6	16.6	16.6	8.0	59.3		11.6	62.9	98.7
Effective Green, g (s)	29.8	29.8	29.8	16.6	16.6	16.6	8.0	59.3		11.6	62.9	98.7
Actuated g/C Ratio	0.21	0.21	0.21	0.12	0.12	0.12	0.06	0.42		0.08	0.45	0.70
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.7	6.0		4.7	6.0	
Vehicle Extension (s)	2.2	2.2	2.2	1.2	1.2	1.2	1.2	5.0		1.2	5.0	
Lane Grp Cap (vph)	730	753	336	209	419	187	196	2680		284	2284	1116
v/s Ratio Prot	0.08	c0.13		c0.09	0.09		0.02	0.29		c0.06	c0.36	0.19
v/s Ratio Perm			0.01			0.03						
v/c Ratio	0.38	0.60	0.06	0.78	0.77	0.28	0.39	0.69		0.67	0.81	0.27
Uniform Delay, d1	47.2	49.8	43.9	59.9	59.8	56.2	63.6	32.8		62.3	33.3	7.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.17	0.62	1.29
Incremental Delay, d2	0.2	1.0	0.0	15.0	7.5	0.3	0.5	1.5		2.5	1.8	0.0
Delay (s)	47.4	50.8	44.0	74.9	67.3	56.5	64.1	34.3		75.6	22.3	9.8
Level of Service	D	D	D	E	E	E	E	C		E	C	A
Approach Delay (s)		48.9			65.4			35.4			24.7	
Approach LOS		D			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	36.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.7
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

6: Beach Blvd & Garfield Ave

AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	174	544	147	113	348	155	142	1551	76	174	1709	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.8	5.8	4.6	5.8		4.6	6.2		4.6	6.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3376		1770	5050		1770	5046	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3376		1770	5050		1770	5046	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	183	573	155	119	366	163	149	1633	80	183	1799	98
RTOR Reduction (vph)	0	0	121	0	45	0	0	4	0	0	4	0
Lane Group Flow (vph)	183	573	34	119	484	0	149	1709	0	183	1893	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	15.7	26.6	26.6	12.2	23.1		16.2	44.8		15.2	43.8	
Effective Green, g (s)	15.7	26.6	26.6	12.2	23.1		16.2	44.8		15.2	43.8	
Actuated g/C Ratio	0.13	0.22	0.22	0.10	0.19		0.13	0.37		0.13	0.36	
Clearance Time (s)	4.6	5.8	5.8	4.6	5.8		4.6	6.2		4.6	6.2	
Vehicle Extension (s)	1.5	4.0	4.0	1.5	4.0		1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	231	784	350	179	649		238	1885		224	1841	
v/s Ratio Prot	0.10	c0.16		0.07	c0.14		0.08	c0.34		0.10	c0.38	
v/s Ratio Perm			0.02									
v/c Ratio	0.79	0.73	0.10	0.66	0.75		0.63	0.91		0.82	1.03	
Uniform Delay, d1	50.6	43.4	37.2	51.9	45.7		49.0	35.6		51.0	38.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.26	1.35		1.00	1.00	
Incremental Delay, d2	15.8	3.8	0.2	7.0	5.0		2.9	6.2		19.1	28.5	
Delay (s)	66.3	47.1	37.3	58.9	50.6		64.8	54.4		70.2	66.6	
Level of Service	E	D	D	E	D		E	D		E	E	
Approach Delay (s)		49.3			52.2			55.2			66.9	
Approach LOS		D			D			E			E	

Intersection Summary				
HCM 2000 Control Delay	58.3	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	0.92			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.2	
Intersection Capacity Utilization	85.3%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

7: Beach Blvd & Adams Ave

AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	166	797	76	106	407	228	69	1173	212	339	1303	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	6.2		4.7	6.2	6.2	4.7	6.2		4.7	6.2	
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00	1.00	0.91		0.97	0.91	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5019		1770	3539	1583	1770	4968		3433	5040	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5019		1770	3539	1583	1770	4968		3433	5040	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	171	822	78	109	420	235	71	1209	219	349	1343	84
RTOR Reduction (vph)	0	10	0	0	0	182	0	22	0	0	5	0
Lane Group Flow (vph)	171	890	0	109	420	53	71	1406	0	349	1422	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	13.6	28.6		10.8	25.8	25.8	9.8	43.2		15.6	49.0	
Effective Green, g (s)	13.6	28.6		10.8	25.8	25.8	9.8	43.2		15.6	49.0	
Actuated g/C Ratio	0.11	0.24		0.09	0.22	0.22	0.08	0.36		0.13	0.41	
Clearance Time (s)	4.7	6.2		4.7	6.2	6.2	4.7	6.2		4.7	6.2	
Vehicle Extension (s)	1.8	5.0		1.8	5.0	5.0	1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	200	1196		159	760	340	144	1788		446	2058	
v/s Ratio Prot	c0.10	c0.18		0.06	0.12		0.04	c0.28		0.10	c0.28	
v/s Ratio Perm						0.03						
v/c Ratio	0.86	0.74		0.69	0.55	0.16	0.49	0.79		0.78	0.69	
Uniform Delay, d1	52.2	42.3		53.0	42.0	38.3	52.7	34.3		50.6	29.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		0.47	0.90	
Incremental Delay, d2	27.3	3.1		9.4	1.5	0.4	1.0	3.6		2.8	0.6	
Delay (s)	79.5	45.4		62.3	43.4	38.7	53.7	37.9		26.7	27.1	
Level of Service	E	D		E	D	D	D	D		C	C	
Approach Delay (s)		50.8			44.7			38.6			27.0	
Approach LOS		D			D			D			C	

Intersection Summary				
HCM 2000 Control Delay	38.0	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.80			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.8	
Intersection Capacity Utilization	80.7%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis — Operating Year (2017) Plus (Full Removal)
8: Beach Blvd & Atlanta Ave — AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	124	376	52	45	286	234	28	690	90	264	971	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.5		4.7	5.5		4.7	6.2		4.7	6.2	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.98		1.00	0.93		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3475		1770	3300		1770	4997		1770	5004	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3475		1770	3300		1770	4997		1770	5004	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	133	404	56	48	308	252	30	742	97	284	1044	125
RTOR Reduction (vph)	0	6	0	0	91	0	0	9	0	0	6	0
Lane Group Flow (vph)	133	454	0	48	469	0	30	830	0	284	1163	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	14.0	31.0		6.8	23.8		4.1	35.5		25.6	57.0	
Effective Green, g (s)	14.0	31.0		6.8	23.8		4.1	35.5		25.6	57.0	
Actuated g/C Ratio	0.12	0.26		0.06	0.20		0.03	0.30		0.21	0.48	
Clearance Time (s)	4.7	5.5		4.7	5.5		4.7	6.2		4.7	6.2	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	206	897		100	654		60	1478		377	2376	
v/s Ratio Prot	c0.08	0.13		0.03	c0.14		0.02	c0.17		c0.16	0.23	
v/s Ratio Perm												
v/c Ratio	0.65	0.51		0.48	0.72		0.50	0.56		0.75	0.49	
Uniform Delay, d1	50.6	38.0		54.9	45.0		56.9	35.7		44.2	21.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.1	0.2		1.3	3.1		2.4	0.8		7.4	0.3	
Delay (s)	55.8	38.1		56.2	48.1		59.3	36.5		51.6	21.9	
Level of Service	E	D		E	D		E	D		D	C	
Approach Delay (s)		42.1			48.7			37.3			27.7	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	36.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.1
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis — Operating Year (2017) Plus (Full Removal)
9: Huntington Beach Parking/Beach Blvd & Pacific Coast Highway — AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	150	1948	10	4	937	422	5	5	5	728	37	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	6.0		4.5	6.0	6.0	5.0	5.0	5.0	5.0	5.0	4.0
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5081		1770	3539	1583	1770	3539	1583	3433	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5081		1770	3539	1583	1770	3539	1583	3433	1863	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	161	2095	11	4	1008	454	5	5	5	783	40	247
RTOR Reduction (vph)	0	0	0	0	0	228	0	0	5	0	0	0
Lane Group Flow (vph)	161	2106	0	4	1008	226	5	5	0	783	40	247
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases						2			4			Free
Actuated Green, G (s)	8.6	56.3		1.4	49.4	49.4	1.1	6.8	6.8	15.0	20.7	100.0
Effective Green, g (s)	8.6	56.3		1.4	49.4	49.4	1.1	6.8	6.8	15.0	20.7	100.0
Actuated g/C Ratio	0.09	0.56		0.01	0.49	0.49	0.01	0.07	0.07	0.15	0.21	1.00
Clearance Time (s)	4.2	6.0		4.5	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	1.5	4.6		2.0	4.5	4.5	2.0	1.8	1.8	2.0	1.8	
Lane Grp Cap (vph)	295	2860		24	1748	782	19	240	107	514	385	1583
v/s Ratio Prot	c0.05	c0.41		0.00	0.28		0.00	0.00		c0.23	0.02	
v/s Ratio Perm						0.14			0.00			c0.16
v/c Ratio	0.55	0.74		0.17	0.58	0.29	0.26	0.02	0.00	1.52	0.10	0.16
Uniform Delay, d1	43.8	16.3		48.7	17.9	14.9	49.0	43.5	43.4	42.5	32.1	0.0
Progression Factor	1.00	1.00		0.76	1.07	4.26	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	1.7		1.1	1.2	0.8	2.7	0.0	0.0	245.3	0.0	0.2
Delay (s)	44.9	18.0		38.2	20.3	64.5	51.7	43.5	43.4	287.8	32.2	0.2
Level of Service	D	B		D	C	E	D	D	D	F	C	A
Approach Delay (s)		19.9			34.1			46.2			211.9	
Approach LOS		B			C			D			F	

Intersection Summary			
HCM 2000 Control Delay	66.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	84.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

12: Huntington Beach Parking/Newland St & Pacific Coast Highway

AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	237	2393	0	0	1125	30	4	3	1	174	1	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.7			5.7	5.7	4.2	4.2		4.2	4.2	
Lane Util. Factor	1.00	0.91			0.91	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00			1.00	0.85	1.00	0.96		1.00	0.85	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5085			5085	1583	1770	1793		1770	1585	
Flt Permitted	0.95	1.00			1.00	1.00	0.60	1.00		0.76	1.00	
Satd. Flow (perm)	1770	5085			5085	1583	1111	1793		1407	1585	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	255	2573	0	0	1210	32	4	3	1	187	1	160
RTOR Reduction (vph)	0	0	0	0	0	18	0	1	0	0	112	0
Lane Group Flow (vph)	255	2573	0	0	1210	14	4	3	0	187	49	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases			2			6	4			8		
Actuated Green, G (s)	12.0	60.1			44.1	44.1	30.0	30.0		30.0	30.0	
Effective Green, g (s)	12.0	60.1			44.1	44.1	30.0	30.0		30.0	30.0	
Actuated g/C Ratio	0.12	0.60			0.44	0.44	0.30	0.30		0.30	0.30	
Clearance Time (s)	4.0	5.7			5.7	5.7	4.2	4.2		4.2	4.2	
Vehicle Extension (s)	1.7	4.6			4.6	4.6	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	212	3056			2242	698	333	537		422	475	
v/s Ratio Prot	c0.14	c0.51			0.24			0.00			0.03	
v/s Ratio Perm						0.01	0.00			c0.13		
v/c Ratio	1.20	0.84			0.54	0.02	0.01	0.01		0.44	0.10	
Uniform Delay, d1	44.0	16.1			20.5	15.8	24.6	24.5		28.3	25.3	
Progression Factor	0.98	1.33			1.52	4.28	1.00	1.00		1.00	1.00	
Incremental Delay, d2	109.3	1.3			0.9	0.1	0.1	0.0		3.3	0.4	
Delay (s)	152.4	22.8			32.0	67.5	24.7	24.6		31.6	25.7	
Level of Service	F	C			C	E	C	C		C	C	
Approach Delay (s)		34.5			33.0			24.6			28.9	
Approach LOS		C			C			C			C	

Intersection Summary				
HCM 2000 Control Delay	33.6	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.78			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.9	
Intersection Capacity Utilization	77.5%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

14: Magnolia Ave & Pacific Coast Highway

AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	110	2448	17	17	911	48	2	7	2	147	24	258
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	5.7	5.7	3.7	5.7	5.7	4.2	4.2		4.6	4.6	4.6
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1801		1681	1708	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1770	1801		1681	1708	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	116	2577	18	18	959	51	2	7	2	155	25	272
RTOR Reduction (vph)	0	0	6	0	0	20	0	2	0	0	0	245
Lane Group Flow (vph)	116	2577	12	18	959	31	2	7	0	90	90	27
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	1	6		5	2		7	7		8	8	
Permitted Phases			6			2						8
Actuated Green, G (s)	10.6	68.0	68.0	2.6	60.0	60.0	1.2	1.2		10.0	10.0	10.0
Effective Green, g (s)	10.6	68.0	68.0	2.6	60.0	60.0	1.2	1.2		10.0	10.0	10.0
Actuated g/C Ratio	0.11	0.68	0.68	0.03	0.60	0.60	0.01	0.01		0.10	0.10	0.10
Clearance Time (s)	3.7	5.7	5.7	3.7	5.7	5.7	4.2	4.2		4.6	4.6	4.6
Vehicle Extension (s)	1.7	4.6	4.6	1.7	4.6	4.6	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	187	3457	1076	46	3051	949	21	21		168	170	158
v/s Ratio Prot	c0.07	c0.51		0.01	0.19		0.00	c0.00		c0.05	0.05	
v/s Ratio Perm			0.01			0.02						0.02
v/c Ratio	0.62	0.75	0.01	0.39	0.31	0.03	0.10	0.33		0.54	0.53	0.17
Uniform Delay, d1	42.8	10.4	5.2	47.9	9.9	8.2	48.9	49.0		42.8	42.8	41.2
Progression Factor	1.33	0.46	1.00	1.21	1.46	47.21	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.5	0.8	0.0	1.8	0.1	0.0	0.7	3.4		1.6	1.4	0.2
Delay (s)	59.4	5.6	5.2	60.0	14.5	385.2	49.6	52.4		44.4	44.1	41.4
Level of Service	E	A	A	E	B	F	D	D		D	D	D
Approach Delay (s)		7.9			33.7			51.9			42.5	
Approach LOS		A			C			D			D	

Intersection Summary				
HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.72			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.2	
Intersection Capacity Utilization	73.9%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	211	2391	0	8	886	300	2	10	1	548	4	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.7		4.5	5.7	5.7	4.5	4.5		6.0	6.0	6.0
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		0.97	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5085		1770	5085	1583	1770	1837		3433	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5085		1770	5085	1583	1770	1837		3433	1863	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	220	2491	0	8	923	312	2	10	1	571	4	133
RTOR Reduction (vph)	0	0	0	0	0	199	0	1	0	0	0	104
Lane Group Flow (vph)	220	2491	0	8	923	113	2	10	0	571	4	29
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases			6			2						3
Actuated Green, G (s)	18.8	53.8		1.2	36.2	36.2	2.4	2.4		21.9	21.9	21.9
Effective Green, g (s)	18.8	53.8		1.2	36.2	36.2	2.4	2.4		21.9	21.9	21.9
Actuated g/C Ratio	0.19	0.54		0.01	0.36	0.36	0.02	0.02		0.22	0.22	0.22
Clearance Time (s)	4.5	5.7		4.5	5.7	5.7	4.5	4.5		6.0	6.0	6.0
Vehicle Extension (s)	1.7	4.6		1.7	4.6	4.6	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	332	2735		21	1840	573	42	44		751	407	346
v/s Ratio Prot	c0.12	c0.49		0.00	0.18		0.00	c0.01		c0.17	0.00	
v/s Ratio Perm						0.07						0.02
v/c Ratio	0.66	0.91		0.38	0.50	0.20	0.05	0.23		0.76	0.01	0.08
Uniform Delay, d1	37.7	20.9		49.0	24.9	21.9	47.7	47.9		36.6	30.6	31.1
Progression Factor	1.30	0.87		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.9	4.1		4.2	1.0	0.8	0.2	1.0		4.1	0.0	0.0
Delay (s)	51.8	22.2		53.2	25.8	22.7	47.9	48.9		40.7	30.6	31.1
Level of Service	D	C		D	C	C	D	D		D	C	C
Approach Delay (s)		24.6			25.2			48.7			38.8	
Approach LOS		C			C			D			D	

Intersection Summary				
HCM 2000 Control Delay	27.0	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.86			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.7	
Intersection Capacity Utilization	85.3%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				


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Default Scenario            Tue May 28, 2013 11:15:48                  Page 3-1
-------------------------------------------------------------------------------
         Operating Year (2017) Plus Project (Full Removal) Conditions
                                   AM Peak
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
        ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)
*******************************************************************************
Intersection #10 Newland St & Atlanta Ave
*******************************************************************************
Cycle (sec):          100                Critical Vol./Cap.(X):          0.455
Loss Time (sec):        0                Average Delay (sec/veh):       xxxxxx
Optimal Cycle:         42                Level Of Service:                    A
*******************************************************************************
Street Name:          Newland Street                    Atlanta Avenue
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0    0     0    0    0     0    0    0     0    0    0
Y+R:          4.0  4.0  4.0   4.0  4.0  4.0   4.0  4.0  4.0   4.0  4.0  4.0
Lanes:        1  0  1  1  0   1  0  1  1  0   1  0  1  1  0   1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     117  278   38  138  358   75   65  485  247   29  352  135
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:  117  278   38  138  358   75   65  485  247   29  352  135
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:   117  278   38  138  358   75   65  485  247   29  352  135
Reduct Vol:     0    0    0    0    0    0    0    0    0    0    0    0
Reduced Vol:  117  278   38  138  358   75   65  485  247   29  352  135
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:  117  278   38  138  358   75   65  485  247   29  352  135
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600
Adjustment:  1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes:       1.00 1.76 0.24 1.00 1.65 0.35 1.00 1.33 0.67 1.00 1.45 0.55
Final Sat.:  1600 2815  385 1600 2646  554 1600 2120 1080 1600 2313  887
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.07 0.10 0.10 0.09 0.14 0.14 0.04 0.23 0.23 0.02 0.15 0.15
Crit Moves:  ****                ****             ****        ****
*******************************************************************************
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Operating Year (2017) Plus Project (Full Removal) Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #11 Newland St & Hamilton Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.593
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	56	Level Of Service:	A

Street Name:	Newland Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0 0	1 0	1	0 1	0 0	0	0 0	0 0	1	0 0	0 1
Volume Module:												
Base Vol:	0	75	255	422	234	0	0	0	0	105	0	196
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	75	255	422	234	0	0	0	0	105	0	196
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	75	255	422	234	0	0	0	0	105	0	196
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	75	255	422	234	0	0	0	0	105	0	196
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	75	255	422	234	0	0	0	0	105	0	196
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.23	0.77	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	364	1236	1600	1600	0	0	0	0	1600	0	1600
Capacity Analysis Module:												
Vol/Sat:	0.00	0.21	0.21	0.26	0.15	0.00	0.00	0.00	0.00	0.07	0.00	0.12
Crit Moves:		****		****								****

Operating Year (2017) Plus Project (Full Removal) Conditions
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #13 Magnolia St & Hamilton Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.510
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	38	Level Of Service:	A

Street Name:	Magnolia Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Prot+Permit			Prot+Permit			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0 1	1 0	1	0 2	0 1	1	0 0	1 0	1	0 1	0 1
Volume Module:												
Base Vol:	30	191	47	208	252	40	90	403	53	33	279	337
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	191	47	208	252	40	90	403	53	33	279	337
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	191	47	208	252	40	90	403	53	33	279	337
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	30	191	47	208	252	40	90	403	53	33	279	337
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:	30	191	47	208	252	40	90	403	53	33	279	337
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.61	0.39	1.00	2.00	1.00	1.00	0.88	0.12	1.00	1.00	1.00
Final Sat.:	1600	2568	632	1600	3200	1600	1600	1414	186	1600	1600	1600
Capacity Analysis Module:												
Vol/Sat:	0.02	0.07	0.07	0.13	0.08	0.03	0.06	0.28	0.29	0.02	0.17	0.21
Crit Moves:		****		****					****	****		

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Default Scenario           Tue May 28, 2013 11:15:49                Page 6-1
--------------------------------------------------------------------------------
         Operating Year (2017) Plus Project (Full Removal) Conditions
                                     AM Peak
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
        ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)
********************************************************************************
Intersection #15 Brookhurst St & Hamilton Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.700
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        76                Level Of Service:                   C
********************************************************************************
Street Name:        Brookhurst Street                  Hamilton Avenue
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Prot+Permit      Prot+Permit
Rights:           Include          Include          Include          Include
Min. Green:     0    0    0    0    0    0    0    0    0    0    0    0
Y+R:          4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0
Lanes:        1  0  3  0  1    2  0  2  1  0    1  0  1  1  0    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      72  442  341  496  475  126   94  799   50  107  432  288
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:   72  442  341  496  475  126   94  799   50  107  432  288
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:    72  442  341  496  475  126   94  799   50  107  432  288
Reduct Vol:     0    0    0    0    0    0    0    0    0    0    0    0
Reduced Vol:   72  442  341  496  475  126   94  799   50  107  432  288
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:   72  442  341  496  475  126   94  799   50  107  432  288
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600
Adjustment:  1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes:       1.00 3.00 1.00 2.00 2.37 0.63 1.00 1.88 0.12 1.00 2.00 1.00
Final Sat.:  1600 4800 1600 3200 3794 1006 1600 3012  188 1600 3200 1600
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.05 0.09 0.21 0.16 0.13 0.13 0.06 0.27 0.27 0.07 0.14 0.18
Crit Moves:              ****  ****                ****        ****
********************************************************************************
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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	307	1314	0	2902	2595	920
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	4.5		6.0	6.0	4.0
Lane Util. Factor	0.97	0.88		0.86	0.86	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	2787		6408	6408	1583
Flt Permitted	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	2787		6408	6408	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	316	1355	0	2992	2675	948
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	316	1355	0	2992	2675	948
Turn Type	NA	custom		NA	NA	Free
Protected Phases	4	5		2	6	
Permitted Phases		4		5		Free
Actuated Green, G (s)	18.1	68.4		110.6	55.8	140.0
Effective Green, g (s)	18.1	68.4		110.6	55.8	140.0
Actuated g/C Ratio	0.13	0.49		0.79	0.40	1.00
Clearance Time (s)	5.3	4.5		6.0	6.0	
Vehicle Extension (s)	4.0	3.8		4.0	4.0	
Lane Grp Cap (vph)	443	1361		5062	2554	1583
v/s Ratio Prot	0.09	c0.36		0.47	c0.42	
v/s Ratio Perm		0.13				0.60
v/c Ratio	0.71	1.00		0.59	1.05	0.60
Uniform Delay, d1	58.5	35.6		5.8	42.1	0.0
Progression Factor	1.00	1.00		1.14	1.00	1.00
Incremental Delay, d2	5.7	23.2		0.1	31.8	1.7
Delay (s)	64.2	58.8		6.6	73.9	1.7
Level of Service	E	E		A	E	A
Approach Delay (s)	59.9			6.6	55.0	
Approach LOS	E			A	D	

Intersection Summary			
HCM 2000 Control Delay	38.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.8
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	376	877	357	306	752	254	495	2256	646	440	2485	746
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.5	4.6	4.4	5.5	5.5	4.6	5.8	5.8	4.4	6.0	4.6
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.86	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	6408	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	6408	2787
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	388	904	368	315	775	262	510	2326	666	454	2562	769
RTOR Reduction (vph)	0	0	63	0	0	145	0	0	153	0	0	45
Lane Group Flow (vph)	388	904	305	315	775	117	510	2326	513	454	2562	724
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2		1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	13.8	29.0	43.6	13.0	28.0	28.0	14.6	63.9	63.9	14.0	62.9	76.7
Effective Green, g (s)	13.8	29.0	43.6	13.0	28.0	28.0	14.6	63.9	63.9	14.0	62.9	76.7
Actuated g/C Ratio	0.10	0.21	0.31	0.09	0.20	0.20	0.10	0.46	0.46	0.10	0.45	0.55
Clearance Time (s)	4.6	5.5	4.6	4.4	5.5	5.5	4.6	5.8	5.8	4.4	6.0	4.6
Vehicle Extension (s)	1.0	3.0	1.0	1.0	3.0	3.0	1.0	4.0	4.0	1.0	4.0	1.0
Lane Grp Cap (vph)	338	1053	492	318	707	316	358	2320	722	343	2879	1618
v/s Ratio Prot	c0.11	0.18	0.06	0.09	c0.22		c0.15	c0.46		c0.13	0.40	0.04
v/s Ratio Perm			0.13			0.07			0.32			0.22
v/c Ratio	1.15	0.86	0.62	0.99	1.10	0.37	1.42	1.00	0.71	1.32	0.89	0.45
Uniform Delay, d1	63.1	53.5	41.1	63.4	56.0	48.4	62.7	38.1	30.6	63.0	35.4	19.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.65	0.38	0.13	1.23	0.72	0.77
Incremental Delay, d2	95.4	7.1	1.6	47.7	63.2	0.7	192.6	6.2	0.5	147.5	0.5	0.0
Delay (s)	158.5	60.6	42.8	111.1	119.2	49.1	233.2	20.6	4.5	225.2	25.8	14.5
Level of Service	F	E	D	F	F	D	F	C	A	F	C	B
Approach Delay (s)		79.5			103.7			48.5			47.4	
Approach LOS		E			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	60.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	104.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	352	937	186	208	1020	198	317	2744	227	237	2268	304
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.3		4.2	5.3		4.2	5.3		4.2	5.3	5.3
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.86		0.97	0.86	1.00
Frt	1.00	0.98		1.00	0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	4959		3433	4961		3433	6334		3433	6408	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	4959		3433	4961		3433	6334		3433	6408	1583
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	356	946	188	210	1030	200	320	2772	229	239	2291	307
RTOR Reduction (vph)	0	21	0	0	20	0	0	9	0	0	0	121
Lane Group Flow (vph)	356	1113	0	210	1210	0	320	2992	0	239	2291	186
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	14.0	35.8		12.2	34.0		13.0	61.0		12.0	60.0	60.0
Effective Green, g (s)	14.0	35.8		12.2	34.0		13.0	61.0		12.0	60.0	60.0
Actuated g/C Ratio	0.10	0.26		0.09	0.24		0.09	0.44		0.09	0.43	0.43
Clearance Time (s)	4.2	5.3		4.2	5.3		4.2	5.3		4.2	5.3	5.3
Vehicle Extension (s)	1.1	3.0		1.1	3.0		1.1	6.0		1.1	6.0	6.0
Lane Grp Cap (vph)	343	1268		299	1204		318	2759		294	2746	678
v/s Ratio Prot	c0.10	0.22		0.06	c0.24		c0.09	c0.47		0.07	0.36	
v/s Ratio Perm												0.12
v/c Ratio	1.04	0.88		0.70	1.00		1.01	1.08		0.81	0.83	0.27
Uniform Delay, d1	63.0	50.0		62.1	53.0		63.5	39.5		62.9	35.6	25.9
Progression Factor	1.00	1.00		1.00	1.00		1.41	0.25		1.39	0.42	0.08
Incremental Delay, d2	58.8	7.2		6.0	27.1		16.7	38.7		7.5	1.5	0.5
Delay (s)	121.8	57.2		68.1	80.1		106.2	48.7		95.1	16.5	2.6
Level of Service	F	E		E	F		F	D		F	B	A
Approach Delay (s)		72.6			78.3			54.3			21.6	
Approach LOS		E			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	50.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	105.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

4: Beach Blvd & Talbert Ave

PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	127	358	152	239	511	362	178	2690	194	270	2358	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.5		4.7	5.5		4.7	5.8		4.7	5.8	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.86		1.00	0.86	
Frt	1.00	0.96		1.00	0.94		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3381		1770	3319		1770	6343		1770	6366	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3381		1770	3319		1770	6343		1770	6366	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	131	369	157	246	527	373	184	2773	200	278	2431	111
RTOR Reduction (vph)	0	34	0	0	90	0	0	8	0	0	5	0
Lane Group Flow (vph)	131	492	0	246	810	0	184	2965	0	278	2537	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	13.2	25.3		20.7	32.8		15.0	49.3		24.0	58.3	
Effective Green, g (s)	13.2	25.3		20.7	32.8		15.0	49.3		24.0	58.3	
Actuated g/C Ratio	0.09	0.18		0.15	0.23		0.11	0.35		0.17	0.42	
Clearance Time (s)	4.7	5.5		4.7	5.5		4.7	5.8		4.7	5.8	
Vehicle Extension (s)	1.0	3.5		1.0	3.5		1.0	5.0		1.0	5.0	
Lane Grp Cap (vph)	166	610		261	777		189	2233		303	2650	
v/s Ratio Prot	0.07	c0.15		0.14	c0.24		0.10	c0.47		0.16	c0.40	
v/s Ratio Perm												
v/c Ratio	0.79	0.81		0.94	1.04		0.97	1.33		0.92	0.96	
Uniform Delay, d1	62.0	55.0		59.1	53.6		62.3	45.4		57.0	39.6	
Progression Factor	1.00	1.00		1.00	1.00		0.82	0.51		0.61	0.42	
Incremental Delay, d2	20.1	7.9		39.8	43.7		13.8	147.9		21.2	6.8	
Delay (s)	82.1	62.9		98.8	97.3		65.0	171.2		56.3	23.4	
Level of Service	F	E		F	F		E	F		E	C	
Approach Delay (s)		66.7			97.7			165.0			26.7	
Approach LOS		E			F			F			C	

Intersection Summary				
HCM 2000 Control Delay	96.6	HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio	1.14			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.7	
Intersection Capacity Utilization	110.2%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				

5: Beach Blvd & Main St/Ellis Ave

PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	423	480	172	169	455	245	181	2270	230	358	1935	408
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.7	6.0		4.7	6.0	6.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.86		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3539	1583	3433	6319		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3539	1583	3433	6319		3433	5085	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	441	500	179	176	474	255	189	2365	240	373	2016	425
RTOR Reduction (vph)	0	0	112	0	0	152	0	12	0	0	0	21
Lane Group Flow (vph)	441	500	67	176	474	103	189	2593	0	373	2016	404
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	pt+ov
Protected Phases	7	7		8	8		5	2		1	6	6 7
Permitted Phases			7			8						
Actuated Green, G (s)	30.5	30.5	30.5	21.2	21.2	21.2	10.7	48.7		16.9	54.9	91.4
Effective Green, g (s)	30.5	30.5	30.5	21.2	21.2	21.2	10.7	48.7		16.9	54.9	91.4
Actuated g/C Ratio	0.22	0.22	0.22	0.15	0.15	0.15	0.08	0.35		0.12	0.39	0.65
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.7	6.0		4.7	6.0	
Vehicle Extension (s)	2.2	2.2	2.2	1.2	1.2	1.2	1.2	5.0		1.2	5.0	
Lane Grp Cap (vph)	747	770	344	268	535	239	262	2198		414	1994	1033
v/s Ratio Prot	0.13	c0.14		0.10	c0.13		0.06	c0.41		c0.11	c0.40	0.26
v/s Ratio Perm			0.04			0.07						
v/c Ratio	0.59	0.65	0.20	0.66	0.89	0.43	0.72	1.18		0.90	1.01	0.39
Uniform Delay, d1	49.1	49.9	44.7	56.0	58.2	53.9	63.2	45.6		60.7	42.6	11.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.94	1.51		1.26	0.49	0.50
Incremental Delay, d2	0.9	1.5	0.1	4.4	15.7	0.5	0.8	81.4		9.1	14.5	0.0
Delay (s)	50.1	51.4	44.9	60.3	73.9	54.4	60.0	150.3		85.7	35.6	5.7
Level of Service	D	D	D	E	E	D	E	F		F	D	A
Approach Delay (s)		49.8			65.8			144.2			37.7	
Approach LOS		D			E			F			D	

Intersection Summary				
HCM 2000 Control Delay	81.8	HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio	0.95			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.7	
Intersection Capacity Utilization	90.5%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

6: Beach Blvd & Garfield Ave

PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	199	442	133	138	422	153	209	2236	109	218	1943	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.8	5.8	4.6	5.8		4.6	6.2		4.6	6.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3398		1770	5050		1770	5029	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3398		1770	5050		1770	5029	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	212	470	141	147	449	163	222	2379	116	232	2067	165
RTOR Reduction (vph)	0	0	108	0	26	0	0	4	0	0	7	0
Lane Group Flow (vph)	212	470	33	147	586	0	222	2491	0	232	2225	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	17.3	33.0	33.0	12.0	27.7		17.0	54.3		19.5	56.8	
Effective Green, g (s)	17.3	33.0	33.0	12.0	27.7		17.0	54.3		19.5	56.8	
Actuated g/C Ratio	0.12	0.24	0.24	0.09	0.20		0.12	0.39		0.14	0.41	
Clearance Time (s)	4.6	5.8	5.8	4.6	5.8		4.6	6.2		4.6	6.2	
Vehicle Extension (s)	1.5	4.0	4.0	1.5	4.0		1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	218	834	373	151	672		214	1958		246	2040	
v/s Ratio Prot	c0.12	0.13		0.08	c0.17		0.13	c0.49		0.13	c0.44	
v/s Ratio Perm			0.02									
v/c Ratio	0.97	0.56	0.09	0.97	0.87		1.04	1.27		0.94	1.09	
Uniform Delay, d1	61.1	47.2	41.8	63.8	54.4		61.5	42.8		59.7	41.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.62	0.48		1.10	1.74	
Incremental Delay, d2	52.6	1.1	0.1	64.6	12.2		57.5	125.1		23.5	44.9	
Delay (s)	113.7	48.2	41.9	128.4	66.7		95.3	145.8		89.0	117.3	
Level of Service	F	D	D	F	E		F	F		F	F	
Approach Delay (s)		64.0			78.6			141.6			114.6	
Approach LOS		E			E			F			F	

Intersection Summary				
HCM 2000 Control Delay	115.3	HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio	1.12			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.2	
Intersection Capacity Utilization	103.0%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				

7: Beach Blvd & Adams Ave

PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	145	469	59	233	797	379	147	1644	152	351	1482	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	6.2		4.7	6.2	6.2	4.7	6.2		4.7	6.2	
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00	1.00	0.91		0.97	0.91	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5001		1770	3539	1583	1770	5021		3433	5014	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5001		1770	3539	1583	1770	5021		3433	5014	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	151	489	61	243	830	395	153	1712	158	366	1544	159
RTOR Reduction (vph)	0	11	0	0	0	230	0	8	0	0	8	0
Lane Group Flow (vph)	151	539	0	243	830	165	153	1862	0	366	1695	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	15.1	33.4		18.0	36.3	36.3	17.0	49.7		17.1	49.8	
Effective Green, g (s)	15.1	33.4		18.0	36.3	36.3	17.0	49.7		17.1	49.8	
Actuated g/C Ratio	0.11	0.24		0.13	0.26	0.26	0.12	0.36		0.12	0.36	
Clearance Time (s)	4.7	6.2		4.7	6.2	6.2	4.7	6.2		4.7	6.2	
Vehicle Extension (s)	1.8	5.0		1.8	5.0	5.0	1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	190	1193		227	917	410	214	1782		419	1783	
v/s Ratio Prot	0.09	0.11		c0.14	c0.23		0.09	c0.37		0.11	c0.34	
v/s Ratio Perm						0.10						
v/c Ratio	0.79	0.45		1.07	0.91	0.40	0.71	1.05		0.87	0.95	
Uniform Delay, d1	60.9	45.5		61.0	50.2	42.9	59.2	45.2		60.4	43.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.31	0.53	
Incremental Delay, d2	18.9	0.6		79.7	12.9	1.4	9.1	34.2		2.0	1.6	
Delay (s)	79.8	46.1		140.7	63.1	44.3	68.2	79.3		81.0	25.0	
Level of Service	E	D		F	E	D	E	E		F	C	
Approach Delay (s)		53.3			70.9			78.5			34.9	
Approach LOS		D			E			E			C	

Intersection Summary				
HCM 2000 Control Delay	59.5	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	1.03			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.8	
Intersection Capacity Utilization	93.7%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

8: Beach Blvd & Atlanta Ave

PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	163	337	55	80	408	278	137	1331	115	340	886	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.5		4.7	5.5		4.7	6.2		4.7	6.2	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.98		1.00	0.94		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3465		1770	3324		1770	5024		1770	4962	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3465		1770	3324		1770	5024		1770	4962	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	175	362	59	86	439	299	147	1431	124	366	953	183
RTOR Reduction (vph)	0	7	0	0	71	0	0	5	0	0	12	0
Lane Group Flow (vph)	175	414	0	86	667	0	147	1550	0	366	1124	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	20.2	45.7		12.4	37.9		17.5	60.4		25.1	68.0	
Effective Green, g (s)	20.2	45.7		12.4	37.9		17.5	60.4		25.1	68.0	
Actuated g/C Ratio	0.12	0.28		0.08	0.23		0.11	0.37		0.15	0.41	
Clearance Time (s)	4.7	5.5		4.7	5.5		4.7	6.2		4.7	6.2	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	217	961		133	764		188	1842		269	2048	
v/s Ratio Prot	c0.10	0.12		0.05	c0.20		0.08	c0.31		c0.21	0.23	
v/s Ratio Perm												
v/c Ratio	0.81	0.43		0.65	0.87		0.78	0.84		1.36	0.55	
Uniform Delay, d1	70.3	48.8		74.0	61.1		71.7	47.8		69.8	36.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	18.3	0.1		7.8	10.5		17.5	4.1		184.5	0.5	
Delay (s)	88.6	48.9		81.9	71.6		89.2	51.8		254.3	37.2	
Level of Service	F	D		F	E		F	D		F	D	
Approach Delay (s)		60.6			72.7			55.1			90.1	
Approach LOS		E			E			E			F	

Intersection Summary			
HCM 2000 Control Delay	70.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	164.7	Sum of lost time (s)	21.1
Intersection Capacity Utilization	93.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

9: Huntington Beach Parking/Beach Blvd & Pacific Coast Highway

PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	381	1304	12	12	1800	859	10	29	18	461	20	301
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	6.0		4.5	6.0	6.0	5.0	5.0	5.0	5.0	5.0	4.0
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5079		1770	3539	1583	1770	3539	1583	3433	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5079		1770	3539	1583	1770	3539	1583	3433	1863	1583
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	428	1465	13	13	2022	965	11	33	20	518	22	338
RTOR Reduction (vph)	0	0	0	0	0	269	0	0	18	0	0	0
Lane Group Flow (vph)	428	1478	0	13	2022	696	11	33	2	518	22	338
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases						2			4			Free
Actuated Green, G (s)	22.7	72.1		2.8	52.5	52.5	1.3	9.6	9.6	15.0	23.3	120.0
Effective Green, g (s)	22.7	72.1		2.8	52.5	52.5	1.3	9.6	9.6	15.0	23.3	120.0
Actuated g/C Ratio	0.19	0.60		0.02	0.44	0.44	0.01	0.08	0.08	0.12	0.19	1.00
Clearance Time (s)	4.2	6.0		4.5	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	1.5	4.6		2.0	4.5	4.5	2.0	1.8	1.8	2.0	1.8	
Lane Grp Cap (vph)	649	3051		41	1548	692	19	283	126	429	361	1583
v/s Ratio Prot	c0.12	0.29		0.01	c0.57		0.01	0.01		c0.15	0.01	
v/s Ratio Perm						0.44			0.00			c0.21
v/c Ratio	0.66	0.48		0.32	1.31	1.01	0.58	0.12	0.01	1.21	0.06	0.21
Uniform Delay, d1	45.1	13.5		57.7	33.8	33.8	59.1	51.3	50.8	52.5	39.4	0.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.9	0.6		1.6	142.6	35.7	23.8	0.1	0.0	113.5	0.0	0.3
Delay (s)	46.9	14.0		59.3	176.3	69.4	82.9	51.3	50.9	166.0	39.5	0.3
Level of Service	D	B		E	F	E	F	D	D	F	D	A
Approach Delay (s)		21.4			141.4			56.6			99.0	
Approach LOS		C			F			E			F	

Intersection Summary			
HCM 2000 Control Delay	95.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	93.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

12: Huntington Beach Parking/Newland St & Pacific Coast Highway

PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	238	1522	4	6	2451	191	8	3	5	50	2	156
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.7	5.7	4.0	5.7	5.7	4.2	4.2		4.2	4.2	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1688		1770	1587	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.59	1.00		0.75	1.00	
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1097	1688		1402	1587	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	251	1602	4	6	2580	201	8	3	5	53	2	164
RTOR Reduction (vph)	0	0	2	0	0	103	0	4	0	0	115	0
Lane Group Flow (vph)	251	1602	2	6	2580	98	8	5	0	53	51	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases			2			6	4			8		
Actuated Green, G (s)	12.0	55.0	55.0	1.1	44.1	44.1	30.0	30.0		30.0	30.0	
Effective Green, g (s)	12.0	55.0	55.0	1.1	44.1	44.1	30.0	30.0		30.0	30.0	
Actuated g/C Ratio	0.12	0.55	0.55	0.01	0.44	0.44	0.30	0.30		0.30	0.30	
Clearance Time (s)	4.0	5.7	5.7	4.0	5.7	5.7	4.2	4.2		4.2	4.2	
Vehicle Extension (s)	1.7	4.6	4.6	1.7	4.6	4.6	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	212	2796	870	19	2242	698	329	506		420	476	
v/s Ratio Prot	c0.14	0.32		0.00	c0.51			0.00			0.03	
v/s Ratio Perm			0.00			0.06	0.01			c0.04		
v/c Ratio	1.18	0.57	0.00	0.32	1.15	0.14	0.02	0.01		0.13	0.11	
Uniform Delay, d1	44.0	14.8	10.1	49.1	27.9	16.7	24.7	24.6		25.5	25.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	120.4	0.9	0.0	3.5	73.5	0.4	0.1	0.0		0.6	0.5	
Delay (s)	164.4	15.6	10.1	52.5	101.4	17.1	24.8	24.6		26.1	25.8	
Level of Service	F	B	B	D	F	B	C	C		C	C	
Approach Delay (s)		35.7			95.3			24.7			25.8	
Approach LOS		D			F			C			C	

Intersection Summary				
HCM 2000 Control Delay	69.3	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	0.80			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.9	
Intersection Capacity Utilization	81.9%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

14: Magnolia Ave & Pacific Coast Highway

PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	105	1437	9	15	2577	192	10	26	15	83	18	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	5.7	5.7	3.7	5.7	5.7	4.2	4.2		4.6	4.6	4.6
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1759		1681	1715	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1770	1759		1681	1715	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	109	1497	9	16	2684	200	10	27	16	86	19	176
RTOR Reduction (vph)	0	0	3	0	0	50	0	15	0	0	0	164
Lane Group Flow (vph)	109	1497	6	16	2684	150	10	28	0	52	53	12
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	1	6		5	2		7	7		8	8	
Permitted Phases			6			2						8
Actuated Green, G (s)	11.5	85.2	85.2	2.6	76.3	76.3	5.7	5.7		8.3	8.3	8.3
Effective Green, g (s)	11.5	85.2	85.2	2.6	76.3	76.3	5.7	5.7		8.3	8.3	8.3
Actuated g/C Ratio	0.10	0.71	0.71	0.02	0.64	0.64	0.05	0.05		0.07	0.07	0.07
Clearance Time (s)	3.7	5.7	5.7	3.7	5.7	5.7	4.2	4.2		4.6	4.6	4.6
Vehicle Extension (s)	1.7	4.6	4.6	1.7	4.6	4.6	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	169	3610	1123	38	3233	1006	84	83		116	118	109
v/s Ratio Prot	c0.06	0.29		0.01	c0.53		0.01	c0.02		c0.03	0.03	
v/s Ratio Perm			0.00			0.09						0.01
v/c Ratio	0.64	0.41	0.01	0.42	0.83	0.15	0.12	0.33		0.45	0.45	0.11
Uniform Delay, d1	52.3	7.2	5.1	58.0	16.9	8.8	54.7	55.3		53.7	53.7	52.4
Progression Factor	1.00	1.00	1.00	0.66	1.30	2.61	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	6.2	0.4	0.0	0.7	0.6	0.0	0.2	0.9		1.0	1.0	0.2
Delay (s)	58.5	7.5	5.1	39.1	22.5	23.0	55.0	56.2		54.7	54.6	52.6
Level of Service	E	A	A	D	C	C	D	E		D	D	D
Approach Delay (s)		10.9			22.7			56.0			53.3	
Approach LOS		B			C			E			D	

Intersection Summary				
HCM 2000 Control Delay	20.9	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.75			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.2	
Intersection Capacity Utilization	77.0%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	182	1314	1	16	2570	710	8	6	12	275	8	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.7	5.7	4.5	5.7	5.7	4.5	4.5		6.0	6.0	6.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1672		3433	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1770	1672		3433	1863	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	194	1398	1	17	2734	755	9	6	13	293	9	213
RTOR Reduction (vph)	0	0	0	0	0	178	0	13	0	0	0	183
Lane Group Flow (vph)	194	1398	1	17	2734	577	9	6	0	293	9	30
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases			6			2						3
Actuated Green, G (s)	18.0	76.1	76.1	2.7	60.8	60.8	3.6	3.6		16.9	16.9	16.9
Effective Green, g (s)	18.0	76.1	76.1	2.7	60.8	60.8	3.6	3.6		16.9	16.9	16.9
Actuated g/C Ratio	0.15	0.63	0.63	0.02	0.51	0.51	0.03	0.03		0.14	0.14	0.14
Clearance Time (s)	4.5	5.7	5.7	4.5	5.7	5.7	4.5	4.5		6.0	6.0	6.0
Vehicle Extension (s)	1.7	4.6	4.6	1.7	4.6	4.6	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	265	3224	1003	39	2576	802	53	50		483	262	222
v/s Ratio Prot	c0.11	0.27		0.01	c0.54		c0.01	0.00		c0.09	0.00	
v/s Ratio Perm			0.00			0.36						0.02
v/c Ratio	0.73	0.43	0.00	0.44	1.06	0.72	0.17	0.13		0.61	0.03	0.14
Uniform Delay, d1	48.7	11.1	8.0	57.9	29.6	23.0	56.7	56.7		48.4	44.5	45.1
Progression Factor	0.93	1.49	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	8.2	0.2	0.0	2.8	36.7	5.5	0.6	0.4		1.5	0.0	0.1
Delay (s)	53.5	16.7	8.0	60.7	66.3	28.5	57.3	57.1		49.9	44.5	45.3
Level of Service	D	B	A	E	E	C	E	E		D	D	D
Approach Delay (s)		21.1			58.1			57.2			47.9	
Approach LOS		C			E			E			D	

Intersection Summary				
HCM 2000 Control Delay	46.7	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.89			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.7	
Intersection Capacity Utilization	87.8%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				


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Default Scenario            Tue May 28, 2013 11:16:34                  Page 3-1
--------------------------------------------------------------------------------
         Operating Year (2017) Plus Project (Full Removal) Conditions
                                   PM Peak
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
       ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)
********************************************************************************
Intersection #10 Newland St & Atlanta Ave
********************************************************************************
Cycle (sec):          100                Critical Vol./Cap.(X):          0.543
Loss Time (sec):        0                Average Delay (sec/veh):       xxxxxx
Optimal Cycle:         50                Level Of Service:                    A
********************************************************************************
Street Name:          Newland Street                    Atlanta Avenue
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0    0    0    0    0    0    0    0    0    0    0
Y+R:          4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0
Lanes:        1  0  1  1  0    1  0  1  1  0    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     299  443   25   89  238   98   67  468  184   36  555  116
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:  299  443   25   89  238   98   67  468  184   36  555  116
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:   299  443   25   89  238   98   67  468  184   36  555  116
Reduct Vol:     0    0    0    0    0    0    0    0    0    0    0    0
Reduced Vol:  299  443   25   89  238   98   67  468  184   36  555  116
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:  299  443   25   89  238   98   67  468  184   36  555  116
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600
Adjustment:  1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes:       1.00 1.89 0.11 1.00 1.42 0.58 1.00 1.44 0.56 1.00 1.65 0.35
Final Sat.:  1600 3029  171 1600 2267  933 1600 2297  903 1600 2647  553
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.19 0.15 0.15 0.06 0.10 0.11 0.04 0.20 0.20 0.02 0.21 0.21
Crit Moves:  ****                      ****  ****                 ****
********************************************************************************
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Operating Year (2017) Plus Project (Full Removal) Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #11 Newland St & Hamilton Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.710
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	79	Level Of Service:	C

Street Name:	Newland Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0 0	1 0	1	0 1	0 0	0	0 0	0 0	1	0 0	0 1
Volume Module:												
Base Vol:	0	283	152	238	120	0	0	0	0	139	0	463
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	283	152	238	120	0	0	0	0	139	0	463
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	283	152	238	120	0	0	0	0	139	0	463
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	283	152	238	120	0	0	0	0	139	0	463
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	283	152	238	120	0	0	0	0	139	0	463
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.65	0.35	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	1041	559	1600	1600	0	0	0	0	1600	0	1600
Capacity Analysis Module:												
Vol/Sat:	0.00	0.27	0.27	0.15	0.08	0.00	0.00	0.00	0.00	0.09	0.00	0.29
Crit Moves:		****		****								****

Operating Year (2017) Plus Project (Full Removal) Conditions
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #13 Magnolia St & Hamilton Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.579
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	44	Level Of Service:	A

Street Name:	Magnolia Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Prot+Permit			Prot+Permit			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0 1	1 0	1	0 2	0 1	1	0 0	1 0	1	0 1	0 1
Volume Module:												
Base Vol:	28	304	26	204	180	29	31	307	35	34	527	326
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	304	26	204	180	29	31	307	35	34	527	326
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	304	26	204	180	29	31	307	35	34	527	326
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	28	304	26	204	180	29	31	307	35	34	527	326
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:	28	304	26	204	180	29	31	307	35	34	527	326
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.84	0.16	1.00	2.00	1.00	1.00	0.90	0.10	1.00	1.00	1.00
Final Sat.:	1600	2948	252	1600	3200	1600	1600	1436	164	1600	1600	1600
Capacity Analysis Module:												
Vol/Sat:	0.02	0.10	0.10	0.13	0.06	0.02	0.02	0.21	0.21	0.02	0.33	0.20
Crit Moves:		****		****			****				****	

```
Default Scenario           Tue May 28, 2013 11:16:34                Page 6-1
-------------------------------------------------------------------------------
         Operating Year (2017) Plus Project (Full Removal) Conditions
                                     PM Peak
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
        ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)
*******************************************************************************
Intersection #15 Brookhurst St & Hamilton Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.644
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        64                Level Of Service:                   B
*******************************************************************************
Street Name:        Brookhurst Street                  Hamilton Avenue
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Prot+Permit      Prot+Permit
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  3  0  1    2  0  2  1  0    1  0  1  1  0    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      88  624   184   354  444    98    99  387    69   268 1039   546
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  624   184   354  444    98    99  387    69   268 1039   546
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  624   184   354  444    98    99  387    69   268 1039   546
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   88  624   184   354  444    98    99  387    69   268 1039   546
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  624   184   354  444    98    99  387    69   268 1039   546
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1600 1600  1600  1600 1600  1600  1600 1600  1600  1600 1600  1600
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 3.00  1.00  2.00 2.46  0.54  1.00 1.70  0.30  1.00 2.00  1.00
Final Sat.:  1600 4800  1600  3200 3932   868  1600 2716   484  1600 3200  1600
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.06 0.13  0.12  0.11 0.11  0.11  0.06 0.14  0.14  0.17 0.32  0.34
Crit Moves:       ****         ****              ****                        ****
*******************************************************************************

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APPENDIX I: MITIGATION MEASURES LOS RESULTS

HCM Signalized Intersection Capacity Analysis
6: Beach Blvd & Garfield Ave

Existing (2013) Plus Project
PM Peak + Mitigation

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	190	425	125	120	406	136	199	1683	92	203	1485	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.8	5.8	4.6	5.8		4.6	6.2		4.6	6.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3406		1770	5046		1770	5016	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3406		1770	5046		1770	5016	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	202	452	133	128	432	145	212	1790	98	216	1580	157
RTOR Reduction (vph)	0	0	106	0	23	0	0	4	0	0	9	0
Lane Group Flow (vph)	202	452	27	128	554	0	212	1884	0	216	1728	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	17.2	28.8	28.8	12.9	24.5		19.9	58.8		18.3	57.2	
Effective Green, g (s)	17.2	28.8	28.8	12.9	24.5		19.9	58.8		18.3	57.2	
Actuated g/C Ratio	0.12	0.21	0.21	0.09	0.18		0.14	0.42		0.13	0.41	
Clearance Time (s)	4.6	5.8	5.8	4.6	5.8		4.6	6.2		4.6	6.2	
Vehicle Extension (s)	1.5	4.0	4.0	1.5	4.0		1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	217	728	325	163	596		251	2119		231	2049	
v/s Ratio Prot	c0.11	0.13		0.07	c0.16		0.12	c0.37		0.12	c0.34	
v/s Ratio Perm			0.02									
v/c Ratio	0.93	0.62	0.08	0.79	0.93		0.84	0.89		0.94	0.84	
Uniform Delay, d1	60.8	50.6	44.9	62.2	56.9		58.5	37.6		60.3	37.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.82	0.77		0.85	1.45	
Incremental Delay, d2	41.7	1.9	0.2	20.1	21.2		18.2	5.1		32.6	3.2	
Delay (s)	102.5	52.5	45.1	82.3	78.1		66.5	34.1		83.9	57.3	
Level of Service	F	D	D	F	E		E	C		F	E	
Approach Delay (s)		64.1			78.8			37.4			60.2	
Approach LOS		E			E			D			E	

Intersection Summary				
HCM 2000 Control Delay	54.5	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.91			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.2	
Intersection Capacity Utilization	89.6%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis Operating Year (2015) Plus Project Conditions
9: Huntington Beach Parking/Beach Blvd & Pacific Coast Highway

AM Peak + Mitigation

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	98	1811	10	4	828	380	5	5	5	696	37	158
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	6.0		4.5	6.0	6.0	5.0	5.0	5.0	5.0	5.0	4.0
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5081		1770	3539	1583	1770	3539	1583	3433	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5081		1770	3539	1583	1770	3539	1583	3433	1863	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	105	1947	11	4	890	409	5	5	5	748	40	170
RTOR Reduction (vph)	0	1	0	0	0	233	0	0	5	0	0	0
Lane Group Flow (vph)	105	1957	0	4	890	176	5	5	0	748	40	170
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases						2			4			Free
Actuated Green, G (s)	7.0	48.3		1.4	43.0	43.0	1.1	3.6	3.6	26.2	28.7	100.0
Effective Green, g (s)	7.0	48.3		1.4	43.0	43.0	1.1	3.6	3.6	26.2	28.7	100.0
Actuated g/C Ratio	0.07	0.48		0.01	0.43	0.43	0.01	0.04	0.04	0.26	0.29	1.00
Clearance Time (s)	4.2	6.0		4.5	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	1.5	4.6		2.0	4.5	4.5	2.0	1.8	1.8	2.0	1.8	
Lane Grp Cap (vph)	240	2454		24	1521	680	19	127	56	899	534	1583
v/s Ratio Prot	c0.03	c0.39		0.00	0.25		0.00	0.00		c0.22	0.02	
v/s Ratio Perm						0.11			0.00			c0.11
v/c Ratio	0.44	0.80		0.17	0.59	0.26	0.26	0.04	0.00	0.83	0.07	0.11
Uniform Delay, d1	44.6	21.7		48.7	21.7	18.3	49.0	46.5	46.5	34.8	26.0	0.0
Progression Factor	1.00	1.00		0.56	1.16	5.18	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	2.8		1.1	1.5	0.9	2.7	0.0	0.0	6.3	0.0	0.1
Delay (s)	45.1	24.5		28.6	26.7	95.6	51.7	46.6	46.5	41.2	26.0	0.1
Level of Service	D	C		C	C	F	D	D	D	D	C	A
Approach Delay (s)		25.6			48.3			48.3			33.3	
Approach LOS		C			D			D			C	

Intersection Summary				
HCM 2000 Control Delay	34.2	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.79			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.5	
Intersection Capacity Utilization	77.6%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis Operating Year (2015) Plus Project Conditions
2: Beach Blvd & Edinger Ave

PM Peak + Mitigation

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	350	842	343	298	735	249	482	2100	531	433	2223	710
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.5	4.6	4.4	5.5	5.5	4.6	5.8	5.8	4.4	6.0	4.6
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.86	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	6408	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	6408	2787
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	361	868	354	307	758	257	497	2165	547	446	2292	732
RTOR Reduction (vph)	0	0	58	0	0	182	0	0	158	0	0	50
Lane Group Flow (vph)	361	868	296	307	758	75	497	2165	389	446	2292	682
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2		1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	14.4	29.6	51.0	13.5	28.5	28.5	21.4	59.2	59.2	17.6	55.0	69.4
Effective Green, g (s)	14.4	29.6	51.0	13.5	28.5	28.5	21.4	59.2	59.2	17.6	55.0	69.4
Actuated g/C Ratio	0.10	0.21	0.36	0.10	0.20	0.20	0.15	0.42	0.42	0.13	0.39	0.50
Clearance Time (s)	4.6	5.5	4.6	4.4	5.5	5.5	4.6	5.8	5.8	4.4	6.0	4.6
Vehicle Extension (s)	1.0	3.0	1.0	1.0	3.0	3.0	1.0	4.0	4.0	1.0	4.0	1.0
Lane Grp Cap (vph)	353	1075	576	331	720	322	524	2150	669	431	2517	1473
v/s Ratio Prot	c0.11	0.17	0.08	0.09	c0.21		0.14	c0.43		c0.13	0.36	0.05
v/s Ratio Perm			0.11			0.05			0.25			0.20
v/c Ratio	1.02	0.81	0.51	0.93	1.05	0.23	0.95	1.01	0.58	1.03	0.91	0.46
Uniform Delay, d1	62.8	52.5	34.8	62.8	55.8	46.6	58.8	40.4	30.9	61.2	40.2	23.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.66	0.47	0.14	1.10	0.60	0.50
Incremental Delay, d2	53.8	4.5	0.3	30.7	48.3	0.4	13.4	13.6	1.4	36.3	2.6	0.0
Delay (s)	116.6	57.0	35.1	93.5	104.0	47.0	52.1	32.5	5.6	103.6	26.8	11.6
Level of Service	F	E	D	F	F	D	D	C	A	F	C	B
Approach Delay (s)		65.7			90.5			31.0			33.5	
Approach LOS		E			F			C			C	

Intersection Summary				
HCM 2000 Control Delay	45.8	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	1.03			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.7	
Intersection Capacity Utilization	100.2%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis Operating Year (2015) Plus Project Conditions
4: Beach Blvd & Talbert Ave

PM Peak + Mitigation

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	124	351	140	234	499	346	171	2368	191	266	2040	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.5		4.7	5.5		4.7	5.8		4.7	5.8	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.86		1.00	0.86	
Frt	1.00	0.96		1.00	0.94		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3388		1770	3322		1770	6336		1770	6360	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3388		1770	3322		1770	6336		1770	6360	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	128	362	144	241	514	357	176	2441	197	274	2103	109
RTOR Reduction (vph)	0	31	0	0	90	0	0	9	0	0	5	0
Lane Group Flow (vph)	128	475	0	241	781	0	176	2629	0	274	2207	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	12.2	22.9		18.4	29.1		15.0	58.7		19.3	63.0	
Effective Green, g (s)	12.2	22.9		18.4	29.1		15.0	58.7		19.3	63.0	
Actuated g/C Ratio	0.09	0.16		0.13	0.21		0.11	0.42		0.14	0.45	
Clearance Time (s)	4.7	5.5		4.7	5.5		4.7	5.8		4.7	5.8	
Vehicle Extension (s)	1.0	3.5		1.0	3.5		1.0	5.0		1.0	5.0	
Lane Grp Cap (vph)	154	554		232	690		189	2656		244	2862	
v/s Ratio Prot	0.07	c0.14		0.14	c0.24		0.10	c0.41		c0.15	0.35	
v/s Ratio Perm												
v/c Ratio	0.83	0.86		1.04	1.13		0.93	0.99		1.12	0.77	
Uniform Delay, d1	62.9	57.0		60.8	55.4		62.0	40.4		60.4	32.4	
Progression Factor	1.00	1.00		1.00	1.00		1.46	0.48		0.74	0.46	
Incremental Delay, d2	28.9	12.7		69.6	76.5		30.3	10.6		86.0	1.5	
Delay (s)	91.8	69.7		130.4	132.0		120.9	29.8		130.6	16.3	
Level of Service	F	E		F	F		F	C		F	B	
Approach Delay (s)		74.2			131.6			35.5			28.9	
Approach LOS		E			F			D			C	

Intersection Summary				
HCM 2000 Control Delay	51.8	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	1.05			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.7	
Intersection Capacity Utilization	104.4%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis Operating Year (2015) Plus Project Conditions
6: Beach Blvd & Garfield Ave

PM Peak + Mitigation

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	195	434	131	126	414	151	205	1918	98	214	1680	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.8	5.8	4.6	5.8		4.6	6.2		4.6	6.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3397		1770	5048		1770	5022	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3397		1770	5048		1770	5022	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	207	462	139	134	440	161	218	2040	104	228	1787	162
RTOR Reduction (vph)	0	0	114	0	27	0	0	4	0	0	8	0
Lane Group Flow (vph)	207	462	25	134	574	0	218	2140	0	228	1941	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	14.4	25.1	25.1	12.1	22.8		19.7	63.8		17.8	61.9	
Effective Green, g (s)	14.4	25.1	25.1	12.1	22.8		19.7	63.8		17.8	61.9	
Actuated g/C Ratio	0.10	0.18	0.18	0.09	0.16		0.14	0.46		0.13	0.44	
Clearance Time (s)	4.6	5.8	5.8	4.6	5.8		4.6	6.2		4.6	6.2	
Vehicle Extension (s)	1.5	4.0	4.0	1.5	4.0		1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	182	634	283	152	553		249	2300		225	2220	
v/s Ratio Prot	c0.12	0.13		0.08	c0.17		0.12	c0.42		c0.13	0.39	
v/s Ratio Perm			0.02									
v/c Ratio	1.14	0.73	0.09	0.88	1.04		0.88	0.93		1.01	0.87	
Uniform Delay, d1	62.8	54.2	47.9	63.2	58.6		58.9	36.0		61.1	35.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.69	0.56		0.50	1.16	
Incremental Delay, d2	108.5	4.5	0.2	39.6	48.6		20.5	6.3		49.4	3.1	
Delay (s)	171.3	58.7	48.1	102.9	107.2		61.4	26.6		79.9	44.3	
Level of Service	F	E	D	F	F		E	C		E	D	
Approach Delay (s)		85.7			106.4			29.8			48.0	
Approach LOS		F			F			C			D	

Intersection Summary				
HCM 2000 Control Delay	53.0	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.99			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.2	
Intersection Capacity Utilization	95.8%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis Operating Year (2015) Plus Project Conditions
8: Beach Blvd & Atlanta Ave

PM Peak + Mitigation

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	111	298	54	78	371	274	135	1114	113	333	672	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.5		4.7	5.5		4.7	6.2		4.7	6.2	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.98		1.00	0.94		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3458		1770	3314		1770	5015		1770	4972	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3458		1770	3314		1770	5015		1770	4972	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	119	320	58	84	399	295	145	1198	122	358	723	126
RTOR Reduction (vph)	0	15	0	0	131	0	0	11	0	0	20	0
Lane Group Flow (vph)	119	363	0	84	563	0	145	1309	0	358	829	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	8.1	23.5		6.3	21.7		12.0	29.6		22.4	40.0	
Effective Green, g (s)	8.1	23.5		6.3	21.7		12.0	29.6		22.4	40.0	
Actuated g/C Ratio	0.08	0.23		0.06	0.21		0.12	0.29		0.22	0.39	
Clearance Time (s)	4.7	5.5		4.7	5.5		4.7	6.2		4.7	6.2	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	139	789		108	698		206	1442		385	1932	
v/s Ratio Prot	c0.07	0.11		0.05	c0.17		0.08	c0.26		c0.20	0.17	
v/s Ratio Perm												
v/c Ratio	0.86	0.46		0.78	0.81		0.70	0.91		0.93	0.43	
Uniform Delay, d1	46.8	34.2		47.6	38.6		43.7	35.3		39.5	23.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	36.1	0.2		26.7	6.4		8.6	9.1		28.1	0.3	
Delay (s)	82.9	34.4		74.3	45.0		52.3	44.4		67.6	23.4	
Level of Service	F	C		E	D		D	D		E	C	
Approach Delay (s)		46.0			48.2			45.2			36.5	
Approach LOS		D			D			D			D	

Intersection Summary				
HCM 2000 Control Delay	43.2	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.88			
Actuated Cycle Length (s)	102.9	Sum of lost time (s)	21.1	
Intersection Capacity Utilization	85.3%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis — Operating Year (2017) Plus (Full Removal)
6: Beach Blvd & Garfield Ave
AM Peak + Mitigation

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	174	544	147	113	348	155	142	1551	76	174	1709	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.8	5.8	4.6	5.8		4.6	6.2		4.6	6.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3376		1770	5050		1770	5046	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3376		1770	5050		1770	5046	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	183	573	155	119	366	163	149	1633	80	183	1799	98
RTOR Reduction (vph)	0	0	121	0	45	0	0	4	0	0	4	0
Lane Group Flow (vph)	183	573	34	119	484	0	149	1709	0	183	1893	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	15.7	26.6	26.6	12.2	23.1		16.2	44.8		15.2	43.8	
Effective Green, g (s)	15.7	26.6	26.6	12.2	23.1		16.2	44.8		15.2	43.8	
Actuated g/C Ratio	0.13	0.22	0.22	0.10	0.19		0.13	0.37		0.13	0.36	
Clearance Time (s)	4.6	5.8	5.8	4.6	5.8		4.6	6.2		4.6	6.2	
Vehicle Extension (s)	1.5	4.0	4.0	1.5	4.0		1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	231	784	350	179	649		238	1885		224	1841	
v/s Ratio Prot	0.10	c0.16		0.07	c0.14		0.08	c0.34		0.10	c0.38	
v/s Ratio Perm			0.02									
v/c Ratio	0.79	0.73	0.10	0.66	0.75		0.63	0.91		0.82	1.03	
Uniform Delay, d1	50.6	43.4	37.2	51.9	45.7		49.0	35.6		51.0	38.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.70	0.61		1.00	1.00	
Incremental Delay, d2	15.8	3.8	0.2	7.0	5.0		2.9	6.2		19.1	28.5	
Delay (s)	66.3	47.1	37.3	58.9	50.6		37.2	27.8		70.2	66.6	
Level of Service	E	D	D	E	D		D	C		E	E	
Approach Delay (s)		49.3			52.2			28.6			66.9	
Approach LOS		D			D			C			E	

Intersection Summary				
HCM 2000 Control Delay	49.3	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.92			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.2	
Intersection Capacity Utilization	85.3%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis — Operating Year (2017) Plus (Full Removal)
9: Huntington Beach Parking/Beach Blvd & Pacific Coast Highway
AM Peak + Mitigation

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	150	1948	10	4	937	422	5	5	5	728	37	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	6.0		4.5	6.0	6.0	5.0	5.0	5.0	5.0	5.0	4.0
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5081		1770	3539	1583	1770	3539	1583	3433	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5081		1770	3539	1583	1770	3539	1583	3433	1863	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	161	2095	11	4	1008	454	5	5	5	783	40	247
RTOR Reduction (vph)	0	1	0	0	0	266	0	0	5	0	0	0
Lane Group Flow (vph)	161	2105	0	4	1008	188	5	5	0	783	40	247
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases						2			4			Free
Actuated Green, G (s)	8.6	47.8		1.4	40.9	40.9	1.1	4.2	4.2	26.1	29.2	100.0
Effective Green, g (s)	8.6	47.8		1.4	40.9	40.9	1.1	4.2	4.2	26.1	29.2	100.0
Actuated g/C Ratio	0.09	0.48		0.01	0.41	0.41	0.01	0.04	0.04	0.26	0.29	1.00
Clearance Time (s)	4.2	6.0		4.5	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	1.5	4.6		2.0	4.5	4.5	2.0	1.8	1.8	2.0	1.8	
Lane Grp Cap (vph)	295	2428		24	1447	647	19	148	66	896	543	1583
v/s Ratio Prot	c0.05	c0.41		0.00	0.28		0.00	0.00		c0.23	0.02	
v/s Ratio Perm						0.12			0.00			c0.16
v/c Ratio	0.55	0.87		0.17	0.70	0.29	0.26	0.03	0.00	0.87	0.07	0.16
Uniform Delay, d1	43.8	23.3		48.7	24.4	19.8	49.0	46.0	45.9	35.4	25.6	0.0
Progression Factor	1.00	1.00		0.55	1.15	5.09	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	4.5		1.1	2.5	1.0	2.7	0.0	0.0	9.2	0.0	0.2
Delay (s)	44.9	27.8		27.8	30.5	101.8	51.7	46.0	45.9	44.6	25.6	0.2
Level of Service	D	C		C	C	F	D	D	D	D	C	A
Approach Delay (s)		29.0			52.6			47.9			33.6	
Approach LOS		C			D			D			C	

Intersection Summary				
HCM 2000 Control Delay	37.3	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.85			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.5	
Intersection Capacity Utilization	84.0%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	376	877	357	306	752	254	495	2256	646	440	2485	746
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.5	4.6	4.4	5.5	5.5	4.6	5.8	5.8	4.4	6.0	4.6
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.86	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	6408	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	6408	2787
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	388	904	368	315	775	262	510	2326	666	454	2562	769
RTOR Reduction (vph)	0	0	60	0	0	172	0	0	160	0	0	49
Lane Group Flow (vph)	388	904	308	315	775	90	510	2326	506	454	2562	720
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2		1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	14.4	28.9	48.9	13.7	28.0	28.0	20.0	60.7	60.7	16.6	56.9	71.3
Effective Green, g (s)	14.4	28.9	48.9	13.7	28.0	28.0	20.0	60.7	60.7	16.6	56.9	71.3
Actuated g/C Ratio	0.10	0.21	0.35	0.10	0.20	0.20	0.14	0.43	0.43	0.12	0.41	0.51
Clearance Time (s)	4.6	5.5	4.6	4.4	5.5	5.5	4.6	5.8	5.8	4.4	6.0	4.6
Vehicle Extension (s)	1.0	3.0	1.0	1.0	3.0	3.0	1.0	4.0	4.0	1.0	4.0	1.0
Lane Grp Cap (vph)	353	1049	552	335	707	316	490	2204	686	407	2604	1510
v/s Ratio Prot	c0.11	0.18	0.08	0.09	c0.22		0.15	c0.46		c0.13	0.40	0.05
v/s Ratio Perm			0.12			0.06			0.32			0.21
v/c Ratio	1.10	0.86	0.56	0.94	1.10	0.28	1.04	1.06	0.74	1.12	0.98	0.48
Uniform Delay, d1	62.8	53.6	36.8	62.7	56.0	47.5	60.0	39.6	33.0	61.7	41.1	22.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.69	0.53	0.19	1.28	0.73	0.74
Incremental Delay, d2	77.3	7.4	0.7	33.6	63.2	0.5	24.6	26.2	0.7	55.6	2.8	0.0
Delay (s)	140.1	61.0	37.5	96.3	119.2	48.0	66.0	47.3	7.0	134.4	32.7	16.4
Level of Service	F	E	D	F	F	D	E	D	A	F	C	B
Approach Delay (s)		74.3			100.0			42.4			41.6	
Approach LOS		E			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	54.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	104.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	127	358	152	239	511	362	178	2690	194	270	2358	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.5		4.7	5.5		4.7	5.8		4.7	5.8	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.86		1.00	0.86	
Frt	1.00	0.96		1.00	0.94		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3381		1770	3319		1770	6343		1770	6366	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3381		1770	3319		1770	6343		1770	6366	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	131	369	157	246	527	373	184	2773	200	278	2431	111
RTOR Reduction (vph)	0	34	0	0	91	0	0	8	0	0	5	0
Lane Group Flow (vph)	131	492	0	246	809	0	184	2965	0	278	2537	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	12.4	25.3		21.0	33.9		15.3	54.7		18.3	57.7	
Effective Green, g (s)	12.4	25.3		21.0	33.9		15.3	54.7		18.3	57.7	
Actuated g/C Ratio	0.09	0.18		0.15	0.24		0.11	0.39		0.13	0.41	
Clearance Time (s)	4.7	5.5		4.7	5.5		4.7	5.8		4.7	5.8	
Vehicle Extension (s)	1.0	3.5		1.0	3.5		1.0	5.0		1.0	5.0	
Lane Grp Cap (vph)	156	610		265	803		193	2478		231	2623	
v/s Ratio Prot	0.07	c0.15		0.14	c0.24		0.10	c0.47		c0.16	0.40	
v/s Ratio Perm												
v/c Ratio	0.84	0.81		0.93	1.01		0.95	1.20		1.20	0.97	
Uniform Delay, d1	62.8	55.0		58.8	53.0		62.0	42.6		60.8	40.2	
Progression Factor	1.00	1.00		1.00	1.00		0.89	0.54		0.65	0.48	
Incremental Delay, d2	29.7	7.9		35.7	33.6		26.4	89.9		113.9	7.9	
Delay (s)	92.5	62.9		94.5	86.7		81.6	113.0		153.2	27.1	
Level of Service	F	E		F	F		F	F		F	C	
Approach Delay (s)		68.8			88.3			111.1			39.5	
Approach LOS		E			F			F			D	

Intersection Summary			
HCM 2000 Control Delay	78.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	110.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis — Operating Year (2017) Plus (Full Removal)
5: Beach Blvd & Main St/Ellis Ave
PM Peak + Mitigation

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	423	480	172	169	455	245	181	2270	230	358	1935	408
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.7	6.0		4.7	6.0	6.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.86		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3539	1583	3433	6319		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3539	1583	3433	6319		3433	5085	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	441	500	179	176	474	255	189	2365	240	373	2016	425
RTOR Reduction (vph)	0	0	113	0	0	130	0	12	0	0	0	19
Lane Group Flow (vph)	441	500	66	176	474	125	189	2593	0	373	2016	406
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	pt+ov
Protected Phases	7	7		8	8		5	2		1	6	6 7
Permitted Phases			7			8						
Actuated Green, G (s)	29.0	29.0	29.0	18.0	18.0	18.0	10.1	54.4		15.9	60.2	95.2
Effective Green, g (s)	29.0	29.0	29.0	18.0	18.0	18.0	10.1	54.4		15.9	60.2	95.2
Actuated g/C Ratio	0.21	0.21	0.21	0.13	0.13	0.13	0.07	0.39		0.11	0.43	0.68
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.7	6.0		4.7	6.0	
Vehicle Extension (s)	2.2	2.2	2.2	1.2	1.2	1.2	1.2	5.0		1.2	5.0	
Lane Grp Cap (vph)	711	733	327	227	455	203	247	2455		389	2186	1076
v/s Ratio Prot	0.13	c0.14		0.10	c0.13		0.06	c0.41		c0.11	0.40	0.26
v/s Ratio Perm			0.04			0.08						
v/c Ratio	0.62	0.68	0.20	0.78	1.04	0.62	0.77	1.06		0.96	0.92	0.38
Uniform Delay, d1	50.5	51.2	45.9	59.0	61.0	57.7	63.8	42.8		61.7	37.7	9.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.11	0.81		1.27	0.53	0.44
Incremental Delay, d2	1.3	2.2	0.2	13.9	53.5	3.9	1.2	26.4		16.7	2.9	0.0
Delay (s)	51.8	53.5	46.1	73.0	114.5	61.6	72.0	61.1		95.3	22.9	4.3
Level of Service	D	D	D	E	F	E	E	E		F	C	A
Approach Delay (s)		51.6			91.5			61.8			29.7	
Approach LOS		D			F			E			C	

Intersection Summary				
HCM 2000 Control Delay	52.0	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.95			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.7	
Intersection Capacity Utilization	90.5%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis — Operating Year (2017) Plus (Full Removal)
6: Beach Blvd & Garfield Ave
PM Peak + Mitigation

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	199	442	133	138	422	153	209	2236	109	218	1943	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.8	5.8	4.6	5.8		4.6	6.2		4.6	6.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3398		1770	5050		1770	5029	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3398		1770	5050		1770	5029	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	212	470	141	147	449	163	222	2379	116	232	2067	165
RTOR Reduction (vph)	0	0	114	0	26	0	0	4	0	0	6	0
Lane Group Flow (vph)	212	470	27	147	586	0	222	2491	0	232	2226	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	14.4	27.2	27.2	11.4	24.2		21.4	63.8		16.4	58.8	
Effective Green, g (s)	14.4	27.2	27.2	11.4	24.2		21.4	63.8		16.4	58.8	
Actuated g/C Ratio	0.10	0.19	0.19	0.08	0.17		0.15	0.46		0.12	0.42	
Clearance Time (s)	4.6	5.8	5.8	4.6	5.8		4.6	6.2		4.6	6.2	
Vehicle Extension (s)	1.5	4.0	4.0	1.5	4.0		1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	182	687	307	144	587		270	2301		207	2112	
v/s Ratio Prot	c0.12	0.13		0.08	c0.17		0.13	c0.49		0.13	c0.44	
v/s Ratio Perm			0.02									
v/c Ratio	1.16	0.68	0.09	1.02	1.00		0.82	1.08		1.12	1.05	
Uniform Delay, d1	62.8	52.4	46.2	64.3	57.9		57.5	38.1		61.8	40.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.90	0.87		0.75	1.32	
Incremental Delay, d2	118.1	3.1	0.2	80.6	36.3		11.4	42.8		81.9	30.9	
Delay (s)	180.9	55.5	46.4	144.9	94.2		63.2	75.9		128.2	84.7	
Level of Service	F	E	D	F	F		E	E		F	F	
Approach Delay (s)		86.2			104.0			74.9			88.8	
Approach LOS		F			F			E			F	

Intersection Summary				
HCM 2000 Control Delay	84.6	HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio	1.09			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.2	
Intersection Capacity Utilization	103.0%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				

7: Beach Blvd & Adams Ave

PM Peak + Mitigation

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	145	469	59	233	797	379	147	1644	152	351	1482	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	6.2		4.7	6.2	6.2	4.7	6.2		4.7	6.2	
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00	1.00	0.91		0.97	0.91	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5001		1770	3539	1583	1770	5021		3433	5014	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5001		1770	3539	1583	1770	5021		3433	5014	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	151	489	61	243	830	395	153	1712	158	366	1544	159
RTOR Reduction (vph)	0	11	0	0	0	185	0	7	0	0	9	0
Lane Group Flow (vph)	151	539	0	243	830	210	153	1863	0	366	1694	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	13.1	29.4		19.9	36.2	36.2	15.1	53.2		15.7	53.8	
Effective Green, g (s)	13.1	29.4		19.9	36.2	36.2	15.1	53.2		15.7	53.8	
Actuated g/C Ratio	0.09	0.21		0.14	0.26	0.26	0.11	0.38		0.11	0.38	
Clearance Time (s)	4.7	6.2		4.7	6.2	6.2	4.7	6.2		4.7	6.2	
Vehicle Extension (s)	1.8	5.0		1.8	5.0	5.0	1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	165	1050		251	915	409	190	1907		384	1926	
v/s Ratio Prot	0.09	0.11		c0.14	c0.23		0.09	c0.37		0.11	c0.34	
v/s Ratio Perm						0.13						
v/c Ratio	0.92	0.51		0.97	0.91	0.51	0.81	0.98		0.95	0.88	
Uniform Delay, d1	62.9	49.0		59.7	50.3	44.4	61.0	42.8		61.8	40.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		0.87	0.54	
Incremental Delay, d2	45.2	0.8		47.1	13.2	2.2	20.3	15.8		6.1	0.6	
Delay (s)	108.1	49.8		106.9	63.4	46.5	81.4	58.6		59.6	22.2	
Level of Service	F	D		F	E	D	F	E		E	C	
Approach Delay (s)		62.4			66.1			60.3			28.8	
Approach LOS		E			E			E			C	

Intersection Summary			
HCM 2000 Control Delay	51.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.8
Intersection Capacity Utilization	93.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

8: Beach Blvd & Atlanta Ave

PM Peak + Mitigation

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	163	337	55	80	408	278	137	1331	115	340	886	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.5		4.7	5.5		4.7	6.2		4.7	6.2	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.98		1.00	0.94		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3465		1770	3324		1770	5024		1770	4962	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3465		1770	3324		1770	5024		1770	4962	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	175	362	59	86	439	299	147	1431	124	366	953	183
RTOR Reduction (vph)	0	10	0	0	95	0	0	8	0	0	20	0
Lane Group Flow (vph)	175	411	0	86	643	0	147	1547	0	366	1116	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	13.5	30.4		10.1	27.0		14.2	39.5		27.0	52.3	
Effective Green, g (s)	13.5	30.4		10.1	27.0		14.2	39.5		27.0	52.3	
Actuated g/C Ratio	0.11	0.24		0.08	0.21		0.11	0.31		0.21	0.41	
Clearance Time (s)	4.7	5.5		4.7	5.5		4.7	6.2		4.7	6.2	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.5	5.0		1.5	5.0	
Lane Grp Cap (vph)	186	822		139	700		196	1549		373	2025	
v/s Ratio Prot	c0.10	c0.12		0.05	c0.19		0.08	c0.31		c0.21	0.22	
v/s Ratio Perm												
v/c Ratio	0.94	0.50		0.62	0.92		0.75	1.00		0.98	0.55	
Uniform Delay, d1	56.9	42.3		57.1	49.5		55.2	44.3		50.3	28.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	48.6	0.2		5.7	16.7		13.3	22.5		41.3	0.6	
Delay (s)	105.5	42.4		62.8	66.2		68.5	66.8		91.6	29.5	
Level of Service	F	D		E	E		E	E		F	C	
Approach Delay (s)		61.0			65.9			66.9			44.6	
Approach LOS		E			E			E			D	

Intersection Summary			
HCM 2000 Control Delay	58.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	128.1	Sum of lost time (s)	21.1
Intersection Capacity Utilization	93.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis — Operating Year (2017) Plus (Full Removal)
9: Huntington Beach Parking/Beach Blvd & Pacific Coast Highway — PM Peak + Mitigation

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	381	1304	12	12	1800	859	10	29	18	461	20	301
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	6.0		4.5	6.0	6.0	5.0	5.0	5.0	5.0	5.0	4.0
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5079		1770	3539	1583	1770	3539	1583	3433	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5079		1770	3539	1583	1770	3539	1583	3433	1863	1583
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	428	1465	13	13	2022	965	11	33	20	518	22	338
RTOR Reduction (vph)	0	0	0	0	0	304	0	0	19	0	0	0
Lane Group Flow (vph)	428	1478	0	13	2022	661	11	33	1	518	22	338
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases						2			4			Free
Actuated Green, G (s)	18.0	68.9		2.8	54.0	54.0	1.0	6.0	6.0	21.8	26.8	120.0
Effective Green, g (s)	18.0	68.9		2.8	54.0	54.0	1.0	6.0	6.0	21.8	26.8	120.0
Actuated g/C Ratio	0.15	0.57		0.02	0.45	0.45	0.01	0.05	0.05	0.18	0.22	1.00
Clearance Time (s)	4.2	6.0		4.5	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	1.5	4.6		2.0	4.5	4.5	2.0	1.8	1.8	2.0	1.8	
Lane Grp Cap (vph)	514	2916		41	1592	712	14	176	79	623	416	1583
v/s Ratio Prot	c0.12	0.29		0.01	c0.57		0.01	0.01		c0.15	0.01	
v/s Ratio Perm						0.42			0.00			c0.21
v/c Ratio	0.83	0.51		0.32	1.27	0.93	0.79	0.19	0.01	0.83	0.05	0.21
Uniform Delay, d1	49.5	15.3		57.7	33.0	31.2	59.4	54.7	54.2	47.3	36.6	0.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.6	0.6		1.6	126.6	20.1	123.8	0.2	0.0	8.9	0.0	0.3
Delay (s)	60.1	16.0		59.3	159.6	51.3	183.2	54.9	54.2	56.2	36.6	0.3
Level of Service	E	B		E	F	D	F	D	D	E	D	A
Approach Delay (s)		25.9			124.4			76.7			34.2	
Approach LOS		C			F			E			C	

Intersection Summary			
HCM 2000 Control Delay	78.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	93.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis — Operating Year (2017) Plus (Full Removal)
12: Huntington Beach Parking/Newland St & Pacific Coast Highway — PM Peak + Mitigation

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	238	1522	4	6	2451	191	8	3	5	50	2	156
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.7	5.7	4.0	5.7	5.7	4.2	4.2		4.2	4.2	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1688		1770	1587	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.56	1.00		0.75	1.00	
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1034	1688		1402	1587	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	251	1602	4	6	2580	201	8	3	5	53	2	164
RTOR Reduction (vph)	0	0	2	0	0	100	0	4	0	0	125	0
Lane Group Flow (vph)	251	1602	2	6	2580	101	8	4	0	53	41	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases			2			6	4			8		
Actuated Green, G (s)	12.0	61.2	61.2	1.1	50.3	50.3	23.8	23.8		23.8	23.8	
Effective Green, g (s)	12.0	61.2	61.2	1.1	50.3	50.3	23.8	23.8		23.8	23.8	
Actuated g/C Ratio	0.12	0.61	0.61	0.01	0.50	0.50	0.24	0.24		0.24	0.24	
Clearance Time (s)	4.0	5.7	5.7	4.0	5.7	5.7	4.2	4.2		4.2	4.2	
Vehicle Extension (s)	1.7	4.6	4.6	1.7	4.6	4.6	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	212	3112	968	19	2557	796	246	401		333	377	
v/s Ratio Prot	c0.14	0.32		0.00	c0.51			0.00			0.03	
v/s Ratio Perm			0.00			0.06	0.01			c0.04		
v/c Ratio	1.18	0.51	0.00	0.32	1.01	0.13	0.03	0.01		0.16	0.11	
Uniform Delay, d1	44.0	11.0	7.5	49.1	24.8	13.2	29.3	29.1		30.2	29.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	120.4	0.6	0.0	3.5	20.0	0.3	0.2	0.0		1.0	0.6	
Delay (s)	164.4	11.6	7.5	52.5	44.9	13.5	29.5	29.2		31.2	30.4	
Level of Service	F	B	A	D	D	B	C	C		C	C	
Approach Delay (s)		32.2			42.6			29.3			30.6	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	38.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.9
Intersection Capacity Utilization	81.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

APPENDIX J: HAMILTON LANE CLOSURE LOS RESULTS

Existing Plus Project Conditions (2013) - Hamilton Construction
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #13 Magnolia St & Hamilton Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.542
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	41	Level Of Service:	A

Street Name:	Magnolia Street							Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Prot+Permit					Prot+Permit					Permitted					Permitted				
Rights:	Include					Include					Include					Include				
Min. Green:	0	0	0			0	0	0			0	0	0			0	0	0		
Y+R:	4.0	4.0	4.0			4.0	4.0	4.0			4.0	4.0	4.0			4.0	4.0	4.0		
Lanes:	1	0	1	1	0	1	0	2	0	1	0	0	1!	0	0	1	0	1	0	1
Volume Module:																				
Base Vol:	29	184	45			200	242	38			87	383	51			32	258	324		
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:	29	184	45			200	242	38			87	383	51			32	258	324		
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:	29	184	45			200	242	38			87	383	51			32	258	324		
Reduct Vol:	0	0	0			0	0	0			0	0	0			0	0	0		
Reduced Vol:	29	184	45			200	242	38			87	383	51			32	258	324		
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:	29	184	45			200	242	38			87	383	51			32	258	324		
Saturation Flow Module:																				
Sat/Lane:	1600	1600	1600			1600	1600	1600			1600	1600	1600			1600	1600	1600		
Adjustment:	1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00		
Lanes:	1.00	1.61	0.39			1.00	2.00	1.00			0.17	0.73	0.10			1.00	1.00	1.00		
Final Sat.:	1600	2571	629			1600	3200	1600			267	1176	157			1600	1600	1600		
Capacity Analysis Module:																				
Vol/Sat:	0.02	0.07	0.07			0.13	0.08	0.02			0.05	0.33	0.33			0.02	0.16	0.20		
Crit Moves:		****				****						****				****				

Existing Plus Project Conditions (2013) - Hamilton Construction
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #13 Magnolia St & Hamilton Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.544
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	41	Level Of Service:	A

Street Name:	Magnolia Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Prot+Permit			Prot+Permit			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0 1	1 0	1	0 2	0 1	0	0 1!	0 0	1	0 1	0 1
Volume Module:												
Base Vol:	27	292	25	196	173	28	30	270	34	33	486	313
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:	27	292	25	196	173	28	30	270	34	33	486	313
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:	27	292	25	196	173	28	30	270	34	33	486	313
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	27	292	25	196	173	28	30	270	34	33	486	313
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:	27	292	25	196	173	28	30	270	34	33	486	313
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.84	0.16	1.00	2.00	1.00	0.09	0.81	0.10	1.00	1.00	1.00
Final Sat.:	1600	2948	252	1600	3200	1600	144	1293	163	1600	1600	1600
Capacity Analysis Module:												
Vol/Sat:	0.02	0.10	0.10	0.12	0.05	0.02	0.02	0.21	0.21	0.02	0.30	0.20
Crit Moves:		****		****			****				****	

Operating Year Plus Project Conditions (2015) - Hamilton Construction
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #13 Magnolia St & Hamilton Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.557
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	42	Level Of Service:	A

Street Name:	Magnolia Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Prot+Permit			Prot+Permit			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0 1	1 0	1	0 2	0 1	0	0 1!	0 0	1	0 1	0 1
Volume Module:												
Base Vol:	30	188	46	204	247	39	89	396	52	33	274	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:	30	188	46	204	247	39	89	396	52	33	274	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:	30	188	46	204	247	39	89	396	52	33	274	330
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	30	188	46	204	247	39	89	396	52	33	274	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:	30	188	46	204	247	39	89	396	52	33	274	330
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.61	0.39	1.00	2.00	1.00	0.16	0.74	0.10	1.00	1.00	1.00
Final Sat.:	1600	2571	629	1600	3200	1600	265	1180	155	1600	1600	1600
Capacity Analysis Module:												
Vol/Sat:	0.02	0.07	0.07	0.13	0.08	0.02	0.06	0.34	0.34	0.02	0.17	0.21
Crit Moves:		****		****				****		****		

Operating Year Plus Project Conditions (2015) - Hamilton Construction
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #13 Magnolia St & Hamilton Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.569
Loss Time (sec): 0 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 43 Level Of Service: A

Street Name:	Magnolia Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Prot+Permit			Prot+Permit			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0 1	1 0	1	0 2	0 1	0	0 1!	0 0	1	0 1	0 1
Volume Module:												
Base Vol:	28	298	26	200	176	29	31	301	35	34	518	319
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	298	26	200	176	29	31	301	35	34	518	319
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	298	26	200	176	29	31	301	35	34	518	319
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	28	298	26	200	176	29	31	301	35	34	518	319
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:	28	298	26	200	176	29	31	301	35	34	518	319
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.84	0.16	1.00	2.00	1.00	0.08	0.82	0.10	1.00	1.00	1.00
Final Sat.:	1600	2943	257	1600	3200	1600	135	1312	153	1600	1600	1600
Capacity Analysis Module:												
Vol/Sat:	0.02	0.10	0.10	0.13	0.06	0.02	0.02	0.23	0.23	0.02	0.32	0.20
Crit Moves:		****		****			****				****	

Operating Year (2017) Plus Project (Full Removal) Conditions - Hamilton Constru
AM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #13 Magnolia St & Hamilton Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.566
Loss Time (sec): 0 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 43 Level Of Service: A

Street Name:	Magnolia Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Prot+Permit			Prot+Permit			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0 1	1 0	1	0 2	0 1	0	0 1!	0 0	1	0 1	0 1
Volume Module:												
Base Vol:	30	191	47	208	252	40	90	403	53	33	279	337
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	191	47	208	252	40	90	403	53	33	279	337
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	191	47	208	252	40	90	403	53	33	279	337
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	30	191	47	208	252	40	90	403	53	33	279	337
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:	30	191	47	208	252	40	90	403	53	33	279	337
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.61	0.39	1.00	2.00	1.00	0.16	0.74	0.10	1.00	1.00	1.00
Final Sat.:	1600	2568	632	1600	3200	1600	264	1181	155	1600	1600	1600
Capacity Analysis Module:												
Vol/Sat:	0.02	0.07	0.07	0.13	0.08	0.03	0.06	0.34	0.34	0.02	0.17	0.21
Crit Moves:		****		****				****		****		

Operating Year (2017) Plus Project (Full Removal) Conditions - Hamilton Constru
PM Peak

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #13 Magnolia St & Hamilton Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.579
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	44	Level Of Service:	A

Street Name:	Magnolia Street						Hamilton Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Prot+Permit			Prot+Permit			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1	1 0	1 0	2 0	1	0 0	1! 0	0	1 0	1 0	1
Volume Module:												
Base Vol:	28	304	26	204	180	29	31	307	35	34	527	326
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	304	26	204	180	29	31	307	35	34	527	326
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	304	26	204	180	29	31	307	35	34	527	326
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	28	304	26	204	180	29	31	307	35	34	527	326
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:	28	304	26	204	180	29	31	307	35	34	527	326
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.84	0.16	1.00	2.00	1.00	0.08	0.83	0.09	1.00	1.00	1.00
Final Sat.:	1600	2948	252	1600	3200	1600	133	1317	150	1600	1600	1600
Capacity Analysis Module:												
Vol/Sat:	0.02	0.10	0.10	0.13	0.06	0.02	0.02	0.23	0.23	0.02	0.33	0.20
Crit Moves:		****		****			****				****	