APPENDIX D

TRAFFIC IMPACT STUDY

Traffic Study Technical Appendices
Are Included on the Draft EIR CD
and
On the City of Santa Cruz Website

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Traffic Impact Study

LA BAHIA HOTEL
SANTA CRUZ, CALIFORNIA

January 6, 2014

Prepared for:
Santa Cruz Seaside Company and
the City of Santa Cruz, CA

Prepared by:

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1. INTRODUCTION

PROJECT DESCRIPTION

The La Bahia Hotel is a proposed four-star 165-room hotel to be built along Beach Street in Santa Cruz, California. The hotel will feature a meeting room/conference space, 5,000 square-feet of retail and restaurant space, and a 750 square-foot day spa facility. The project is being constructed at the existing La Bahia Apartments across the street from the Santa Cruz Boardwalk.

The La Bahia site, in reference to the greater Monterey Bay region, is shown in **Figure 1**. Santa Cruz is adjacent to Scott's Valley, the Santa Cruz Mountains to the north, and Monterey to the south. Highway 1 South (Cabrillo Highway / State Route 1) connects the city to numerous state parks and beaches in Monterey Bay, Highway 17 (State Route 17) connects Santa Cruz to Silicon Valley and the San Francisco Bay area, and Highway 1 North connects to Half Moon Bay, Pacifica and San Francisco. The proposed project is to be located with the main entrance on Beach Street with parking garage access from Westbrook Street and Main Street.

SCOPE OF WORK

The scope of work for this traffic study was developed in coordination with City staff. The purpose of the study is to identify the potential traffic impacts that may be associated with the development of the project. The traffic study includes a traffic impact analysis on intersection traffic operations during typical weekday PM peak hour conditions. The analysis follows the City General Plan conditions.

Study Intersections

A total of 16 intersections were identified for analysis. The study intersections were determined to be those where the majority of the traffic generated by development at the La Bahia site will be focused, and where potential traffic impacts are most likely to occur. The City Traffic Impact Study guidelines require "critical" intersections be included in the analysis that will experience a project traffic increase of 25 or more peak hour trips to be analyzed. The addition of 25 or more PM peak hour trips at critical intersections may change the level of service (LOS) by one level or more and cause a potential impact. "Critical" intersections are included in the General Plan and in the City Traffic Impact Fee Program and operating conditions are regarded as critical for efficient traffic flow (i.e. the addition of new project traffic may result in congested traffic operations during the analysis peak hour and improvements may be required). These study intersections are shown in **Figure 2** and are listed below:

1. Highway 1 / Highway 9 --- [signalized]
2. Highway 17 / Ocean Street --- [signalized]
3. Bay Street / Mission Street (Highway 1) --- [signalized]
4. Ocean Street / Water Street --- [signalized]
5. Front Street / Laurel Street --- [signalized]
6. Ocean Street / Soquel Avenue --- [signalized]
7. Ocean Street / Broadway --- [signalized]
8. West Cliff Drive / Bay Street --- [all-way stop]
9. Pacific Avenue / Beach Street --- [all-way stop]
10. Cliff Street / Beach Street --- [all-way stop]
11. Riverside Avenue / Leibrandt Street-2nd Street --- [all-way stop]
12. West Cliff Drive / Beach Street --- [one-way stop]

13. Westbrook Street / Beach Street --- [one-way stop]
14. Main Street / Beach Street --- [one-way stop]
15. Riverside Avenue / San Lorenzo Boulevard --- [signalized]
16. Ocean Street / San Lorenzo Boulevard --- [signalized]

The City of Santa Cruz and Caltrans are jointly managing the traffic operations at the Highway 1 / Highway 9, Highway 17 / Ocean Street and Bay Street / Mission Street (Highway 1) study intersections.

Study Highway Segments

Two highways were identified for capacity analysis in this study: Highways 1 and 17. The following four highway segments are analyzed, and are graphically indicated in **Figure 2**:

1. Highway 1 – Highway 9-River Street to Highway 17 Junction
2. Highway 1 – Emeline Avenue to Morrissey Boulevard
3. Highway 1 – Morrissey Boulevard to Soquel Avenue
4. Highway 17 – Highway 1 Junction to Pasatiempo Drive

Analysis Scenarios

The study includes analysis of PM peak hour traffic conditions under the following development scenarios:

- **Existing Conditions** – This scenario includes existing (2013) traffic volumes with existing roadway and intersection configurations and traffic control.
- **Existing Plus Project** – This scenario includes existing (2013) traffic volumes with the addition of Project trips distributed to the existing roadway network.
- **Cumulative Conditions** – This scenario includes future traffic volumes with cumulative development envisioned through buildout of the City of Santa Cruz 2030 General Plan, including project traffic distributed to the roadway network.

TRAFFIC TERMINOLOGY AND ASSESSMENT METHODS

This section defines key terminology and describes methodologies used for analyzing traffic operations at study intersections and highway segments.

Intersection Level of Service (LOS) Methodology

Level of Service (LOS) is a qualitative term describing operating conditions a driver will experience while traveling on a particular street or at an intersection during a specific time interval. It ranges from LOS A (very little delay) to LOS F (long delays and congestion).

Signalized Intersections

For signalized intersections, level of service is measured as the average control delay in seconds per vehicle. Control delay is the portion of the total delay experienced by drivers at intersections that is attributable to traffic signal operation. It includes the delay for decelerating to a stop at a signal, moving slowly in a queue of vehicles, stopped delay, and acceleration after the signal turns green. To evaluate signalized intersections, the operations method of the *2010 Highway Capacity Manual*, Transportation Research Board, National Research Council, 2010 (HCM) was utilized.

Unsignalized Intersections

To evaluate unsignalized intersections, the operations method of the HCM was also utilized. This methodology determines the LOS based on delay. The delay is reported for the worst approach when the intersection is controlled with one- or two-way stop signs. The delay is an average for all approaches when the intersection is controlled with all-way stop signs.

Table 1 provides definitions for each level of service category and summarizes the LOS criteria both signalized and unsignalized intersections.

Table 1: Level of Service Definitions for Signalized and Unsignalized Intersections

Level of Service	Description	Signalized Intersection Control Delay (seconds/vehicle)	Unsignalized Intersection Control Delay (seconds/vehicle)
A	Free flow with no delays; Users are virtually unaffected by others in the traffic stream	< 10	0 – 10
B	Stable traffic; Traffic flows smoothly with few delays	> 10 – 20	> 10 – 15
C	Stable flow but the operation of individual users becomes affected by other vehicles; Modest delays	> 20 – 35	>15 – 25
D	Approaching unstable flow; Operation of individual users becomes significantly affected by other vehicles; Delays may be longer than one cycle during peak hours	> 35 – 55	> 25- 35
E	Unstable flow with operating conditions at or near the capacity level; Long delays and vehicle queuing	> 55 – 80	> 35 – 50
F	Forced or breakdown flow that causes reduced capacity; Stop and go traffic conditions; Excessive long delays and vehicle queuing	> 80	> 50

1. Source: Transportation Research Board, Highway Capacity Manual 2010, National Research Council.

Highway Level of Service Methodology

Performance measures such as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience are used to describe highway operation conditions. These measures are directly related to the density of traffic and LOS is a quality measure describing operation conditions within the stream of traffic during peak hours. The HCM defines six LOS grades for each type of facility. LOS is designated from A to F, with LOS A representing the best operating conditions and LOS F the worst. The LOS for a basic freeway segment is based on density given in units of passenger cars per mile per lane. **Table 2** describes the relationship between density and freeway LOS.

Table 2: Freeway Segment Level of Service Criteria

Level of Service	Density Range (pc/mi/ln)
A	0 - 11
B	> 11 - 18
C	> 18 - 26
D	> 26 - 35
E	> 35 - 45
F	> 45
Source: Transportation Research Board, Highway Capacity Manual 2010, National Research Council.	

Level of Service Standards

- As per the current City of Santa Cruz 2030 General Plan, the City has established LOS D as the minimum acceptable LOS for overall intersection operations. However, the existing General Plan 2030 accepts a lower LOS at major regional intersections if necessary improvements would be too costly or result in significant environmental impacts (Policies-Actions M3.1.3, M3.1.4).

Caltrans has jurisdiction over state highways and hopes to maintain a target LOS between C and D. However, Caltrans also acknowledges this may not always be feasible and recommends the lead agency consult directly with Caltrans to determine the appropriate target LOS. For many Caltrans facilities, Transportation Concept Reports (TCR) have been prepared. A TCR is a long-term planning document that evaluates existing and future conditions along a highway or freeway corridor. The planning horizon is twenty-years and the document recommends long-term improvements for the corridor.

According to the Transportation Concept Report for US Route 1 in Caltrans District 5 (April 2006), "Historically, District 5 targeted a peak hour concept of LOS C or better for state highways. However, in each county, current operations, existing development patterns, environmental values, local plans, and/or projected growth are such that achieving even LOS D will require major improvements and concerted efforts to manage demand." The proposed route concept for Highway 1 between Larkin Valley Road to Highway 17, and from Highway 17 to the Santa Cruz City Limits, which includes all Highway 1 segments analyzed in this study, identifies a peak of LOS D or better. According to the Transportation Concept Report for US Route 17 in Caltrans District 5 (January 2006), the proposed route concept for Highway 17 between the Highway 1/Highway 17 junction north to Granite Creek Road identifies a peak of LOS E or better.

Based on the TCR developed by Caltrans District 5, the analysis in this study is based on the assumption of LOS D being the appropriate target level of service for the study segments of Highway 1, and LOS E being the appropriate target level of service for study segments of Highway 17. If an existing State highway facility is operating at less than the appropriate target LOS, the existing LOS should be maintained (Caltrans, December 2002.).

SIGNIFICANCE CRITERIA

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines, City of Santa Cruz plans and policies, Caltrans guidelines and agency and professional standards, a project impact would be considered significant if:

- The project would conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit OR the project traffic when added to existing conditions would result in the level of service deteriorating below the City standard or would substantially worsen an intersection operating below level of service D**. The City's current level of service standard is LOS D, although the General Plan policies consider accepting a LOS below "D" at major regional intersections where improvements would be prohibitively costly or result in significant, unacceptable environmental impacts;
- The project traffic would change the peak hour level of service of a State Highway roadway segment from acceptable operation to deficient operation with the addition of project-generated traffic;
- If the project substantially increases hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- The project results in inadequate emergency access;
- The project conflicts with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities); or

**The City considers project traffic impacts to be significant if congestion at intersections operating below LOS D will measurably worsen at the intersection as a result of the project. "Measurably worsen" is considered to be a 3% increase in trips at the affected intersection. The City has used the 3% significance criterion for project trip contribution at existing impacted intersections, in part based on directives in the City's General Plan to accept a certain level of congestion during peak hours at major intersections, as well as to reflect variations in daily traffic volumes. The 3% criterion has been used throughout the City, except at Caltrans-operated intersections, and is based upon the likelihood that a project will result in an observable increase in congestion and in part is based on information provided by Caltrans in the yearly "Traffic Volumes" reports that identifies the standard deviation expected with regards to reliability of traffic count data. The standard deviation ranges indicate a 12% deviation at 10,000 vehicle trips, meaning that if a traffic count totals 10,000 vehicles per day, then approximately 90% of the time, the actual traffic counts will lie within a range of 8,800 to 11,200 vehicles. Thus, the 3% reflects this variation in daily traffic conditions.

2. EXISTING TRANSPORTATION CONDITIONS

This section describes the existing transportation system, including a description of the study area roadway system, transit systems, and bicycle and pedestrian facilities within the vicinity of the Project. In addition, this section provides a summary of existing traffic volumes and intersection levels of service.

STUDY AREA ROADWAY SYSTEM

The functional classifications of relevant Santa Cruz roads are as follows:

State Highways

State highways that go through the City of Santa Cruz are segments of Highways 1, 17, and 9; Caltrans references them as state routes. These highways serve the purpose of providing inter-regional travel for riders commuting to and from destinations in the Santa Clara Valley, Santa Cruz County and Monterey Bay, including those who commute into Santa Cruz for recreational purposes.

Highway SR 1(Mission St) provides access to San Francisco to the north and Monterey to the south. Though the highway is oriented in an east to west direction within Santa Cruz, it is primarily aligned as a north to south direction for interregional travel. It is four-lanes along Mission Street from the west side of Santa Cruz to the Chestnut Extension, a four lane expressway between the Chestnut Extension and River Street, and a four lane freeway east of River Street. The speed limits for the corresponding sections are 25 miles per hour (mph), 45 mph, and between 55 and 65 mph, respectively.

Highway SR 17 provides access to the Santa Clara Valley and San Jose to the north and intersects Ocean Street within the City of Santa Cruz to the south. It is a frequently traveled route for commuters to the Santa Clara Valley and for recreational traffic coming into Santa Cruz. In the vicinity of the project, it is a four-lane freeway with a speed limit of 55 mph just north of Highway 1, and 65 mph north of Pasatiempo Drive.

Highway 9 provides access between the City of Santa Cruz and the San Lorenzo Valley. In the vicinity of the project, Highway 9 is signed along River Street north of Highway 1. The speed limit on Highway 9 is 25 mph from Highway 1 to just north of Encinal Street, and 35 mph north of Encinal Street.

Arterials

The function of arterial roadways is to accommodate high traffic volumes and intra-city circulation. These streets are used to travel to major activity centers, facilitate freeway access, and connect to other arterials. They also serve adjacent residential land uses via arterial and collector connections.

Ocean Street is a four-lane north to south arterial that intersects Highway 17 to the north and E. Cliff Drive to the south. On-street metered parking is available along most stretches of Ocean Street north of Soquel Avenue. It is connected to many east-west arterials along its stretch and the posted speed limit is 30 mph.

Bay Street is a two-lane northwest to southeast arterial that intersects Mission Street (Highway 1) to the north and W. Cliff Drive to the south. The posted speed limit is 25 mph. The major collectors of intersect are California Street and California Avenue.

Water Street is a four-lane east to west arterial that intersects Mission and River Streets to the west and Morrissey Boulevard and Soquel Avenue to the east. The posted speed limit is 30 mph and Ocean Street and Front Street are the major north-south arterials of intersect.

Broadway Avenue & Soquel Avenue are east to west arterials that intersect Ocean Street and Seabright Avenue; the western extents intersects Front Street. The -posted speed limit for both arterials is 25 mph. Broadway is a two-lane arterial while Soquel is four-lanes.

Riverside Avenue, Front Street, & Pacific Avenue are north to south two-lane arterials with posted speed limits of 25 mph. Their primary function is to serve the downtown and Boardwalk areas within the City of Santa Cruz and intersect many local roads and a few east-west arterials. Riverside Avenue is a one-way street southbound from 3rd to Beach Street. There is on-street metered parking on many stretches of these roadways.

San Lorenzo Boulevard, E. Cliff Drive, Laurel Street, 2nd Street, & Leibrandt Avenue are two-lane east to west arterials with posted speed limits of 25 mph. They are all shorter segments of roadway primarily connecting to local streets, some major north-west arterials, in addition to serving the downtown and Boardwalk areas. Both metered and unmetered local on-street parking spots are available and there are many left or right-turn exclusive lanes on these arterials. 2nd Street is a one-way road heading west.

Beach Street is a two-lane east to west arterial that runs parallel to the coast line of Monterey Bay. It is a one-way roadway heading east past Pacific Avenue and the posted speed limit is 25. Most intersections are stop sign controlled except at Riverside Avenue. There is a buffered cycle track on the south side of the street and metered on-street parking on the north and portions of the south side. It connects to several arterial and local streets in the beach area

Collector Streets

The function of collectors is to provide travel within and between neighborhoods. They collect traffic from local streets and channel it to arterial streets.

W. Cliff Drive is a two-lane multi-directional collector that runs parallel to the coastline west of Pacific Avenue. The posted speed limit is 25 mph. It provides access to many local roads and hotel establishments along the coast. There are bike lanes, buffered cycle tracks and multi-use trails along stretches of the roadway primarily on the ocean side of the street.

Local Streets

The function of local streets is to provide travel within residential areas and neighborhoods, and provide direct access to land uses. They are designed to discourage through traffic in residential areas.

Westbrook Street & Main Street are two-lane, north to south local streets that run adjacent to the La Bahia Apartments. The un-posted speed limit is 25 mph and they both intersect Beach Street. Metered, on-street parallel parking is available on the La Bahia frontage side and diagonal on-street parking is available on the opposite side of both streets.

Cliff Street is a short, north to south local street connecting Beach and 3rd Streets. Most portions are two-lanes, but one major block is a three-lane bi-directional road with two left-turn only lanes approaching Beach Street. The un-posted speed limit is 25 mph and there is ample on-street parallel and diagonal metered parking available on both sides.

Project Access

Regional access to the project site is provided from Highways 1, 9, and 17. Major roadways in the vicinity of the project site are Pacific Avenue, Front Street, River Street and Beach Street.

EXISTING CONDITIONS INTERSECTION OPERATIONS

Intersection turning movement counts were collected for the PM peak period between 4:00-6:00 PM on a typical weekday in July 2013. The counts included vehicular traffic, pedestrians, and bicycles at all of the study intersections. The traffic counts collected at Bay Street/Mission Street (Highway 1) were compared to counts collected in 2010 when UCSC was in session to verify if traffic conditions varied significantly during the school year. The PM peak hour volumes collected in July 2013 were within one percent of the 2010 count volumes, and were considered sufficient for use in this analysis. A field visit was conducted in July 2013 to observe existing intersection geometry, traffic control, transit facilities, pedestrian and bicycle accessibility and activity and general traffic conditions. Existing study intersection lane configurations and traffic control are shown in **Figure 3**. Existing PM peak hour turning movement volumes are shown in **Figure 4**.

Intersection levels of service were calculated for PM peak hour conditions using Synchro 7© software, with the exception of three unsignalized intersections that were analyzed using TRAFFIX v8.0 software due to the limitations of Synchro to analyze unsignalized intersections with three or more approach lanes. Both of these software tools utilize the methodologies of the HCM 2010. Results of the existing conditions intersection LOS analysis are summarized in **Table 3**. Detailed intersection LOS calculations are included in the Appendix.

As shown in **Table 3**, all study intersections currently operate within the City standard at LOS D or better with the exception of the Highway 1/Highway 9 (River Street) intersection, operating at LOS E. The Bay Street/Mission Street (Highway 1) intersection operates at LOS D, which is considered acceptable using the City's LOS standards, but considered unacceptable based on the Caltrans LOS standards.

EXISTING CONDITIONS HIGHWAY OPERATIONS

For study highway segments, Caltrans 2012 Annual Average Daily Traffic (AADT) volume data was used to identify existing highway mainline volumes. Caltrans 'K' and 'D' factors were utilized to convert the 2012 AADT to directional PM peak hour volumes.[1]

Highway segment levels of service were calculated using HCS 2010 software. Results of the existing conditions highway LOS analysis at the study area segments during the PM peak hour are summarized in **Table 4**. The analysis does not assess merge or weaving conditions.

As shown in **Table 4**, all highway segments are currently operating within Caltrans standards except for the following segment:

- Highway 1 – Morrissey Boulevard to Soquel Avenue (LOS F – Southbound)

Note that the highway segment capacity analysis presented in this study may not fully reflect the potential impacts to Highway 1 traffic operations related to ongoing construction of the Highway 1 Soquel to Morrissey Auxiliary Lanes Project and/or traffic incidents, which can increase congestion along the Highway 1 corridor beyond what is reflected in this analysis. Detailed LOS calculations for highway segments are included in the Appendix.

[1] The 'K' factor is the percentage of AADT during the peak hour for both directions of travel. The 'D' factor is the percentage of the peak hour travel in the peak direction. 'K' and 'D' factors multiplied with the AADT gives the one way peak period directional flow rate or the design hourly volume (DHV).

TABLE 3

EXISTING CONDITIONS

PM PEAK-HOUR INTERSECTION LEVEL OF SERVICE SUMMARY

	INTERSECTION	TRAFFIC CONTROL	PEAK HOUR	EXISTING	
				DELAY[(a)]	LOS[(b)]
1	Highway 1 & Highway 9	Signal	PM	**75.6**	**E**
2	Highway 17 & Ocean St	Signal	PM	28.5	C
3	Bay St & Mission St (Highway 1)	Signal	PM	**42.6**	**D**
4	Ocean St & Water St	Signal	PM	43.0	D
5	Front St & Laurel St	Signal	PM	27.0	C
6	Ocean St & Soquel Ave	Signal	PM	36.9	D
7	Ocean St & Broadway	Signal	PM	34.1	C
8	W Cliff Dr & Bay St	All-Way Stop	PM	29.6	D
9	Pacific Ave & Beach St	All-Way Stop	PM	16.1	C
10	Cliff St & Beach St	All-Way Stop	PM	9.8	A
11	Riverside Ave & 2nd St-Leibrandt St	All-Way Stop	PM	9.3	A
12	W Cliff Dr & Beach St	One-Way Stop	PM	7.9	B
13	Westbrook St & Beach St	One-Way Stop	PM	15.5	C
14	Main St & Beach St	One-Way Stop	PM	17.7	C
15	Riverside Ave & San Lorenzo Blvd	Signal	PM	33.9	C
16	Ocean St & San Lorenzo Blvd	Signal	PM	26.4	C

Notes:

Bold values indicate intersections operating lower than the established LOS standard.

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual

TABLE 4
EXISTING CONDITIONS -- PM PEAK HOUR
HIGHWAY SEGMENT LEVEL OF SERVICE SUMMARY

No.	STUDY SEGMENT	AADT	K FACTOR	D FACTOR	PEAK DIR	DIR	LANES[b]	VOLUME (vph)[b]	FLOW RATE (pcphpl)[d]	DENSITY (pc/mi/ln)[d]	LOS
1	Highway 1 - Highway 9 to Highway 17 Junction	59,000	7.95%	57.61%	SB	NB	2	1,988	1,107	20.1	C
						SB	2	2,703	1,506	27.4	D
2	Highway 1 - Emiline Avenue to Morrissey Boulevard	86,000	7.95%	57.61%	SB	NB	3	2,898	1,066	19.4	C
						SB	3	3,939	1,449	26.3	D
3	Highway 1 - Morrissey Boulevard to Soquel Avenue	95,000	7.67%	56.14%	SB	NB	2	3,196	1,763	32.1	D
						SB	2	4,091	2,257	45.3	**F**
4	Highway 17 - Highway 1 Junction to Pasatiempo Drive	63,000	9.55%	54.74%	NB	NB	3	3,293	1,211	22.0	C
						SB	2	2,724	1,503	27.3	D

Notes:
Segments operating at unacceptable levels of service based on established targets in Caltrans' Transportation Concept Reports for Highway 1 and Highway 17 (LOS D for Highway 1; LOS E for Highway 17) are shown in **bold.**

(a) Analysis performed using HCS 2010 software.

(b) For highway segments where an auxiliary lane is > 2,500 feet in length, weaving does not apply; therefore, the auxiliary lane is considered to be a basic freeway lane for the purposes of this analysis.

(c) Directional volumes in vehicles per hour (vph) calculated as: AADT x K-Factor x D-Factor percentage. The K-Factor is the percentage of AADT during the peak hour for both directions of travel. The D-Factor is the percentage of the peak hour travel in the peak direction. 'K' and 'D' factors multiplied with the AADT gives the one way peak period directional flow rate or the design hourly volume (DHV).

(d) pcphpl = passenger cars per hour per lane; pc/mi/ln = passenger cars per mile per lane

EXISTING TRANSIT FACILITIES

Bus Facilities

The Santa Cruz public bus system is operated by Santa Cruz METRO and provides transit facility bus stops in the vicinity of the La Bahia Apartment complex. All bus routes on the METRO system have access to the Pacific Avenue transit station hub located in downtown Santa Cruz between Front Street and Pacific Avenue. Bus riders typically will walk a maximum of .5 miles (2,640 feet) to a bus stop. There are three major bus routes that provide service in the Project vicinity. Users can access the bus stops via sidewalks directly from the site. The bus routes, bus stops, and their distances from the site are as follows:

Local Santa Cruz Bus Routes
Route 3 – Mission / Natural Bridges provides service to the west via Mission and Bay Streets. The nearest bus stop is at Pacific Avenue / Beach Street at 528 feet from the site.

UCSC & Westside Bus Routes
Route 19 – UCSC via Lower Bay & Route 20 – UCSC via Westside provide services to the northwest via Bay Street and Delaware Avenue respectively. There is a bus stop at Pacific Avenue / Viaduct Lane at 1,056 feet from the site.

Cabrillo / South County Routes
Route 71 – Santa Cruz / Watsonville provides services to the east into Capitola and Watsonville via Soquel Street and Water Street. The nearest bus stop is at 2nd Street / Main Street at 1,584 feet from the site.

Train Facilities

The Union Pacific Railway line crosses Pacific Avenue just north of the intersection of Pacific Avenue and Beach Street and continues east on Beach Street. The rail line is owned by the Santa Cruz County Regional Transportation Commission. Santa Cruz, Big Trees and Pacific Railway Company operates a tourist-oriented passenger rail service between Felton and the Santa Cruz Beach Boardwalk. Santa Cruz and Monterey Bay Railway is the mainline rail operator that also operates trains on the track. A train stop is located at the Boardwalk off the roadway. There are four recreational trips daily between June 8th and August 18th (from 10 AM to 4 PM), weekends in September, and sporadically in January through April (pre-season). Additional trips may occur over the year, but are currently limited due to the condition of the railway bridges.

A full schedule and map of the bus routes operating within the vicinity of the site are provided in the Appendix.

EXISTING BICYCLE AND PEDESTRIAN SYSTEMS

Bicycle Circulation

As the City of Santa Cruz is predominantly a beach and recreation town with an extensive bicycle network. The city has three different types of bicycle facilities:

Class I (Off-Street bicycle/pedestrian path): A right-of-way that is completely separated from any streets. These facilities are multi-use trails and cycle tracks that accommodate pedestrians and bicyclists or just bicyclists.

Class II (On-Street bicycle lane): A one-way striped and signed lane for bicyclists on either side of the street

Class III (Signed Bicycle Routes): A street where bicyclists and automobiles share the traveled way marked only by signs.

Class II bike lanes run along all extents of the study area arterials except portions of 2nd Street, Leibrandt Avenue and East Cliff Drive. A cycle track exists along the southern side of Beach Street.

A map of the existing City of Santa Cruz bicycle system is provided in the Appendix.

Pedestrian Circulation

There are pedestrian facilities in place around the La Bahia Apartment complex including sidewalks, curb ramps, and striping at pedestrian crossings. As the Boardwalk and beach draw in many tourists there is heavy pedestrian traffic utilizing these facilities. From a preliminary site visit, there are adjacent pedestrian crossings with curb ramps and striping at the intersections of Westbrook / Beach Street and Main Street / Beach Street. Crossing Beach Street at these intersections provides pedestrians an entrance for direct access to the beach. The Westbrook intersection has a ramp/graded access to the beach from the sidewalk and the Main Street entrance has a stairway. Boardwalk access is available upon crossing Beach Street and heading east. Pedestrians from the site also have access to other amenities along Beach Street in both directions including restaurants, bars, a small market/deli, and a beach supply shop.

Table 5 lists the frontage sidewalks and measured widths currently around the La Bahia site. All study intersections have sidewalks present on at least one side of all directional legs *except* the east-west legs of Intersection 1 (Highway 1-9) and the north leg of Intersection 2 (Highway 17/Ocean). Signalized pedestrian crossings are present at all signalized intersections on the approach(s) that pedestrians are permitted to cross; the specific crossings and pedestrian volumes can be found in the Intersection LOS calculations in the Appendix.

Table 5: Existing Typical Frontage Sidewalk Widths at Project Site

Adjacent Street	Width of Sidewalk (ft)
Beach Street	13
Westbrook Street	7
First Street	5
Main Street	7

3. EXISTING PLUS PROJECT CONDITIONS

This section describes the project trip generation, distribution and assignment, and summarizes the findings of Existing Plus Project conditions traffic operations analysis.

PROJECT TRIP GENERATION

The project is composed of the following uses:

- A 165-room Hotel
- Conference facilities/meeting rooms totaling 4,350 square (with seating for 290 attendees[2])
- A 2,500 square-foot retail space
- A 2,500 square-foot restaurant space
- A 750 square-foot day spa facility
- 210 total on-site parking spaces as follows:
    - 87 regular striped spaces
    - 67 compact striped spaces
    - 49 valet spaces (provided in the drive aisles of the parking structure)
    - 7 Americans with Disability Act (ADA) parking spaces in the parking structure

The trip generation estimate for the proposed project was developed using trip rates published in the Institute of Transportation Engineers' (ITE) *Trip Generation, 9th Edition, 2012*. ITE trip generation rates for hotel land uses (Land Use Code 310) include facilities commonly included within a hotel site, such as restaurants, small retail shops, cocktail lounges, meeting and banquet rooms or convention facilities, as well as employee trips. For this reason, no additional trip generation was included for the project's retail, restaurant or conference facility/meeting space components. The spa facility is assumed to generate some trips from outside of the hotel; thus, half the trip generation for the spa facility was included in the trip generation totals in addition to the hotel trip generation.

A 44-unit apartment complex currently exists within the footprint of the proposed hotel and will be demolished prior to construction of the hotel. The trip generation for the existing apartment complex was credited to the project trip generation totals in order to calculate the net new trips generated by the proposed project.

Trip Generation Reductions

A 10 percent reduction was applied to the hotel trip generation. The 10 percent reduction equates to a net reduction of 12 hotel trips during the PM peak hour. This reduction reflects the employment of Transportation Demand Management (TDM) strategies that are appropriate for the land use and implemented through the project development conditions. The project applicant has developed an initial Alternative Transportation Program in an effort to reduce private-auto and parking demand in conjunction with the hotel project. The initial program details, which are described in a letter from the project applicant addressed to the City of Santa Cruz, include TDM strategies such as providing on-site bicycle parking/storage, discounted/free transit passes for employees and promoting carpooling, transit and/or bicycle commuting for hotel employees. The City is anticipated to work with the project applicant to pursue commitment to additional TDM strategies, such as providing a bike share program (hotel bicycles can be shared by hotel guests; coupons to local bicycle rental shops), offering financial incentives to staff who carpool, discounted bus or trolley passes for hotel guests, and annual reporting of results of TDM measures to the City. A copy of this letter is included in the **Appendix**.

The close proximity of bicycle facilities, the local transit service, and the trolley shuttle during the summer months, and the non-private vehicle incentives offered by the hotel, could result in trip reductions for both staff and visitors alike. Typically, a hotel located in a resort type set-up (Boardwalk, Beach, Wharf, Restaurants) similar in surroundings to the project, would have a PM peak hour trip generation rates of up to 43% lower than the project (ITE Trip Generation Manual, 9th Edition, ITE). The 10 percent

[2] The concentrated occupancy per California Building Code (tables & chairs) is 15 square feet per occupant. Using this spacing, the Conference/Meeting Room max occupancy is estimated at 290 seats (4,350 s.f. / 15 sf per seat

reduction is much less that what could be experienced and is consistent with the allowed parking reductions per City of Santa Cruz Zoning Code SEC 24.12.290.7. A 10 percent reduction was also applied to the trip generation for the existing apartment units to reflect walk/bike/transit trips for the existing site.

The project would generate a net 1,075 daily trips; with 79 trips (38 in, 41 out) occurring during the PM peak hour.

Project trip generation assumptions and calculations are shown in **Table 6**.

TABLE 6
PROJECT TRIP GENERATION

TRIP GENERATION RATES[1]	ITE Land Use Code	Project Size		WEEKDAY Daily Trips Rate	PM PEAK HOUR Total Peak Hour	% Of ADT	IN	/	OUT
Hotel [2,3,4]	310			8.92	0.70	8%	49%	/	51%
Spa[5,6]	720			36.13	3.57	10%	28%	/	72%
Apartments[7, 8, 9]	220			6.65	0.62	9%	50%	/	50%
PROJECT TRIPS									
Hotel	310	165	Rooms	1,472	116	8%	57	/	59
Credit for Transit/Bike Trips	----	----	----	(148)	(12)	8%	(6)	/	(6)
Spa	720	750	SF	28	3	11%	1	/	2
Credit for Trip Gen for Spa (Assume 50% Hotel Guests)	----	----	----	(14)	(2)	14%	(1)	/	(1)
Credit for Existing Apartment Trips	220	44	Units	(293)	(28)	10%	(14)	/	(14)
Credit for Existing Transit/Bike Trips	----	----	----	30	2	7%	1	/	1
Net New Trips				**1,075**	**79**	**7%**	**38**	**/**	**41**

Notes:

1. Trip generation rates published by Institute of Transportation Engineers, "Trip Generation," 9th Edition, 2012.
2. ITE trip generation rates for hotel use include hotel restaurants; thus, no additional trip generation is provided for the project's restaurant component.
3. A per room rate is used for trip generation which indicates 100% occupancy, which results in conservative analysis for off-peak season, and 100% use in the peak season.
4. A 10% reduction of hotel trips is credited given the assumption that hotel staff will utilize bicycles and existing transit facilities specifically in the vicinity of Santa Cruz and La Bahia. This is consistent with the allowed parking reductions for a development of this type per Santa Cruz zoning code SEC 24.12.290.4.
5. ITE does not have trip generation rates for Spa uses, so Medical Office trip generation rates are used
6. A worst case scenario of 50% public use is assumed for the Spa use, which would generate trips from outside of the hotel and the Spa is assumed to be 100% occupied.
7. Credit is given for the existing 44 apartments at the proposed project site. A 10% reduction of existing apartment trips is credited given the assumption that existing residents utilize bicycles, walking, and existing transit facilities within the vicinity of Santa Cruz and the apartment site.
8. Assumed 50/50 split for apartment in and out trips due to students leaving for evening classes.
9. Average rates are used for the apartments instead of the regression equation, because of the small number of units. This provides for a conservative analysis.

PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

The distribution of project trips was determined based upon the locations of land uses within the City of Santa Cruz, as well as traffic volumes at the study intersections, and is consistent with other traffic studies within the city limits. The trip distribution for the project trips is as follows (City of Santa Cruz TRAFFIX model gate numbers shown in parenthesis):

• To/From the North – Highway 17/Scotts Valley (Gate #25):	49%
• To/From the East – Highway 1/Capitola (Gate #19):	29%
• To/From the West – Highway 1 (Gate #1):	10%
• To/From the North – Downtown Santa Cruz (Gate #58):	10%
To/From the Beach Area Neighborhood	2%
TOTAL:	**100%**

The project trip distribution is illustrated in **Figure 5**. The PM peak hour project trip assignment is shown in **Figure 6**.

EXISTING PLUS PROJECT CONDITIONS INTERSECTION OPERATIONS

The project trip assignment was added to the existing PM peak hour intersection volumes to determine the Existing Plus Project conditions volumes, which are shown in **Figure 7**.

Intersection levels of service under Existing Plus Project conditions were evaluated using the intersection volumes shown in **Figure 7** and assuming the existing intersection geometrics and traffic control. Existing Plus Project intersection levels of service are summarized in **Table 7**.

As shown in **Table 7**, all of the City-maintained study intersections would operate at acceptable levels of service according the City's LOS standard. The Highway 1/Highway 9 intersection would continue to operate at LOS E. The Bay Street/Mission Street (Highway 1) intersection would continue to operate at an unacceptable LOS D per Caltrans' LOS standard. Detailed LOS calculations for intersections are included in the Appendix.

EXISTING PLUS PROJECT CONDITIONS HIGHWAY SEGMENT OPERATIONS

The project trip assignment was added to the existing PM peak hour highway volumes to determine the Existing Plus Project conditions volumes, which are shown in **Table 8**. Highway segment levels of service under Existing Plus Project conditions were evaluated using the Existing Plus Project volumes and assuming the existing highway geometrics and lane configurations with completion of the Highway 1 Morrissey Boulevard to Soquel Avenue Auxiliary Lanes Project, which was under construction at the time this analysis was performed, but will be completed prior to release of this study (and opening of the proposed Project). Existing Plus Project highway segment levels of service for study segments of Highway 1 and Highway 17 are summarized in **Table 8**.

As shown in **Table 8**, all of the study highway segments would operate at acceptable levels of service according the LOS targets established by Caltrans. The segment of Highway 1 from Morrissey Boulevard to Soquel Avenue, which currently operates at LOS F in the southbound direction during the PM peak hour will improve to acceptable LOS D with completion of the auxiliary lanes project.

Detailed LOS calculations for highway segments are included in the Appendix.

TABLE 7
EXISTING PLUS PROJECT CONDITIONS
PM PEAK-HOUR INTERSECTION LEVEL OF SERVICE SUMMARY

	INTERSECTION	TRAFFIC CONTROL	PEAK HOUR	EXISTING BASELINE		EXISTING BASELINE PLUS PROJECT	
				DELAY (a)	LOS (b)	DELAY (a)	LOS (b)
1	Highway 1 & Highway 9	Signal	PM	**75.6**	**E**	**76.0**	**E**
2	Highway 17 & Ocean St	Signal	PM	28.5	C	28.8	C
3	Bay St & Mission St (Highway 1)	Signal	PM	**42.6**	**D**	**42.7**	**D**
4	Ocean St & Water St	Signal	PM	43.0	D	44.8	D
5	Front St & Laurel St	Signal	PM	27.0	C	27.4	C
6	Ocean St & Soquel Ave	Signal	PM	36.9	D	37.1	D
7	Ocean St & Broadway	Signal	PM	34.1	C	34.8	C
8	W Cliff Dr & Bay St	All-Way Stop	PM	29.6	D	30.3	D
9	Pacific Ave & Beach St	All-Way Stop	PM	16.1	C	17.7	C
10	Cliff St & Beach St	All-Way Stop	PM	9.8	A	10.0	B
11	Riverside Ave & 2nd St-Leibrandt St	All-Way Stop	PM	9.3	A	9.5	A
12	W Cliff Dr & Beach St	One-Way Stop	PM	7.9	B	14.2	B
13	Westbrook St & Beach St	One-Way Stop	PM	15.5	C	15.9	C
14	Main St & Beach St	One-Way Stop	PM	17.7	C	18.3	C
15	Riverside Ave & San Lorenzo Blvd	Signal	PM	33.9	C	34.2	C
16	Ocean St & San Lorenzo Blvd	Signal	PM	26.4	C	27.3	C

Notes:
Bold values indicate intersections operating lower than the established LOS standard.
(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.
(b) LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual.
(c) Change in total intersection volume with the addition of project traffic.

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TABLE 8
EXISTING PLUS PROJECT CONDITIONS -- PM PEAK HOUR
HIGHWAY SEGMENT LEVEL OF SERVICE SUMMARY

No.	STUDY SEGMENT	DIR	EXISTING					EXISTING + PROJECT						
			LANES [b]	VOLUME (vph)[c]	FLOW RATE (pcphpl)[d]	DENSITY (pc/mi/ln)[d]	LOS	LANES [b]	VOLUME ADDED BY PROJECT	VOLUME (vph)	Δ Vol [e]	FLOW RATE (pcphpl)[d]	DENSITY (pc/mi/ln)[d]	LOS
1	Highway 1 - Highway 9 to Highway 17 Junction	NB	2	1,988	1,107	20.1	C	2	13	2,001	0.7%	1,115	20.3	C
		SB	2	2,703	1,506	27.4	D	2	14	2,717	0.5%	1,514	27.5	D
2	Highway 1 - Emiline Avenue to Morrissey Boulevard	NB	3	2,898	1,066	19.4	C	3	11	2,909	0.4%	1,070	19.5	C
		SB	3	3,939	1,449	26.3	D	3	12	3,951	0.3%	1,453	26.4	D
3	Highway 1 - Morrissey Boulevard to Soquel Avenue	NB	2	3,196	1,763	32.1	D	3	11	3,207	0.3%	1,769	21.4	C
		SB	2	4,091	2,257	45.3	**F**	3	12	4,103	0.3%	2,263	27.4	D
4	Highway 17 - Highway 1 Junction to Pasatiempo Drive	NB	3	3,293	1,211	22.0	C	3	20	3,313	0.6%	1,218	22.1	C
		SB	2	2,724	1,503	27.3	D	2	19	2,743	0.7%	1,513	27.5	D

Notes:

Segments operating at unacceptable levels of service based on established targets in Caltrans' Transportation Concept Reports for Highway 1 and Highway 17 (LOS D for Highway 1; LOS E for Highway 17) are shown in **bold**.

(a) Analysis performed using HCS 2010 software.

(b) For highway segments where an auxiliary lane is > 2,500 feet in length, weaving does not apply; therefore, the auxiliary lane is considered to be a basic freeway lane for the purposes of this analysis. The planned auxiliary lanes on Highway 1 between Morrissey Boulevard and Soquel Avenue are under construction at the time of this analysis, but are anticipated to be completed prior to opening of the Project.

(c) Directional volumes in vehicles per hour (vph) calculated as: AADT x K-Factor x D-Factor percentage. The K-Factor is the percentage of AADT during the peak hour for both directions of travel. The D-Factor is the percentage of the peak hour travel in the peak direction. 'K' and 'D' factors multiplied with the AADT gives the one way peak period directional flow rate or the design hourly volume (DHV).

(d) pcphpl = passenger cars per hour per lane; pc/mi/ln = passenger cars per mile per lane

(e) Change in mainline volume with the addition of project traffic.

EXISTING PLUS PROJECT IMPACTS AND RECOMMENDED MITIGATION MEASURES

Intersections

Highway 1 / Highway 9

The City of Santa Cruz level of service standard is D, although the General Plan allows consideration of acceptance of a lower LOS at regional intersections if necessary improvements would be too costly or result in significant environmental impacts (Policies-Actions M3.1.3, M3.1.4). However, the Caltrans standard is LOS C/D. The intersection would operate at LOS E with a control delay of 76 seconds/vehicle during the PM peak hour. In terms of Caltrans standards, the intersection would operate at an unacceptable LOS, although the existing deficient LOS would not change. Although the addition of project traffic (27 PM peak hour trips added) and the change in overall intersection control delay (increase of 0.4 seconds/vehicle) is not considerable, the project traffic would result in a significant impact at this intersection based on Caltrans standards.

The following improvements have been identified for this intersection and are included in the current City Traffic Impact Fee (TIF) Program:

- Northbound Approach: Restripe the intersection to consist of one left/thru, one-thru, and two-right lanes.
- Southbound Approach: Modify to consist of two-left, one-left/thru, one-thru, and one-right lane.
- Eastbound Approach: Reconstruct to consist of two-left, three-thru, and one-right lanes. The northbound receiving leg would be widened to two lanes.

With these improvements the intersection will continue to operate at LOS E, but the average control delay will be reduced by approximately 20 seconds/vehicle compared to existing baseline conditions. Currently, a Project Report, preliminary engineering, associated studies and environmental review are underway and construction is anticipated to commence in 2015/2016. The improvements are already required under existing conditions. The City has established a TIF Program and is collecting fees for planned improvements at this intersection. The project would be required to pay these impact fees. However, until the improvement is implemented, the intersection will continue to operate at an unacceptable level of service, and this impact is considered to be significant-and-unavoidable.

Bay Street / Mission Street (Highway 1)

The City of Santa Cruz level of service standard for this intersection is LOS D, while the Caltrans standard is LOS C/D. The intersection would operate at acceptable LOS D during the PM peak hour according to the City's standards. In terms of Caltrans standards, the intersection would operate at unacceptable LOS. Although the addition of project traffic (8 PM peak hour trips added) and the change in overall intersection control delay (increase of 0.1 seconds/vehicle) is not considerable, the project does cause a significant impact at the intersection based on Caltrans standards.

The following improvements have been identified for this intersection and are included in the current City TIF Program:

- Eastbound Approach: Reconstruct to consist of one-left, two-thru, and one-right lane.
- Westbound Approach: Reconstruct to consist of one-left, two-thru, and one-right lane.
- Northbound Approach: Reconstruct approach to consist of one-left, one-thru, and one-right lane.
- Southbound Approach: Reconstruct approach to consist of two-left, one-thru, and one-right lane.
- Convert northbound and southbound approaches from split-phasing to protected left turn phasing.

With these improvements the intersection will operate at an acceptable level LOS C during the PM peak hour and the impact would be mitigated. The City has established a TIF Program and is collecting fees for planned improvements at this intersection. The project would be required to pay these impact fees. However, until the improvement is implemented, the intersection would continue to operate at an unacceptable level of service and the impact is considered to be significant-and-unavoidable.

Highway Segments

No impacts identified.

4. CUMULATIVE CONDITIONS

This section describes the traffic operations analysis results under cumulative traffic conditions with the proposed project. The cumulative traffic condition is defined as traffic conditions with General Plan 2030 buildout.

CUMULATIVE PROJECTS TRIP GENERATION

The Cumulative traffic volumes reflect the forecast growth identified in the General Plan 2030 Environmental Impact Report (EIR) buildout development scenario with long-range growth anticipated for the University of California, Santa Cruz (UCSC). General Plan 2030 buildout projections include growth from various projects under construction, projects approved but not built, projects with pending permit applications or other reasonably foreseeable projects. Cumulative traffic forecast volumes were provided by the City of Santa Cruz in the form of output from their citywide TRAFFIX model. The potential development identified through buildout of the 2030 General Plan with long-range growth for USCS results in an estimated 11,550 new trips generated during the PM peak hour.

The General Plan 2030 EIR traffic projections included a 125-room hotel project at the La Bahia site as the project had been approved by the City, but had not yet gone to the Coastal Commission at the time the EIR was written. In order to develop the Cumulative traffic volumes, the trip generation for the La Bahia site was adjusted in the General Plan 2030 EIR buildout TRAFFIX model scenario to reflect the estimated PM peak hour project trip generation, as shown in **Table 6**, and the project trips were assigned to the roadway network based on the project trip distribution assumptions discussed previously and illustrated in **Figure 5**.

The PM peak hour intersection volumes for Cumulative conditions are shown in **Figure 8**.

PLANNED AND PROPOSED TRANSPORTATION IMPROVEMENTS

The City of Santa Cruz provided a list of planned improvements identified to address existing and future transportation deficiencies as identified in the General Plan and/or other traffic studies. Improvements are generally funded through the City's Traffic Impact Fee (TIF) program and are commonly programmed as part of the City's Capital Improvement Program (CIP). The following planned future improvements were identified for intersections analyzed as part of this study:

Int. #1: Highway 1 / Highway 9 [Project scheduled 2015-16]

- Northbound Approach: Reconstruct approach to consist of one left/thru, one-thru, and two-right lanes.
- Southbound Approach: Reconstruct approach to consist of two-left, one-left/thru, one-thru, and one-right lane.
- Eastbound Approach: Reconstruct approach to consist of two-left, three-thru, and one-right/thru lanes. The northbound receiving leg would be widened to two lanes.

Int. #3: Bay Street / Mission Street (Highway 1) [Project schedule to be determined]

- Eastbound Approach: Reconstruct approach to consist of one-left, two-thru, and one-right lane.
- Westbound Approach: Reconstruct approach to consist of one-left, two-thru, and one-right lane.
- Northbound Approach: Reconstruct approach to consist of one-left, one-thru, and one-right lane.
- Southbound Approach: Reconstruct approach to consist of two-left, one-thru, and one-right lane.
- Convert northbound and southbound approaches from split-phasing to protected left turn phasing.

Int. #4: Ocean Street / Water Street [Project scheduled 2014-15]

- Eastbound Approach: Widen approach to provide two-left, two-thru, and one-right lane.
- Southbound Approach: Modify to provide two-left, two-thru, and one-right lane.

Int. #7: Ocean Street / Broadway [Project schedule to be determined]

- Prohibit left turns from Ocean Street.

Int. #9: Pacific Avenue / Beach Street [Project scheduled 2014-15]

- Reconstruct intersection as a roundabout.'

Int. #10: Cliff Street / Beach Street [Project scheduled 2015]

- Install traffic signal.

Int. #11: Riverside Avenue / 2nd Street-Leibrandt Street [Project scheduled 2015]

- Various intersection safety improvement planned as part of Riverside Avenue Utility Underground and Streetscape Project, including eliminating intersection approach at west leg of Leibrandt Street.

Int. #16: Ocean Street / San Lorenzo Boulevard [Project schedule to be determined]

- Southbound Approach: Add right turn lane.

These improvements are included in the City's TIF Program. However, because full funding has not yet been identified and implementation schedule is yet to be determined, these improvements are not assumed in the Cumulative roadway network.

Caltrans is responsible for improvements along state routes and has proposed a series of improvements along Highway 1 within Santa Cruz County. Caltrans, in coordination with the Santa Cruz County Regional Transportation Commission (RTC) and the Federal Highway Administration (FHWA), propose operational improvements along a distance of just less than one mile of Highway 1 from Soquel Avenue to east of Morrissey Boulevard in the City of Santa Cruz. The project is currently under construction with an estimated completion date of late 2013. In addition to this project, the Route Concept Report for Highway 1 includes the addition of High Occupancy Vehicle (HOV) lanes to Highway one, which includes the addition of one HOV lane in each direction from Morrissey Boulevard to San Andreas Road/Larkin Valley Road. The intent of the HOV project is to reduce congestion, encourage carpooling, expand express bus service, and improve safety along the congested corridor. The environmental review phase of this project is funded and is underway; however, funding has not been identified to cover costs through construction.

No capacity improvements are currently planned for Highway 17 within the vicinity of the study area.

CUMULATIVE CONDITIONS INTERSECTION OPERATIONS

Intersection levels of service under cumulative conditions were analyzed using the intersection volumes shown in **Figure 8** and assuming existing intersection configurations. The intersection levels of service are summarized in **Table 9** below.

As shown in **Table 9**, all of the study intersections would operate at acceptable levels of service according the LOS targets established by the City of Santa Cruz, with the exception of the following locations:

- #1: Highway 1 / Highway 9 – LOS F in the PM peak hour
- #3: Bay Street / Mission Street (Highway 1) – LOS F in the PM peak hour
- #4: Ocean Street / Water Street – LOS F in the PM peak hour
- #7: Ocean Street / Broadway – LOS F in the PM Peak hour
- #16: Ocean Street / San Lorenzo Boulevard – LOS E in the PM peak

The Cumulative intersection levels of service remain consistent with the LOS results from the General Plan 2030 EIR buildout development scenario with UCSC growth.

TABLE 9

CUMULATIVE CONDITIONS

PM PEAK-HOUR INTERSECTION LEVEL OF SERVICE SUMMARY

	INTERSECTION	TRAFFIC CONTROL	PEAK HOUR	EXISTING BASELINE		CUMULATIVE CONDITIONS	
				DELAY[(a)]	LOS[(b)]	DELAY[(a)]	LOS[(b)]
1	Highway 1 & Highway 9	Signal	PM	**75.6**	**E**	**ECL**	**F**
2	Highway 17 & Ocean St	Signal	PM	28.5	C	32.6	C
3	Bay St & Mission St (Highway 1)	Signal	PM	**42.6**	**D**	**ECL**	**F**
4	Ocean St & Water St	Signal	PM	43.0	D	**177.0**	**F**
5	Front St & Laurel St	Signal	PM	27.0	C	51.1	D
6	Ocean St & Soquel Ave	Signal	PM	36.9	D	54.1	D
7	Ocean St & Broadway	Signal	PM	34.1	C	**95.8**	**F**
8	W Cliff Dr & Bay St	All-Way Stop	PM	29.6	D	34.2	D
9	Pacific Ave & Beach St	All-Way Stop	PM	16.1	C	29.2	D
10	Cliff St & Beach St	All-Way Stop	PM	9.8	A	11.3	B
11	Riverside Ave & 2nd St-Leibrandt St	All-Way Stop	PM	9.3	A	9.8	A
12	W Cliff Dr & Beach St	One-Way Stop	PM	7.9	B	18.6	C
13	Westbrook St & Beach St	One-Way Stop	PM	15.5	C	16.5	C
14	Main St & Beach St	One-Way Stop	PM	17.7	C	18.6	C
15	Riverside Ave & San Lorenzo Blvd	Signal	PM	33.9	C	42.5	D
16	Ocean St & San Lorenzo Blvd	Signal	PM	26.4	C	**68.6**	**E**

Notes:

Bold values indicate intersections operating lower than the established LOS standard.

ECL - Exceeds calculable limit. Reported when delay exceeds 180 seconds.

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual

CUMULATIVE CONDITIONS HIGHWAY OPERATIONS

Cumulative (2030) baseline highway mainline volumes were estimated based on forecasted traffic growth as presented in the *Highway 1 & Highway 183 Corridor System Management Plan* (Caltrans, 2011), the Transportation Concept Report for US Route 17 in District 5 (Caltrans, 2006), as well as the General Plan 2030 EIR cumulative buildout traffic projections. The net new project trip assignment, minus the trip assignment for the La Bahia development site as assumed in the General Plan 2030 EIR traffic analysis, was added to the projected cumulative baseline highway volumes to determine the Cumulative conditions volumes, which are shown in **Table 10**.

Highway segment levels of service were evaluated for the study segments of Highway 1 and Highway 17 using the Cumulative directional PM peak hour volumes and assuming construction of the Highway 1 auxiliary lanes between Morrissey Boulevard and Soquel Avenue, which are anticipated to be completed in 2013 prior to completion of this study. Because no funding has yet been identified for costs associated with construction of the proposed Highway 1 HOV lane improvements, this project is not included as part of the Cumulative highway segment analysis. Cumulative highway segment levels of service are summarized in **Table 10**.

As shown in **Table 10**, all of the study highway segments would operate at acceptable levels of service according to the LOS targets established by Caltrans, with the exception of the following locations, which are anticipated to operate at unacceptable LOS with or without project:

- Highway 1 – Highway 9 to Highway 17 Junction (LOS F – Southbound)
- Highway 1 – Emeline Avenue to Morrissey Boulevard (LOS E – Southbound)
- Highway 1 – Morrissey Boulevard to Soquel Avenue (LOS E – Northbound; LOS F – Southbound)

Detailed LOS calculations for highway segments are included in the Appendix.

TABLE 10
CUMULATIVE CONDITIONS -- PM PEAK HOUR
HIGHWAY SEGMENT LEVEL OF SERVICE SUMMARY

No.	STUDY SEGMENT	DIR	LANES[b]	CUMULATIVE + PROJECT VOLUME (vph)[c]	Δ Vol [e]	FLOW RATE (pcphpl)[d]	DENSITY (pc/mi/ln)[d]	LOS
1	Highway 1 - Highway 9 to Highway 17 Junction	NB	2	2,947	0.4%	1,642	29.9	D
		SB	2	4,278	0.3%	2,383	51.1	**F**
2	Highway 1 - Emiline Avenue to Morrissey Boulevard	NB	3	4,335	0.3%	1,594	29.0	D
		SB	3	5,852	0.2%	2,152	41.4	**E**
3	Highway 1 - Morrissey Boulevard to Soquel Avenue	NB	3	5,390	0.2%	1,982	36.6	**E**
		SB	3	6,857	0.2%	2,522	59.9	**F**
4	Highway 17 - Highway 1 Junction to Pasatiempo Drive	NB	3	3,634	0.6%	1,336	24.3	C
		SB	2	3,062	0.6%	1,686	30.7	D

Notes:

Segments operating at unacceptable levels of service based on established targets per Caltrans' Transportation Concept Reports for Highway 1 and Highway 17 (LOS D for Highway 1; LOS E for Highway 17) are shown in **bold.**

(a) Analysis performed using HCS 2010 software.

(b) For highway segments where an auxiliary lane is > 2,500 feet in length, weaving does not apply; therefore, the auxiliary lane is considered to be a basic freeway lane for the purposes of this analysis.

(c) Cumulative Plus Project freeway mainline volumes represent cumulative (2030) baseline volumes with the addition of the net new trips generated by the proposed project compared to the Santa Cruz General Plan 2030 EIR Buildout + UCSC Growth cumulative scenario volumes. Projected cumulative (2030) baseline volumes were estimated based on the following sources:

- Segment #1 (Highway 1 - Highway 9 to Highway 17 Junction): Growth in traffic for this highway segment referenced based on the intersection approach and departure volumes for the east leg of the Highway 1 / Highway 9 intersection, as developed in the City of Santa Cruz General Plan 2030 EIR Buildout+USCS Growth traffic analysis.
- Segment #2,3 (Highway 1 - Emiline Avenue to Soquel Avenue): Projected cumulative highway segment volumes based on growth identified in the *State Routes 1 & 183 Corridor System Management Plan* (Caltrans, 2011).
- Segment #4 (Highway 17 - Highway 1 to Pasatiempo Drive): Projected cumulative highway segment volumes based on growth identified in the *Transportation Concept Report for State Route 17 in District 5* (Caltrans, 2006).

(d) pcphpl = passenger cars per hour per lane; pc/mi/ln = passenger cars per mile per lane

(e) Change in mainline volume with the addition of project traffic compared to City of Santa Cruz General Plan EIR 2030 Buildout + UCSC Growth scenario volumes.

CUMULATIVE IMPACTS

Intersections

Highway 1 / Highway 9

The City of Santa Cruz level of service standard is LOS D, while the Caltrans standard is LOS C/D. The intersection is expected to operate at LOS F during the PM peak hour under Cumulative conditions, which is a decrease from the existing LOS of E and is considered unacceptable based on Caltrans standards. This represents a significant impact.

The following improvements have been identified for this intersection and are included in the current City TIF Program:

- Northbound Approach: Reconstruct approach to consist of one left/thru, one-thru, and two-right lanes.
- Southbound Approach: Reconstruct approach to consist of two-left, one-left/thru, one-thru, and one-right lane.
- Eastbound Approach: Reconstruct approach to consist of two-left, three-thru, and one-right/thru lanes. The northbound receiving leg would be widened to two lanes.

With these improvements the intersection will continue to operate at LOS F, but the average control delay will be reduced to approximately 153 seconds/vehicle compared to Cumulative baseline conditions. The City has established a TIF Program and is collecting fees for planned improvements at this intersection. The project would be responsible for paying a traffic impact fee as required by the City to mitigate its cumulative impact. With this partial mitigation, the cumulative impacts would continue to be significant.

Bay Street / Mission Street (Highway 1)

The intersection is expected to operate at LOS F during the PM peak hour under Cumulative conditions, which is a decrease from the existing LOS of D and is considered unacceptable based on Caltrans standards. This represents a significant impact.

The following improvements have been identified for this intersection and are included in the current City TIF Program:

- Eastbound Approach: Reconstruct approach to consist of one-left, two-thru, and one-right lane.
- Westbound Approach: Reconstruct approach to consist of one-left, two-thru, and one-right lane.
- Northbound Approach: Reconstruct approach to consist of one-left, one-thru, and one-right lane.
- Southbound Approach: Reconstruct approach to consist of two-left, one-thru, and one-right lane.
- Convert northbound and southbound approaches from split-phasing to protected left turn phasing.

With these improvements the intersection will continue to operate at LOS F, but the average control delay will be reduced to approximately 102 seconds/vehicle compared to Cumulative baseline conditions. The City has established a TIF Program and is collecting fees for planned improvements at this intersection.

The project would be responsible for paying a traffic impact fee as required by the City to mitigate its cumulative impact. With this partial mitigation, the cumulative impacts would continue to be significant.

Ocean Street / Water Street

The intersection is expected to operate at LOS F during the PM peak hour under Cumulative conditions, which is a decrease from the existing LOS of D and is considered unacceptable based on City standards. This represents a significant impact.

The following improvements have been identified for this intersection and are included in the current City TIF Program:

- Eastbound Approach: Widen approach to provide two-left, two-thru, and one-right lane.
- Southbound Approach: Modify to provide two-left, two-thru, and one-right lane.

With these improvements the intersection will continue to operate at LOS F, but the average control delay will be reduced by approximately 49 seconds/vehicle compared to Cumulative baseline conditions. The City has established a TIF Program and is collecting fees for planned improvements at this intersection. The project would be responsible for paying a traffic impact fee as required by the City to mitigate its cumulative impact. With this partial mitigation, the cumulative impacts would continue to be significant.

Ocean Street / Broadway

The intersection is expected to operate at LOS F during the PM peak hour under Cumulative conditions, which is a decrease from the existing LOS of C and is considered unacceptable based on City standards. This represents a significant impact.

The following improvements have been identified for this intersection and are included in the current City TIF Program:

- Prohibit left turns from Ocean Street.

With these improvements the intersection will operate at acceptable LOS D. The City has established a TIF Program and is collecting fees for planned improvements at this intersection. The project would be responsible for paying a traffic impact fee as required by the City to mitigate its cumulative impact. With this mitigation, this impact would be considered less than significant.

Ocean Street / San Lorenzo Boulevard

The intersection is expected to operate at LOS E during the PM peak hour under Cumulative conditions, which is a decrease from the existing LOS of C and is considered unacceptable based on City standards. This represents a significant impact.

The following improvements have been identified for this intersection and are included in the current City TIF Program:

- Southbound Approach: Add right turn lane.

With these improvements the intersection will operate at acceptable LOS D. The City has established a TIF Program and is collecting fees for planned improvements at this intersection. The project would be responsible for paying a traffic impact fee as required by the City to mitigate its cumulative impact. With this mitigation, this impact would be considered less than significant.

Cumulative intersection levels of service with recommended mitigation improvements are summarized in **Table 11**.

Highway Segments

Highway 1 – Highway 9 to Highway 17 Junction (SB)

This highway segment would operate at unacceptable LOS F according to the Caltrans established target of LOS D for this segment of Highway 1. Based on the Caltrans significance criteria the impact is significant and unavoidable.

Highway 1 – Emeline Avenue to Morrissey Boulevard (SB)

This highway segment would operate at unacceptable LOS E according to the Caltrans established target of LOS D for this segment of Highway 1. Based on the Caltrans significance criteria the impact is significant and unavoidable.

Highway 1 –Morrissey Boulevard to Soquel Avenue (NB and SB)

This highway segment would operate at unacceptable LOS E in the northbound direction and LOS F in the southbound direction during PM peak hour conditions, below the target of LOS D established by Caltrans for this segment of Highway 1. Based on the Caltrans significance criteria the impact is significant and unavoidable.

PROJECT PAYMENT OF TRAFFIC IMPACT FEES

The project will be required to pay the City's traffic impact fee, which would represent mitigation for the project's contribution to cumulative impacts to City intersections. Based on the project's estimated PM peak hour trip generation of 77 trips, the project applicant would be required to a total amount of $304,150 in TIF fees based on the current PM peak our trip rate.

TABLE 11

CUMULATIVE CONDITIONS WITH MITIGATION

PM PEAK-HOUR INTERSECTION LEVEL OF SERVICE SUMMARY

	INTERSECTION	TRAFFIC CONTROL	PEAK HOUR	CUMULATIVE CONDITIONS		RECOMMENDED MITIGATION IMPROVEMENT	CUMULATIVE CONDITIONS WITH MITIGATION	
				DELAY[(a)]	LOS[(b)]		DELAY[(a)]	LOS[(b)]
1	Highway 1 & Highway 9	Signal	PM	**ECL**	**F**	EB 2L, 3T, 1R; WB 2L, 3T, 1R; NB 1TL, 1T, 2R; SB 2L, 1TL, 1T, 1R	**153.8**	**F**
3	Bay St & Mission St (Highway 1)	Signal	PM	**ECL**	**F**	EB 1L, 2T, 1R; WB 1L, 2T, 1R; NB 1L, 1T, 1R; SB 2L, 1T, 1R	**101.7**	**F**
4	Ocean St & Water St	Signal	PM	**177.0**	**F**	EB 2L, 2T, 1R; WB 1L, 2T, 1R; NB 1L, 2T, 1TR; SB 2L, 3T, 1R	**128.5**	**F**
7	Ocean St & Broadway	Signal	PM	**95.8**	**F**	Prohibit left turns from Ocean Street	42.1	D
16	Ocean St & San Lorenzo Blvd	Signal	PM	**68.6**	**E**	Add SB right turn lane	50.0	D

Notes:

Bold values indicate intersections operating lower than the established LOS standard.

ECL - Exceeds calculable limit. Reported when delay exceeds 180 seconds.

The mitigation measure column reflects the recommended lane geometry as follows: R = right turn lane, TR = through/right lane; L = left turn lane; TL = through/left lane; T = through lane

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual

5. PROJECT ACCESS AND SITE CIRCULATION

This section documents a review of the project site access and on-site circulation.

SITE ACCESS

The project will have a check-in driveway at the first floor level on Beach Street, which provides access to the valet parking area and the on-site parking garage. One exit-only driveway will be provided on Main Street and one full-access driveway will be provided on Westbrook Street. The driveway on Westbrook Street provides access to the parking structure on the second floor. Circulation within the parking garage is adequate for passenger-type vehicles. Some of the parking spaces at the end of the drive aisles will require multiple turns to exit, which may be troublesome for inexperienced drivers or larger vehicles.

DELIVERIES AND TRUCK TURNING MANEUVERS

Goods vehicles will make deliveries to the project site on Westbrook Street (food, linen and hotel related deliveries and pick-ups). Trucks would have to back up into the loading dock from the street. Westbrook Street is a local street low traffic volume, one travel lane in each direction and on-street parking on both sides. It is expected that the majority of delivery trucks would consist of typical 30-foot rigid-body vehicles. These vehicles aren't anticipated to have trouble accessing the loading area. Longer 40-foot trucks would likely have to encroach into the opposing traffic lane to access the loading area. Trucks longer than 40 feet would likely have trouble accessing the loading area and would have to park on-street to make deliveries or pick-ups.

BICYCLE, PEDESTRIAN AND TRANSIT ASSESSMENT

A bicycle cycle track runs along the south side of Beach Street in the project vicinity and is frequently used by cyclists. Access to the site would be available from the cycle track and sidewalks.

The site plan for the application indicates that on-site bicycle parking facilities will be provided with capacity for 70 total bicycles. Interior storage will be provided for up to 40 bicycles, while outdoor bicycle parking facilities with room for 30 bicycles will be provided near the entrance of the hotel. The City Zoning Code requires the project to provide one bicycle parking space for every five units. Thus, for the 165 units there would have to be 33 bicycle parking spaces. Ten percent, or four (4) spaces, should be Class 1 (have a locker, individually locked or supervised area within a building providing protection for each bicycle from theft, vandalism and weather). The remaining ninety percent would be Class 2 (a stand of other device to enable the user to secure by locking the frame and one wheel of each bicycle parked therein).

The sidewalk on the project frontage would be reconstructed as part of the project. The sidewalk width should be to City standard. ADA ramps must be provided at all curb positions on the sidewalk per City standard. Stairwells and elevators would provide access between the parking structure and the hotel. In addition to the main entry location on Beach Street, pedestrian access will also be provided from First Street to the parking structure and the hotel.

As noted previously, the vehicular project trip generation estimates include a 10 percent reduction based on the assumption that some hotel staff are anticipated to travel by bicycle or transit to and from the

project site. Conservatively assuming that the full 10 percent multi-modal reduction is comprised of staff trips made by bus transit, the project would potentially generate approximately 148 new weekday daily bus passengers and 12 new weekday PM peak hour bus passengers. The project would not interfere with any existing or planned transit facilities or systems and the additional bus ridership demand generated by the project is not anticipated to exceed the available supply of the existing or future transit system.

6. PARKING ANALYSIS

Parking Supply

There is currently existing on-street metered parking surrounding the La Bahia Apartments on both sides of Westbrook Street, Main Street, and First Street and on the project frontage side of Beach Street. Along the site frontage, there are currently 39 on-street metered parking spaces. Based on review of current site plan, it is estimated that with the project, the on-street parking along the site frontage will reduce to 34 spaces (a loss of 5 spaces) due to the provision of project driveways to the check-in area, the parking structure and loading areas.

The diagonal spaces on First Street will be restriped and curb extensions will be constructed on the project frontage side of the street at Main Street and Westbrook Street. Parallel parking spaces will be provided on Beach Street, Main Street, and Westbrook Street and will have to be restriped based on the driveway configuration. **Table 12** below summarizes the changes in existing on-street parking that will be caused by the project.

Table 12: On-Street Parking Supply

Location	No. of Existing On-street Public-Parking Spaces	Parking Type	No. of On-street Public Parking Spaces with Project	Type
Beach Street	7	Parallel	3	Parallel
Westbrook Street	6	Parallel	6	Parallel
Main Street	10	Parallel	7	Parallel
First Street	16	Diagonal	18	Diagonal
Total	**39**		**34**	

Notes:
(1) The on-street parking supply totals include only parking along the project site frontage.
(2) The on-street parking totals do not include parking areas designated for only passenger or commercial loading.
(3) On-street parking totals with the project are estimated based on the current site plan using standard parallel parking stall dimensions (22’ x 8’) and standard 45 degree diagonal parking stall dimensions (8.5’ space width, 12’ width at curb).

The project site plan indicates that on-site parking will be provided as follows:

- 210 total on-site parking spaces
  - 87 regular striped spaces
  - 67 compact striped spaces
  - 49 valet spaces

- 7 Americans with Disability Act (ADA) parking spaces in the parking structure

Area for open parking spaces will be provided at the check-in area; however, these are omitted from the on-site parking totals, as they will be used for loading only. Of the 49 valet parking spaces, 27 will be located in the first level of the parking garage and 22 will be located on the second level. Valet service will be provided as needed. Valet parking will occur in the drive aisles of the parking structure.

Parking Required per City Code

The City Zoning Code was used to determine the required parking for the proposed project. Reductions per the City Zoning Ordinance were applied for shared use/cooperative parking facilities, and for non-automobile use programs. The shared use/cooperative parking facilities reduction accounts for the parking facilities at a single site being used for multipurpose trips being made to the site (i.e. visitors that stay at the hotel and attend a conference, visit the spa and/or eat at the restaurant), as well as trips being made to individual uses at different times of the day or week. The reduction for non-automotive use programs is based on application of the trip/parking reduction strategies to be implemented through the applicant's commitment to an Alternative Transportation Program, as described previously. The current plan details include on-site bicycle parking and discounted/free employee transit passes, among other strategies, and the City is anticipated to work with the applicant to pursue additional TDM strategies to reduce private-auto and parking demand at the site. **Table 13** below summarizes the parking requirements per City Code:

Table 13: Project Parking Requirements per City Code

Required Project Parking by Use			
Use	**Parking Spaces Required**	**Units**	**Required Parking (spaces)**
Hotel	1 per room plus 1 manager	165 rooms	166.0
Spa (medical office)	1 per 250 square feet	750 square feet	3.0
Conference/Meeting Room	1 per 3.5 seats	4,350 square feet (290 seats)[(2)]	41.4[(3)]
Restaurant (including kitchen area)	1 per 120 square feet	4,800 square feet	40.0
Retail	1 per 250 square feet	2,500 square feet	10.0
Subtotal			261
10% Reduction for Non-automotive Use Programs (per City Code 24.12.290.7			27
10% Reduction for Cooperative Parking Facilities (per City Code 24.12.290.4)			27
Total Parking Spaces Required per City Zoning Code			**207**

Notes:
(1) Parking requirements based on City of Santa Cruz Municipal Zoning Code Section 24.12.200
(2) The concentrated occupancy per California Building Code (tables & chairs) is 15 square feet per occupant. Using this spacing, the Conference/Meeting Room max occupancy is estimated at 290 seats (4,350 s.f. / 15 seats per s.f.).
(3) For the Conference/Meeting Room, it is anticipated that 50% of meeting occupants will guests at the hotel. For this reason, the required parking for this use is calculated for 50% of the 290 seats (145 seats) with full occupancy.

Parking Demand per ITE

Parking generation data, as published in ITE's *Parking Generation, 4th Edition, 2010*, indicates that a hotel with a restaurant and meeting facility would have an average parking demand of 0.89 vehicles per occupied room, or approximately 95 spaces, with an average occupancy rate of 60 percent to 70 percent. The range of parking demand rates is 0.61 to 1.94 spaces per occupied room. The 85th percentile demand is 1.08 spaces per occupied room. It is expected that the hotel will have a higher occupancy during the summer season (90 to 100 percent). Thus, to provide a conservative analysis, the hotel is assumed to be at 100 percent occupancy for the purposes of this assessment, resulting in an 85th percentile peak parking demand of 178 spaces with all 165 rooms occupied. The spa component of the project is anticipated to generate parking demand from public customers, outside of guests staying at the hotel. The ITE average parking demand rate for a medical-dental office building, which is assumed to have similar parking demand to the proposed spa facility, is 2.4 spaces per 1,000 square feet. The 85th percentile rate for this use is 4.27 spaces per 1,000 square feet, or approximately 3 spaces for the proposed 750 square-foot spa facility.

The resulting 85th percentile peak parking demand for the hotel is 181 spaces, with a conservative assumption of 100 percent occupancy and including the spa facility. This estimate is approximately 10 percent lower than the calculated City Code required on-site parking. Parking demand calculations are included in the Appendix.

Table 14 below compares the estimated parking demand to the proposed on-site parking supply. For the purposes of this evaluation, the City Code required parking supply and the ITE peak parking generation estimates are used to represent the peak parking demand at the site.

Table 14: Project Parking Demand Surplus/Shortfall

Parking Demand Calculation Method	Peak Demand	On-Site Supply		Surplus / Shortfall	
		Excluding Valet	Including Valet	Excluding Valet	Including Valet
City Zoning Code	207	161	210	-40	+3
ITE Parking Generation	181			-20	29

As **Table 14** indicates, the City Code parking requirement is 207 spaces and the ITE peak parking generation estimate is 181 spaces. The project will supply 161 on-site parking spaces without the valet parking, or 210 spaces including the valet parking spaces. Thus, based on the City Code required parking, there is a shortfall of 46 spaces excluding valet, and a surplus of 3 spaces if the valet parking is included. Based on ITE estimates, there is a shortfall of 20 spaces excluding valet, and a surplus of 29 spaces including valet parking.

According to the Santa Cruz General Plan 2030, there are a total of 4,145 public parking spaces available within the Beach Area. The existing Coastal Commission public parking requirement is 3,690 spaces. This provides a surplus of 455 public parking spaces in the Beach Area. However, according to the *Beach Area/South of Laurel Master Plan (1997)*, the future parking demand within the Beach and Warf Area is expected to exceed the available supply, resulting in deficit of approximately 500 spaces. For this reason,

it is important that valet parking be utilized appropriately during all business hours at the hotel to maximize the functional parking supply for the proposed project, as to avoid the need to rely on off-site public parking. With valet parking spaces fully utilized, the project parking demand would be fully accommodated on-site, thus, the project would not rely on the available public parking supply.

It should also be noted that the projected parking demand would represent a worst-case scenario, which would likely occur less frequently at peak times during the summer weekends.

On-site Parking Layout and Dimensions

The City Zoning Code indicates that the dimensions of a standard parking space are 8.5x19 feet and that of a compact space 7.5x16 feet. Up to 50% of the on-site parking spaces can be compact.

The site plan indicates 124 striped parking spaces on the first garage level (7 ADA compliant, 56 standard, 34 compact, and 27 valet). The second level indicates 86 striped parking spaces (31 standard, and 33 compact, 22 valet). The site plan also indicates that some area will be provided for parking at the check-in area. For analysis purposes, these spaces are assumed to be used for loading purposes only. The site plan summary table indicates 49 total valet parking spaces.

The American with Disabilities Act requires the project to provide 7 ADA-compliant parking spaces (7 spaces for total parking between 201 and 300). One of these spaces must be van-accessible. The City Zoning Code requires 5 ADA parking spaces. The project will have 7 ADA spaces in the parking structure, including one van-accessible space. Thus both the ADA and the City requirements are met. The ADA spaces meet all the dimensional requirements per the ADA and the City Code. The ADA spaces are located at elevators and walkways, which is in conformance with the City and ADA requirements too.

On-street Parking Spaces

There are currently 39 on-street metered parking spaces adjacent to the project site frontage. The on-street metered spaces will reduce to 34 spaces (a loss of 5 spaces) due to the provision of driveways to the check-in area, parking garage and loading areas. No parking demand data has been collected for these metered on-street spaces, but it is anticipated that they are heavily utilized during the peak season due to their close proximity to the beach and the Boardwalk.

On-street parking spaces and loading zones on the project frontage should be striped according to City requirements and standards.. All on-street parking spaces are metered.


Pacific Ocean
San Francisco
Oakland
San Mateo
Hayward
Palo Alto
San Jose
Stockton
Modesto
Santa Cruz
Watsonville
Monterey Bay
Salinas
Monterey
NOT TO SCALE

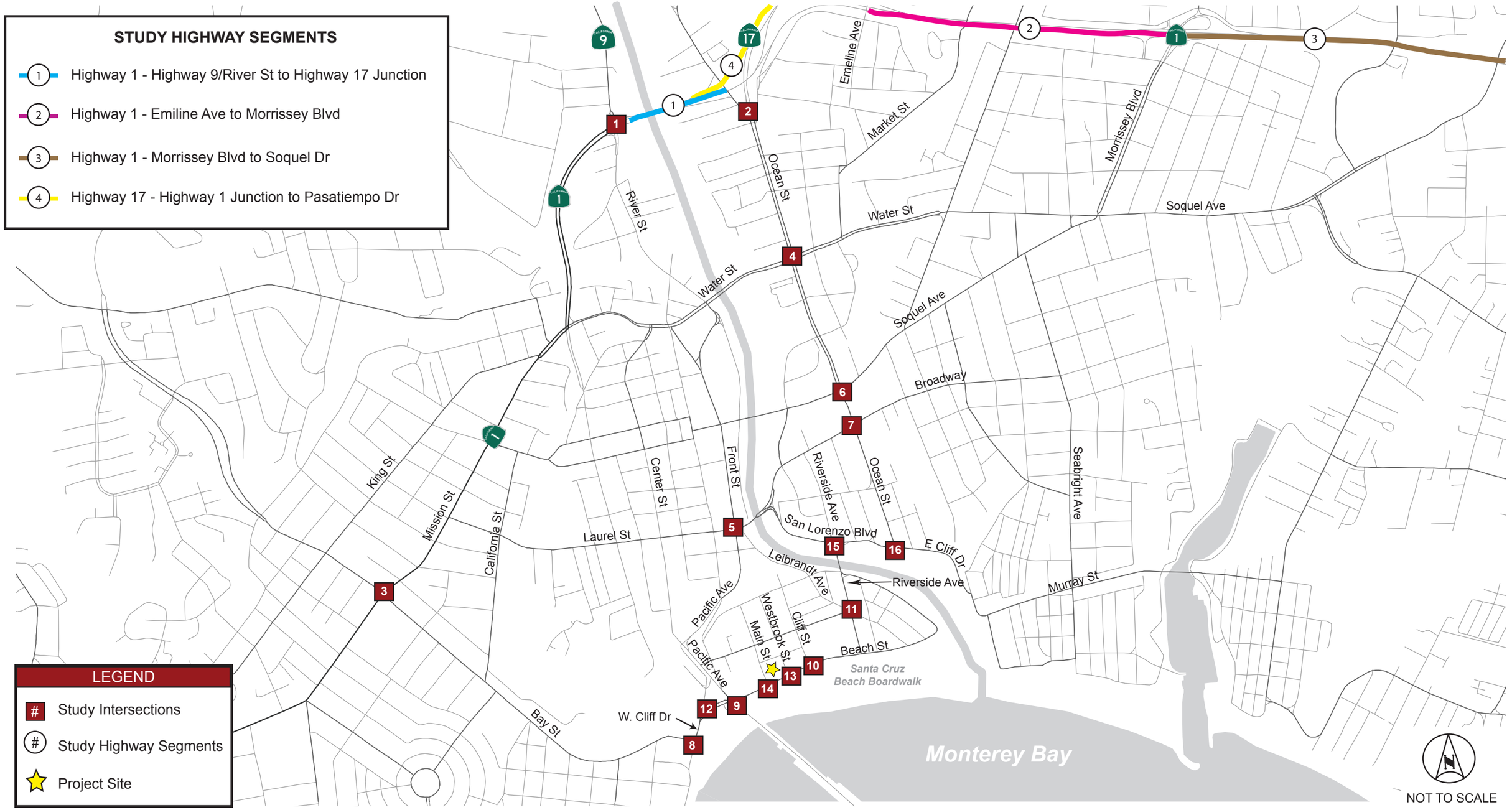

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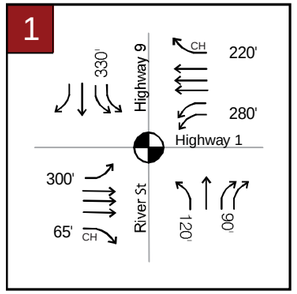
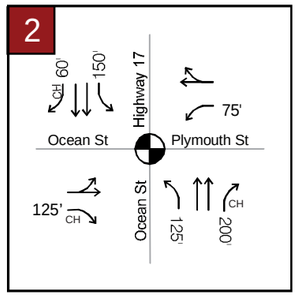
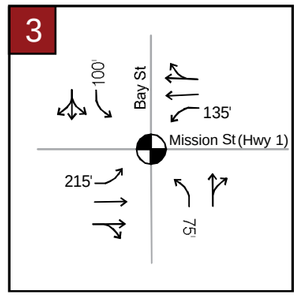
FIGURE 2

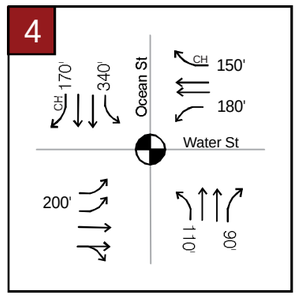
Project Study Area, Intersections and Highway Segment Locations

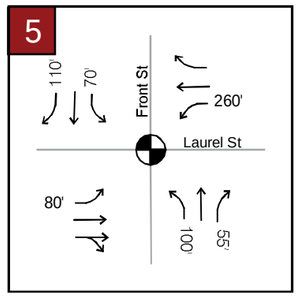
La Bahia Hotel Traffic Impact Analysis

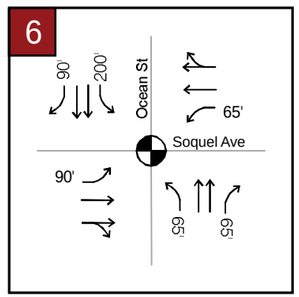


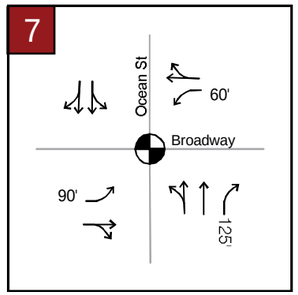


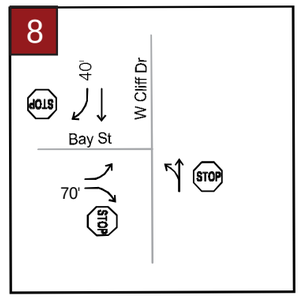


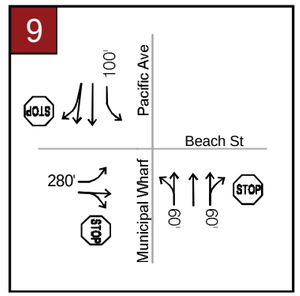


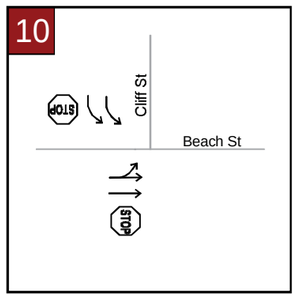


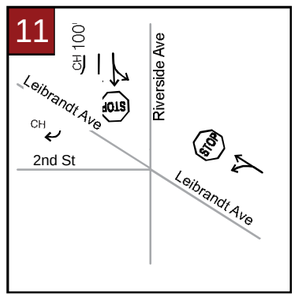


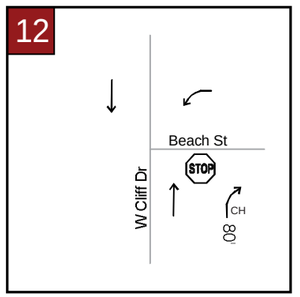


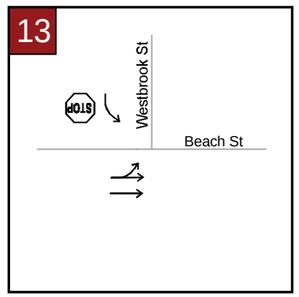


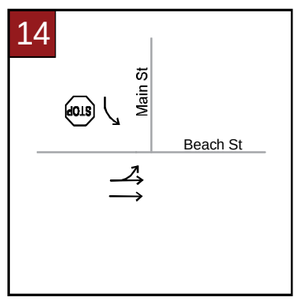


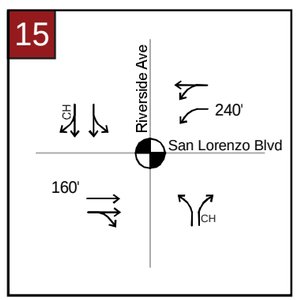


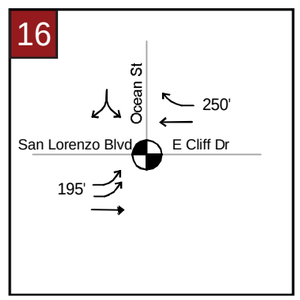












LEGEND

- # Study Intersections
- Project Site
- Traffic Signal
- STOP Stop Sign
- XX' Storage Length
- CH Channelized Right

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FIGURE 3

Existing Intersection Lane Geometry & Traffic Control

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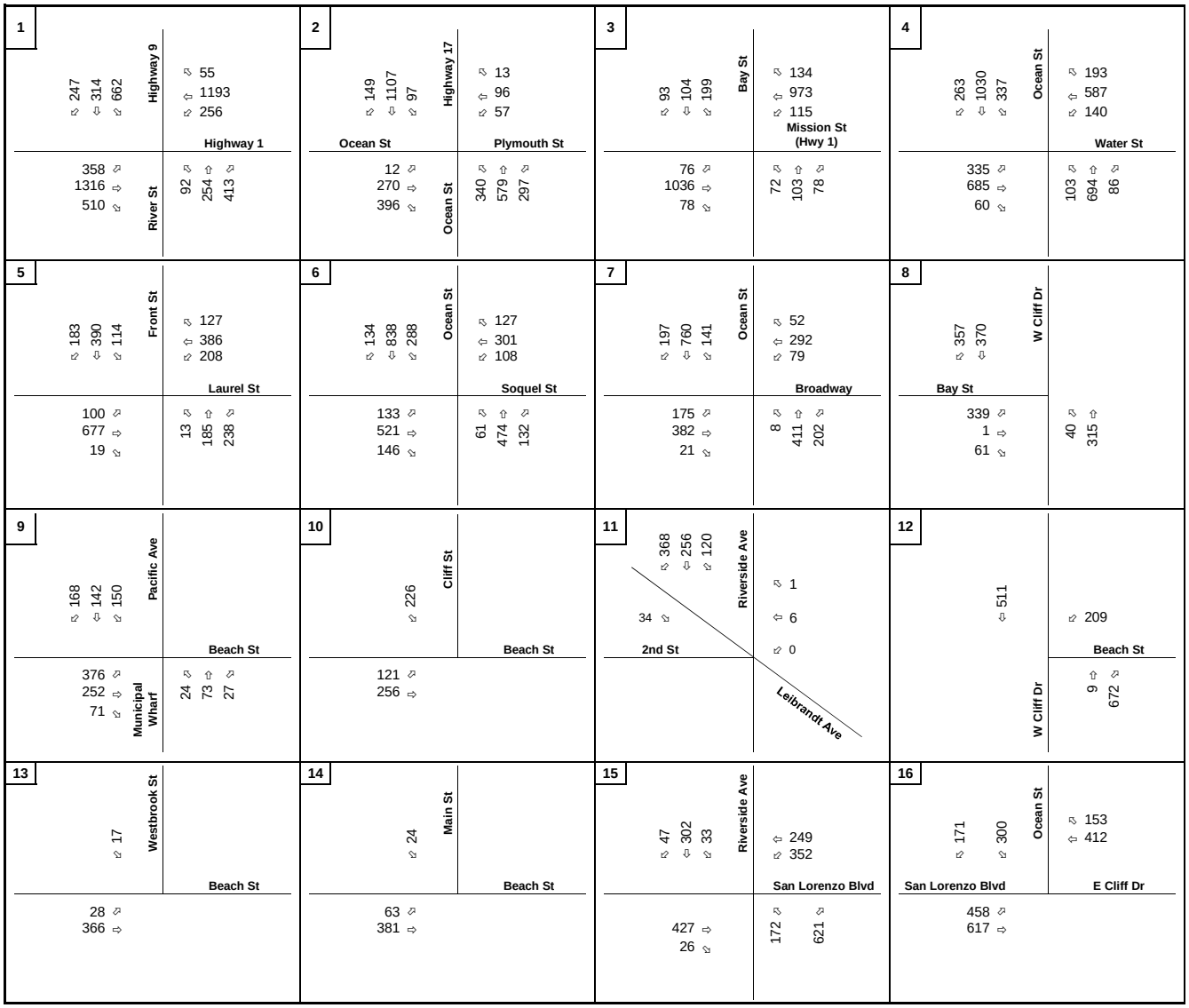

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FIGURE 4

Existing PM Peak Hour Intersection Volumes

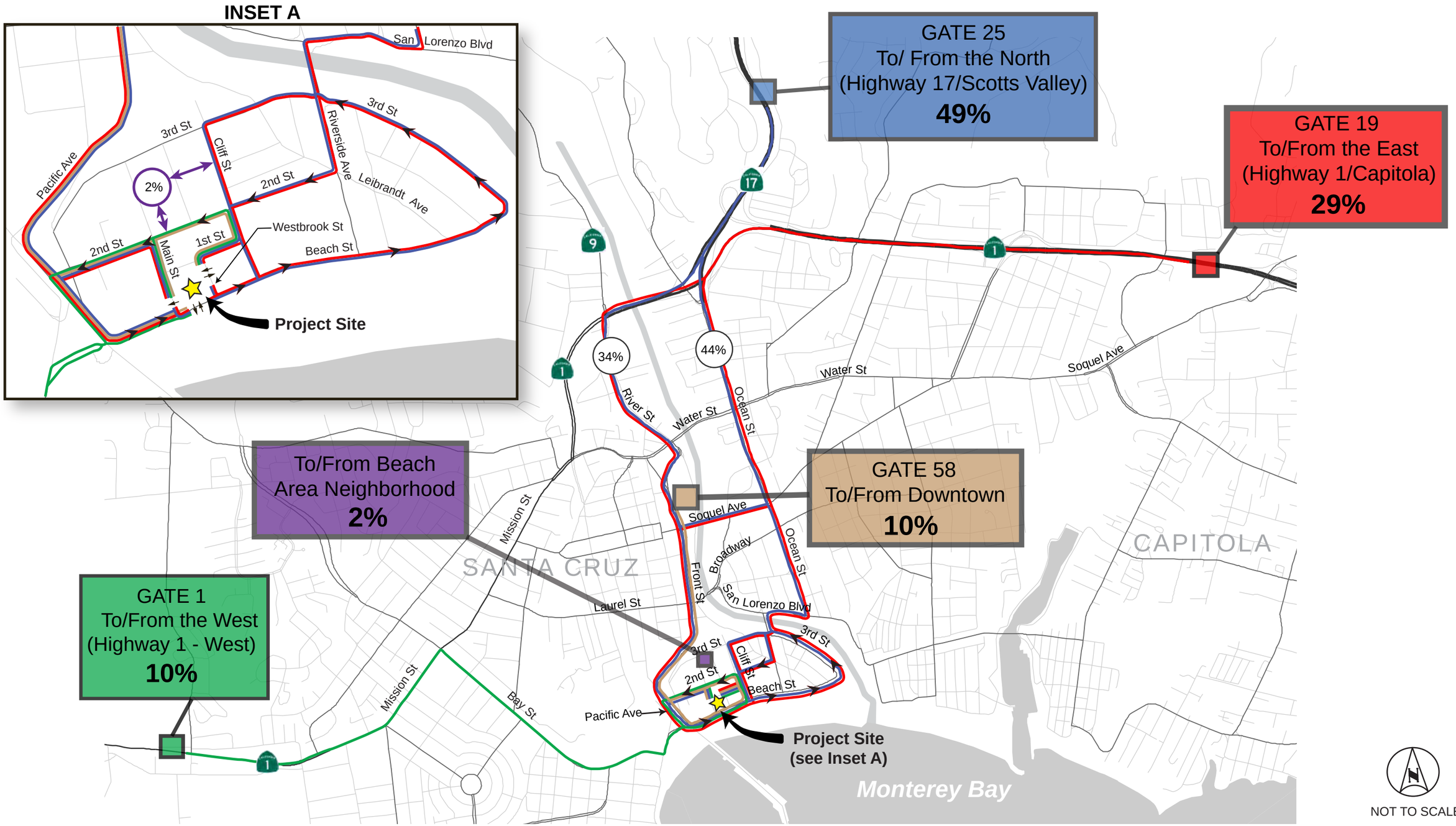

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FIGURE 5
Project Trip Distribution

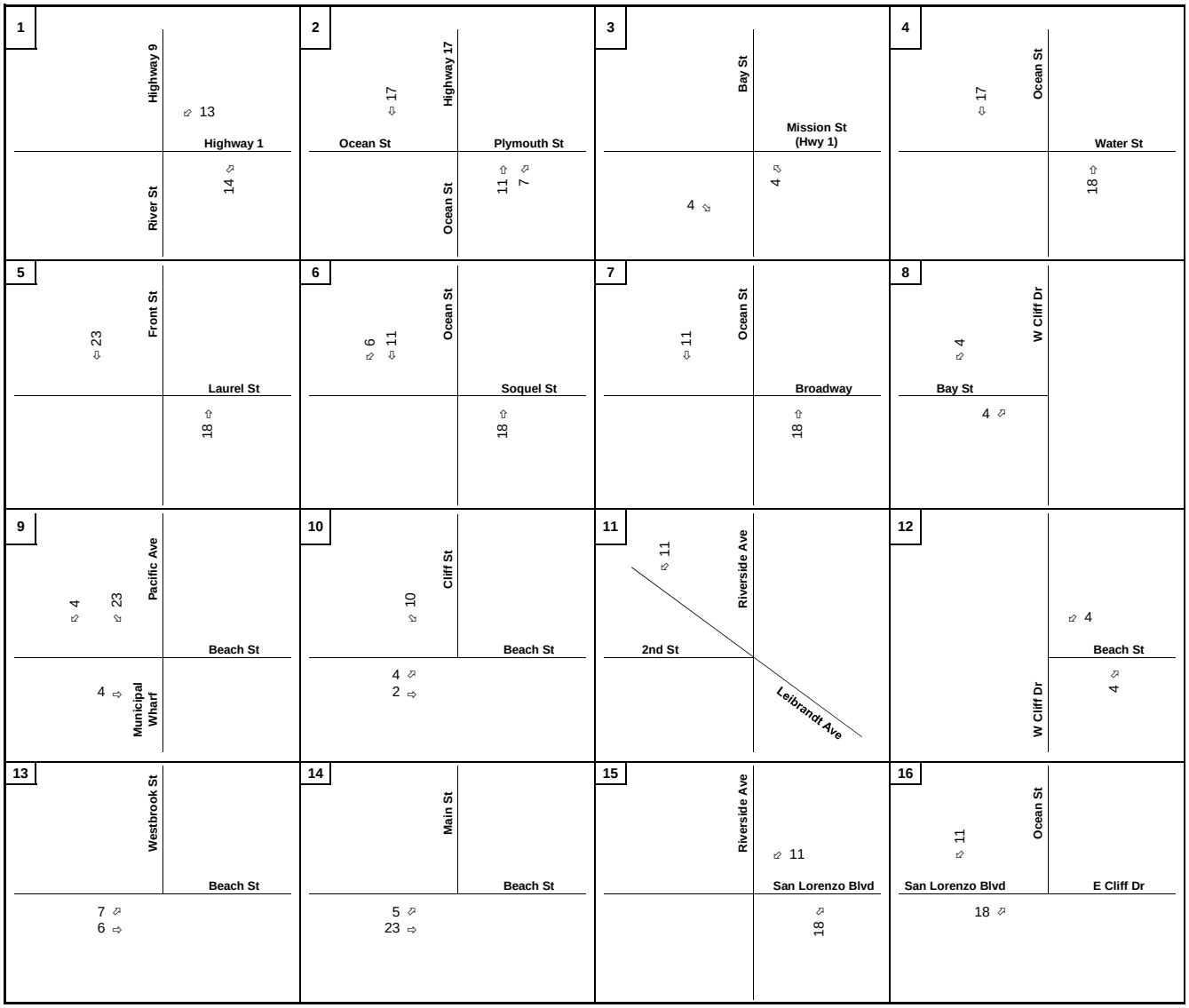

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FIGURE 6

PM Peak Hour Project Trip Assignment

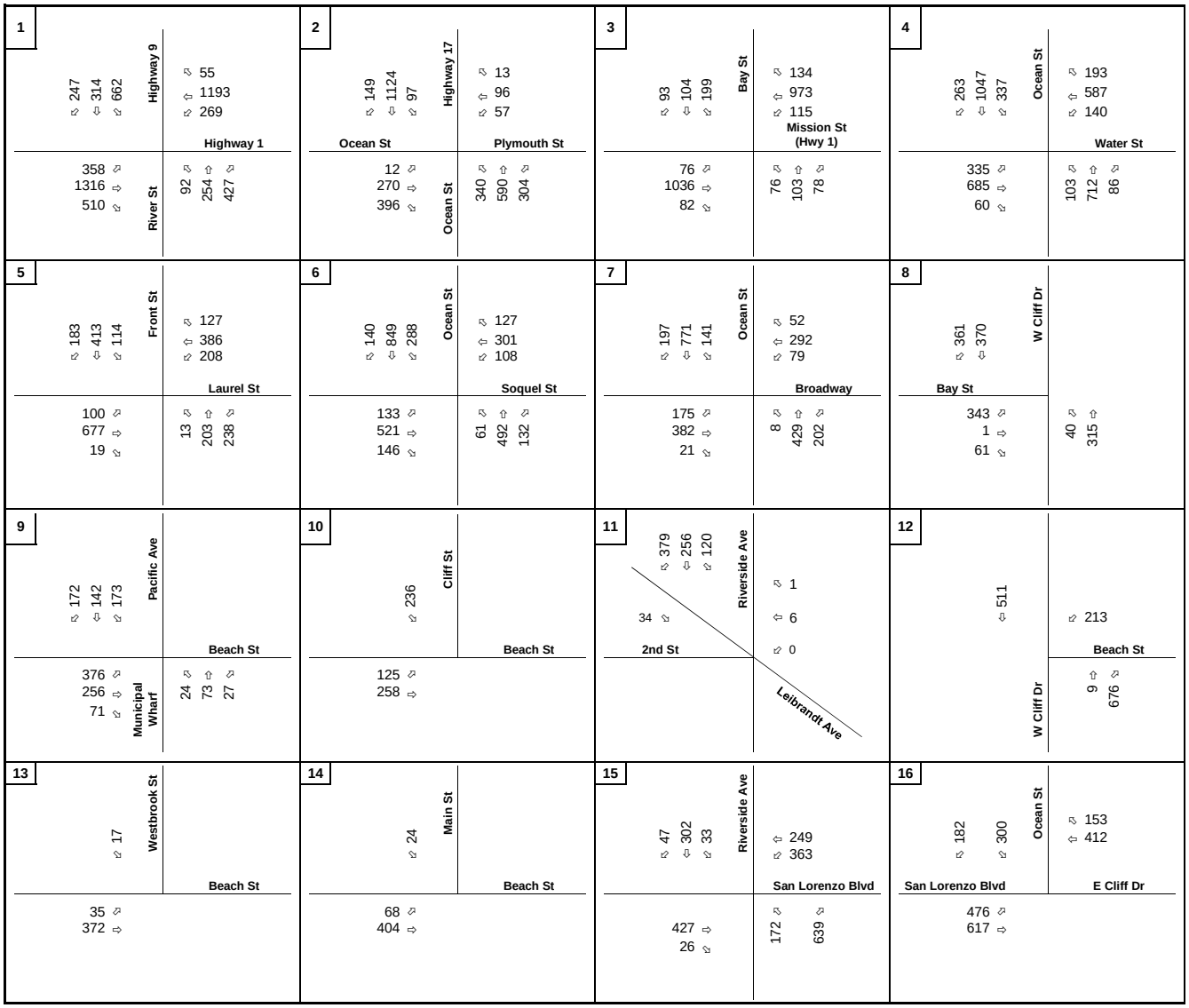

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FIGURE 7

Existing Plus Project PM Peak Hour Intersection Volumes

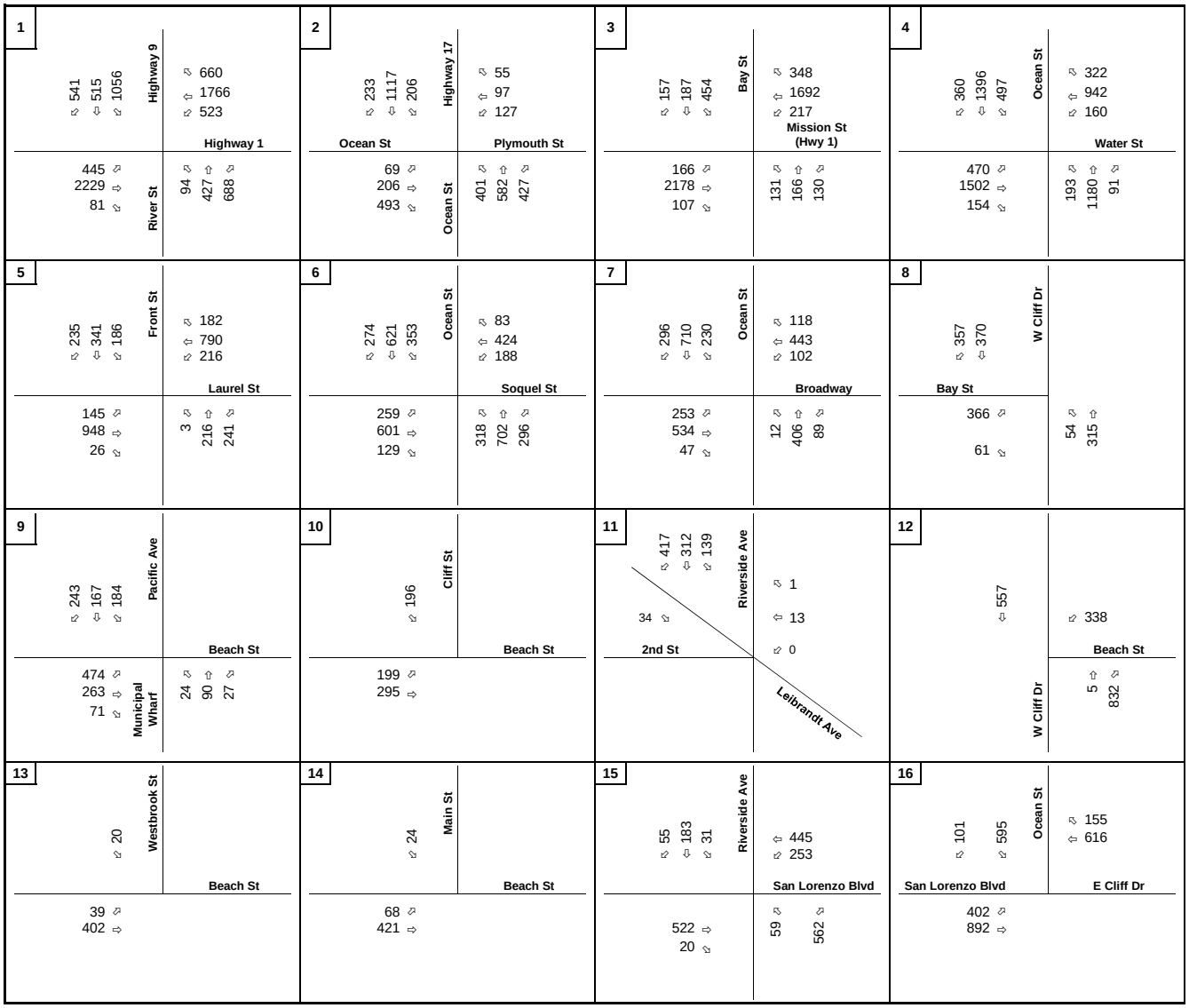

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FIGURE 8

Cumulative PM Peak Hour Intersection Volumes

APPENDICES

A. Existing Traffic Counts

B. Intersection LOS Analysis Calculations

- **Existing PM Peak Hour**
- **Existing Plus Project PM Peak Hour**
- **Cumulative PM Peak Hour**

C. Peak Hour Highway Segment LOS Analysis Calculations

- **Existing PM Peak Hour**
- **Existing Plus Project PM Peak Hour**
- **Cumulative PM Peak Hour**

D. General Plan 2030 Cumulative Buildout + UCSC Growth Traffic Growth Projections

E. Parking Demand Calculations

F. Santa Cruz METRO Bus Schedules

G. Santa Cruz County Regional Transportation Commission – Bike Map for City of Santa Cruz

H. Letter from Santa Cruz Seaside Company to the City of Santa Cruz Planning Department Detailing La Bahia Hotel Alternative Transportation Program

A: Existing PM Peak Hour Traffic Counts

ALL TRAFFIC DATA

City of Santa Cruz
All Vehicles on Unshifted
Peds & Bikes on Bank 1
Nothing on Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 13-7400-001 Highway 9-Highway 1.ppd
Date : 7/16/2013

Unshifted Count = All Vehicles

	Highway 9 Southbound					Highway 1 Westbound					Highway 9 Northbound					Highway 1 Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturn Total
16:00	174	93	48	0	315	54	261	23	1	339	19	71	111	0	201	112	266	117	2	497	1352	3
16:15	122	67	48	0	237	50	304	29	0	383	30	65	90	0	185	93	322	132	0	547	1352	0
16:30	155	80	62	0	297	50	296	17	0	363	29	61	98	0	188	112	300	140	4	556	1404	4
16:45	149	69	52	0	270	60	290	16	1	367	22	69	92	0	183	86	325	127	2	540	1360	3
Total	600	309	210	0	1119	214	1151	85	2	1452	100	266	391	0	757	403	1213	516	8	2140	5468	10
17:00	198	92	67	0	357	76	263	11	1	351	18	60	127	0	205	78	310	121	1	510	1423	2
17:15	160	73	66	0	299	68	344	11	0	423	23	64	96	0	183	74	381	122	1	578	1483	1
17:30	175	73	61	0	309	62	239	19	0	320	17	45	88	0	150	98	364	104	1	567	1346	1
17:45	121	59	64	0	244	60	225	16	3	304	21	52	83	0	156	95	339	98	1	533	1237	4
Total	654	297	258	0	1209	266	1071	57	4	1398	79	221	394	0	694	345	1394	445	4	2188	5489	8
Grand Total	1254	606	468	0	2328	480	2222	142	6	2850	179	487	785	0	1451	748	2607	961	12	4328	10957	18
Apprch %	53.9%	26.0%	20.1%	0.0%		16.8%	78.0%	5.0%	0.2%		12.3%	33.6%	54.1%	0.0%		17.3%	60.2%	22.2%	0.3%			
Total %	11.4%	5.5%	4.3%	0.0%	21.2%	4.4%	20.3%	1.3%	0.1%	26.0%	1.6%	4.4%	7.2%	0.0%	13.2%	6.8%	23.8%	8.8%	0.1%	39.5%	100.0%	

PM PEAK HOUR	Highway 9 Southbound					Highway 1 Westbound					Highway 9 Northbound					Highway 1 Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:30 to 17:30																					
Peak Hour For Entire Intersection Begins at 16:30																					
16:30	155	80	62	0	297	50	296	17	0	363	29	61	98	0	188	112	300	140	4	556	1404
16:45	149	69	52	0	270	60	290	16	1	367	22	69	92	0	183	86	325	127	2	540	1360
17:00	198	92	67	0	357	76	263	11	1	351	18	60	127	0	205	78	310	121	1	510	1423
17:15	160	73	66	0	299	68	344	11	0	423	23	64	96	0	183	74	381	122	1	578	1483
Total Volume	662	314	247	0	1223	254	1193	55	2	1504	92	254	413	0	759	350	1316	510	8	2184	5670
% App Total	54.1%	25.7%	20.2%	0.0%		16.9%	79.3%	3.7%	0.1%		12.1%	33.5%	54.4%	0.0%		16.0%	60.3%	23.4%	0.4%		
PHF	.836	.853	.922	.000	.856	.836	.867	.809	.500	.889	.793	.920	.813	.000	.926	.781	.864	.911	.500	.945	.956

ALL TRAFFIC DATA

City of Santa Cruz
All Vehicles on Unshifted
Peds & Bikes on Bank 1
Nothing on Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 13-7400-002 Ocean Street-Highway 17.ppd
Date : 7/16/2013

Unshifted Count = All Vehicles

	Highway 17 Southbound					Plymouth Street Westbound					Ocean Street Northbound					Ocean Street Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturn Total
16:00	17	248	35	0	300	15	23	2	0	40	72	126	88	0	286	3	47	86	0	136	762	0
16:15	9	267	40	0	316	11	24	3	0	38	87	142	71	0	300	5	66	83	0	154	808	0
16:30	33	256	33	0	322	11	23	2	0	36	82	164	76	0	322	5	86	88	0	179	859	0
16:45	23	283	46	0	352	18	17	5	0	40	96	143	64	0	303	1	63	96	0	160	855	0
Total	82	1054	154	0	1290	55	87	12	0	154	337	575	299	0	1211	14	262	353	0	629	3284	0
17:00	20	287	33	0	340	17	30	2	0	49	87	139	77	0	303	6	59	111	0	176	868	0
17:15	21	281	37	0	339	11	26	4	0	41	75	133	80	0	288	0	62	101	0	163	831	0
17:30	19	279	32	0	330	11	22	2	0	35	75	113	72	0	260	1	55	102	0	158	783	0
17:45	11	276	42	0	329	10	20	5	0	35	71	128	77	0	276	3	47	88	0	138	778	0
Total	71	1123	144	0	1338	49	98	13	0	160	308	513	306	0	1127	10	223	402	0	635	3260	0
Grand Total	153	2177	298	0	2628	104	185	25	0	314	645	1088	605	0	2338	24	485	755	0	1264	6544	0
Apprch %	5.8%	82.8%	11.3%	0.0%		33.1%	58.9%	8.0%	0.0%		27.6%	46.5%	25.9%	0.0%		1.9%	38.4%	59.7%	0.0%			
Total %	2.3%	33.3%	4.6%	0.0%	40.2%	1.6%	2.8%	0.4%	0.0%	4.8%	9.9%	16.6%	9.2%	0.0%	35.7%	0.4%	7.4%	11.5%	0.0%	19.3%	100.0%	

PM PEAK HOUR	Highway 17 Southbound					Plymouth Street Westbound					Ocean Street Northbound					Ocean Street Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:30 to 17:30																					
Peak Hour For Entire Intersection Begins at 16:30																					
16:30	33	256	33	0	322	11	23	2	0	36	82	164	76	0	322	5	86	88	0	179	859
16:45	23	283	46	0	352	18	17	5	0	40	96	143	64	0	303	1	63	96	0	160	855
17:00	20	287	33	0	340	17	30	2	0	49	87	139	77	0	303	6	59	111	0	176	868
17:15	21	281	37	0	339	11	26	4	0	41	75	133	80	0	288	0	62	101	0	163	831
Total Volume	97	1107	149	0	1353	57	96	13	0	166	340	579	297	0	1216	12	270	396	0	678	3413
% App Total	7.2%	81.8%	11.0%	0.0%		34.3%	57.8%	7.8%	0.0%		28.0%	47.6%	24.4%	0.0%		1.8%	39.8%	58.4%	0.0%		
PHF	.735	.964	.810	.000	.961	.792	.800	.650	.000	.847	.885	.883	.928	.000	.944	.500	.785	.892	.000	.947	.983

ALL TRAFFIC DATA

City of Santa Cruz
All Vehicles on Unshifted
Peds & Bikes on Bank 1
Nothing on Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 13-7400-003 Mission Street-Bay Street.ppd
Date : 7/16/2013

Unshifted Count = All Vehicles

	Mission Street Southbound					Bay Street Westbound					Mission Street Northbound					Bay Street Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturn Total
16:00	28	241	25	0	294	19	19	19	0	57	9	266	15	0	290	41	17	25	0	83	724	0
16:15	22	235	24	0	281	12	29	18	0	59	18	223	12	0	253	51	32	19	0	102	695	0
16:30	34	282	27	0	343	14	17	17	0	48	10	295	26	0	331	49	12	22	0	83	805	0
16:45	25	220	32	0	277	21	28	19	0	68	15	244	16	0	275	40	29	18	0	87	707	0
Total	109	978	108	0	1195	66	93	73	0	232	52	1028	69	0	1149	181	90	84	0	355	2931	0
17:00	25	236	34	0	295	14	29	24	0	67	18	274	24	0	316	44	31	24	0	99	777	0
17:15	31	235	41	0	307	23	29	18	0	70	33	223	12	0	268	66	32	29	0	127	772	0
17:30	39	286	40	0	365	18	25	13	0	56	16	233	16	0	265	50	29	19	0	98	784	0
17:45	40	239	37	0	316	15	19	14	0	48	16	179	10	0	205	73	36	32	0	141	710	0
Total	135	996	152	0	1283	70	102	69	0	241	83	909	62	0	1054	233	128	104	0	465	3043	0
Grand Total	244	1974	260	0	2478	136	195	142	0	473	135	1937	131	0	2203	414	218	188	0	820	5974	0
Apprch %	9.8%	79.7%	10.5%	0.0%		28.8%	41.2%	30.0%	0.0%		6.1%	87.9%	5.9%	0.0%		50.5%	26.6%	22.9%	0.0%			
Total %	4.1%	33.0%	4.4%	0.0%	41.5%	2.3%	3.3%	2.4%	0.0%	7.9%	2.3%	32.4%	2.2%	0.0%	36.9%	6.9%	3.6%	3.1%	0.0%	13.7%	100.0%	

PM PEAK HOUR	Mission Street Southbound					Bay Street Westbound					Mission Street Northbound					Bay Street Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:30 to 17:30																					
Peak Hour For Entire Intersection Begins at 16:30																					
16:30	34	282	27	0	343	14	17	17	0	48	10	295	26	0	331	49	12	22	0	83	805
16:45	25	220	32	0	277	21	28	19	0	68	15	244	16	0	275	40	29	18	0	87	707
17:00	25	236	34	0	295	14	29	24	0	67	18	274	24	0	316	44	31	24	0	99	777
17:15	31	235	41	0	307	23	29	18	0	70	33	223	12	0	268	66	32	29	0	127	772
Total Volume	115	973	134	0	1222	72	103	78	0	253	76	1036	78	0	1190	199	104	93	0	396	3061
% App Total	9.4%	79.6%	11.0%	0.0%		28.5%	40.7%	30.8%	0.0%		6.4%	87.1%	6.6%	0.0%		50.3%	26.3%	23.5%	0.0%		
PHF	.846	.863	.817	.000	.891	.783	.888	.813	.000	.904	.576	.878	.750	.000	.899	.754	.813	.802	.000	.780	.951

ALL TRAFFIC DATA

City of Santa Cruz
All Vehicles on Unshifted
Peds & Bikes on Bank 1
Nothing on Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 13-7400-004 Ocean Street-Water Street.ppd
Date : 7/16/2013

Unshifted Count = All Vehicles

	Ocean Street Southbound					Water Street Westbound					Ocean Street Northbound					Water Street Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturn Total
16:00	65	217	66	5	353	24	144	43	5	216	26	162	20	1	209	81	173	15	6	275	1053	17
16:15	73	235	64	8	380	18	175	41	3	237	26	184	22	2	234	82	169	13	6	270	1121	19
16:30	69	234	54	7	364	25	133	61	0	219	29	182	20	3	234	105	163	23	2	293	1110	12
16:45	85	256	67	6	414	36	134	51	2	223	28	194	25	0	247	78	152	18	3	251	1135	11
Total	292	942	251	26	1511	103	586	196	10	895	109	722	87	6	924	346	657	69	17	1089	4419	59
17:00	81	261	58	7	407	30	155	39	4	228	21	168	24	4	217	99	175	9	2	285	1137	17
17:15	71	266	63	3	403	34	156	47	2	239	20	171	17	2	210	80	175	19	3	277	1129	10
17:30	75	247	75	9	406	24	142	56	8	230	27	161	20	1	209	66	183	14	4	267	1112	22
17:45	77	242	65	3	387	38	137	44	2	221	23	152	16	1	192	78	147	15	6	246	1046	12
Total	304	1016	261	22	1603	126	590	186	16	918	91	652	77	8	828	323	680	57	15	1075	4424	61
Grand Total	596	1958	512	48	3114	229	1176	382	26	1813	200	1374	164	14	1752	669	1337	126	32	2164	8843	120
Apprch %	19.1%	62.9%	16.4%	1.5%		12.6%	64.9%	21.1%	1.4%		11.4%	78.4%	9.4%	0.8%		30.9%	61.8%	5.8%	1.5%			
Total %	6.7%	22.1%	5.8%	0.5%	35.2%	2.6%	13.3%	4.3%	0.3%	20.5%	2.3%	15.5%	1.9%	0.2%	19.8%	7.6%	15.1%	1.4%	0.4%	24.5%	100.0%	

PM PEAK HOUR	Ocean Street Southbound					Water Street Westbound					Ocean Street Northbound					Water Street Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:45 to 17:45																					
Peak Hour For Entire Intersection Begins at 16:45																					
16:45	85	256	67	6	414	36	134	51	2	223	28	194	25	0	247	78	152	18	3	251	1135
17:00	81	261	58	7	407	30	155	39	4	228	21	168	24	4	217	99	175	9	2	285	1137
17:15	71	266	63	3	403	34	156	47	2	239	20	171	17	2	210	80	175	19	3	277	1129
17:30	75	247	75	9	406	24	142	56	8	230	27	161	20	1	209	66	183	14	4	267	1112
Total Volume	312	1030	263	25	1630	124	587	193	16	920	96	694	86	7	883	323	685	60	12	1080	4513
% App Total	19.1%	63.2%	16.1%	1.5%		13.5%	63.8%	21.0%	1.7%		10.9%	78.6%	9.7%	0.8%		29.9%	63.4%	5.6%	1.1%		
PHF	.918	.968	.877	.694	.984	.861	.941	.862	.500	.962	.857	.894	.860	.438	.894	.816	.936	.789	.750	.947	.992

ALL TRAFFIC DATA

City of Santa Cruz
All Vehicles on Unshifted
Peds & Bikes on Bank 1
Nothing on Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 13-7400-005 Front Street-Laurel Street.ppd
Date : 7/16/2013

Unshifted Count = All Vehicles

	Front Street Southbound					Laurel Street Westbound					Front Street Northbound					Laurel Street Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturn Total
16:00	29	70	37	0	136	46	94	36	0	176	3	51	50	0	104	15	166	6	0	187	603	0
16:15	24	87	37	0	148	44	105	35	0	184	3	60	49	0	112	25	141	2	0	168	612	0
16:30	22	88	44	0	154	49	89	41	0	179	4	53	66	0	123	31	153	5	0	189	645	0
16:45	35	99	53	0	187	43	97	30	0	170	2	48	48	0	98	32	168	5	0	205	660	0
Total	110	344	171	0	625	182	385	142	0	709	12	212	213	0	437	103	628	18	0	749	2520	0
17:00	21	102	44	0	167	56	99	26	0	181	3	47	57	0	107	13	187	2	0	202	657	0
17:15	36	101	42	0	179	60	101	30	0	191	4	37	67	0	108	24	169	7	0	200	678	0
17:30	42	80	37	0	159	47	107	24	0	178	1	37	63	0	101	23	146	2	0	171	609	0
17:45	16	99	37	0	152	65	101	31	0	197	3	51	55	0	109	31	156	11	0	198	656	0
Total	115	382	160	0	657	228	408	111	0	747	11	172	242	0	425	91	658	22	0	771	2600	0
Grand Total	225	726	331	0	1282	410	793	253	0	1456	23	384	455	0	862	194	1286	40	0	1520	5120	0
Apprch %	17.6%	56.6%	25.8%	0.0%		28.2%	54.5%	17.4%	0.0%		2.7%	44.5%	52.8%	0.0%		12.8%	84.6%	2.6%	0.0%			
Total %	4.4%	14.2%	6.5%	0.0%	25.0%	8.0%	15.5%	4.9%	0.0%	28.4%	0.4%	7.5%	8.9%	0.0%	16.8%	3.8%	25.1%	0.8%	0.0%	29.7%	100.0%	

PM PEAK HOUR	Front Street Southbound					Laurel Street Westbound					Front Street Northbound					Laurel Street Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:30 to 17:30																					
Peak Hour For Entire Intersection Begins at 16:30																					
16:30	22	88	44	0	154	49	89	41	0	179	4	53	66	0	123	31	153	5	0	189	645
16:45	35	99	53	0	187	43	97	30	0	170	2	48	48	0	98	32	168	5	0	205	660
17:00	21	102	44	0	167	56	99	26	0	181	3	47	57	0	107	13	187	2	0	202	657
17:15	36	101	42	0	179	60	101	30	0	191	4	37	67	0	108	24	169	7	0	200	678
Total Volume	114	390	183	0	687	208	386	127	0	721	13	185	238	0	436	100	677	19	0	796	2640
% App Total	16.6%	56.8%	26.6%	0.0%		28.8%	53.5%	17.6%	0.0%		3.0%	42.4%	54.6%	0.0%		12.6%	85.1%	2.4%	0.0%		
PHF	.792	.956	.863	.000	.918	.867	.955	.774	.000	.944	.813	.873	.888	.000	.886	.781	.905	.679	.000	.971	.973

ALL TRAFFIC DATA

City of Santa Cruz
All Vehicles on Unshifted
Peds & Bikes on Bank 1
Nothing on Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 13-7400-006 Ocean Street-Soquel Avenue.ppd
Date : 7/16/2013

Unshifted Count = All Vehicles

	Ocean Street Southbound					Soquel Avenue Westbound					Ocean Street Northbound					Soquel Avenue Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturn Total
16:00	43	182	32	1	258	27	66	43	0	136	14	135	28	5	182	31	105	27	0	163	739	6
16:15	52	181	27	3	263	29	99	34	0	162	21	144	32	1	198	39	106	28	0	173	796	4
16:30	61	188	27	3	279	35	68	41	0	144	17	120	35	2	174	38	123	43	0	204	801	5
16:45	57	186	36	1	280	27	68	27	0	122	15	124	33	5	177	39	134	30	0	203	782	6
Total	213	737	122	8	1080	118	301	145	0	564	67	523	128	13	731	147	468	128	0	743	3118	21
17:00	88	245	34	2	369	26	79	31	0	136	5	112	32	2	151	31	123	36	0	190	846	4
17:15	69	219	37	7	332	20	86	28	0	134	13	118	32	2	165	25	141	37	0	203	834	9
17:30	65	214	27	3	309	32	65	27	0	124	8	117	38	1	164	26	132	32	0	190	787	4
17:45	61	211	36	0	308	31	62	28	0	121	8	137	27	0	172	25	121	27	0	173	774	0
Total	283	889	134	12	1318	109	292	114	0	515	34	484	129	5	652	107	517	132	0	756	3241	17
Grand Total	496	1626	256	20	2398	227	593	259	0	1079	101	1007	257	18	1383	254	985	260	0	1499	6359	38
Apprch %	20.7%	67.8%	10.7%	0.8%		21.0%	55.0%	24.0%	0.0%		7.3%	72.8%	18.6%	1.3%		16.9%	65.7%	17.3%	0.0%			
Total %	7.8%	25.6%	4.0%	0.3%	37.7%	3.6%	9.3%	4.1%	0.0%	17.0%	1.6%	15.8%	4.0%	0.3%	21.7%	4.0%	15.5%	4.1%	0.0%	23.6%	100.0%	

PM PEAK HOUR	Ocean Street Southbound					Soquel Avenue Westbound					Ocean Street Northbound					Soquel Avenue Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:30 to 17:30																					
Peak Hour For Entire Intersection Begins at 16:30																					
16:30	61	188	27	3	279	35	68	41	0	144	17	120	35	2	174	38	123	43	0	204	801
16:45	57	186	36	1	280	27	68	27	0	122	15	124	33	5	177	39	134	30	0	203	782
17:00	88	245	34	2	369	26	79	31	0	136	5	112	32	2	151	31	123	36	0	190	846
17:15	69	219	37	7	332	20	86	28	0	134	13	118	32	2	165	25	141	37	0	203	834
Total Volume	275	838	134	13	1260	108	301	127	0	536	50	474	132	11	667	133	521	146	0	800	3263
% App Total	21.8%	66.5%	10.6%	1.0%		20.1%	56.2%	23.7%	0.0%		7.5%	71.1%	19.8%	1.6%		16.6%	65.1%	18.3%	0.0%		
PHF	.781	.855	.905	.464	.854	.771	.875	.774	.000	.931	.735	.956	.943	.550	.942	.853	.924	.849	.000	.980	.964

ALL TRAFFIC DATA

City of Santa Cruz
All Vehicles on Unshifted
Peds & Bikes on Bank 1
Nothing on Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 13-7400-007 Ocean Street-Broadway.ppd
Date : 7/16/2013

Unshifted Count = All Vehicles

	Ocean Street Southbound					Broadway Westbound					Ocean Street Northbound					Broadway Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturn Total
16:00	14	176	42	0	232	20	62	15	0	97	3	97	27	0	127	53	86	5	0	144	600	0
16:15	22	164	39	0	225	20	71	23	0	114	3	119	26	0	148	55	83	10	0	148	635	0
16:30	32	200	40	0	272	20	72	18	0	110	1	95	27	0	123	47	76	11	0	134	639	0
16:45	26	184	39	0	249	21	64	12	0	97	4	116	59	0	179	46	83	6	0	135	660	0
Total	94	724	160	0	978	81	269	68	0	418	11	427	139	0	577	201	328	32	0	561	2534	0
17:00	36	213	54	0	303	24	68	8	0	100	0	99	56	0	155	40	93	6	0	139	697	0
17:15	30	194	45	0	269	15	77	17	0	109	2	101	61	0	164	44	83	5	0	132	674	0
17:30	42	183	49	0	274	17	74	15	0	106	3	100	43	0	146	48	99	6	0	153	679	0
17:45	33	170	49	0	252	23	73	12	0	108	3	111	42	0	156	43	107	4	0	154	670	0
Total	141	760	197	0	1098	79	292	52	0	423	8	411	202	0	621	175	382	21	0	578	2720	0
Grand Total	235	1484	357	0	2076	160	561	120	0	841	19	838	341	0	1198	376	710	53	0	1139	5254	0
Apprch %	11.3%	71.5%	17.2%	0.0%		19.0%	66.7%	14.3%	0.0%		1.6%	69.9%	28.5%	0.0%		33.0%	62.3%	4.7%	0.0%			
Total %	4.5%	28.2%	6.8%	0.0%	39.5%	3.0%	10.7%	2.3%	0.0%	16.0%	0.4%	15.9%	6.5%	0.0%	22.8%	7.2%	13.5%	1.0%	0.0%	21.7%	100.0%	

PM PEAK HOUR	Ocean Street Southbound					Broadway Westbound					Ocean Street Northbound					Broadway Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	36	213	54	0	303	24	68	8	0	100	0	99	56	0	155	40	93	6	0	139	697
17:15	30	194	45	0	269	15	77	17	0	109	2	101	61	0	164	44	83	5	0	132	674
17:30	42	183	49	0	274	17	74	15	0	106	3	100	43	0	146	48	99	6	0	153	679
17:45	33	170	49	0	252	23	73	12	0	108	3	111	42	0	156	43	107	4	0	154	670
Total Volume	141	760	197	0	1098	79	292	52	0	423	8	411	202	0	621	175	382	21	0	578	2720
% App Total	12.8%	69.2%	17.9%	0.0%		18.7%	69.0%	12.3%	0.0%		1.3%	66.2%	32.5%	0.0%		30.3%	66.1%	3.6%	0.0%		
PHF	.839	.892	.912	.000	.906	.823	.948	.765	.000	.970	.667	.926	.828	.000	.947	.911	.893	.875	.000	.938	.976

ALL TRAFFIC DATA

City of Santa Cruz
All Vehicles on Unshifted
Peds & Bikes on Bank 1
Nothing on Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 13-7400-008 West Cliff Drive-Bay Street.ppd
Date : 7/16/2013

Unshifted Count = All Vehicles

	West Cliff Drive Southbound					Driveway Westbound					West Cliff Drive Northbound					Bay Street Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturn Total
16:00	0	77	68	0	145	0	0	0	0	0	5	74	0	0	79	57	0	14	0	71	295	0
16:15	0	90	94	0	184	0	0	0	0	0	11	75	0	0	86	71	0	12	0	83	353	0
16:30	0	87	75	0	162	0	0	0	0	0	7	80	0	0	87	78	0	10	0	88	337	0
16:45	0	80	84	0	164	0	0	0	0	0	9	90	0	0	99	85	0	9	0	94	357	0
Total	0	334	321	0	655	0	0	0	0	0	32	319	0	0	351	291	0	45	0	336	1342	0
17:00	0	102	97	0	199	0	0	0	0	0	18	82	0	0	100	82	0	12	0	94	393	0
17:15	0	101	96	0	197	0	0	0	0	0	4	79	0	0	83	88	0	13	0	101	381	0
17:30	0	80	77	0	157	0	1	0	0	1	12	76	0	0	88	85	1	12	0	98	344	0
17:45	0	87	87	0	174	0	0	0	0	0	6	78	0	0	84	84	0	24	0	108	366	0
Total	0	370	357	0	727	0	1	0	0	1	40	315	0	0	355	339	1	61	0	401	1484	0
Grand Total	0	704	678	0	1382	0	1	0	0	1	72	634	0	0	706	630	1	106	0	737	2826	0
Apprch %	0.0%	50.9%	49.1%	0.0%		0.0%	100.0%	0.0%	0.0%		10.2%	89.8%	0.0%	0.0%		85.5%	0.1%	14.4%	0.0%			
Total %	0.0%	24.9%	24.0%	0.0%	48.9%	0.0%	0.0%	0.0%	0.0%	0.0%	2.5%	22.4%	0.0%	0.0%	25.0%	22.3%	0.0%	3.8%	0.0%	26.1%	100.0%	

PM PEAK HOUR	West Cliff Drive Southbound					Driveway Westbound					West Cliff Drive Northbound					Bay Street Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	102	97	0	199	0	0	0	0	0	18	82	0	0	100	82	0	12	0	94	393
17:15	0	101	96	0	197	0	0	0	0	0	4	79	0	0	83	88	0	13	0	101	381
17:30	0	80	77	0	157	0	1	0	0	1	12	76	0	0	88	85	1	12	0	98	344
17:45	0	87	87	0	174	0	0	0	0	0	6	78	0	0	84	84	0	24	0	108	366
Total Volume	0	370	357	0	727	0	1	0	0	1	40	315	0	0	355	339	1	61	0	401	1484
% App Total	0.0%	50.9%	49.1%	0.0%		0.0%	100.0%	0.0%	0.0%		11.3%	88.7%	0.0%	0.0%		84.5%	0.2%	15.2%	0.0%		
PHF	.000	.907	.920	.000	.913	.000	.250	.000	.000	.250	.556	.960	.000	.000	.888	.963	.250	.635	.000	.928	.944

ALL TRAFFIC DATA

City of Santa Cruz
All Vehicles on Unshifted
Peds & Bikes on Bank 1
Nothing on Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 13-7400-009 Pacific Avenue-Beach Street.ppd
Date : 7/16/2013

Unshifted Count = All Vehicles

	Pacific Avenue Southbound					Beach Street Westbound					Municipal Wharf Northbound					Beach Street Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturn Total
16:00	31	35	46	0	112	0	0	0	0	0	10	27	8	0	45	76	50	14	0	140	297	0
16:15	18	31	41	0	90	0	0	0	0	0	16	37	10	0	63	82	73	12	0	167	320	0
16:30	35	30	40	0	105	0	0	0	0	0	3	22	10	0	35	96	60	14	0	170	310	0
16:45	42	34	44	0	120	0	0	0	0	0	8	18	4	0	30	88	68	16	0	172	322	0
Total	126	130	171	0	427	0	0	0	0	0	37	104	32	0	173	342	251	56	0	649	1249	0
17:00	45	27	48	0	120	0	0	0	0	0	7	12	10	0	29	99	67	11	0	177	326	0
17:15	34	39	40	0	113	0	0	0	0	0	5	18	5	0	28	102	56	21	0	179	320	0
17:30	31	39	33	0	103	0	0	0	0	0	4	20	3	0	27	86	59	19	0	164	294	0
17:45	40	37	47	0	124	0	0	0	0	0	8	23	9	0	40	89	70	20	0	179	343	0
Total	150	142	168	0	460	0	0	0	0	0	24	73	27	0	124	376	252	71	0	699	1283	0
Grand Total	276	272	339	0	887	0	0	0	0	0	61	177	59	0	297	718	503	127	0	1348	2532	0
Apprch %	31.1%	30.7%	38.2%	0.0%		0.0%	0.0%	0.0%	0.0%		20.5%	59.6%	19.9%	0.0%		53.3%	37.3%	9.4%	0.0%			
Total %	10.9%	10.7%	13.4%	0.0%	35.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.4%	7.0%	2.3%	0.0%	11.7%	28.4%	19.9%	5.0%	0.0%	53.2%	100.0%	

PM PEAK HOUR	Pacific Avenue Southbound					Beach Street Westbound					Municipal Wharf Northbound					Beach Street Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	45	27	48	0	120	0	0	0	0	0	7	12	10	0	29	99	67	11	0	177	326
17:15	34	39	40	0	113	0	0	0	0	0	5	18	5	0	28	102	56	21	0	179	320
17:30	31	39	33	0	103	0	0	0	0	0	4	20	3	0	27	86	59	19	0	164	294
17:45	40	37	47	0	124	0	0	0	0	0	8	23	9	0	40	89	70	20	0	179	343
Total Volume	150	142	168	0	460	0	0	0	0	0	24	73	27	0	124	376	252	71	0	699	1283
% App Total	32.6%	30.9%	36.5%	0.0%		0.0%	0.0%	0.0%	0.0%		19.4%	58.9%	21.8%	0.0%		53.8%	36.1%	10.2%	0.0%		
PHF	.833	.910	.875	.000	.927	.000	.000	.000	.000	.000	.750	.793	.675	.000	.775	.922	.900	.845	.000	.976	.935

ALL TRAFFIC DATA

City of Santa Cruz
All Vehicles on Unshifted
Peds & Bikes on Bank 1
Nothing on Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 13-7400-010 Cliff Street-Beach Street.ppd
Date : 7/16/2013

Unshifted Count = All Vehicles

	Cliff Street Southbound					Beach Street Westbound					Northbound					Beach Street Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturn Total
16:00	34	0	0	0	34	0	0	0	0	0	0	0	0	0	0	31	46	0	0	77	111	0
16:15	45	0	0	0	45	0	0	0	0	0	0	0	0	0	0	36	52	0	0	88	133	0
16:30	43	0	0	0	43	0	0	0	0	0	0	0	0	0	0	28	58	0	0	86	129	0
16:45	58	0	0	0	58	0	0	0	0	0	0	0	0	0	0	36	66	0	0	102	160	0
Total	180	0	0	0	180	0	0	0	0	0	0	0	0	0	0	131	222	0	0	353	533	0
17:00	46	0	0	0	46	0	0	0	0	0	0	0	0	0	0	38	70	0	0	108	154	0
17:15	59	0	0	0	59	0	0	0	0	0	0	0	0	0	0	20	72	0	0	92	151	0
17:30	63	0	0	0	63	0	0	0	0	0	0	0	0	0	0	27	48	0	0	75	138	0
17:45	58	0	0	0	58	0	0	0	0	0	0	0	0	0	0	31	60	0	0	91	149	0
Total	226	0	0	0	226	0	0	0	0	0	0	0	0	0	0	116	250	0	0	366	592	0
Grand Total	406	0	0	0	406	0	0	0	0	0	0	0	0	0	0	247	472	0	0	719	1125	0
Apprch %	100.0%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%		34.4%	65.6%	0.0%	0.0%			
Total %	36.1%	0.0%	0.0%	0.0%	36.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	22.0%	42.0%	0.0%	0.0%	63.9%	100.0%	

PM PEAK HOUR	Cliff Street Southbound					Beach Street Westbound					Northbound					Beach Street Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:45 to 17:45																					
Peak Hour For Entire Intersection Begins at 16:45																					
16:45	58	0	0	0	58	0	0	0	0	0	0	0	0	0	0	36	66	0	0	102	160
17:00	46	0	0	0	46	0	0	0	0	0	0	0	0	0	0	38	70	0	0	108	154
17:15	59	0	0	0	59	0	0	0	0	0	0	0	0	0	0	20	72	0	0	92	151
17:30	63	0	0	0	63	0	0	0	0	0	0	0	0	0	0	27	48	0	0	75	138
Total Volume	226	0	0	0	226	0	0	0	0	0	0	0	0	0	0	121	256	0	0	377	603
% App Total	100.0%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%		32.1%	67.9%	0.0%	0.0%		
PHF	.897	.000	.000	.000	.897	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.796	.889	.000	.000	.873	.942

All Traffic Data

APPENDIX D

(916) 771-8700
orders@atdtraffic.com

City of Santa Cruz
All Vehicles on Unshifted Tab
Peds & Bikes on Bank 1 Tab

File Name : 13-7400-011 Riverside Avenue-Leibrandt Avenue-2nd Street
Site Code : 00000000
Start Date : 7/16/2013
Page No : 1

Groups Printed- Unshifted

	Riverside Avenue Southbound					Leibrandt Street Westbound					Riverside Avenue Northbound					2nd Street Northeastbound					Leibrandt Street Eastbound					
Start Time	Left	Thru	Bear Right	Right	App. Total	Left	Bear Left	Thru	Right	App. Total	Hard Left	Left	Thru	Right	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Left	Thru	Right	Hard Right	App. Total	Int. Total
16:00	19	66	61	6	152	0	3	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	159
16:15	28	41	59	3	131	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	136
16:30	23	50	64	4	141	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	144
16:45	34	49	84	4	171	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9	181
Total	104	206	268	17	595	0	7	2	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	16	16	620
17:00	35	64	79	8	186	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6	194
17:15	45	62	81	5	193	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11	205
17:30	25	61	99	4	189	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	196
17:45	15	69	89	3	176	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	12	12	190
Total	120	256	348	20	744	0	6	1	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	34	34	785
Grand Total	224	462	616	37	1339	0	13	3	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50	1405
Apprch %	16.7	34.5	46	2.8		0	81.2	18.8	0		0	0	0	0		0	0	0	0		0	0	0	100		
Total %	15.9	32.9	43.8	2.6	95.3	0	0.9	0.2	0	1.1	0	0	0	0	0	0	0	0	0	0	0	0	0	3.6	3.6	

	Riverside Avenue Southbound					Leibrandt Street Westbound					Riverside Avenue Northbound					2nd Street Northeastbound					Leibrandt Street Eastbound					
Start Time	Left	Thru	Bear Right	Right	App. Total	Left	Bear Left	Thru	Right	App. Total	Hard Left	Left	Thru	Right	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Left	Thru	Right	Hard Right	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 17:00																									
17:00	35	64	79	**8**	186	0	**2**	0	0	**2**	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6	194
17:15	**45**	62	81	5	**193**	0	0	**1**	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11	**205**
17:30	25	61	**99**	4	189	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	196
17:45	15	**69**	89	3	176	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	**12**	**12**	190
Total Volume	120	256	348	20	744	0	6	1	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	34	34	785
% App. Total	16.1	34.4	46.8	2.7		0	85.7	14.3	0		0	0	0	0		0	0	0	0		0	0	0	100		
PHF	.667	.928	.879	.625	.964	.000	.750	.250	.000	.875	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.708	.708	.957

ALL TRAFFIC DATA

City of Santa Cruz
All Vehicles on Unshifted
Peds & Bikes on Bank 1
Nothing on Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 13-7400-012 West Cliff Drive-Beach Street.ppd
Date : 7/16/2013

Unshifted Count = All Vehicles

	West Cliff Drive Southbound					Beach Street Westbound					West Cliff Drive Northbound					Driveway Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturn Total
16:00	0	93	0	0	93	54	0	0	0	54	0	3	135	0	138	0	0	0	0	0	285	0
16:15	0	121	0	0	121	70	1	0	0	71	0	0	146	0	146	0	0	0	0	0	338	0
16:30	0	115	1	0	116	49	1	0	0	50	0	0	166	0	166	0	0	2	0	2	334	0
16:45	0	104	1	0	105	52	0	0	0	52	0	2	179	0	181	0	0	0	0	0	338	0
Total	0	433	2	0	435	225	2	0	0	227	0	5	626	0	631	0	0	2	0	2	1295	0
17:00	0	144	1	0	145	57	0	0	0	57	0	5	158	0	163	0	1	1	0	2	367	0
17:15	0	148	0	0	148	51	0	0	0	51	0	2	169	0	171	0	0	0	0	0	370	0
17:30	0	118	0	0	118	39	0	0	0	39	0	0	161	0	161	0	0	0	0	0	318	0
17:45	0	130	0	0	130	57	0	0	0	57	0	0	160	0	160	0	0	1	0	1	348	0
Total	0	540	1	0	541	204	0	0	0	204	0	7	648	0	655	0	1	2	0	3	1403	0
Grand Total	0	973	3	0	976	429	2	0	0	431	0	12	1274	0	1286	0	1	4	0	5	2698	0
Apprch %	0.0%	99.7%	0.3%	0.0%		99.5%	0.5%	0.0%	0.0%		0.0%	0.9%	99.1%	0.0%		0.0%	20.0%	80.0%	0.0%			
Total %	0.0%	36.1%	0.1%	0.0%	36.2%	15.9%	0.1%	0.0%	0.0%	16.0%	0.0%	0.4%	47.2%	0.0%	47.7%	0.0%	0.0%	0.1%	0.0%	0.2%	100.0%	

PM PEAK HOUR	West Cliff Drive Southbound					Beach Street Westbound					West Cliff Drive Northbound					Driveway Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:30 to 17:30																					
Peak Hour For Entire Intersection Begins at 16:30																					
16:30	0	115	1	0	116	49	1	0	0	50	0	0	166	0	166	0	0	2	0	2	334
16:45	0	104	1	0	105	52	0	0	0	52	0	2	179	0	181	0	0	0	0	0	338
17:00	0	144	1	0	145	57	0	0	0	57	0	5	158	0	163	0	1	1	0	2	367
17:15	0	148	0	0	148	51	0	0	0	51	0	2	169	0	171	0	0	0	0	0	370
Total Volume	0	511	3	0	514	209	1	0	0	210	0	9	672	0	681	0	1	3	0	4	1409
% App Total	0.0%	99.4%	0.6%	0.0%		99.5%	0.5%	0.0%	0.0%		0.0%	1.3%	98.7%	0.0%		0.0%	25.0%	75.0%	0.0%		
PHF	.000	.863	.750	.000	.868	.917	.250	.000	.000	.921	.000	.450	.939	.000	.941	.000	.250	.375	.000	.500	.952

ALL TRAFFIC DATA

City of Santa Cruz
All Vehicles on Unshifted
Peds & Bikes on Bank 1
Nothing on Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 13-7400-013 Westbrook Street-Beach Street.ppd
Date : 7/16/2013

Unshifted Count = All Vehicles

	Westbrook Street Southbound					Beach Street Westbound					Northbound					Beach Street Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturn Total
16:00	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	71	0	0	73	74	0
16:15	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	6	80	0	0	86	88	0
16:30	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4	88	0	0	92	93	0
16:45	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	7	94	0	0	101	107	0
Total	10	0	0	0	10	0	0	0	0	0	0	0	0	0	0	19	333	0	0	352	362	0
17:00	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	9	101	0	0	110	116	0
17:15	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5	85	0	0	90	93	0
17:30	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	7	86	0	0	93	95	0
17:45	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	11	88	0	0	99	103	0
Total	15	0	0	0	15	0	0	0	0	0	0	0	0	0	0	32	360	0	0	392	407	0
Grand Total	25	0	0	0	25	0	0	0	0	0	0	0	0	0	0	51	693	0	0	744	769	0
Apprch %	100.0%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%		6.9%	93.1%	0.0%	0.0%			
Total %	3.3%	0.0%	0.0%	0.0%	3.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.6%	90.1%	0.0%	0.0%	96.7%	100.0%	

PM PEAK HOUR	Westbrook Street Southbound					Beach Street Westbound					Northbound					Beach Street Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:45 to 17:45																					
Peak Hour For Entire Intersection Begins at 16:45																					
16:45	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	7	94	0	0	101	107
17:00	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	9	101	0	0	110	116
17:15	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5	85	0	0	90	93
17:30	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	7	86	0	0	93	95
Total Volume	17	0	0	0	17	0	0	0	0	0	0	0	0	0	0	28	366	0	0	394	411
% App Total	100.0%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%		7.1%	92.9%	0.0%	0.0%		
PHF	.708	.000	.000	.000	.708	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.778	.906	.000	.000	.895	.886

ALL TRAFFIC DATA

City of Santa Cruz
All Vehicles on Unshifted
Peds & Bikes on Bank 1
Nothing on Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 13-7400-014 Main Street-Beach Street.ppd
Date : 7/16/2013

Unshifted Count = All Vehicles

	Main Street Southbound					Beach Street Westbound					Northbound					Beach Street Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturn Total
16:00	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	17	77	0	0	94	98	0
16:15	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	18	81	0	0	99	102	0
16:30	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	11	90	0	0	101	104	0
16:45	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	24	102	0	0	126	129	0
Total	13	0	0	0	13	0	0	0	0	0	0	0	0	0	0	70	350	0	0	420	433	0
17:00	13	0	0	0	13	0	0	0	0	0	0	0	0	0	0	14	101	0	0	115	128	0
17:15	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	14	88	0	0	102	107	0
17:30	9	0	0	0	9	0	0	0	0	0	0	0	0	0	0	14	81	0	0	95	104	0
17:45	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	20	94	0	0	114	119	0
Total	32	0	0	0	32	0	0	0	0	0	0	0	0	0	0	62	364	0	0	426	458	0
Grand Total	45	0	0	0	45	0	0	0	0	0	0	0	0	0	0	132	714	0	0	846	891	0
Apprch %	100.0%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%		15.6%	84.4%	0.0%	0.0%			
Total %	5.1%	0.0%	0.0%	0.0%	5.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	14.8%	80.1%	0.0%	0.0%	94.9%	100.0%	

PM PEAK HOUR	Main Street Southbound					Beach Street Westbound					Northbound					Beach Street Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:30 to 17:30																					
Peak Hour For Entire Intersection Begins at 16:30																					
16:30	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	11	90	0	0	101	104
16:45	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	24	102	0	0	126	129
17:00	13	0	0	0	13	0	0	0	0	0	0	0	0	0	0	14	101	0	0	115	128
17:15	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	14	88	0	0	102	107
Total Volume	24	0	0	0	24	0	0	0	0	0	0	0	0	0	0	63	381	0	0	444	468
% App Total	100.0%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%		14.2%	85.8%	0.0%	0.0%		
PHF	.462	.000	.000	.000	.462	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.656	.934	.000	.000	.881	.907

ALL TRAFFIC DATA

City of Santa Cruz
All Vehicles on Unshifted
Peds & Bikes on Bank 1
Nothing on Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 13-7400-015 Riverside Avenue-San Lorenzo Boulevard.pp
Date : 7/16/2013

Unshifted Count = All Vehicles

	Riverside Avenue Southbound					San Lorenzo Boulevard Westbound					Riverside Avenue Northbound					San Lorenzo Boulevard Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturn Total
16:00	6	72	12	0	90	75	70	0	0	145	44	0	140	0	184	0	94	3	0	97	516	0
16:15	12	51	8	0	71	80	68	0	0	148	38	0	154	0	192	0	106	5	0	111	522	0
16:30	10	77	17	0	104	91	66	0	0	157	44	0	158	0	202	0	107	2	0	109	572	0
16:45	7	75	7	0	89	80	61	0	0	141	32	0	165	0	197	0	106	7	0	113	540	0
Total	35	275	44	0	354	326	265	0	0	591	158	0	617	0	775	0	413	17	0	430	2150	0
17:00	8	75	10	0	93	89	57	0	0	146	53	0	166	0	219	0	101	3	0	104	562	0
17:15	8	75	13	0	96	92	65	0	0	157	43	0	132	0	175	0	113	14	0	127	555	0
17:30	9	72	12	0	93	87	54	0	0	141	41	0	143	0	184	0	118	5	0	123	541	0
17:45	9	75	8	0	92	76	61	0	0	137	42	0	161	0	203	0	97	3	0	100	532	0
Total	34	297	43	0	374	344	237	0	0	581	179	0	602	0	781	0	429	25	0	454	2190	0
Grand Total	69	572	87	0	728	670	502	0	0	1172	337	0	1219	0	1556	0	842	42	0	884	4340	0
Apprch %	9.5%	78.6%	12.0%	0.0%		57.2%	42.8%	0.0%	0.0%		21.7%	0.0%	78.3%	0.0%		0.0%	95.2%	4.8%	0.0%			
Total %	1.6%	13.2%	2.0%	0.0%	16.8%	15.4%	11.6%	0.0%	0.0%	27.0%	7.8%	0.0%	28.1%	0.0%	35.9%	0.0%	19.4%	1.0%	0.0%	20.4%	100.0%	

PM PEAK HOUR	Riverside Avenue Southbound					San Lorenzo Boulevard Westbound					Riverside Avenue Northbound					San Lorenzo Boulevard Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:30 to 17:30																					
Peak Hour For Entire Intersection Begins at 16:30																					
16:30	10	77	17	0	104	91	66	0	0	157	44	0	158	0	202	0	107	2	0	109	572
16:45	7	75	7	0	89	80	61	0	0	141	32	0	165	0	197	0	106	7	0	113	540
17:00	8	75	10	0	93	89	57	0	0	146	53	0	166	0	219	0	101	3	0	104	562
17:15	8	75	13	0	96	92	65	0	0	157	43	0	132	0	175	0	113	14	0	127	555
Total Volume	33	302	47	0	382	352	249	0	0	601	172	0	621	0	793	0	427	26	0	453	2229
% App Total	8.6%	79.1%	12.3%	0.0%		58.6%	41.4%	0.0%	0.0%		21.7%	0.0%	78.3%	0.0%		0.0%	94.3%	5.7%	0.0%		
PHF	.825	.981	.691	.000	.918	.957	.943	.000	.000	.957	.811	.000	.935	.000	.905	.000	.945	.464	.000	.892	.974

ALL TRAFFIC DATA

City of Santa Cruz
All Vehicles on Unshifted
Peds & Bikes on Bank 1
Nothing on Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 13-7400-016 Ocean Street-San Lorenzo Boulevard.ppd
Date : 7/16/2013

Unshifted Count = All Vehicles

	Ocean Street Southbound					San Lorenzo Boulevard Westbound					0					San Lorenzo Boulevard Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturn Total
16:00	63	0	36	0	99	0	128	31	0	159	0	0	0	0	0	84	154	0	0	238	496	0
16:15	66	0	51	0	117	0	90	43	0	133	0	0	0	0	0	110	151	0	0	261	511	0
16:30	79	0	51	0	130	0	115	37	0	152	0	0	0	0	0	87	176	0	0	263	545	0
16:45	73	0	31	0	104	0	94	41	0	135	0	0	0	0	0	135	134	0	0	269	508	0
Total	281	0	169	0	450	0	427	152	0	579	0	0	0	0	0	416	615	0	0	1031	2060	0
17:00	82	0	38	0	120	0	113	32	0	145	0	0	0	0	0	126	156	0	0	282	547	0
17:15	92	0	42	0	134	0	98	27	0	125	0	0	0	0	0	116	136	0	0	252	511	0
17:30	90	0	39	0	129	0	109	38	0	147	0	0	0	0	0	116	153	0	0	269	545	0
17:45	57	0	33	0	90	0	106	27	0	133	0	0	0	0	0	129	140	0	0	269	492	0
Total	321	0	152	0	473	0	426	124	0	550	0	0	0	0	0	487	585	0	0	1072	2095	0
Grand Total	602	0	321	0	923	0	853	276	0	1129	0	0	0	0	0	903	1200	0	0	2103	4155	0
Apprch %	65.2%	0.0%	34.8%	0.0%		0.0%	75.6%	24.4%	0.0%		0.0%	0.0%	0.0%	0.0%		42.9%	57.1%	0.0%	0.0%			
Total %	14.5%	0.0%	7.7%	0.0%	22.2%	0.0%	20.5%	6.6%	0.0%	27.2%	0.0%	0.0%	0.0%	0.0%	0.0%	21.7%	28.9%	0.0%	0.0%	50.6%	100.0%	

PM PEAK HOUR	Ocean Street Southbound					San Lorenzo Boulevard Westbound					0					San Lorenzo Boulevard Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:15 to 17:15																					
Peak Hour For Entire Intersection Begins at 16:15																					
16:15	66	0	51	0	117	0	90	43	0	133	0	0	0	0	0	110	151	0	0	261	511
16:30	79	0	51	0	130	0	115	37	0	152	0	0	0	0	0	87	176	0	0	263	545
16:45	73	0	31	0	104	0	94	41	0	135	0	0	0	0	0	135	134	0	0	269	508
17:00	82	0	38	0	120	0	113	32	0	145	0	0	0	0	0	126	156	0	0	282	547
Total Volume	300	0	171	0	471	0	412	153	0	565	0	0	0	0	0	458	617	0	0	1075	2111
% App Total	63.7%	0.0%	36.3%	0.0%		0.0%	72.9%	27.1%	0.0%		0.0%	0.0%	0.0%	0.0%		42.6%	57.4%	0.0%	0.0%		
PHF	.915	.000	.838	.000	.906	.000	.896	.890	.000	.929	.000	.000	.000	.000	.000	.848	.876	.000	.000	.953	.965

B: Intersection LOS Calculations

i. Existing PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	358	1316	510	256	1193	55	92	254	413	662	314	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	1.00	0.88	0.97	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.86
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	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	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)	1719	4940	1486	3335	4940	1538	1770	1863	2705	3303	1792	1310
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)	1719	4940	1486	3335	4940	1538	1770	1863	2705	3303	1792	1310
Peak-hour factor, PHF	0.95	0.95	0.95	0.89	0.89	0.89	0.93	0.93	0.93	0.86	0.86	0.86
Adj. Flow (vph)	377	1385	537	288	1340	62	99	273	444	770	365	287
RTOR Reduction (vph)	0	0	69	0	0	23	0	0	233	0	0	155
Lane Group Flow (vph)	377	1385	468	288	1340	39	99	273	211	770	365	132
Confl. Peds. (#/hr)			14	14			73					73
Confl. Bikes (#/hr)									12			19
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	6%	6%	6%
Turn Type	Prot		Perm	Prot		Perm	Split		Perm	Split		Perm
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases			6			2			4			8
Actuated Green, G (s)	44.8	82.9	82.9	19.4	57.5	57.5	30.5	30.5	30.5	48.0	48.0	48.0
Effective Green, g (s)	44.8	82.9	82.9	19.4	57.5	57.5	30.5	30.5	30.5	48.0	48.0	48.0
Actuated g/C Ratio	0.23	0.42	0.42	0.10	0.29	0.29	0.15	0.15	0.15	0.24	0.24	0.24
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	391	2081	626	329	1443	449	274	289	419	806	437	320
v/s Ratio Prot	c0.22	0.28		0.09	c0.27		0.06	c0.15		c0.23	0.20	
v/s Ratio Perm			0.32			0.03			0.08			0.10
v/c Ratio	0.96	0.67	0.75	0.88	0.93	0.09	0.36	0.94	0.50	0.96	0.84	0.41
Uniform Delay, d1	75.2	45.8	48.1	87.5	67.7	50.6	74.4	82.3	76.2	73.3	70.6	62.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	35.9	0.8	4.9	21.9	10.6	0.1	0.8	38.0	1.0	21.3	12.9	0.9
Delay (s)	111.1	46.6	53.0	109.4	78.3	50.7	75.2	120.3	77.2	94.7	83.6	63.4
Level of Service	F	D	D	F	E	D	E	F	E	F	F	E
Approach Delay (s)		58.7			82.6			91.4			85.5	
Approach LOS		E			F			F			F	

Intersection Summary			
HCM Average Control Delay	75.6	HCM Level of Service	E
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	196.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	91.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

La Bahia Hotel TIA
2: Ocean St & Highway 17

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	270	396	57	96	13	340	579	297	97	1107	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes		1.00	0.95	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	0.99	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1859	1503	1748	1825		1770	3539	1583	1770	3539	1583
Flt Permitted		0.99	1.00	0.29	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1839	1503	532	1825		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.85	0.85	0.85	0.94	0.94	0.94	0.96	0.96	0.96
Adj. Flow (vph)	12	276	404	67	113	15	362	616	316	101	1153	155
RTOR Reduction (vph)	0	0	258	0	4	0	0	0	96	0	0	25
Lane Group Flow (vph)	0	288	146	67	124	0	362	616	220	101	1153	130
Confl. Peds. (#/hr)			21	21								
Confl. Bikes (#/hr)			17			11						
Turn Type	Perm		Perm	Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8					2			6
Actuated Green, G (s)		21.9	21.9	21.9	21.9		25.7	58.4	58.4	8.6	41.3	41.3
Effective Green, g (s)		21.9	21.9	21.9	21.9		25.7	58.4	58.4	8.6	41.3	41.3
Actuated g/C Ratio		0.22	0.22	0.22	0.22		0.25	0.58	0.58	0.09	0.41	0.41
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		399	326	115	396		451	2048	916	151	1449	648
v/s Ratio Prot					0.07		c0.20	0.17		0.06	c0.33	
v/s Ratio Perm		c0.16	0.10	0.13					0.14			0.08
v/c Ratio		0.72	0.45	0.58	0.31		0.80	0.30	0.24	0.67	0.80	0.20
Uniform Delay, d1		36.7	34.3	35.4	33.2		35.2	10.8	10.4	44.8	26.1	19.2
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		6.3	1.0	7.3	0.5		9.9	0.1	0.1	10.7	3.1	0.2
Delay (s)		43.0	35.3	42.7	33.6		45.2	10.9	10.5	55.5	29.2	19.3
Level of Service		D	D	D	C		D	B	B	E	C	B
Approach Delay (s)		38.5			36.8			20.4			30.0	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	28.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	100.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	87.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

La Bahia Hotel TIA
3: Mission St (Hwy 1) & Bay St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	76	1036	78	115	973	134	72	103	78	199	104	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		0.95	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.98		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.98		1.00	0.94		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1719	3381		1719	3342		1770	1715		1681	1600	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1719	3381		1719	3342		1770	1715		1681	1600	
Peak-hour factor, PHF	0.90	0.90	0.90	0.89	0.89	0.89	0.90	0.90	0.90	0.78	0.78	0.78
Adj. Flow (vph)	84	1151	87	129	1093	151	80	114	87	255	133	119
RTOR Reduction (vph)	0	5	0	0	9	0	0	23	0	0	22	0
Lane Group Flow (vph)	84	1234	0	129	1235	0	80	178	0	229	256	0
Confl. Peds. (#/hr)	18		19	19		18	16					16
Confl. Bikes (#/hr)			8			13			14			30
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Split			Split		
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases												
Actuated Green, G (s)	8.6	52.5		11.5	55.4		16.0	16.0		24.0	24.0	
Effective Green, g (s)	8.6	52.5		11.5	55.4		16.0	16.0		24.0	24.0	
Actuated g/C Ratio	0.07	0.44		0.10	0.46		0.13	0.13		0.20	0.20	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	123	1479		165	1543		236	229		336	320	
v/s Ratio Prot	0.05	0.36		c0.08	c0.37		0.05	c0.10		0.14	c0.16	
v/s Ratio Perm												
v/c Ratio	0.68	0.83		0.78	0.80		0.34	0.78		0.68	0.80	
Uniform Delay, d1	54.4	29.9		53.0	27.6		47.2	50.3		44.5	45.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	14.5	5.7		21.0	4.5		3.9	22.6		10.7	18.5	
Delay (s)	68.9	35.6		74.0	32.0		51.1	72.9		55.1	64.2	
Level of Service	E	D		E	C		D	E		E	E	
Approach Delay (s)		37.7			36.0			66.7			60.1	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM Average Control Delay	42.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	80.3%	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)	335	685	60	140	587	193	103	694	86	337	1030	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.91	1.00	1.00	0.96	1.00	1.00	0.95
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		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	3483		1770	3539	1445	1770	3539	1514	1770	3539	1503
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	3483		1770	3539	1445	1770	3539	1514	1770	3539	1503
Peak-hour factor, PHF	0.95	0.95	0.95	0.96	0.96	0.96	0.89	0.89	0.89	0.98	0.98	0.98
Adj. Flow (vph)	353	721	63	146	611	201	116	780	97	344	1051	268
RTOR Reduction (vph)	0	6	0	0	0	132	0	0	33	0	0	114
Lane Group Flow (vph)	353	778	0	146	611	69	116	780	64	344	1051	154
Confl. Peds. (#/hr)	42		21	21		42	34		23	23		34
Confl. Bikes (#/hr)			18			31			6			5
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Actuated Green, G (s)	15.4	30.4		11.7	26.7	26.7	10.4	28.8	28.8	24.8	43.2	43.2
Effective Green, g (s)	15.4	30.4		11.7	26.7	26.7	10.4	28.8	28.8	24.8	43.2	43.2
Actuated g/C Ratio	0.14	0.27		0.10	0.24	0.24	0.09	0.26	0.26	0.22	0.39	0.39
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	473	948		185	846	345	165	912	390	393	1369	581
v/s Ratio Prot	c0.10	c0.22		0.08	0.17		0.07	c0.22		c0.19	0.30	
v/s Ratio Perm						0.05			0.04			0.10
v/c Ratio	0.75	0.82		0.79	0.72	0.20	0.70	0.86	0.16	0.88	0.77	0.26
Uniform Delay, d1	46.3	38.1		48.8	39.1	34.0	49.2	39.5	32.1	42.0	29.9	23.4
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	6.3	5.8		19.7	3.1	0.3	12.7	7.9	0.2	19.0	2.6	0.2
Delay (s)	52.6	43.9		68.5	42.2	34.3	61.9	47.4	32.3	61.0	32.5	23.6
Level of Service	D	D		E	D	C	E	D	C	E	C	C
Approach Delay (s)		46.6			44.5			47.6			37.0	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	43.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	111.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

La Bahia Hotel TIA
5: Laurel St & Front St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	100	677	19	208	386	127	13	185	238	114	390	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.89	1.00	1.00	0.94	1.00	1.00	0.91
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	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)	1770	3514		1770	1863	1412	1770	1863	1488	1770	1863	1433
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)	1770	3514		1770	1863	1412	1770	1863	1488	1770	1863	1433
Peak-hour factor, PHF	0.97	0.97	0.97	0.94	0.94	0.94	0.89	0.89	0.89	0.92	0.92	0.92
Adj. Flow (vph)	103	698	20	221	411	135	15	208	267	124	424	199
RTOR Reduction (vph)	0	2	0	0	0	87	0	0	200	0	0	78
Lane Group Flow (vph)	103	716	0	221	411	48	15	208	67	124	424	121
Confl. Peds. (#/hr)	41		27	27		41	35		43	43		35
Confl. Bikes (#/hr)			27			26			12			20
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Actuated Green, G (s)	5.4	19.5		11.6	25.7	25.7	1.2	18.0	18.0	7.1	23.9	23.9
Effective Green, g (s)	5.4	19.5		11.6	25.7	25.7	1.2	18.0	18.0	7.1	23.9	23.9
Actuated g/C Ratio	0.07	0.27		0.16	0.36	0.36	0.02	0.25	0.25	0.10	0.33	0.33
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	132	949		284	663	503	29	464	371	174	617	474
v/s Ratio Prot	0.06	c0.20		c0.12	0.22		0.01	0.11		c0.07	c0.23	
v/s Ratio Perm						0.03			0.04			0.08
v/c Ratio	0.78	0.75		0.78	0.62	0.10	0.52	0.45	0.18	0.71	0.69	0.25
Uniform Delay, d1	32.8	24.2		29.1	19.2	15.5	35.2	22.9	21.3	31.6	20.9	17.6
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	25.2	3.4		12.6	1.7	0.1	14.7	0.7	0.2	12.9	3.2	0.3
Delay (s)	58.0	27.6		41.7	20.9	15.6	49.9	23.6	21.5	44.5	24.1	17.9
Level of Service	E	C		D	C	B	D	C	C	D	C	B
Approach Delay (s)		31.4			26.0			23.3			25.8	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	27.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	72.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

La Bahia Hotel TIA
6: Soquel Ave & Ocean St

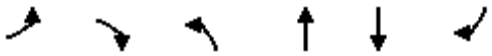
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	133	521	146	108	301	127	61	474	132	288	838	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	1.00	0.96	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3371		1770	3345		1770	3539	1521	1770	3539	1536
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3371		1770	3345		1770	3539	1521	1770	3539	1536
Peak-hour factor, PHF	0.96	0.96	0.96	0.93	0.93	0.93	0.94	0.94	0.94	0.85	0.85	0.85
Adj. Flow (vph)	139	543	152	116	324	137	65	504	140	339	986	158
RTOR Reduction (vph)	0	24	0	0	45	0	0	0	64	0	0	44
Lane Group Flow (vph)	139	671	0	116	416	0	65	504	76	339	986	114
Confl. Peds. (#/hr)	27		27	27		27	14		27	27		14
Confl. Bikes (#/hr)			41			5			2			4
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	8.2	25.1		11.2	28.1		6.5	24.3	24.3	19.6	37.4	37.4
Effective Green, g (s)	8.2	25.1		11.2	28.1		6.5	24.3	24.3	19.6	37.4	37.4
Actuated g/C Ratio	0.09	0.26		0.12	0.29		0.07	0.25	0.25	0.20	0.39	0.39
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	151	880		206	977		120	894	384	361	1376	597
v/s Ratio Prot	c0.08	c0.20		0.07	c0.12		0.04	0.14		c0.19	c0.28	
v/s Ratio Perm									0.05			0.07
v/c Ratio	0.92	0.76		0.56	0.43		0.54	0.56	0.20	0.94	0.72	0.19
Uniform Delay, d1	43.7	32.8		40.2	27.5		43.4	31.3	28.3	37.7	24.9	19.4
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	50.1	4.0		3.5	0.3		4.9	0.8	0.3	31.7	1.8	0.2
Delay (s)	93.8	36.8		43.7	27.8		48.3	32.1	28.5	69.4	26.7	19.6
Level of Service	F	D		D	C		D	C	C	E	C	B
Approach Delay (s)		46.3			31.0			32.9			35.7	
Approach LOS		D			C			C			D	

Intersection Summary			
HCM Average Control Delay	36.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	96.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

La Bahia Hotel TIA
7: Broadway & Ocean St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	382	21	79	292	52	8	411	202	141	760	197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95	1.00		0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99			1.00	0.88		0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		0.99	
Frt	1.00	0.99		1.00	0.98			1.00	0.85		0.97	
Flt Protected	0.95	1.00		0.95	1.00			1.00	1.00		0.99	
Satd. Flow (prot)	1770	1843		1770	1798			3536	1400		3330	
Flt Permitted	0.95	1.00		0.95	1.00			0.93	1.00		0.77	
Satd. Flow (perm)	1770	1843		1770	1798			3298	1400		2588	
Peak-hour factor, PHF	0.94	0.94	0.94	0.97	0.97	0.97	0.95	0.95	0.95	0.91	0.91	0.91
Adj. Flow (vph)	186	406	22	81	301	54	8	433	213	155	835	216
RTOR Reduction (vph)	0	1	0	0	5	0	0	0	103	0	16	0
Lane Group Flow (vph)	186	427	0	81	350	0	0	441	110	0	1190	0
Confl. Peds. (#/hr)	25		23	23		25	30		32	32		30
Confl. Bikes (#/hr)			12			27			3			7
Turn Type	Prot			Prot			Perm		Perm	Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		
Actuated Green, G (s)	14.4	34.0		6.0	25.6			55.9	55.9		55.9	
Effective Green, g (s)	14.4	34.0		6.0	25.6			55.9	55.9		55.9	
Actuated g/C Ratio	0.13	0.32		0.06	0.24			0.52	0.52		0.52	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	236	581		98	427			1709	725		1341	
v/s Ratio Prot	c0.11	0.23		0.05	c0.19							
v/s Ratio Perm								0.13	0.08		c0.46	
v/c Ratio	0.79	0.73		0.83	0.82			0.26	0.15		0.89	
Uniform Delay, d1	45.3	32.9		50.4	39.0			14.5	13.6		23.2	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	15.9	4.8		40.9	11.6			0.1	0.1		7.4	
Delay (s)	61.1	37.7		91.3	50.6			14.5	13.7		30.6	
Level of Service	E	D		F	D			B	B		C	
Approach Delay (s)		44.8			58.1			14.3			30.6	
Approach LOS		D			E			B			C	

Intersection Summary			
HCM Average Control Delay	34.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	107.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	87.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	339	61	40	315	370	357
Peak Hour Factor	0.93	0.93	0.89	0.89	0.91	0.91
Hourly flow rate (vph)	365	66	45	354	407	392

Direction, Lane #	EB 1	EB 2	NB 1	SB 1	SB 2
Volume Total (vph)	365	66	399	407	392
Volume Left (vph)	365	0	45	0	0
Volume Right (vph)	0	66	0	0	392
Hadj (s)	0.53	-0.67	0.06	0.03	-0.67
Departure Headway (s)	8.1	6.8	7.1	7.1	6.4
Degree Utilization, x	0.82	0.12	0.79	0.80	0.70
Capacity (veh/h)	436	510	497	494	548
Control Delay (s)	37.0	9.6	31.6	32.0	21.6
Approach Delay (s)	32.8		31.6	26.9	
Approach LOS	D		D	D	

Intersection Summary			
Delay	29.6		
HCM Level of Service	D		
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		

```
MITIG8 - PM Existing       Wed Jul 31, 2013 15:27:40                 Page 1-1
------------------------------------------------------------------------------
                    La Bahia Hotel Traffic Impact Analysis
                                Existing PM Peak
------------------------------------------------------------------------------
                      Level Of Service Computation Report
              2000 HCM 4-Way Stop Method (Base Volume Alternative)
******************************************************************************
Intersection #2966 Pacific/Beach
******************************************************************************
Cycle (sec):           1               Critical Vol./Cap.(X):         0.696
Loss Time (sec):       0               Average Delay (sec/veh):        16.1
Optimal Cycle:         0               Level Of Service:                 C
******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  1  1  1  0    1  0  1  1  0    1  0  0  1  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 5 May 2004 << 5:00 - 5:45 PM
Base Vol:      24   73    27   150  142   168   376  252    71     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   24   73    27   150  142   168   376  252    71     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.78 0.78  0.78  0.93 0.93  0.93  0.98 0.98  0.98  1.00 1.00  1.00
PHF Volume:    31   94    35   162  153   181   385  258    73     0    0     0
Reduct Vol:     0    0     0     0    0   400     0    0     0     0    0     0
Reduced Vol:   31   94    35   162  153     0   385  258    73     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   31   94    35   162  153     0   385  258    73     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
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:       0.58 1.77  0.65  1.00 2.00  0.00  1.00 0.78  0.22  0.00 0.00  0.00
Final Sat.:   261  828   324   467  994     0   553  478   135     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.12 0.11  0.11  0.35 0.15  xxxx  0.70 0.54  0.54  xxxx xxxx  xxxx
Crit Moves:  ****              ****             ****
Delay/Veh:   11.3 10.9  10.3  13.9 10.9   0.0  22.2 14.9  14.9   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  11.3 10.9  10.3  13.9 10.9   0.0  22.2 14.9  14.9   0.0  0.0   0.0
LOS by Move:    B    B     B     B    B     *     C    B     B     *    *     *
ApproachDel:       10.8             12.4             18.8           xxxxxx
Delay Adj:         1.00             1.00             1.00            xxxxx
ApprAdjDel:        10.8             12.4             18.8           xxxxxx
LOS by Appr:          B                B                C                *
AllWayAvgQ:   0.1  0.1   0.1   0.5  0.2   0.2   2.0  1.1   1.1   0.0  0.0   0.0
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
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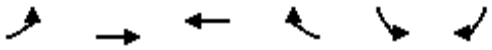
La Bahia Hotel TIA
10: Beach St & Cliff St



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Volume (vph)	121	256	0	0	226	0
Peak Hour Factor	0.87	0.87	0.92	0.92	0.90	0.90
Hourly flow rate (vph)	139	294	0	0	251	0

Direction, Lane #	EB 1	EB 2	SB 1	SB 2
Volume Total (vph)	237	196	126	126
Volume Left (vph)	139	0	126	126
Volume Right (vph)	0	0	0	0
Hadj (s)	0.33	0.03	0.53	0.53
Departure Headway (s)	5.6	5.3	6.2	6.2
Degree Utilization, x	0.37	0.29	0.21	0.21
Capacity (veh/h)	622	659	559	558
Control Delay (s)	10.6	9.2	9.6	9.6
Approach Delay (s)	10.0		9.6	
Approach LOS	A		A	

Intersection Summary			
Delay	9.8		
HCM Level of Service	A		
Intersection Capacity Utilization	33.9%	ICU Level of Service	A
Analysis Period (min)	15		

```
MITIG8 - PM Existing       Wed Aug 7, 2013 11:04:04                  Page 1-1
------------------------------------------------------------------------------
                    La Bahia Hotel Traffic Impact Analysis
                                Existing PM Peak
------------------------------------------------------------------------------
                      Level Of Service Computation Report
              2000 HCM 4-Way Stop Method (Base Volume Alternative)
******************************************************************************
Intersection #2969 Riverside/Second-Leibrandt
******************************************************************************
Cycle (sec):         100               Critical Vol./Cap.(X):         0.422
Loss Time (sec):       0               Average Delay (sec/veh):         9.3
Optimal Cycle:         0               Level Of Service:                  A
******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  0  0  0    0  1  1  0  1    0  0  0  0  1    0  1  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0   120  256   368     0    0    34     6    1     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   120  256   368     0    0    34     6    1     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  0.96 0.96  0.96  1.00 1.00  0.71  0.88 0.88  1.00
PHF Volume:     0    0     0   124  266   382     0    0    48     7    1     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0   124  266   382     0    0    48     7    1     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0    0     0   124  266   382     0    0    48     7    1     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  0.00  0.64 1.36  1.00  0.00 0.00  1.00  0.86 0.14  0.00
Final Sat.:     0    0     0   460 1030   904     0    0   736   538   90     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     xxxx xxxx  xxxx  0.27 0.26  0.42  xxxx xxxx  0.07  0.01 0.01  xxxx
Crit Moves:                               ****               ****       ****
Delay/Veh:    0.0  0.0   0.0   9.5  9.1   9.5   0.0  0.0   7.9   8.5  8.5   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0   9.5  9.1   9.5   0.0  0.0   7.9   8.5  8.5   0.0
LOS by Move:    *    *     *     A    A     A     *    *     A     A    A     *
ApproachDel:    xxxxxx              9.4              7.9              8.5
Delay Adj:       xxxxx              1.00             1.00             1.00
ApprAdjDel:     xxxxxx              9.4              7.9              8.5
LOS by Appr:         *                A                A                A
AllWayAvgQ:   0.0  0.0   0.0   0.4  0.3   0.7   0.1  0.1   0.1   0.0  0.0   0.0
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
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MITIG8 - PM Existing       Wed Jul 31, 2013 15:43:01                 Page 1-1
------------------------------------------------------------------------------
                    La Bahia Hotel Traffic Impact Analysis
                              Existing PM Peak
------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Unsignalized Method (Base Volume Alternative)
******************************************************************************
Intersection #6902 W_Cliff/Beach
******************************************************************************
Average Delay (sec/veh):      7.9       Worst Case Level Of Service: B[ 14.0]
******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Ignore           Include          Ignore           Include
Lanes:        0  0  1  0  1    0  0  0  0  0    0  0  0  0  1    1  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 5 May 2004 << 5:00 - 6:00 PM
Base Vol:       0    9   672     0    0     0     0    0   511   209    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    9   672     0    0     0     0    0   511   209    0     0
User Adj:    1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Adj:     0.88 0.88  0.00  0.93 0.93  0.93  0.93 0.93  0.00  0.86 0.93  0.93
PHF Volume:     0   10     0     0    0     0     0    0     0   244    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0   10     0     0    0     0     0    0     0   244    0     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx  6.5   6.2 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:xxxxx  4.0   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx  488     0  xxxx xxxx xxxxx  xxxx xxxx xxxxx     0 xxxx xxxxx
Potent Cap.: xxxx  480  1085  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1623 xxxx xxxxx
Move Cap.:   xxxx  408  1085  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1623 xxxx xxxxx
Volume/Cap:  xxxx 0.03  0.00  xxxx xxxx  xxxx  xxxx xxxx  xxxx  0.15 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx  0.1 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.5 xxxx xxxxx
Control Del:xxxxx 14.0 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.6 xxxx xxxxx
LOS by Move:    *    B     *     *    *     *     *    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:      14.0           xxxxxx           xxxxxx           xxxxxx
ApproachLOS:        B              *                *                *
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
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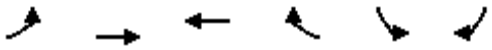
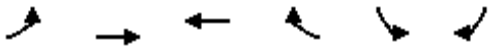


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	28	366	0	0	17	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.92	0.92	0.71	0.71
Hourly flow rate (vph)	31	407	0	0	24	0
Pedestrians		74	133		182	
Lane Width (ft)		12.0	0.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		6	0		15	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	182				581	256
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	182				581	256
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				93	100
cM capacity (veh/h)	1180				367	592

Direction, Lane #	EB 1	EB 2	SB 1
Volume Total	167	271	24
Volume Left	31	0	24
Volume Right	0	0	0
cSH	1180	1700	367
Volume to Capacity	0.03	0.16	0.07
Queue Length 95th (ft)	2	0	5
Control Delay (s)	1.7	0.0	15.5
Lane LOS	A		C
Approach Delay (s)	0.7		15.5
Approach LOS			C

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	33.4%	ICU Level of Service	A
Analysis Period (min)	15		



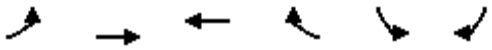
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	63	381	0	0	24	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.92	0.92	0.46	0.46
Hourly flow rate (vph)	72	433	0	0	52	0
Pedestrians		115	80		180	
Lane Width (ft)		12.0	0.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		10	0		15	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	180				620	295
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	180				620	295
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				84	100
cM capacity (veh/h)	1184				336	539

Direction, Lane #	EB 1	EB 2	SB 1
Volume Total	216	289	52
Volume Left	72	0	52
Volume Right	0	0	0
cSH	1184	1700	336
Volume to Capacity	0.06	0.17	0.16
Queue Length 95th (ft)	5	0	14
Control Delay (s)	3.1	0.0	17.7
Lane LOS	A		C
Approach Delay (s)	1.3		17.7
Approach LOS			C

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	35.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	427	26	352	249	0	172	0	621	33	302	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0		4.0		4.0	
Lane Util. Factor		0.95		0.95	0.95		1.00		1.00		0.95	
Frpb, ped/bikes		1.00		1.00	1.00		1.00		1.00		0.98	
Flpb, ped/bikes		1.00		1.00	1.00		1.00		1.00		1.00	
Frt		0.99		1.00	1.00		1.00		0.85		0.98	
Flt Protected		1.00		0.95	0.99		0.95		1.00		1.00	
Satd. Flow (prot)		3503		1681	1753		1770		1583		3405	
Flt Permitted		1.00		0.95	0.99		0.95		1.00		1.00	
Satd. Flow (perm)		3503		1681	1753		1770		1583		3405	
Peak-hour factor, PHF	0.89	0.89	0.89	0.96	0.96	0.96	0.91	0.91	0.91	0.92	0.92	0.92
Adj. Flow (vph)	0	480	29	367	259	0	189	0	682	36	328	51
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	554	0	12	0
Lane Group Flow (vph)	0	504	0	308	318	0	189	0	128	0	403	0
Confl. Peds. (#/hr)	10		9	9		10	52		56	56		52
Confl. Bikes (#/hr)			6			16			2			3
Turn Type				Split			Prot		custom	Split		
Protected Phases		4		8	8		2		2	6	6	
Permitted Phases												
Actuated Green, G (s)		15.8		18.4	18.4		15.1		15.1		15.0	
Effective Green, g (s)		15.8		18.4	18.4		15.1		15.1		15.0	
Actuated g/C Ratio		0.20		0.23	0.23		0.19		0.19		0.19	
Clearance Time (s)		4.0		4.0	4.0		4.0		4.0		4.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0		3.0	
Lane Grp Cap (vph)		689		385	402		333		298		636	
v/s Ratio Prot		c0.14		c0.18	0.18		c0.11		0.08		c0.12	
v/s Ratio Perm												
v/c Ratio		0.73		0.80	0.79		0.57		0.43		0.63	
Uniform Delay, d1		30.3		29.2	29.1		29.6		28.8		30.1	
Progression Factor		1.00		1.00	1.00		1.00		1.00		1.00	
Incremental Delay, d2		4.0		11.3	10.2		2.2		1.0		2.1	
Delay (s)		34.3		40.5	39.3		31.8		29.8		32.2	
Level of Service		C		D	D		C		C		C	
Approach Delay (s)		34.3			39.9			30.2			32.2	
Approach LOS		C			D			C			C	

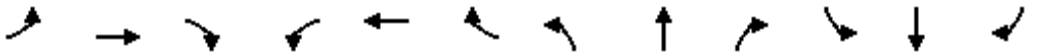
Intersection Summary			
HCM Average Control Delay	33.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	80.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	458	617	412	153	300	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	0.96	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	0.95	
Flt Protected	0.95	1.00	1.00	1.00	0.97	
Satd. Flow (prot)	3433	1863	1863	1525	1717	
Flt Permitted	0.95	1.00	1.00	1.00	0.97	
Satd. Flow (perm)	3433	1863	1863	1525	1717	
Peak-hour factor, PHF	0.95	0.95	0.93	0.93	0.91	0.91
Adj. Flow (vph)	482	649	443	165	330	188
RTOR Reduction (vph)	0	0	0	114	23	0
Lane Group Flow (vph)	482	649	443	51	495	0
Confl. Peds. (#/hr)	19			19	31	
Confl. Bikes (#/hr)				10		
Turn Type	Prot			Perm		
Protected Phases	7	4	8		6	
Permitted Phases				8		
Actuated Green, G (s)	15.4	43.8	24.4	24.4	27.9	
Effective Green, g (s)	15.4	43.8	24.4	24.4	27.9	
Actuated g/C Ratio	0.19	0.55	0.31	0.31	0.35	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	663	1024	570	467	601	
v/s Ratio Prot	c0.14	0.35	c0.24		c0.29	
v/s Ratio Perm				0.03		
v/c Ratio	0.73	0.63	0.78	0.11	0.82	
Uniform Delay, d1	30.2	12.4	25.2	19.8	23.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.0	1.3	6.6	0.1	9.0	
Delay (s)	34.2	13.7	31.8	19.9	32.6	
Level of Service	C	B	C	B	C	
Approach Delay (s)		22.4	28.6		32.6	
Approach LOS		C	C		C	

Intersection Summary			
HCM Average Control Delay	26.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	79.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

ii. Existing Plus Project PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	358	1316	510	269	1193	55	92	254	427	662	314	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	1.00	0.88	0.97	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.86
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	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	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)	1719	4940	1486	3335	4940	1538	1770	1863	2705	3303	1792	1310
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)	1719	4940	1486	3335	4940	1538	1770	1863	2705	3303	1792	1310
Peak-hour factor, PHF	0.95	0.95	0.95	0.89	0.89	0.89	0.93	0.93	0.93	0.86	0.86	0.86
Adj. Flow (vph)	377	1385	537	302	1340	62	99	273	459	770	365	287
RTOR Reduction (vph)	0	0	69	0	0	23	0	0	233	0	0	155
Lane Group Flow (vph)	377	1385	468	302	1340	39	99	273	226	770	365	132
Confl. Peds. (#/hr)			14	14			73					73
Confl. Bikes (#/hr)									12			19
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	6%	6%	6%
Turn Type	Prot		Perm	Prot		Perm	Split		Perm	Split		Perm
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases			6			2			4			8
Actuated Green, G (s)	44.8	82.7	82.7	19.7	57.6	57.6	30.5	30.5	30.5	48.0	48.0	48.0
Effective Green, g (s)	44.8	82.7	82.7	19.7	57.6	57.6	30.5	30.5	30.5	48.0	48.0	48.0
Actuated g/C Ratio	0.23	0.42	0.42	0.10	0.29	0.29	0.15	0.15	0.15	0.24	0.24	0.24
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	391	2075	624	334	1445	450	274	289	419	805	437	319
v/s Ratio Prot	c0.22	0.28		0.09	c0.27		0.06	c0.15		c0.23	0.20	
v/s Ratio Perm			0.31			0.03			0.08			0.10
v/c Ratio	0.96	0.67	0.75	0.90	0.93	0.09	0.36	0.94	0.54	0.96	0.84	0.41
Uniform Delay, d1	75.3	46.0	48.3	87.7	67.6	50.6	74.5	82.4	76.7	73.4	70.7	62.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	35.9	0.8	4.9	26.5	10.5	0.1	0.8	38.0	1.3	21.5	12.9	0.9
Delay (s)	111.2	46.8	53.3	114.1	78.1	50.7	75.3	120.4	78.1	95.0	83.6	63.5
Level of Service	F	D	D	F	E	D	E	F	E	F	F	E
Approach Delay (s)		58.9			83.5			91.6			85.7	
Approach LOS		E			F			F			F	

Intersection Summary			
HCM Average Control Delay	76.0	HCM Level of Service	E
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	196.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	91.6%	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)	12	270	396	57	96	13	340	590	304	97	1124	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes		1.00	0.95	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	0.99	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1859	1502	1748	1825		1770	3539	1583	1770	3539	1583
Flt Permitted		0.99	1.00	0.29	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1839	1502	527	1825		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.85	0.85	0.85	0.94	0.94	0.94	0.96	0.96	0.96
Adj. Flow (vph)	12	276	404	67	113	15	362	628	323	101	1171	155
RTOR Reduction (vph)	0	0	258	0	4	0	0	0	96	0	0	25
Lane Group Flow (vph)	0	288	146	67	124	0	362	628	227	101	1171	130
Confl. Peds. (#/hr)			21	21								
Confl. Bikes (#/hr)			17			11						
Turn Type	Perm		Perm	Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8					2			6
Actuated Green, G (s)		22.0	22.0	22.0	22.0		25.8	59.1	59.1	8.7	42.0	42.0
Effective Green, g (s)		22.0	22.0	22.0	22.0		25.8	59.1	59.1	8.7	42.0	42.0
Actuated g/C Ratio		0.22	0.22	0.22	0.22		0.25	0.58	0.58	0.09	0.41	0.41
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		397	325	114	394		449	2055	919	151	1460	653
v/s Ratio Prot					0.07		c0.20	0.18		0.06	c0.33	
v/s Ratio Perm		c0.16	0.10	0.13					0.14			0.08
v/c Ratio		0.73	0.45	0.59	0.31		0.81	0.31	0.25	0.67	0.80	0.20
Uniform Delay, d1		37.1	34.6	35.8	33.6		35.7	10.9	10.5	45.2	26.3	19.1
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		6.5	1.0	7.5	0.5		10.2	0.1	0.1	10.7	3.3	0.2
Delay (s)		43.6	35.6	43.4	34.0		45.8	11.0	10.6	55.8	29.5	19.3
Level of Service		D	D	D	C		D	B	B	E	C	B
Approach Delay (s)		38.9			37.2			20.5			30.3	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	28.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	101.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	88.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

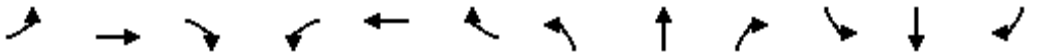
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	76	1036	82	115	973	134	76	103	78	199	104	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		0.95	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.98		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.98		1.00	0.94		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1719	3378		1719	3342		1770	1715		1681	1600	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1719	3378		1719	3342		1770	1715		1681	1600	
Peak-hour factor, PHF	0.90	0.90	0.90	0.89	0.89	0.89	0.90	0.90	0.90	0.78	0.78	0.78
Adj. Flow (vph)	84	1151	91	129	1093	151	84	114	87	255	133	119
RTOR Reduction (vph)	0	5	0	0	9	0	0	23	0	0	22	0
Lane Group Flow (vph)	84	1237	0	129	1235	0	84	178	0	229	256	0
Confl. Peds. (#/hr)	18		19	19		18	16					16
Confl. Bikes (#/hr)			8			13			14			30
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Split			Split		
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases												
Actuated Green, G (s)	8.6	52.5		11.5	55.4		16.0	16.0		24.0	24.0	
Effective Green, g (s)	8.6	52.5		11.5	55.4		16.0	16.0		24.0	24.0	
Actuated g/C Ratio	0.07	0.44		0.10	0.46		0.13	0.13		0.20	0.20	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	123	1478		165	1543		236	229		336	320	
v/s Ratio Prot	0.05	0.37		c0.08	c0.37		0.05	c0.10		0.14	c0.16	
v/s Ratio Perm												
v/c Ratio	0.68	0.84		0.78	0.80		0.36	0.78		0.68	0.80	
Uniform Delay, d1	54.4	30.0		53.0	27.6		47.3	50.3		44.5	45.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	14.5	5.8		21.0	4.5		4.2	22.6		10.7	18.5	
Delay (s)	68.9	35.7		74.0	32.0		51.5	72.9		55.1	64.2	
Level of Service	E	D		E	C		D	E		E	E	
Approach Delay (s)		37.8			36.0			66.6			60.1	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM Average Control Delay	42.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	80.4%	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)	335	685	60	140	587	193	103	712	86	337	1047	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.91	1.00	1.00	0.96	1.00	1.00	0.95
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		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	3484		1770	3539	1444	1770	3539	1513	1770	3539	1502
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	3484		1770	3539	1444	1770	3539	1513	1770	3539	1502
Peak-hour factor, PHF	0.89	0.89	0.89	0.96	0.96	0.96	0.89	0.89	0.89	0.98	0.98	0.98
Adj. Flow (vph)	376	770	67	146	611	201	116	800	97	344	1068	268
RTOR Reduction (vph)	0	5	0	0	0	131	0	0	32	0	0	112
Lane Group Flow (vph)	376	832	0	146	611	70	116	800	65	344	1068	156
Confl. Peds. (#/hr)	42		21	21		42	34		23	23		34
Confl. Bikes (#/hr)			18			31			6			5
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Actuated Green, G (s)	15.9	31.7		11.7	27.5	27.5	10.4	29.4	29.4	25.0	44.0	44.0
Effective Green, g (s)	15.9	31.7		11.7	27.5	27.5	10.4	29.4	29.4	25.0	44.0	44.0
Actuated g/C Ratio	0.14	0.28		0.10	0.24	0.24	0.09	0.26	0.26	0.22	0.39	0.39
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	480	970		182	855	349	162	914	391	389	1368	581
v/s Ratio Prot	c0.11	c0.24		0.08	0.17		0.07	c0.23		c0.19	0.30	
v/s Ratio Perm						0.05			0.04			0.10
v/c Ratio	0.78	0.86		0.80	0.71	0.20	0.72	0.88	0.17	0.88	0.78	0.27
Uniform Delay, d1	47.3	38.9		49.9	39.6	34.4	50.3	40.4	32.7	43.0	30.7	23.9
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	8.2	7.6		21.9	2.9	0.3	14.0	9.4	0.2	20.5	3.0	0.2
Delay (s)	55.4	46.5		71.8	42.4	34.7	64.3	49.8	32.9	63.5	33.6	24.1
Level of Service	E	D		E	D	C	E	D	C	E	C	C
Approach Delay (s)		49.3			45.3			49.9			38.2	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	44.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	113.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

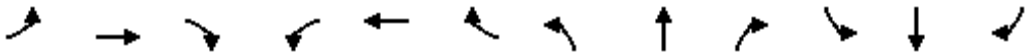


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	100	677	19	208	386	127	13	203	238	114	413	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.89	1.00	1.00	0.94	1.00	1.00	0.90
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	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)	1770	3514		1770	1863	1411	1770	1863	1488	1770	1863	1433
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)	1770	3514		1770	1863	1411	1770	1863	1488	1770	1863	1433
Peak-hour factor, PHF	0.97	0.97	0.97	0.94	0.94	0.94	0.89	0.89	0.89	0.92	0.92	0.92
Adj. Flow (vph)	103	698	20	221	411	135	15	228	267	124	449	199
RTOR Reduction (vph)	0	2	0	0	0	87	0	0	183	0	0	73
Lane Group Flow (vph)	103	716	0	221	411	48	15	228	84	124	449	126
Confl. Peds. (#/hr)	41		27	27		41	35		43	43		35
Confl. Bikes (#/hr)			27			26			12			20
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Actuated Green, G (s)	5.4	19.5		11.6	25.7	25.7	1.2	18.5	18.5	7.1	24.4	24.4
Effective Green, g (s)	5.4	19.5		11.6	25.7	25.7	1.2	18.5	18.5	7.1	24.4	24.4
Actuated g/C Ratio	0.07	0.27		0.16	0.35	0.35	0.02	0.25	0.25	0.10	0.34	0.34
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	131	943		282	659	499	29	474	379	173	625	481
v/s Ratio Prot	0.06	c0.20		c0.12	0.22		0.01	0.12		c0.07	c0.24	
v/s Ratio Perm						0.03			0.06			0.09
v/c Ratio	0.79	0.76		0.78	0.62	0.10	0.52	0.48	0.22	0.72	0.72	0.26
Uniform Delay, d1	33.1	24.4		29.3	19.5	15.7	35.5	23.0	21.4	31.8	21.1	17.6
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	26.0	3.6		13.3	1.8	0.1	14.7	0.8	0.3	13.2	3.9	0.3
Delay (s)	59.0	28.0		42.6	21.3	15.8	50.2	23.8	21.7	45.0	25.1	17.9
Level of Service	E	C		D	C	B	D	C	C	D	C	B
Approach Delay (s)		31.9			26.5			23.5			26.4	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	27.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	72.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

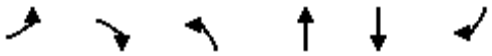
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	133	521	146	108	301	127	61	492	132	288	849	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	1.00	0.96	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3371		1770	3345		1770	3539	1521	1770	3539	1536
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3371		1770	3345		1770	3539	1521	1770	3539	1536
Peak-hour factor, PHF	0.96	0.96	0.96	0.93	0.93	0.93	0.94	0.94	0.94	0.85	0.85	0.85
Adj. Flow (vph)	139	543	152	116	324	137	65	523	140	339	999	165
RTOR Reduction (vph)	0	24	0	0	45	0	0	0	61	0	0	45
Lane Group Flow (vph)	139	671	0	116	416	0	65	523	79	339	999	120
Confl. Peds. (#/hr)	27		27	27		27	14		27	27		14
Confl. Bikes (#/hr)			41			5			2			4
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	8.2	25.1		11.2	28.1		6.5	24.6	24.6	19.6	37.7	37.7
Effective Green, g (s)	8.2	25.1		11.2	28.1		6.5	24.6	24.6	19.6	37.7	37.7
Actuated g/C Ratio	0.08	0.26		0.12	0.29		0.07	0.25	0.25	0.20	0.39	0.39
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	150	877		205	974		119	902	388	360	1383	600
v/s Ratio Prot	c0.08	c0.20		0.07	c0.12		0.04	0.15		c0.19	c0.28	
v/s Ratio Perm									0.05			0.08
v/c Ratio	0.93	0.77		0.57	0.43		0.55	0.58	0.20	0.94	0.72	0.20
Uniform Delay, d1	43.9	33.0		40.3	27.7		43.6	31.4	28.3	37.9	25.0	19.4
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	51.6	4.0		3.6	0.3		5.0	0.9	0.3	32.6	1.9	0.2
Delay (s)	95.4	37.0		43.9	28.0		48.6	32.3	28.5	70.5	26.9	19.6
Level of Service	F	D		D	C		D	C	C	E	C	B
Approach Delay (s)		46.7			31.2			33.1			35.9	
Approach LOS		D			C			C			D	

Intersection Summary			
HCM Average Control Delay	37.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	96.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	80.7%	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)	175	382	21	79	292	52	8	429	202	141	771	197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95	1.00		0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99			1.00	0.88		0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		0.99	
Frt	1.00	0.99		1.00	0.98			1.00	0.85		0.97	
Flt Protected	0.95	1.00		0.95	1.00			1.00	1.00		0.99	
Satd. Flow (prot)	1770	1843		1770	1797			3536	1398		3332	
Flt Permitted	0.95	1.00		0.95	1.00			0.93	1.00		0.77	
Satd. Flow (perm)	1770	1843		1770	1797			3300	1398		2568	
Peak-hour factor, PHF	0.94	0.94	0.94	0.97	0.97	0.97	0.95	0.95	0.95	0.91	0.91	0.91
Adj. Flow (vph)	186	406	22	81	301	54	8	452	213	155	847	216
RTOR Reduction (vph)	0	1	0	0	5	0	0	0	102	0	16	0
Lane Group Flow (vph)	186	427	0	81	350	0	0	460	111	0	1202	0
Confl. Peds. (#/hr)	25		23	23		25	30		32	32		30
Confl. Bikes (#/hr)			12			27			3			7
Turn Type	Prot			Prot			Perm		Perm	Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		
Actuated Green, G (s)	14.4	34.2		6.0	25.8			57.1	57.1		57.1	
Effective Green, g (s)	14.4	34.2		6.0	25.8			57.1	57.1		57.1	
Actuated g/C Ratio	0.13	0.31		0.05	0.24			0.52	0.52		0.52	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	233	577		97	424			1724	730		1342	
v/s Ratio Prot	c0.11	0.23		0.05	c0.19							
v/s Ratio Perm								0.14	0.08		c0.47	
v/c Ratio	0.80	0.74		0.84	0.82			0.27	0.15		0.90	
Uniform Delay, d1	46.0	33.6		51.2	39.6			14.5	13.5		23.4	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	17.1	4.9		43.2	12.3			0.1	0.1		8.1	
Delay (s)	63.2	38.5		94.4	51.9			14.6	13.6		31.5	
Level of Service	E	D		F	D			B	B		C	
Approach Delay (s)		46.0			59.8			14.3			31.5	
Approach LOS		D			E			B			C	

Intersection Summary			
HCM Average Control Delay	34.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	109.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	88.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	343	61	40	315	370	361
Peak Hour Factor	0.93	0.93	0.89	0.89	0.91	0.91
Hourly flow rate (vph)	369	66	45	354	407	397

Direction, Lane #	EB 1	EB 2	NB 1	SB 1	SB 2
Volume Total (vph)	369	66	399	407	397
Volume Left (vph)	369	0	45	0	0
Volume Right (vph)	0	66	0	0	397
Hadj (s)	0.53	-0.67	0.06	0.03	-0.67
Departure Headway (s)	8.1	6.9	7.1	7.1	6.4
Degree Utilization, x	0.83	0.12	0.79	0.81	0.71
Capacity (veh/h)	436	510	495	493	547
Control Delay (s)	38.3	9.6	31.9	32.4	22.3
Approach Delay (s)	34.0		31.9	27.4	
Approach LOS	D		D	D	

Intersection Summary			
Delay	30.3		
HCM Level of Service	D		
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		

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MITIG8 - PM Ex+La Bahia ProFri Aug 30, 2013 11:17:55                 Page 1-1
------------------------------------------------------------------------------
                  La Bahia Hotel Traffic Impact Analysis
                            Existing + Project
                               PM Peak Hour
------------------------------------------------------------------------------
                     Level Of Service Computation Report
           2000 HCM 4-Way Stop Method (Future Volume Alternative)
******************************************************************************
Intersection #2966 Pacific/Beach
******************************************************************************
Cycle (sec):           1               Critical Vol./Cap.(X):         0.745
Loss Time (sec):       0               Average Delay (sec/veh):        17.7
Optimal Cycle:         0               Level Of Service:                C
******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  1  1  1  0    1  0  1  1  0    1  0  0  1  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 5 May 2004 << 5:00 - 5:45 PM
Base Vol:      24   73    27   150  142   168   376  252    71     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   24   73    27   150  142   168   376  252    71     0    0     0
Added Vol:      0    0     0    23    0     4     0    4     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   24   73    27   173  142   172   376  256    71     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.78 0.78  0.78  0.93 0.93  0.93  0.98 0.98  0.98  1.00 1.00  1.00
PHF Volume:    31   94    35   187  153   186   385  262    73     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   31   94    35   187  153   186   385  262    73     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   31   94    35   187  153   186   385  262    73     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
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:       0.58 1.77  0.65  1.00 1.00  1.00  1.00 0.78  0.22  0.00 0.00  0.00
Final Sat.:   243  767   299   463  493   545   517  445   123     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.13 0.12  0.12  0.40 0.31  0.34  0.75 0.59  0.59  xxxx xxxx  xxxx
Crit Moves:  ****              ****              ****
Delay/Veh:   12.0 11.6  11.0  15.1 12.8  12.2  26.5 17.3  17.3   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  12.0 11.6  11.0  15.1 12.8  12.2  26.5 17.3  17.3   0.0  0.0   0.0
LOS by Move:    B    B     B     C    B     B     D    C     C     *    *     *
ApproachDel:       11.5             13.4             22.2           xxxxxx
Delay Adj:         1.00             1.00             1.00            xxxxx
ApprAdjDel:        11.5             13.4             22.2           xxxxxx
LOS by Appr:          B                B                C                *
AllWayAvgQ:   0.1  0.1   0.1   0.6  0.4   0.5   2.4  1.3   1.3   0.0  0.0   0.0
******************************************************************************
Note: Queue reported is the number of cars per lane.

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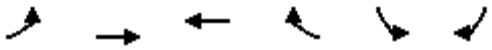

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Volume (vph)	125	258	0	0	236	0
Peak Hour Factor	0.87	0.87	0.92	0.92	0.90	0.90
Hourly flow rate (vph)	144	297	0	0	262	0

Direction, Lane #	EB 1	EB 2	SB 1	SB 2
Volume Total (vph)	243	198	131	131
Volume Left (vph)	144	0	131	131
Volume Right (vph)	0	0	0	0
Hadj (s)	0.33	0.03	0.53	0.53
Departure Headway (s)	5.6	5.3	6.2	6.2
Degree Utilization, x	0.38	0.29	0.22	0.22
Capacity (veh/h)	619	655	557	557
Control Delay (s)	10.8	9.3	9.8	9.8
Approach Delay (s)	10.1		9.8	
Approach LOS	B		A	

Intersection Summary			
Delay	10.0		
HCM Level of Service	A		
Intersection Capacity Utilization	34.0%	ICU Level of Service	A
Analysis Period (min)	15		

```
MITIG8 - PM Ex+La Bahia ProFri Aug 30, 2013 11:21:05                 Page 1-1
--------------------------------------------------------------------------------
                  La Bahia Hotel Traffic Impact Analysis
                            Existing + Project
                               PM Peak Hour
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #2969 Riverside/Second-Leibrandt
********************************************************************************
Cycle (sec):         100               Critical Vol./Cap.(X):         0.455
Loss Time (sec):       0               Average Delay (sec/veh):         9.5
Optimal Cycle:         0               Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  0  0  0    0  1  1  0  1    0  0  0  0  1    0  1  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0   120  256   385     0    0    34     6    1     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   120  256   385     0    0    34     6    1     0
Added Vol:      0    0     0     0    0    11     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0   120  256   396     0    0    34     6    1     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  0.96 0.96  0.96  1.00 1.00  0.71  0.88 0.88  1.00
PHF Volume:     0    0     0   124  266   411     0    0    48     7    1     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0   124  266   411     0    0    48     7    1     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0    0     0   124  266   411     0    0    48     7    1     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  0.00  0.64 1.36  1.00  0.00 0.00  1.00  0.86 0.14  0.00
Final Sat.:     0    0     0   460 1030   904     0    0   731   535   89     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     xxxx xxxx  xxxx  0.27 0.26  0.45  xxxx xxxx  0.07  0.01 0.01  xxxx
Crit Moves:                                ****               ****       ****
Delay/Veh:    0.0  0.0   0.0   9.5  9.1   9.9   0.0  0.0   8.0   8.5  8.5   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0   9.5  9.1   9.9   0.0  0.0   8.0   8.5  8.5   0.0
LOS by Move:    *    *     *     A    A     A     *    *     A     A    A     *
ApproachDel:    xxxxxx              9.6              8.0              8.5
Delay Adj:       xxxxx              1.00             1.00             1.00
ApprAdjDel:     xxxxxx              9.6              8.0              8.5
LOS by Appr:         *                A                A                A
AllWayAvgQ:   0.0  0.0   0.0   0.4  0.3   0.8   0.1  0.1   0.1   0.0  0.0   0.0
********************************************************************************
Note: Queue reported is the number of cars per lane.

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MITIG8 - PM Ex+La Bahia ProFri Aug 30, 2013 11:19:27                 Page 1-1
------------------------------------------------------------------------------
                  La Bahia Hotel Traffic Impact Analysis
                            Existing + Project
                               PM Peak Hour
------------------------------------------------------------------------------
                     Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
******************************************************************************
Intersection #6902 W_Cliff/Beach
******************************************************************************
Average Delay (sec/veh):      7.9       Worst Case Level Of Service: B[ 14.2]
******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Ignore           Include          Ignore           Include
Lanes:        0  0  1  0  1    0  0  0  0  0    0  0  0  0  1    1  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 5 May 2004 << 5:00 - 6:00 PM
Base Vol:       0    9   672     0    0     0     0    0   511   209    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    9   672     0    0     0     0    0   511   209    0     0
Added Vol:      0    0     4     0    0     0     0    0     0     4    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    9   676     0    0     0     0    0   511   213    0     0
User Adj:    1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Adj:     0.88 0.88  0.00  0.93 0.93  0.93  0.93 0.93  0.00  0.86 0.93  0.93
PHF Volume:     0   10     0     0    0     0     0    0     0   249    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0   10     0     0    0     0     0    0     0   249    0     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx  6.5   6.2 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:xxxxx  4.0   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx  497     0  xxxx xxxx xxxxx  xxxx xxxx xxxxx     0 xxxx xxxxx
Potent Cap.: xxxx  475  1085  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1623 xxxx xxxxx
Move Cap.:   xxxx  402  1085  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1623 xxxx xxxxx
Volume/Cap:  xxxx 0.03  0.00  xxxx xxxx  xxxx  xxxx xxxx  xxxx  0.15 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx  0.1 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.5 xxxx xxxxx
Control Del:xxxxx 14.2 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.6 xxxx xxxxx
LOS by Move:    *    B     *     *    *     *     *    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:      14.2           xxxxxx           xxxxxx           xxxxxx
ApproachLOS:         B                *                *                *
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************


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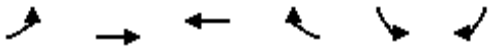
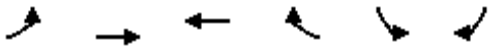


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	35	372	0	0	17	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.92	0.92	0.71	0.71
Hourly flow rate (vph)	39	413	0	0	24	0
Pedestrians		74	133		182	
Lane Width (ft)		12.0	0.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		6	0		15	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	182				599	256
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	182				599	256
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				93	100
cM capacity (veh/h)	1180				355	592

Direction, Lane #	EB 1	EB 2	SB 1
Volume Total	177	276	24
Volume Left	39	0	24
Volume Right	0	0	0
cSH	1180	1700	355
Volume to Capacity	0.03	0.16	0.07
Queue Length 95th (ft)	3	0	5
Control Delay (s)	2.0	0.0	15.9
Lane LOS	A		C
Approach Delay (s)	0.8		15.9
Approach LOS			C

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	33.8%	ICU Level of Service	A
Analysis Period (min)	15		



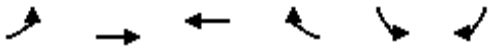
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	68	404	0	0	24	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.92	0.92	0.46	0.46
Hourly flow rate (vph)	77	459	0	0	52	0
Pedestrians		115	80		180	
Lane Width (ft)		12.0	0.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		10	0		15	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	180				644	295
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	180				644	295
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				84	100
cM capacity (veh/h)	1184				322	539

Direction, Lane #	EB 1	EB 2	SB 1
Volume Total	230	306	52
Volume Left	77	0	52
Volume Right	0	0	0
cSH	1184	1700	322
Volume to Capacity	0.07	0.18	0.16
Queue Length 95th (ft)	5	0	14
Control Delay (s)	3.2	0.0	18.3
Lane LOS	A		C
Approach Delay (s)	1.4		18.3
Approach LOS			C

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	36.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	427	26	363	249	0	172	0	639	33	302	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0		4.0		4.0	
Lane Util. Factor		0.95		0.95	0.95		1.00		1.00		0.95	
Frpb, ped/bikes		1.00		1.00	1.00		1.00		1.00		0.98	
Flpb, ped/bikes		1.00		1.00	1.00		1.00		1.00		1.00	
Frt		0.99		1.00	1.00		1.00		0.85		0.98	
Flt Protected		1.00		0.95	0.99		0.95		1.00		1.00	
Satd. Flow (prot)		3503		1681	1752		1770		1583		3405	
Flt Permitted		1.00		0.95	0.99		0.95		1.00		1.00	
Satd. Flow (perm)		3503		1681	1752		1770		1583		3405	
Peak-hour factor, PHF	0.89	0.89	0.89	0.96	0.96	0.96	0.91	0.91	0.91	0.92	0.92	0.92
Adj. Flow (vph)	0	480	29	378	259	0	189	0	702	36	328	51
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	561	0	12	0
Lane Group Flow (vph)	0	504	0	314	323	0	189	0	141	0	403	0
Confl. Peds. (#/hr)	10		9	9		10	52		56	56		52
Confl. Bikes (#/hr)			6			16			2			3
Turn Type				Split			Prot		custom	Split		
Protected Phases		4		8	8		2		2	6	6	
Permitted Phases												
Actuated Green, G (s)		15.8		18.6	18.6		15.1		15.1		15.0	
Effective Green, g (s)		15.8		18.6	18.6		15.1		15.1		15.0	
Actuated g/C Ratio		0.20		0.23	0.23		0.19		0.19		0.19	
Clearance Time (s)		4.0		4.0	4.0		4.0		4.0		4.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0		3.0	
Lane Grp Cap (vph)		688		388	405		332		297		634	
v/s Ratio Prot		c0.14		c0.19	0.18		c0.11		0.09		c0.12	
v/s Ratio Perm												
v/c Ratio		0.73		0.81	0.80		0.57		0.47		0.64	
Uniform Delay, d1		30.4		29.3	29.2		29.7		29.2		30.2	
Progression Factor		1.00		1.00	1.00		1.00		1.00		1.00	
Incremental Delay, d2		4.0		11.8	10.5		2.2		1.2		2.1	
Delay (s)		34.4		41.0	39.6		32.0		30.3		32.3	
Level of Service		C		D	D		C		C		C	
Approach Delay (s)		34.4			40.3			30.7			32.3	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM Average Control Delay	34.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	80.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	82.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	476	617	412	153	300	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	0.96	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	0.95	
Flt Protected	0.95	1.00	1.00	1.00	0.97	
Satd. Flow (prot)	3433	1863	1863	1525	1714	
Flt Permitted	0.95	1.00	1.00	1.00	0.97	
Satd. Flow (perm)	3433	1863	1863	1525	1714	
Peak-hour factor, PHF	0.95	0.95	0.93	0.93	0.91	0.91
Adj. Flow (vph)	501	649	443	165	330	200
RTOR Reduction (vph)	0	0	0	115	24	0
Lane Group Flow (vph)	501	649	443	50	506	0
Confl. Peds. (#/hr)	19			19	31	
Confl. Bikes (#/hr)				10		
Turn Type	Prot			Perm		
Protected Phases	7	4	8		6	
Permitted Phases				8		
Actuated Green, G (s)	15.7	44.2	24.5	24.5	28.5	
Effective Green, g (s)	15.7	44.2	24.5	24.5	28.5	
Actuated g/C Ratio	0.19	0.55	0.30	0.30	0.35	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	668	1020	566	463	605	
v/s Ratio Prot	c0.15	0.35	c0.24		c0.30	
v/s Ratio Perm				0.03		
v/c Ratio	0.75	0.64	0.78	0.11	0.84	
Uniform Delay, d1	30.6	12.7	25.7	20.2	24.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.7	1.3	7.0	0.1	9.8	
Delay (s)	35.4	14.0	32.6	20.3	33.7	
Level of Service	D	B	C	C	C	
Approach Delay (s)		23.3	29.3		33.7	
Approach LOS		C	C		C	

Intersection Summary			
HCM Average Control Delay	27.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	80.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

iii. Existing Plus Project with Mitigation PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	358	1316	510	269	1193	55	92	254	427	662	314	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00		0.95	0.88	0.86	0.86	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	1.00		1.00	0.97	1.00	1.00	0.87
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		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	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00	0.95	0.98	1.00
Satd. Flow (prot)	3335	4940	1490	3335	4940	1538		3493	2701	2929	3028	1332
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00	0.95	0.98	1.00
Satd. Flow (perm)	3335	4940	1490	3335	4940	1538		3493	2701	2929	3028	1332
Peak-hour factor, PHF	0.95	0.95	0.95	0.89	0.89	0.89	0.93	0.93	0.93	0.86	0.86	0.86
Adj. Flow (vph)	377	1385	537	302	1340	62	99	273	459	770	365	287
RTOR Reduction (vph)	0	0	71	0	0	23	0	0	275	0	0	169
Lane Group Flow (vph)	377	1385	466	302	1340	39	0	372	184	562	573	118
Confl. Peds. (#/hr)			14	14			73					73
Confl. Bikes (#/hr)									12			19
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	6%	6%	6%
Turn Type	Prot		Perm	Prot		Perm	Split		Perm	Split		Perm
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases			6			2			4			8
Actuated Green, G (s)	25.0	67.9	67.9	20.5	63.4	63.4		24.6	24.6	42.7	42.7	42.7
Effective Green, g (s)	25.0	67.9	67.9	20.5	63.4	63.4		24.6	24.6	42.7	42.7	42.7
Actuated g/C Ratio	0.15	0.40	0.40	0.12	0.37	0.37		0.14	0.14	0.25	0.25	0.25
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	486	1954	589	398	1824	568		500	387	728	753	331
v/s Ratio Prot	c0.11	0.28		0.09	0.27			c0.11		c0.19	0.19	
v/s Ratio Perm			c0.31			0.03			0.07			0.09
v/c Ratio	0.78	0.71	0.79	0.76	0.73	0.07		0.74	0.48	0.77	0.76	0.36
Uniform Delay, d1	70.6	43.6	45.6	73.2	46.9	35.1		70.5	67.6	60.0	59.8	53.2
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	7.6	1.2	7.1	8.1	1.6	0.1		5.9	0.9	5.1	4.6	0.7
Delay (s)	78.3	44.8	52.8	81.3	48.4	35.1		76.5	68.5	65.1	64.3	53.8
Level of Service	E	D	D	F	D	D		E	E	E	E	D
Approach Delay (s)		52.1			53.8			72.1			62.5	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM Average Control Delay	57.6	HCM Level of Service	E
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	171.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	87.5%	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)	76	1036	82	115	973	134	76	103	78	199	104	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.91	1.00	1.00	0.92	1.00	1.00	0.97	1.00	1.00	0.94
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	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	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)	1719	3438	1402	1719	3438	1411	1770	1863	1539	3433	1863	1483
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)	1719	3438	1402	1719	3438	1411	1770	1863	1539	3433	1863	1483
Peak-hour factor, PHF	0.90	0.90	0.90	0.89	0.89	0.89	0.90	0.90	0.90	0.78	0.78	0.78
Adj. Flow (vph)	84	1151	91	129	1093	151	84	114	87	255	133	119
RTOR Reduction (vph)	0	0	31	0	0	53	0	0	70	0	0	90
Lane Group Flow (vph)	84	1151	60	129	1093	98	84	114	17	255	133	29
Confl. Peds. (#/hr)	18		19	19		18	16					16
Confl. Bikes (#/hr)			8			13			14			30
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2			4			8
Actuated Green, G (s)	8.9	52.8	52.8	13.4	57.3	57.3	8.9	23.6	23.6	14.2	28.9	28.9
Effective Green, g (s)	8.9	52.8	52.8	13.4	57.3	57.3	8.9	23.6	23.6	14.2	28.9	28.9
Actuated g/C Ratio	0.07	0.44	0.44	0.11	0.48	0.48	0.07	0.20	0.20	0.12	0.24	0.24
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	127	1513	617	192	1642	674	131	366	303	406	449	357
v/s Ratio Prot	0.05	c0.33		c0.08	0.32		0.05	0.06		c0.07	c0.07	
v/s Ratio Perm			0.04			0.07			0.01			0.02
v/c Ratio	0.66	0.76	0.10	0.67	0.67	0.14	0.64	0.31	0.06	0.63	0.30	0.08
Uniform Delay, d1	54.1	28.3	19.7	51.2	24.0	17.6	54.0	41.2	39.2	50.4	37.2	35.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.2	3.7	0.3	8.9	2.2	0.5	10.3	2.2	0.4	3.0	1.7	0.4
Delay (s)	66.3	31.9	20.0	60.1	26.2	18.1	64.3	43.5	39.5	53.4	38.9	35.7
Level of Service	E	C	B	E	C	B	E	D	D	D	D	D
Approach Delay (s)		33.3			28.5			48.4			45.5	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM Average Control Delay	34.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

iv. Cumulative Conditions PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	445	2229	81	523	1766	660	94	427	688	1056	515	541
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	1.00	0.88	0.97	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.86
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	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	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)	1719	4940	1485	3335	4940	1538	1770	1863	2708	3303	1792	1310
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)	1719	4940	1485	3335	4940	1538	1770	1863	2708	3303	1792	1310
Peak-hour factor, PHF	0.95	0.95	0.95	0.89	0.89	0.89	0.93	0.93	0.93	0.86	0.86	0.86
Adj. Flow (vph)	468	2346	85	588	1984	742	101	459	740	1228	599	629
RTOR Reduction (vph)	0	0	6	0	0	180	0	0	252	0	0	208
Lane Group Flow (vph)	468	2346	79	588	1984	562	101	459	488	1228	599	421
Confl. Peds. (#/hr)			14	14			73					73
Confl. Bikes (#/hr)									12			19
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	6%	6%	6%
Turn Type	Prot		Perm	Prot		Perm	Split		Perm	Split		Perm
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases			6			2			4			8
Actuated Green, G (s)	35.0	71.0	71.0	23.0	59.0	59.0	33.0	33.0	33.0	57.0	57.0	57.0
Effective Green, g (s)	35.0	71.0	71.0	23.0	59.0	59.0	33.0	33.0	33.0	57.0	57.0	57.0
Actuated g/C Ratio	0.18	0.36	0.36	0.12	0.29	0.29	0.16	0.16	0.16	0.28	0.28	0.28
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	301	1754	527	384	1457	454	292	307	447	941	511	373
v/s Ratio Prot	c0.27	c0.47		0.18	0.40		0.06	c0.25		c0.37	0.33	
v/s Ratio Perm			0.05			0.37			0.18			0.32
v/c Ratio	1.55	1.34	0.15	1.53	1.36	1.24	0.35	1.50	1.09	1.30	1.17	1.13
Uniform Delay, d1	82.5	64.5	43.9	88.5	70.5	70.5	73.9	83.5	83.5	71.5	71.5	71.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	265.4	155.8	0.1	251.9	167.3	125.0	0.7	239.3	69.5	145.0	96.7	86.2
Delay (s)	347.9	220.3	44.1	340.4	237.8	195.5	74.7	322.8	153.0	216.5	168.2	157.7
Level of Service	F	F	D	F	F	F	E	F	F	F	F	F
Approach Delay (s)		235.8			246.5			206.9			189.7	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	224.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.38		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	124.7%	ICU Level of Service	H
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)	69	206	493	127	97	55	401	582	427	186	1117	233
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes		1.00	0.95	1.00	0.99		1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	0.99	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1840	1503	1746	1747		1770	3539	1583	1770	3539	1583
Flt Permitted		0.80	1.00	0.35	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1499	1503	645	1747		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.85	0.85	0.85	0.94	0.94	0.94	0.96	0.96	0.96
Adj. Flow (vph)	70	210	503	149	114	65	427	619	454	194	1164	243
RTOR Reduction (vph)	0	0	323	0	17	0	0	0	151	0	0	40
Lane Group Flow (vph)	0	280	180	149	162	0	427	619	303	194	1164	203
Confl. Peds. (#/hr)			21	21								
Confl. Bikes (#/hr)			17			11						
Turn Type	Perm		Perm	Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8					2			6
Actuated Green, G (s)		28.2	28.2	28.2	28.2		29.9	54.3	54.3	17.0	41.4	41.4
Effective Green, g (s)		28.2	28.2	28.2	28.2		29.9	54.3	54.3	17.0	41.4	41.4
Actuated g/C Ratio		0.25	0.25	0.25	0.25		0.27	0.49	0.49	0.15	0.37	0.37
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		379	380	163	442		475	1723	771	270	1314	588
v/s Ratio Prot					0.09		c0.24	0.17		0.11	c0.33	
v/s Ratio Perm		0.19	0.12	c0.23					0.19			0.13
v/c Ratio		0.74	0.47	0.91	0.37		0.90	0.36	0.39	0.72	0.89	0.34
Uniform Delay, d1		38.3	35.3	40.5	34.3		39.3	17.8	18.1	45.0	32.8	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		7.4	0.9	46.0	0.5		19.5	0.1	0.3	8.8	7.5	0.4
Delay (s)		45.6	36.3	86.4	34.8		58.8	17.9	18.5	53.8	40.3	25.6
Level of Service		D	D	F	C		E	B	B	D	D	C
Approach Delay (s)		39.6			58.3			29.7			39.7	
Approach LOS		D			E			C			D	

Intersection Summary			
HCM Average Control Delay	37.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	111.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	93.9%	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)	166	2178	107	217	1692	348	131	166	130	454	187	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		0.95	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.98		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.97		1.00	0.93		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.99	
Satd. Flow (prot)	1719	3400		1719	3303		1770	1713		1681	1608	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.99	
Satd. Flow (perm)	1719	3400		1719	3303		1770	1713		1681	1608	
Peak-hour factor, PHF	0.90	0.90	0.90	0.89	0.89	0.89	0.90	0.90	0.90	0.78	0.78	0.78
Adj. Flow (vph)	184	2420	119	244	1901	391	146	184	144	582	240	201
RTOR Reduction (vph)	0	3	0	0	15	0	0	23	0	0	20	0
Lane Group Flow (vph)	184	2536	0	244	2277	0	146	305	0	518	485	0
Confl. Peds. (#/hr)	18		19	19		18	16					16
Confl. Bikes (#/hr)			8			13			14			30
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Split			Split		
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases												
Actuated Green, G (s)	9.0	52.0		12.0	55.0		16.0	16.0		24.0	24.0	
Effective Green, g (s)	9.0	52.0		12.0	55.0		16.0	16.0		24.0	24.0	
Actuated g/C Ratio	0.08	0.43		0.10	0.46		0.13	0.13		0.20	0.20	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	129	1473		172	1514		236	228		336	322	
v/s Ratio Prot	0.11	c0.75		c0.14	c0.69		0.08	c0.18		c0.31	0.30	
v/s Ratio Perm												
v/c Ratio	1.43	1.72		1.42	1.50		0.62	1.34		1.54	1.51	
Uniform Delay, d1	55.5	34.0		54.0	32.5		49.1	52.0		48.0	48.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	230.7	327.7		218.9	230.4		11.6	177.9		258.1	243.4	
Delay (s)	286.2	361.7		272.9	262.9		60.7	229.9		306.1	291.4	
Level of Service	F	F		F	F		E	F		F	F	
Approach Delay (s)		356.6			263.9			177.8			298.8	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	300.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.63		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	128.3%	ICU Level of Service	H
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)	470	1502	154	160	942	322	193	1180	91	497	1396	360
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		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	3475		1770	3539	1444	1770	3539	1512	1770	3539	1499
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	3475		1770	3539	1444	1770	3539	1512	1770	3539	1499
Peak-hour factor, PHF	0.89	0.89	0.89	0.96	0.96	0.96	0.89	0.89	0.89	0.98	0.98	0.98
Adj. Flow (vph)	528	1688	173	167	981	335	217	1326	102	507	1424	367
RTOR Reduction (vph)	0	6	0	0	0	136	0	0	20	0	0	115
Lane Group Flow (vph)	528	1855	0	167	981	199	217	1326	82	507	1424	252
Confl. Peds. (#/hr)	42		21	21		42	34		23	23		34
Confl. Bikes (#/hr)			18			31			6			5
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Actuated Green, G (s)	18.0	43.0		8.0	33.0	33.0	9.0	36.0	36.0	17.0	44.0	44.0
Effective Green, g (s)	18.0	43.0		8.0	33.0	33.0	9.0	36.0	36.0	17.0	44.0	44.0
Actuated g/C Ratio	0.15	0.36		0.07	0.28	0.28	0.08	0.30	0.30	0.14	0.37	0.37
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	515	1245		118	973	397	133	1062	454	251	1298	550
v/s Ratio Prot	0.15	c0.53		c0.09	0.28		0.12	c0.37		c0.29	0.40	
v/s Ratio Perm						0.14			0.05			0.17
v/c Ratio	1.03	1.49		1.42	1.01	0.50	1.63	1.25	0.18	2.02	1.10	0.46
Uniform Delay, d1	51.0	38.5		56.0	43.5	36.6	55.5	42.0	31.1	51.5	38.0	28.9
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	46.2	224.6		229.2	30.9	1.0	315.7	119.8	0.2	472.8	55.9	0.6
Delay (s)	97.2	263.1		285.2	74.4	37.6	371.2	161.8	31.3	524.3	93.9	29.5
Level of Service	F	F		F	E	D	F	F	C	F	F	C
Approach Delay (s)		226.5			89.8			181.3			178.6	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	177.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.49		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	129.0%	ICU Level of Service	H
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	948	26	216	790	182	3	216	241	186	341	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.87	1.00	1.00	0.93	1.00	1.00	0.89
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	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)	1770	3514		1770	1863	1385	1770	1863	1466	1770	1863	1403
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)	1770	3514		1770	1863	1385	1770	1863	1466	1770	1863	1403
Peak-hour factor, PHF	0.97	0.97	0.97	0.94	0.94	0.94	0.89	0.89	0.89	0.92	0.92	0.92
Adj. Flow (vph)	149	977	27	230	840	194	3	243	271	202	371	255
RTOR Reduction (vph)	0	2	0	0	0	89	0	0	133	0	0	90
Lane Group Flow (vph)	149	1002	0	230	840	105	3	243	138	202	371	165
Confl. Peds. (#/hr)	41		27	27		41	35		43	43		35
Confl. Bikes (#/hr)			27			26			12			20
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Actuated Green, G (s)	8.0	33.7		15.4	41.1	41.1	1.3	20.8	20.8	11.0	30.5	30.5
Effective Green, g (s)	8.0	33.7		15.4	41.1	41.1	1.3	20.8	20.8	11.0	30.5	30.5
Actuated g/C Ratio	0.08	0.35		0.16	0.42	0.42	0.01	0.21	0.21	0.11	0.31	0.31
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	146	1222		281	790	587	24	400	315	201	586	442
v/s Ratio Prot	c0.08	0.29		0.13	c0.45		0.00	0.13		c0.11	c0.20	
v/s Ratio Perm						0.08			0.09			0.12
v/c Ratio	1.02	0.82		0.82	1.06	0.18	0.12	0.61	0.44	1.00	0.63	0.37
Uniform Delay, d1	44.5	28.8		39.4	27.9	17.4	47.2	34.4	33.0	43.0	28.4	25.8
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	80.0	4.5		16.7	50.2	0.1	2.3	2.6	1.0	64.8	2.2	0.5
Delay (s)	124.5	33.4		56.1	78.1	17.5	49.6	37.0	34.0	107.7	30.7	26.3
Level of Service	F	C		E	E	B	D	D	C	F	C	C
Approach Delay (s)		45.1			64.8			35.5			48.1	
Approach LOS		D			E			D			D	

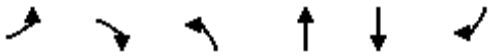
Intersection Summary			
HCM Average Control Delay	51.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	96.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	91.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	259	601	129	188	424	83	318	702	296	353	621	274
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00	0.95	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3400		1770	3428		1770	3539	1504	1770	3539	1529
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3400		1770	3428		1770	3539	1504	1770	3539	1529
Peak-hour factor, PHF	0.96	0.96	0.96	0.93	0.93	0.93	0.94	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	270	626	134	202	456	89	338	747	315	384	675	298
RTOR Reduction (vph)	0	17	0	0	15	0	0	0	93	0	0	125
Lane Group Flow (vph)	270	743	0	202	530	0	338	747	222	384	675	173
Confl. Peds. (#/hr)	27		27	27		27	14		27	27		14
Confl. Bikes (#/hr)			41			5			2			4
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	16.0	27.9		14.9	26.8		21.7	24.1	24.1	23.1	25.5	25.5
Effective Green, g (s)	16.0	27.9		14.9	26.8		21.7	24.1	24.1	23.1	25.5	25.5
Actuated g/C Ratio	0.15	0.26		0.14	0.25		0.20	0.23	0.23	0.22	0.24	0.24
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	267	895		249	867		362	805	342	386	851	368
v/s Ratio Prot	c0.15	c0.22		0.11	0.15		0.19	c0.21		c0.22	0.19	
v/s Ratio Perm									0.15			0.11
v/c Ratio	1.01	0.83		0.81	0.61		0.93	0.93	0.65	0.99	0.79	0.47
Uniform Delay, d1	45.0	36.8		44.2	35.0		41.4	40.1	37.1	41.4	37.8	34.5
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	58.0	6.6		17.9	1.3		30.7	16.6	4.2	44.2	5.1	1.0
Delay (s)	103.0	43.4		62.1	36.3		72.1	56.7	41.3	85.6	42.9	35.4
Level of Service	F	D		E	D		E	E	D	F	D	D
Approach Delay (s)		59.0			43.3			57.0			53.3	
Approach LOS		E			D			E			D	

Intersection Summary			
HCM Average Control Delay	54.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	88.0%	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)	253	534	47	102	443	118	12	406	89	230	710	296
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95	1.00		0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.98			1.00	0.87		0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		0.99	
Frt	1.00	0.99		1.00	0.97			1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00			1.00	1.00		0.99	
Satd. Flow (prot)	1770	1831		1770	1772			3534	1383		3246	
Flt Permitted	0.95	1.00		0.95	1.00			0.89	1.00		0.73	
Satd. Flow (perm)	1770	1831		1770	1772			3154	1383		2383	
Peak-hour factor, PHF	0.94	0.94	0.94	0.97	0.97	0.97	0.95	0.95	0.95	0.91	0.91	0.91
Adj. Flow (vph)	269	568	50	105	457	122	13	427	94	253	780	325
RTOR Reduction (vph)	0	3	0	0	8	0	0	0	46	0	25	0
Lane Group Flow (vph)	269	615	0	105	571	0	0	440	48	0	1333	0
Confl. Peds. (#/hr)	25		23	23		25	30		32	32		30
Confl. Bikes (#/hr)			12			27			3			7
Turn Type	Prot			Prot			Perm		Perm	Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		
Actuated Green, G (s)	15.0	39.0		8.0	32.0			61.0	61.0		61.0	
Effective Green, g (s)	15.0	39.0		8.0	32.0			61.0	61.0		61.0	
Actuated g/C Ratio	0.12	0.32		0.07	0.27			0.51	0.51		0.51	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	221	595		118	473			1603	703		1211	
v/s Ratio Prot	c0.15	0.34		0.06	c0.32							
v/s Ratio Perm								0.14	0.03		c0.56	
v/c Ratio	1.22	1.03		0.89	1.21			0.27	0.07		1.10	
Uniform Delay, d1	52.5	40.5		55.6	44.0			16.9	15.0		29.5	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	131.6	46.0		49.7	111.7			0.1	0.0		58.0	
Delay (s)	184.1	86.5		105.3	155.7			16.9	15.1		87.5	
Level of Service	F	F		F	F			B	B		F	
Approach Delay (s)		116.1			147.9			16.6			87.5	
Approach LOS		F			F			B			F	

Intersection Summary			
HCM Average Control Delay	95.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	108.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	366	61	54	315	370	357
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	398	66	59	342	402	388

Direction, Lane #	EB 1	EB 2	NB 1	SB 1	SB 2
Volume Total (vph)	398	66	401	402	388
Volume Left (vph)	398	0	59	0	0
Volume Right (vph)	0	66	0	0	388
Hadj (s)	0.53	-0.67	0.06	0.03	-0.67
Departure Headway (s)	8.1	6.9	7.3	7.3	6.6
Degree Utilization, x	0.90	0.13	0.81	0.82	0.71
Capacity (veh/h)	438	510	485	481	532
Control Delay (s)	48.4	9.7	34.7	34.3	23.1
Approach Delay (s)	42.9		34.7	28.8	
Approach LOS	E		D	D	

Intersection Summary			
Delay	34.2		
HCM Level of Service	D		
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

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MITIG8 - PM GPBO+UCSC+La BaWed Oct 23, 2013 11:03:14                 Page 1-1
------------------------------------------------------------------------------
                  La Bahia Hotel Traffic Impact Analysis
                          Cumulative Conditions
                              PM Peak Hour
------------------------------------------------------------------------------
                    Level Of Service Computation Report
           2000 HCM 4-Way Stop Method (Future Volume Alternative)
******************************************************************************
Intersection #2966 Pacific/Beach
******************************************************************************
Cycle (sec):           1               Critical Vol./Cap.(X):         0.972
Loss Time (sec):       0               Average Delay (sec/veh):        29.2
Optimal Cycle:         0               Level Of Service:                D
******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  1  1  1  0    1  0  1  1  0    1  0  0  1  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 5 May 2004 << 4:30 - 5:30 PM
Base Vol:      24   73    27   150  142   168   376  252    71     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   24   73    27   150  142   168   376  252    71     0    0     0
Added Vol:      0   17     0    34   25    75    98   11     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   24   90    27   184  167   243   474  263    71     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.78 0.78  0.78  0.93 0.93  0.93  0.98 0.98  0.98  1.00 1.00  1.00
PHF Volume:    31  115    35   198  180   261   484  268    72     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   31  115    35   198  180   261   484  268    72     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   31  115    35   198  180   261   484  268    72     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
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:       0.51 1.92  0.57  1.00 1.00  1.00  1.00 0.79  0.21  0.00 0.00  0.00
Final Sat.:   201  779   244   444  472   521   497  427   115     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.15 0.15  0.14  0.45 0.38  0.50  0.97 0.63  0.63  xxxx xxxx  xxxx
Crit Moves:  ****                        ****  ****
Delay/Veh:   13.0 12.6  12.1  16.8 14.6  16.0  59.9 19.6  19.6   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  13.0 12.6  12.1  16.8 14.6  16.0  59.9 19.6  19.6   0.0  0.0   0.0
LOS by Move:    B    B     B     C    B     C     F    C     C     *    *     *
ApproachDel:       12.6             15.9             43.2           xxxxxx
Delay Adj:         1.00             1.00             1.00            xxxxx
ApprAdjDel:        12.6             15.9             43.2           xxxxxx
LOS by Appr:          B                C                E                *
AllWayAvgQ:   0.2  0.2   0.2   0.8  0.6   0.9   6.9  1.5   1.5   0.0  0.0   0.0
******************************************************************************
Note: Queue reported is the number of cars per lane.

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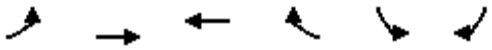

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Volume (vph)	199	295	0	0	196	0
Peak Hour Factor	0.87	0.87	0.92	0.92	0.90	0.90
Hourly flow rate (vph)	229	339	0	0	218	0

Direction, Lane #	EB 1	EB 2	SB 1	SB 2
Volume Total (vph)	342	226	109	109
Volume Left (vph)	229	0	109	109
Volume Right (vph)	0	0	0	0
Hadj (s)	0.37	0.03	0.53	0.53
Departure Headway (s)	5.6	5.2	6.5	6.5
Degree Utilization, x	0.53	0.33	0.20	0.20
Capacity (veh/h)	630	671	529	529
Control Delay (s)	13.4	9.6	9.8	9.8
Approach Delay (s)	11.9		9.8	
Approach LOS	B		A	

Intersection Summary			
Delay	11.3		
HCM Level of Service	B		
Intersection Capacity Utilization	37.7%	ICU Level of Service	A
Analysis Period (min)	15		

```
MITIG8 - PM GPBO+UCSC+La BaWed Oct 23, 2013 11:10:17                 Page 1-1
--------------------------------------------------------------------------------
                  La Bahia Hotel Traffic Impact Analysis
                          Cumulative Conditions
                              PM Peak Hour
--------------------------------------------------------------------------------
                    Level Of Service Computation Report
           2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #2969 Riverside/Second-Leibrandt
********************************************************************************
Cycle (sec):         100               Critical Vol./Cap.(X):         0.479
Loss Time (sec):       0               Average Delay (sec/veh):         9.8
Optimal Cycle:         0               Level Of Service:                 A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  0  0  0    0  1  1  0  1    0  0  0  0  1    0  1  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0   120  256   368     0    0    34     6    1     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   120  256   368     0    0    34     6    1     0
Added Vol:      0    0     0    19   56    49     0    0     0     0    6     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0   139  312   417     0    0    34     6    7     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  0.96 0.96  0.96  1.00 1.00  0.71  0.88 0.88  0.88
PHF Volume:     0    0     0   145  325   434     0    0    48     7    8     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0   145  325   434     0    0    48     7    8     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0    0     0   145  325   434     0    0    48     7    8     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  0.00  0.62 1.38  1.00  0.00 0.00  1.00  0.46 0.54  0.00
Final Sat.:     0    0     0   446 1049   907     0    0   723   290  338     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     xxxx xxxx  xxxx  0.32 0.31  0.48  xxxx xxxx  0.07  0.02 0.02  xxxx
Crit Moves:                                ****               ****       ****
Delay/Veh:    0.0  0.0   0.0  10.0  9.5  10.2   0.0  0.0   8.0   8.6  8.6   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0  10.0  9.5  10.2   0.0  0.0   8.0   8.6  8.6   0.0
LOS by Move:    *    *     *     B    A     B     *    *     A     A    A     *
ApproachDel:    xxxxxx              9.9              8.0              8.6
Delay Adj:       xxxxx             1.00             1.00             1.00
ApprAdjDel:     xxxxxx              9.9              8.0              8.6
LOS by Appr:         *                A                A                A
AllWayAvgQ:   0.0  0.0   0.0   0.5  0.4   0.9   0.1  0.1   0.1   0.0  0.0   0.0
********************************************************************************
Note: Queue reported is the number of cars per lane.

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MITIG8 - PM GPBO+UCSC+La BaWed Oct 23, 2013 11:22:56                 Page 1-1
------------------------------------------------------------------------------
                  La Bahia Hotel Traffic Impact Analysis
                          Cumulative Conditions
                              PM Peak Hour
------------------------------------------------------------------------------
                     Level Of Service Computation Report
          2000 HCM Unsignalized Method (Future Volume Alternative)
******************************************************************************
Intersection #6902 W_Cliff/Beach
******************************************************************************
Average Delay (sec/veh):      8.0       Worst Case Level Of Service: C[ 18.6]
******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Ignore           Include          Ignore           Include
Lanes:        0  0  1  0  1    0  0  0  0  0    0  0  0  1  0    1  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 5 May 2004 << 5:00 - 6:00 PM
Base Vol:       0    5   725     0    0     0     0    0   516   263    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    5   725     0    0     0     0    0   516   263    0     0
Added Vol:      0    0   107     0    0     0     0    3    41    75    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    5   832     0    0     0     0    3   557   338    0     0
User Adj:    1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Adj:     0.93 0.93  0.00  0.93 0.93  0.93  0.93 0.93  0.00  0.93 0.93  0.93
PHF Volume:     0    5     0     0    0     0     0    3     0   363    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0    5     0     0    0     0     0    3     0   363    0     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx  6.5   6.2 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:xxxxx  4.0   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx  730     3  xxxx xxxx xxxxx  xxxx xxxx xxxxx     3 xxxx xxxxx
Potent Cap.: xxxx  349  1081  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1619 xxxx xxxxx
Move Cap.:   xxxx  271  1081  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1619 xxxx xxxxx
Volume/Cap:  xxxx 0.02  0.00  xxxx xxxx  xxxx  xxxx xxxx  xxxx  0.22 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx  0.1 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.9 xxxx xxxxx
Control Del:xxxxx 18.6 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.9 xxxx xxxxx
LOS by Move:    *    C     *     *    *     *     *    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:       18.6           xxxxxx           xxxxxx           xxxxxx
ApproachLOS:         C              *                *                *
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************


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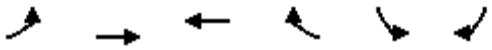
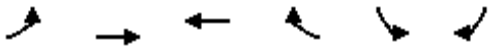


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	39	402	0	0	20	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.92	0.92	0.71	0.71
Hourly flow rate (vph)	43	447	0	0	28	0
Pedestrians		74	133		182	
Lane Width (ft)		12.0	0.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		6	0		15	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	182				625	256
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	182				625	256
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				92	100
cM capacity (veh/h)	1180				341	592

Direction, Lane #	EB 1	EB 2	SB 1
Volume Total	192	298	28
Volume Left	43	0	28
Volume Right	0	0	0
cSH	1180	1700	341
Volume to Capacity	0.04	0.18	0.08
Queue Length 95th (ft)	3	0	7
Control Delay (s)	2.1	0.0	16.5
Lane LOS	A		C
Approach Delay (s)	0.8		16.5
Approach LOS			C

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	34.7%	ICU Level of Service	A
Analysis Period (min)	15		



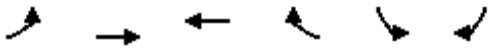
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	68	421	0	0	24	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.92	0.92	0.46	0.46
Hourly flow rate (vph)	77	478	0	0	52	0
Pedestrians		115	80		180	
Lane Width (ft)		12.0	0.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		10	0		15	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	180				654	295
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	180				654	295
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				84	100
cM capacity (veh/h)	1184				318	539

Direction, Lane #	EB 1	EB 2	SB 1
Volume Total	237	319	52
Volume Left	77	0	52
Volume Right	0	0	0
cSH	1184	1700	318
Volume to Capacity	0.07	0.19	0.16
Queue Length 95th (ft)	5	0	14
Control Delay (s)	3.1	0.0	18.6
Lane LOS	A		C
Approach Delay (s)	1.3		18.6
Approach LOS			C

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	36.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	522	20	253	445	0	59	0	562	31	183	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0		4.0		4.0	
Lane Util. Factor		0.95		0.95	0.95		1.00		1.00		0.95	
Frpb, ped/bikes		1.00		1.00	1.00		1.00		1.00		0.98	
Flpb, ped/bikes		1.00		1.00	1.00		1.00		1.00		1.00	
Frt		0.99		1.00	1.00		1.00		0.85		0.97	
Flt Protected		1.00		0.95	1.00		0.95		1.00		0.99	
Satd. Flow (prot)		3516		1681	1765		1770		1583		3326	
Flt Permitted		1.00		0.95	1.00		0.95		1.00		0.99	
Satd. Flow (perm)		3516		1681	1765		1770		1583		3326	
Peak-hour factor, PHF	0.89	0.89	0.89	0.96	0.96	0.96	0.91	0.91	0.91	0.92	0.92	0.92
Adj. Flow (vph)	0	587	22	264	464	0	65	0	618	34	199	60
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	527	0	26	0
Lane Group Flow (vph)	0	607	0	238	490	0	65	0	91	0	267	0
Confl. Peds. (#/hr)	10		9	9		10	52		56	56		52
Confl. Bikes (#/hr)			6			16			2			3
Turn Type				Split			Prot		custom	Split		
Protected Phases		4		8	8		2		2	6	6	
Permitted Phases												
Actuated Green, G (s)		16.9		19.3	19.3		11.0		11.0		11.3	
Effective Green, g (s)		16.9		19.3	19.3		11.0		11.0		11.3	
Actuated g/C Ratio		0.23		0.26	0.26		0.15		0.15		0.15	
Clearance Time (s)		4.0		4.0	4.0		4.0		4.0		4.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0		3.0	
Lane Grp Cap (vph)		798		435	457		261		234		504	
v/s Ratio Prot		c0.17		0.14	c0.28		0.04		c0.06		c0.08	
v/s Ratio Perm												
v/c Ratio		0.76		0.55	1.07		0.25		0.39		0.53	
Uniform Delay, d1		26.9		23.8	27.6		28.1		28.7		29.1	
Progression Factor		1.00		1.00	1.00		1.00		1.00		1.00	
Incremental Delay, d2		4.3		1.4	62.8		0.5		1.1		1.0	
Delay (s)		31.2		25.2	90.4		28.6		29.8		30.2	
Level of Service		C		C	F		C		C		C	
Approach Delay (s)		31.2			69.1			29.7			30.2	
Approach LOS		C			E			C			C	

Intersection Summary			
HCM Average Control Delay	42.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	74.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	79.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	402	892	616	155	595	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	0.96	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	0.98	
Flt Protected	0.95	1.00	1.00	1.00	0.96	
Satd. Flow (prot)	3433	1863	1863	1521	1751	
Flt Permitted	0.95	1.00	1.00	1.00	0.96	
Satd. Flow (perm)	3433	1863	1863	1521	1751	
Peak-hour factor, PHF	0.95	0.95	0.93	0.93	0.91	0.91
Adj. Flow (vph)	423	939	662	167	654	111
RTOR Reduction (vph)	0	0	0	104	6	0
Lane Group Flow (vph)	423	939	662	63	759	0
Confl. Peds. (#/hr)	19			19	31	
Confl. Bikes (#/hr)				10		
Turn Type	Prot			Perm		
Protected Phases	7	4	8		6	
Permitted Phases				8		
Actuated Green, G (s)	15.5	50.0	30.5	30.5	36.0	
Effective Green, g (s)	15.5	50.0	30.5	30.5	36.0	
Actuated g/C Ratio	0.16	0.53	0.32	0.32	0.38	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	566	991	604	494	671	
v/s Ratio Prot	0.12	c0.50	c0.36		c0.43	
v/s Ratio Perm				0.04		
v/c Ratio	0.75	0.95	1.10	0.13	1.13	
Uniform Delay, d1	37.4	20.8	31.8	22.4	29.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.4	17.2	65.6	0.1	76.7	
Delay (s)	42.7	37.9	97.4	22.5	105.7	
Level of Service	D	D	F	C	F	
Approach Delay (s)		39.4	82.3		105.7	
Approach LOS		D	F		F	

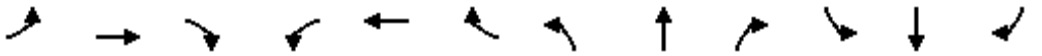
Intersection Summary			
HCM Average Control Delay	68.6	HCM Level of Service	E
HCM Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	93.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

v. Cumulative Conditions with Mitigation PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	445	2229	81	523	1766	660	94	427	688	1056	515	541
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00		0.95	0.88	0.86	0.86	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	1.00		1.00	0.97	1.00	1.00	0.86
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		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	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00	0.95	0.98	1.00
Satd. Flow (prot)	3335	4940	1485	3335	4940	1538		3508	2694	2929	3029	1309
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00	0.95	0.98	1.00
Satd. Flow (perm)	3335	4940	1485	3335	4940	1538		3508	2694	2929	3029	1309
Peak-hour factor, PHF	0.95	0.95	0.95	0.89	0.89	0.89	0.93	0.93	0.93	0.86	0.86	0.86
Adj. Flow (vph)	468	2346	85	588	1984	742	101	459	740	1228	599	629
RTOR Reduction (vph)	0	0	7	0	0	180	0	0	277	0	0	215
Lane Group Flow (vph)	468	2346	78	588	1984	562	0	560	463	896	931	414
Confl. Peds. (#/hr)			14	14			73					73
Confl. Bikes (#/hr)									12			19
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	6%	6%	6%
Turn Type	Prot		Perm	Prot		Perm	Split		Perm	Split		Perm
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases			6			2			4			8
Actuated Green, G (s)	27.0	81.0	81.0	26.0	80.0	80.0		25.0	25.0	52.0	52.0	52.0
Effective Green, g (s)	27.0	81.0	81.0	26.0	80.0	80.0		25.0	25.0	52.0	52.0	52.0
Actuated g/C Ratio	0.14	0.40	0.40	0.13	0.40	0.40		0.12	0.12	0.26	0.26	0.26
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	450	2001	601	434	1976	615		439	337	762	788	340
v/s Ratio Prot	0.14	c0.47		c0.18	0.40			0.16		0.31	0.31	
v/s Ratio Perm			0.05			0.37			c0.17			c0.32
v/c Ratio	1.04	1.17	0.13	1.35	1.00	0.91		1.28	1.37	1.18	1.18	1.22
Uniform Delay, d1	86.5	59.5	37.4	87.0	60.0	56.7		87.5	87.5	74.0	74.0	74.0
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	53.2	83.3	0.1	174.2	21.2	18.1		140.8	185.5	92.6	94.5	122.2
Delay (s)	139.7	142.8	37.5	261.2	81.2	74.8		228.3	273.0	166.6	168.5	196.2
Level of Service	F	F	D	F	F	E		F	F	F	F	F
Approach Delay (s)		139.2			111.7			253.7			174.9	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	153.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	116.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



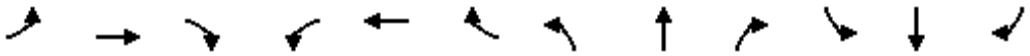
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	166	2178	107	217	1692	348	131	166	130	454	187	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.90	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.92
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	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	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)	1719	3438	1380	1719	3438	1393	1770	1863	1503	3433	1863	1451
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)	1719	3438	1380	1719	3438	1393	1770	1863	1503	3433	1863	1451
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	180	2367	116	236	1839	378	142	180	141	493	203	171
RTOR Reduction (vph)	0	0	16	0	0	66	0	0	130	0	0	141
Lane Group Flow (vph)	180	2367	100	236	1839	312	142	180	11	493	203	30
Confl. Peds. (#/hr)	18		19	19		18	16					16
Confl. Bikes (#/hr)			8			13			14			30
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2			4			8
Actuated Green, G (s)	15.0	83.0	83.0	16.0	84.0	84.0	12.0	12.1	12.1	22.9	23.0	23.0
Effective Green, g (s)	15.0	83.0	83.0	16.0	84.0	84.0	12.0	12.1	12.1	22.9	23.0	23.0
Actuated g/C Ratio	0.10	0.55	0.55	0.11	0.56	0.56	0.08	0.08	0.08	0.15	0.15	0.15
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	172	1902	764	183	1925	780	142	150	121	524	286	222
v/s Ratio Prot	0.10	c0.69		c0.14	0.53		0.08	c0.10		c0.14	0.11	
v/s Ratio Perm			0.07			0.22			0.01			0.02
v/c Ratio	1.05	1.24	0.13	1.29	0.96	0.40	1.00	1.20	0.09	0.94	0.71	0.13
Uniform Delay, d1	67.5	33.5	16.1	67.0	31.2	18.7	69.0	69.0	63.9	62.9	60.3	54.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	81.4	114.6	0.4	164.9	12.4	1.5	75.5	137.2	0.3	25.3	7.8	0.3
Delay (s)	148.9	148.1	16.5	231.9	43.6	20.3	144.5	206.2	64.2	88.2	68.2	55.2
Level of Service	F	F	B	F	D	C	F	F	E	F	E	E
Approach Delay (s)		142.5			58.1			144.0			77.0	
Approach LOS		F			E			F			E	

Intersection Summary			
HCM Average Control Delay	101.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	107.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

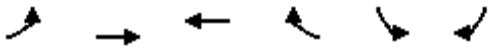
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1502	154	160	942	322	193	1180	91	497	1396	360
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.90	1.00	1.00	0.95	1.00	1.00	0.94
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	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	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	3539	1507	1770	3539	1430	1770	3539	1503	3433	3539	1486
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	3539	1507	1770	3539	1430	1770	3539	1503	3433	3539	1486
Peak-hour factor, PHF	0.89	0.89	0.89	0.96	0.96	0.96	0.89	0.89	0.89	0.98	0.98	0.98
Adj. Flow (vph)	528	1688	173	167	981	335	217	1326	102	507	1424	367
RTOR Reduction (vph)	0	0	34	0	0	113	0	0	17	0	0	95
Lane Group Flow (vph)	528	1688	139	167	981	222	217	1326	85	507	1424	272
Confl. Peds. (#/hr)	42		21	21		42	34		23	23		34
Confl. Bikes (#/hr)			18			31			6			5
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	23.0	55.0	55.0	11.0	43.0	43.0	13.0	47.0	47.0	16.0	50.0	50.0
Effective Green, g (s)	23.0	55.0	55.0	11.0	43.0	43.0	13.0	47.0	47.0	16.0	50.0	50.0
Actuated g/C Ratio	0.16	0.38	0.38	0.08	0.30	0.30	0.09	0.32	0.32	0.11	0.34	0.34
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	545	1342	572	134	1049	424	159	1147	487	379	1220	512
v/s Ratio Prot	0.15	c0.48		c0.09	0.28		0.12	0.37		c0.15	c0.40	
v/s Ratio Perm			0.09			0.16			0.06			0.18
v/c Ratio	0.97	1.26	0.24	1.25	0.94	0.52	1.36	1.16	0.17	1.34	1.17	0.53
Uniform Delay, d1	60.6	45.0	30.8	67.0	49.6	42.5	66.0	49.0	35.1	64.5	47.5	38.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	30.4	122.2	0.2	158.4	14.6	1.2	199.1	80.4	0.2	168.9	84.4	1.1
Delay (s)	91.0	167.2	31.0	225.4	64.3	43.7	265.1	129.4	35.3	233.4	131.9	39.2
Level of Service	F	F	C	F	E	D	F	F	D	F	F	D
Approach Delay (s)		140.5			77.8			141.4			139.5	
Approach LOS		F			E			F			F	

Intersection Summary			
HCM Average Control Delay	128.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.24		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	113.0%	ICU Level of Service	H
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)	253	534	47	102	443	118	0	418	89	0	710	296
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95	1.00		0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.98			1.00	0.88		0.96	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	0.99		1.00	0.97			1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00			1.00	1.00		1.00	
Satd. Flow (prot)	1770	1832		1770	1775			3539	1391		3259	
Flt Permitted	0.95	1.00		0.95	1.00			1.00	1.00		1.00	
Satd. Flow (perm)	1770	1832		1770	1775			3539	1391		3259	
Peak-hour factor, PHF	0.94	0.94	0.94	0.97	0.97	0.97	0.95	0.95	0.95	0.91	0.91	0.91
Adj. Flow (vph)	269	568	50	105	457	122	0	440	94	0	780	325
RTOR Reduction (vph)	0	3	0	0	8	0	0	0	59	0	38	0
Lane Group Flow (vph)	269	615	0	105	571	0	0	440	35	0	1067	0
Confl. Peds. (#/hr)	25		23	23		25	30		32	32		30
Confl. Bikes (#/hr)			12			27			3			7
Turn Type	Prot			Prot					Perm			
Protected Phases	7	4		3	8			2			6	
Permitted Phases									2			
Actuated Green, G (s)	19.9	49.7		9.6	39.4			42.1	42.1		42.1	
Effective Green, g (s)	19.9	49.7		9.6	39.4			42.1	42.1		42.1	
Actuated g/C Ratio	0.18	0.44		0.08	0.35			0.37	0.37		0.37	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	311	803		150	617			1314	516		1210	
v/s Ratio Prot	c0.15	0.34		0.06	c0.32			0.12			c0.33	
v/s Ratio Perm									0.03			
v/c Ratio	0.86	0.77		0.70	0.93			0.33	0.07		0.88	
Uniform Delay, d1	45.4	26.9		50.5	35.6			25.6	23.0		33.3	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	21.3	4.4		13.4	19.9			0.2	0.1		7.8	
Delay (s)	66.7	31.3		63.9	55.5			25.7	23.0		41.1	
Level of Service	E	C		E	E			C	C		D	
Approach Delay (s)		42.1			56.8			25.3			41.1	
Approach LOS		D			E			C			D	

Intersection Summary			
HCM Average Control Delay	42.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	113.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	84.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	402	892	616	155	595	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.96	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1863	1863	1522	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1863	1863	1522	1770	1583
Peak-hour factor, PHF	0.95	0.95	0.93	0.93	0.91	0.91
Adj. Flow (vph)	423	939	662	167	654	111
RTOR Reduction (vph)	0	0	0	105	0	46
Lane Group Flow (vph)	423	939	662	62	654	65
Confl. Peds. (#/hr)	19			19	31	
Confl. Bikes (#/hr)				10		
Turn Type	Prot			Perm		Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Actuated Green, G (s)	12.0	50.0	34.0	34.0	36.1	36.1
Effective Green, g (s)	12.0	50.0	34.0	34.0	36.1	36.1
Actuated g/C Ratio	0.13	0.53	0.36	0.36	0.38	0.38
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	438	990	673	550	679	607
v/s Ratio Prot	0.12	c0.50	0.36		c0.37	
v/s Ratio Perm				0.04		0.04
v/c Ratio	0.97	0.95	0.98	0.11	0.96	0.11
Uniform Delay, d1	40.8	20.8	29.8	20.0	28.4	18.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	33.9	17.3	30.4	0.1	25.5	0.1
Delay (s)	74.7	38.2	60.1	20.1	53.9	18.7
Level of Service	E	D	E	C	D	B
Approach Delay (s)		49.5	52.1		48.8	
Approach LOS		D	D		D	

Intersection Summary			
HCM Average Control Delay	50.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	94.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	86.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

C: Highway Segment LOS Analysis

i. Existing PM Peak Hour

APPENDIX D

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	
Agency or Company	*KHA*
Date Performed	*7/31/2013*
Analysis Time Period	*Existing+Project PM Peak*

Site Information

Highway/Direction of Travel	*Hwy 1 NB*
From/To	*Hwy9/Hwy17*
Jurisdiction	*SCR*
Analysis Year	*2012*

Project Description *La Bahia Hotel TIA*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*2001*	veh/h	Peak-Hour Factor, PHF	*0.92*
AADT		veh/day	%Trucks and Buses, P_T	*5*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.976*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*55.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*55.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1115*	pc/h/ln
S	*55.0*	mph
D = v_p / S	*20.3*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	mph
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 11-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

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APPENDIX D

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	
Agency or Company	*KHA*
Date Performed	*7/31/2013*
Analysis Time Period	*Existing+Project PM Peak*

Site Information

Highway/Direction of Travel	*Hwy 1 SB*
From/To	*Hwy9/Hwy17*
Jurisdiction	*SCR*
Analysis Year	*2012*

Project Description *La Bahia Hotel TIA*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*2717*	veh/h	Peak-Hour Factor, PHF	*0.92*
AADT		veh/day	%Trucks and Buses, P_T	*5*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.976*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*55.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*55.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1514*	pc/h/ln
S	*55.0*	mph
D = v_p / S	*27.5*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	mph
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 11-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

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APPENDIX D

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	
Agency or Company	*KHA*
Date Performed	*7/31/2013*
Analysis Time Period	*Existing+Project PM Peak*

Site Information

Highway/Direction of Travel	*Hwy 1 NB*
From/To	*Emiline/Morrissey*
Jurisdiction	*SCR*
Analysis Year	*2012*

Project Description *La Bahia Hotel TIA*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*2909*	veh/h	Peak-Hour Factor, PHF	*0.92*
AADT		veh/day	%Trucks and Buses, P_T	*3*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.985*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*3*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*55.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*55.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1070*	pc/h/ln
S	*55.0*	mph
D = v_p / S	*19.5*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	mph
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 10-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

APPENDIX D

BASIC FREEWAY SEGMENTS WORKSHEET

General Information		Site Information	
Analyst		Highway/Direction of Travel	*SR-1 SB*
Agency or Company	*KHA*	From/To	*Emiline/Morrissey*
Date Performed	*7/31/2013*	Jurisdiction	*SCR*
Analysis Time Period	*Existing+Project PM Peak*	Analysis Year	*2012*

Project Description *La Bahia Hotel TIA*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3951*	veh/h	Peak-Hour Factor, PHF	*0.92*
AADT		veh/day	%Trucks and Buses, P_T	*3*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.985*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft	f_{LW}		mph
Number of Lanes, N	*3*		f_{LC}		mph
Total Ramp Density, TRD		ramps/mi	TRD Adjustment		mph
FFS (measured)	*55.0*	mph	FFS	*55.0*	mph
Base free-flow Speed, BFFS		mph			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1453*	pc/h/ln	Design LOS		
S	*55.0*	mph	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h/ln
D = v_p / S	*26.4*	pc/mi/ln	S		mph
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E_T - Exhibits 10, 11-11, 11-13	f_{LC} - Exhibit 11-9
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

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APPENDIX D

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	
Agency or Company	*KHA*
Date Performed	*7/31/2013*
Analysis Time Period	*Existing+Project PM Peak*

Site Information

Highway/Direction of Travel	*Hwy 1 NB*
From/To	*Morrissey/Soquel*
Jurisdiction	*SCR*
Analysis Year	*2012*

Project Description *La Bahia Hotel TIA*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3207*	veh/h	Peak-Hour Factor, PHF	*0.92*
AADT		veh/day	%Trucks and Buses, P_T	*3*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.985*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*55.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*55.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1769*	pc/h/ln
S	*55.0*	mph
D = v_p / S	*32.2*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	mph
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 10-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

APPENDIX D

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	
Agency or Company	*KHA*
Date Performed	*7/31/2013*
Analysis Time Period	*Existing+Project PM Peak*

Site Information

Highway/Direction of Travel	*Hwy 1 SB*
From/To	*Morrissey/Soquel*
Jurisdiction	*SCR*
Analysis Year	*2012*

Project Description *La Bahia Hotel TIA*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*4103*	veh/h	Peak-Hour Factor, PHF	*0.92*
AADT		veh/day	%Trucks and Buses, P_T	*3*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.985*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*55.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*55.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2263*	pc/h/ln
S	*49.7*	mph
D = v_p / S	*45.5*	pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	mph
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 10-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

APPENDIX D

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	
Agency or Company	*KHA*
Date Performed	*7/31/2013*
Analysis Time Period	*Existing+Project PM Peak*

Site Information

Highway/Direction of Travel	*Hwy 17 NB*
From/To	*Hwy1/Pasatiempo*
Jurisdiction	*SCR*
Analysis Year	*2012*

Project Description *La Bahia Hotel TIA*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3313*	veh/h	Peak-Hour Factor, PHF	*0.92*
AADT		veh/day	%Trucks and Buses, P_T	*3*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.985*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*3*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*55.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*55.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1218*	pc/h/ln
S	*55.0*	mph
D = v_p / S	*22.1*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	mph
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 11-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

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APPENDIX D

BASIC FREEWAY SEGMENTS WORKSHEET

General Information		Site Information	
Analyst		Highway/Direction of Travel	*Hwy 17 SB*
Agency or Company	*KHA*	From/To	*Hwy1/Pasatiempo*
Date Performed	*7/31/2013*	Jurisdiction	*SCR*
Analysis Time Period	*Existing+Project PM Peak*	Analysis Year	*2012*

Project Description *La Bahia Hotel TIA*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*2743*	veh/h	Peak-Hour Factor, PHF	*0.92*
AADT		veh/day	%Trucks and Buses, P_T	*3*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.985*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft	f_{LW}		mph
Number of Lanes, N	*2*		f_{LC}		mph
Total Ramp Density, TRD		ramps/mi	TRD Adjustment		mph
FFS (measured)	*55.0*	mph	FFS	*55.0*	mph
Base free-flow Speed, BFFS		mph			

LOS and Performance Measures			Design (N)	
Operational (LOS)			Design (N)	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1513*	pc/h/ln	Design LOS	
S	*55.0*	mph	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
D = v_p / S	*27.5*	pc/mi/ln	S	mph
LOS	*D*		D = v_p / S	pc/mi/ln
			Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 11-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

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ii. Existing Plus Project PM Peak Hour

APPENDIX D

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	
Agency or Company	*KHA*
Date Performed	*7/31/2013*
Analysis Time Period	*Existing+Project PM Peak*

Site Information

Highway/Direction of Travel	*Hwy 1 NB*
From/To	*Hwy9/Hwy17*
Jurisdiction	*SCR*
Analysis Year	*2012*

Project Description *La Bahia Hotel TIA*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*2001*	veh/h	Peak-Hour Factor, PHF	*0.92*
AADT		veh/day	%Trucks and Buses, P_T	*5*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.976*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*55.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*55.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1115*	pc/h/ln
S	*55.0*	mph
D = v_p / S	*20.3*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	mph
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 11-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

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APPENDIX D

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	
Agency or Company	*KHA*
Date Performed	*7/31/2013*
Analysis Time Period	*Existing+Project PM Peak*

Site Information

Highway/Direction of Travel	*Hwy 1 SB*
From/To	*Hwy9/Hwy17*
Jurisdiction	*SCR*
Analysis Year	*2012*

Project Description *La Bahia Hotel TIA*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*2717*	veh/h	Peak-Hour Factor, PHF	*0.92*
AADT		veh/day	%Trucks and Buses, P_T	*5*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.976*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*55.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*55.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1514*	pc/h/ln
S	*55.0*	mph
D = v_p / S	*27.5*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	mph
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 11-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

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APPENDIX D

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	
Agency or Company	*KHA*
Date Performed	*7/31/2013*
Analysis Time Period	*Existing+Project PM Peak*

Site Information

Highway/Direction of Travel	*Hwy 1 NB*
From/To	*Emiline/Morrissey*
Jurisdiction	*SCR*
Analysis Year	*2012*

Project Description *La Bahia Hotel TIA*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*2909*	veh/h	Peak-Hour Factor, PHF	*0.92*
AADT		veh/day	%Trucks and Buses, P_T	*3*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.985*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*3*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*55.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*55.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1070*	pc/h/ln
S	*55.0*	mph
D = v_p / S	*19.5*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	mph
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 10-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

APPENDIX D

BASIC FREEWAY SEGMENTS WORKSHEET

General Information		Site Information	
Analyst		Highway/Direction of Travel	*SR-1 SB*
Agency or Company	*KHA*	From/To	*Emiline/Morrissey*
Date Performed	*7/31/2013*	Jurisdiction	*SCR*
Analysis Time Period	*Existing+Project PM Peak*	Analysis Year	*2012*

Project Description *La Bahia Hotel TIA*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3951*	veh/h	Peak-Hour Factor, PHF	*0.92*
AADT		veh/day	%Trucks and Buses, P_T	*3*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.985*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft	f_{LW}		mph
Number of Lanes, N	*3*		f_{LC}		mph
Total Ramp Density, TRD		ramps/mi	TRD Adjustment		mph
FFS (measured)	*55.0*	mph	FFS	*55.0*	mph
Base free-flow Speed, BFFS		mph			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1453*	pc/h/ln	Design LOS		
S	*55.0*	mph	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h/ln
D = v_p / S	*26.4*	pc/mi/ln	S		mph
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E_T - Exhibits 10, 11-11, 11-13	f_{LC} - Exhibit 11-9
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

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APPENDIX D

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	
Agency or Company	*KHA*
Date Performed	*7/31/2013*
Analysis Time Period	*Existing+Project PM Peak*

Site Information

Highway/Direction of Travel	*Hwy 1 NB*
From/To	*Morrissey/Soquel*
Jurisdiction	*SCR*
Analysis Year	*2012*

Project Description *La Bahia Hotel TIA*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3207*	veh/h	Peak-Hour Factor, PHF	*0.92*
AADT		veh/day	%Trucks and Buses, P_T	*3*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.985*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*3*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*55.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*55.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1179*	pc/h/ln
S	*55.0*	mph
D = v_p / S	*21.4*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	mph
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 11-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

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APPENDIX D

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	
Agency or Company	*KHA*
Date Performed	*7/31/2013*
Analysis Time Period	*Existing+Project PM Peak*

Site Information

Highway/Direction of Travel	*Hwy 1 SB*
From/To	*Morrissey/Soquel*
Jurisdiction	*SCR*
Analysis Year	*2012*

Project Description *La Bahia Hotel TIA*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*4103*	veh/h	Peak-Hour Factor, PHF	*0.92*
AADT		veh/day	%Trucks and Buses, P_T	*3*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.985*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*3*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*55.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*55.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1509*	pc/h/ln
S	*55.0*	mph
D = v_p / S	*27.4*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	mph
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 11-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

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APPENDIX D

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	
Agency or Company	*KHA*
Date Performed	*7/31/2013*
Analysis Time Period	*Existing+Project PM Peak*

Site Information

Highway/Direction of Travel	*Hwy 17 NB*
From/To	*Hwy1/Pasatiempo*
Jurisdiction	*SCR*
Analysis Year	*2012*

Project Description *La Bahia Hotel TIA*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3313*	veh/h	Peak-Hour Factor, PHF	*0.92*
AADT		veh/day	%Trucks and Buses, P_T	*3*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.985*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*3*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*55.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*55.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1218*	pc/h/ln
S	*55.0*	mph
D = v_p / S	*22.1*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	mph
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 11-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

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APPENDIX D

BASIC FREEWAY SEGMENTS WORKSHEET

General Information		Site Information	
Analyst		Highway/Direction of Travel	*Hwy 17 SB*
Agency or Company	*KHA*	From/To	*Hwy1/Pasatiempo*
Date Performed	*7/31/2013*	Jurisdiction	*SCR*
Analysis Time Period	*Existing+Project PM Peak*	Analysis Year	*2012*

Project Description *La Bahia Hotel TIA*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*2743*	veh/h	Peak-Hour Factor, PHF	*0.92*
AADT		veh/day	%Trucks and Buses, P_T	*3*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.985*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft	f_{LW}		mph
Number of Lanes, N	*2*		f_{LC}		mph
Total Ramp Density, TRD		ramps/mi	TRD Adjustment		mph
FFS (measured)	*55.0*	mph	FFS	*55.0*	mph
Base free-flow Speed, BFFS		mph			

LOS and Performance Measures			Design (N)	
Operational (LOS)			Design (N)	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1513*	pc/h/ln	Design LOS	
S	*55.0*	mph	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
D = v_p / S	*27.5*	pc/mi/ln	S	mph
LOS	*D*		D = v_p / S	pc/mi/ln
			Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 11-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

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iii. Cumulative Plus Project PM Peak Hour

APPENDIX D

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	
Agency or Company	*KHA*
Date Performed	*7/31/2013*
Analysis Time Period	*Cumulative+Project PM Peak*

Site Information

Highway/Direction of Travel	*Hwy 1 NB*
From/To	*Hwy9/Hwy17*
Jurisdiction	*SCR*
Analysis Year	*2030*

Project Description *La Bahia Hotel TIA*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*2947*	veh/h	Peak-Hour Factor, PHF	*0.92*
AADT		veh/day	%Trucks and Buses, P_T	*5*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.976*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*55.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*55.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1642*	pc/h/ln
S	*55.0*	mph
D = v_p / S	*29.9*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h/ln
S		mph
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed
DDHV - Directional design hour volume

Factor Location

E_R - Exhibits 11-10, 11-12
E_T - Exhibits 11-10, 11-11, 11-13
f_p - Page 11-18
LOS, S, FFS, v_p - Exhibits 11-2, 11-3
f_{LW} - Exhibit 11-8
f_{LC} - Exhibit 11-9
TRD - Page 11-11

APPENDIX D

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	
Agency or Company	*KHA*
Date Performed	*7/31/2013*
Analysis Time Period	*Cumulative+Project PM Peak*

Site Information

Highway/Direction of Travel	*Hwy 1 SB*
From/To	*Hwy9/Hwy17*
Jurisdiction	*SCR*
Analysis Year	*2030*

Project Description *La Bahia Hotel TIA*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*4278*	veh/h	Peak-Hour Factor, PHF	*0.92*
AADT		veh/day	%Trucks and Buses, P_T	*5*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.976*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*55.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*55.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2383*	pc/h/ln
S	*46.6*	mph
D = v_p / S	*51.1*	pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	mph
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 11-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

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APPENDIX D

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	
Agency or Company	*KHA*
Date Performed	*7/31/2013*
Analysis Time Period	*Cumulative+Project PM Peak*

Site Information

Highway/Direction of Travel	*Hwy 1 NB*
From/To	*Emiline/Morrissey*
Jurisdiction	*SCR*
Analysis Year	*2030*

Project Description *La Bahia Hotel TIA*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*4335*	veh/h	Peak-Hour Factor, PHF	*0.92*
AADT		veh/day	%Trucks and Buses, P_T	*3*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.985*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*3*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*55.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*55.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1594*	pc/h/ln
S	*55.0*	mph
D = v_p / S	*29.0*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	mph
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 11-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

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APPENDIX D

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	
Agency or Company	*KHA*
Date Performed	*7/31/2013*
Analysis Time Period	*Cumulative+Project PM Peak*

Site Information

Highway/Direction of Travel	*SR-1 SB*
From/To	*Emiline/Morrissey*
Jurisdiction	*SCR*
Analysis Year	*2030*

Project Description *La Bahia Hotel TIA*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*5852*	veh/h	Peak-Hour Factor, PHF	*0.92*
AADT		veh/day	%Trucks and Buses, P_T	*3*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.985*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*3*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*55.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*55.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2152*	pc/h/ln
S	*51.9*	mph
D = v_p / S	*41.4*	pc/mi/ln
LOS	*E*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	mph
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 11-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

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APPENDIX D

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	
Agency or Company	*KHA*
Date Performed	*7/31/2013*
Analysis Time Period	*Cumulative+Project PM Peak*

Site Information

Highway/Direction of Travel	*Hwy 1 NB*
From/To	*Morrissey/Soquel*
Jurisdiction	*SCR*
Analysis Year	*2030*

Project Description *La Bahia Hotel TIA*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*5390*	veh/h	Peak-Hour Factor, PHF	*0.92*
AADT		veh/day	%Trucks and Buses, P_T	*3*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.985*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*3*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*55.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*55.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1982*	pc/h/ln
S	*54.2*	mph
D = v_p / S	*36.6*	pc/mi/ln
LOS	*E*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	mph
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 11-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

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APPENDIX D

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	
Agency or Company	*KHA*
Date Performed	*7/31/2013*
Analysis Time Period	*Cumulative+Project PM Peak*

Site Information

Highway/Direction of Travel	*Hwy 1 SB*
From/To	*Morrissey/Soquel*
Jurisdiction	*SCR*
Analysis Year	*2030*

Project Description *La Bahia Hotel TIA*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*6857*	veh/h	Peak-Hour Factor, PHF	*0.92*
AADT		veh/day	%Trucks and Buses, P_T	*3*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.985*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*3*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*55.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*55.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2522*	pc/h/ln
S	*42.1*	mph
D = v_p / S	*59.9*	pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h/ln
S		mph
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 11-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

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APPENDIX D

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	
Agency or Company	*KHA*
Date Performed	*7/31/2013*
Analysis Time Period	*Cumulative+Project PM Peak*

Site Information

Highway/Direction of Travel	*Hwy 17 NB*
From/To	*Hwy1/Pasatiempo*
Jurisdiction	*SCR*
Analysis Year	*2030*

Project Description *La Bahia Hotel TIA*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3634*	veh/h	Peak-Hour Factor, PHF	*0.92*
AADT		veh/day	%Trucks and Buses, P_T	*3*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.985*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*3*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*55.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*55.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1336*	pc/h/ln
S	*55.0*	mph
D = v_p / S	*24.3*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h/ln
S		mph
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 11-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

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APPENDIX D

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	
Agency or Company	*KHA*
Date Performed	*7/31/2013*
Analysis Time Period	*Cumulative+Project PM Peak*

Site Information

Highway/Direction of Travel	*Hwy 17 SB*
From/To	*Hwy1/Pasatiempo*
Jurisdiction	*SCR*
Analysis Year	*2030*

Project Description *La Bahia Hotel TIA*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3062*	veh/h	Peak-Hour Factor, PHF	*0.92*	
AADT		veh/day	%Trucks and Buses, P_T	*3*	
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*	
Peak-Hr Direction Prop, D			General Terrain:	*Level*	
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.985*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*55.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*55.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1689*	pc/h/ln
S	*55.0*	mph
D = v_p / S	*30.7*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	mph
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 11-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

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D. General Plan 2030 Cumulative Buildout + UCSC Growth Trip Generation

La Bahia Hotel Traffic Impact Analysis
GPBO + UCSC Growth

Trip Generation Report

Forecast for PM Peak Hour

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
4	#4 UCSC Bkgn	1.00	UCSC Student G	308.00	537.00	308	537	845	7.3
	Zone 4 Subtotal					308	537	845	7.3
9	#9 Harvey We	1.00	Office/Industr	29.00	166.00	29	166	195	1.7
9	#9 Harvey We	1.00	School	19.00	25.00	19	25	44	0.4
	Zone 9 Subtotal					48	191	239	2.1
15	#15 170 W. C	1.00	Townhomes	3.00	2.00	3	2	5	0.0
15	#15 170 W. C	1.00	Bed & Breakfas	2.00	2.00	2	2	4	0.0
	Zone 15 Subtotal					5	4	9	0.1
16	#16 UCSC Mar	1.00	Marine Campus	116.00	182.00	116	182	298	2.6
	Zone 16 Subtotal					116	182	298	2.6
17	#17 Downtown	1.00	Mixed	272.00	154.00	272	154	426	3.7
17	#17 Downtown	1.00	Mixed	258.00	147.00	258	147	405	3.5
	Zone 17 Subtotal					530	301	831	7.2
18	#18 1430 N.	1.00	SFDU	6.00	3.00	6	3	9	0.1
	Zone 18 Subtotal					6	3	9	0.1
19	#19 River TA	1.00	Mixed	124.00	256.00	124	256	380	3.3
19	#19 River TA	1.00	2027 N. Pacifi	1.00	1.00	1	1	2	0.0
19	#19 River TA	1.00	2027 N. Pacifi	3.00	2.00	3	2	5	0.0
19	#19 River TA	1.00	125 River - Co	25.00	13.00	25	13	38	0.3
19	#19 River TA	1.00	125 River - Re	10.00	10.00	10	10	20	0.2
19	#19 River TA	1.00	2027 N. Pacifi	7.00	6.00	7	6	13	0.1
	Zone 19 Subtotal					170	288	458	4.0
20	#20 - 1375 P	1.00	Retail	39.00	39.00	39	39	78	0.7
20	#20 - 1375 P	1.00	Office	14.00	67.00	14	67	81	0.7
	Zone 20 Subtotal					53	106	159	1.4
27	#27 W. King	1.00	Commercial/Off	49.00	125.00	49	125	174	1.5
27	#27 W. King	1.00	Almar Center E	55.00	59.00	55	59	114	1.0
27	#27 W. King	1.00	Commercial/Off	49.00	125.00	49	125	174	1.5
	Zone 27 Subtotal					153	309	462	4.0
29	#29 555 Paci	1.00	Hotel (A)	28.00	30.00	28	30	58	0.5
	Zone 29 Subtotal					28	30	58	0.5
36	#36 Harvey W	1.00	Office/Industr	30.00	166.00	30	166	196	1.7
36	#36 Harvey W	1.00	Commercial	333.00	423.00	333	423	756	6.5
	Zone 36 Subtotal					363	589	952	8.2

La Bahia Hotel Traffic Impact Analysis
GPBO + UCSC Growth

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
37	#37 Cardiff/	1.00	Retail (A)	4.00	3.00	4	3	7	0.1
37	#37 Cardiff/	1.00	Apartments (A)	5.00	2.00	5	2	7	0.1
37	#37 Cardiff/	1.00	SRO (A)	11.00	6.00	11	6	17	0.1
	Zone 37 Subtotal					20	11	31	0.3
44	#44 Texas In	1.00	UCSC Offices (	24.00	118.00	24	118	142	1.2
44	#44 Texas In	1.00	Office Reducti	-7.00	-35.00	-7	-35	-42	-0.4
44	#44 Texas In	1.00	UCSC R & D (C)	20.00	114.00	20	114	134	1.2
44	#44 Texas In	1.00	R & D Reductio	-6.00	-34.00	-6	-34	-40	-0.3
	Zone 44 Subtotal					31	163	194	1.7
45	#45 550 Seco	1.00	Hotel (C)	4.00	5.00	4	5	9	0.1
	Zone 45 Subtotal					4	5	9	0.1
49	#49 Tannery	1.00	Residential	35.00	17.00	35	17	52	0.5
49	#49 Tannery	0.00	Office	0.00	1.00	0	0	0	0.0
49	#49 Tannery	1.00	Tannery Redeve	40.00	99.00	40	99	139	1.2
	Zone 49 Subtotal					75	116	191	1.7
60	#60 1463 Hig	1.00	Homes (A)	17.00	9.00	17	9	26	0.2
	Zone 60 Subtotal					17	9	26	0.2
61	#61 La Bahia	1.00	Hotel	29.00	166.00	29	166	195	1.7
	Zone 61 Subtotal					29	166	195	1.7
65	#65 174 Belv	1.00	Apartments	1.00	1.00	1	1	2	0.0
	Zone 65 Subtotal					1	1	2	0.0
66	#66 Riversid	1.00	Hotel	29.00	70.00	29	70	99	0.9
	Zone 66 Subtotal					29	70	99	0.9
67	#67 121, 131	1.00	Townhomes	5.00	2.00	5	2	7	0.1
	Zone 67 Subtotal					5	2	7	0.1
68	#68 1226 So	1.00	Townhomes (A)	3.00	2.00	3	2	5	0.0
68	#68 1226 So	1.00	Townhomes (A)	3.00	2.00	3	2	5	0.0
	Zone 68 Subtotal					6	4	10	0.1
72	#72 Grace Co	1.00	Residential	6.00	3.00	6	3	9	0.1
72	#72 Grace Co	1.00	Townhomes	1.00	1.00	1	1	2	0.0
	Zone 72 Subtotal					7	4	11	0.1
76	#76 106 Youn	1.00	Townhomes	0.00	1.00	0	1	1	0.0
	Zone 76 Subtotal					0	1	1	0.0
79	#79 Meder-UC	1.00	SFDU	38.00	23.00	38	23	61	0.5
	Zone 79 Subtotal					38	23	61	0.5

La Bahia Hotel Traffic Impact Analysis
GPBO + UCSC Growth

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
80	#80 Western	1.00	SFDU	8.00	5.00	8	5	13	0.1
80	#80 Western	1.00	SFDU	8.00	5.00	8	5	13	0.1
	Zone 80 Subtotal					16	10	26	0.2
81	#81 Nobel-W.	1.00	Residential	21.00	12.00	21	12	33	0.3
	Zone 81 Subtotal					21	12	33	0.3
82	#82 W. King	1.00	Residential	19.00	10.00	19	10	29	0.3
	Zone 82 Subtotal					19	10	29	0.3
83	#83 W. King	1.00	Residential	19.00	10.00	19	10	29	0.3
	Zone 83 Subtotal					19	10	29	0.3
84	#84 W. King	1.00	Residential	19.00	10.00	19	10	29	0.3
	Zone 84 Subtotal					19	10	29	0.3
85	#85 W. King	1.00	Mixed	48.00	126.00	48	126	174	1.5
85	#85 W. King	1.00	Mixed	48.00	126.00	48	126	174	1.5
	Zone 85 Subtotal					96	252	348	3.0
86	#86 Spring T	1.00	SFDU	59.00	34.00	59	34	93	0.8
86	#86 Spring T	1.00	SFDU	59.00	34.00	59	34	93	0.8
	Zone 86 Subtotal					118	68	186	1.6
87	#87 Escalona	1.00	Mixed	42.00	71.00	42	71	113	1.0
87	#87 Escalona	1.00	Mixed	40.00	70.00	40	70	110	1.0
	Zone 87 Subtotal					82	141	223	1.9
88	#88 Escalona	1.00	Mixed	42.00	70.00	42	70	112	1.0
88	#88 Escalona	1.00	Mixed	41.00	70.00	41	70	111	1.0
	Zone 88 Subtotal					83	140	223	1.9
89	#89 Lighthou	1.00	SFDU	1.00	0.00	1	0	1	0.0
	Zone 89 Subtotal					1	0	1	0.0
90	#90 Tannery	1.00	Live/Work Unit	35.00	17.00	35	17	52	0.5
	Zone 90 Subtotal					35	17	52	0.5
93	#93 Seabrigh	1.00	Residential	107.00	57.00	107	57	164	1.4
	Zone 93 Subtotal					107	57	164	1.4
96	#96 108-122	1.00	SRO Units	8.00	4.00	8	4	12	0.1
	Zone 96 Subtotal					8	4	12	0.1
97	#97 Seabrigh	1.00	Residential	107.00	58.00	107	58	165	1.4
	Zone 97 Subtotal					107	58	165	1.4

La Bahia Hotel Traffic Impact Analysis
GPBO + UCSC Growth

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
99	#99 433 Ocea	1.00	Residential -	6.00	3.00	6	3	9	0.1
	Zone 99 Subtotal					6	3	9	0.1
101	#101 Eastsid	1.00	Mixed	178.00	238.00	178	238	416	3.6
	Zone 101 Subtotal					178	238	416	3.6
102	#102 Ocean S	1.00	Hotel	35.00	36.00	35	36	71	0.6
	Zone 102 Subtotal					35	36	71	0.6
103	#103 Westsid	1.00	Delaware Lt Ma	19.00	35.00	19	35	54	0.5
103	#103 Westsid	1.00	Delaware Wareh	5.00	14.00	5	14	19	0.2
103	#103 Westsid	1.00	Delaware R&D B	16.00	89.00	16	89	105	0.9
103	#103 Westsid	0.00	Delaware Lt Ma	5.00	9.00	0	0	0	0.0
103	#103 Westsid	0.00	Delaware Wareh	2.00	3.00	0	0	0	0.0
103	#103 Westsid	1.00	Industrial	21.00	156.00	21	156	177	1.5
103	#103 Westsid	0.00	Delaware R&D P	4.00	22.00	0	0	0	0.0
	Zone 103 Subtotal					61	294	355	3.1
108	#108 Westsid	1.00	Office	18.00	91.00	18	91	109	0.9
108	#108 Westsid	1.00	Delaware Offic	30.00	152.00	30	152	182	1.6
108	#108 Westsid	0.00	Delaware Offic	6.00	34.00	0	0	0	0.0
	Zone 108 Subtotal					48	243	291	2.5
109	#109 Westsid	1.00	Retail	130.00	166.00	130	166	296	2.6
109	#109 Westsid	1.00	Delaware Retai	40.00	51.00	40	51	91	0.8
109	#109 Westsid	0.00	Delaware Retai	10.00	13.00	0	0	0	0.0
	Zone 109 Subtotal					170	217	387	3.4
110	#110 Westsid	1.00	Residential	74.00	40.00	74	40	114	1.0
110	#110 Westsid	1.00	Delaware Flats	29.00	15.00	29	15	44	0.4
110	#110 Westsid	1.00	Delaware Work/	19.00	10.00	19	10	29	0.3
110	#110 Westsid	0.00	Delaware Work/	4.00	1.00	0	0	0	0.0
	Zone 110 Subtotal					122	65	187	1.6
112	#112 Beach F	1.00	Retail	26.00	33.00	26	33	59	0.5
	Zone 112 Subtotal					26	33	59	0.5
113	#113 Beach F	1.00	Residential	38.00	20.00	38	20	58	0.5
	Zone 113 Subtotal					38	20	58	0.5
114	#114 Lower O	1.00	Mixed	6.00	27.00	6	27	33	0.3
	Zone 114 Subtotal					6	27	33	0.3
115	#115 Ocean T	1.00	Mixed	132.00	206.00	132	206	338	2.9
	Zone 115 Subtotal					132	206	338	2.9
116	#116 Ocean T	1.00	Mixed	132.00	206.00	132	206	338	2.9
	Zone 116 Subtotal					132	206	338	2.9

La Bahia Hotel Traffic Impact Analysis
GPBO + UCSC Growth

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
117	#117 Ocean T	1.00	Mixed	132.00	207.00	132	207	339	2.9
	Zone 117 Subtotal					132	207	339	2.9
118	#118 Prospec	1.00	SFDU	27.00	16.00	27	16	43	0.4
	Zone 118 Subtotal					27	16	43	0.4
119	#119 Market-	1.00	Mixed	111.00	159.00	111	159	270	2.3
	Zone 119 Subtotal					111	159	270	2.3
120	#120 Banana	1.00	Mixed Use	89.00	122.00	89	122	211	1.8
	Zone 120 Subtotal					89	122	211	1.8
121	#121 East Pa	1.00	Mixed Use	71.00	93.00	71	93	164	1.4
	Zone 121 Subtotal					71	93	164	1.4
122	#122 Arana G	1.00	Mixed Use	22.00	47.00	22	47	69	0.6
	Zone 122 Subtotal					22	47	69	0.6
123	#123 Harvey	1.00	Residential	125.00	68.00	125	68	193	1.7
	Zone 123 Subtotal					125	68	193	1.7
125	#125 Seabrig	1.00	Comm/Office	43.00	121.00	43	121	164	1.4
	Zone 125 Subtotal					43	121	164	1.4
126	#126 Seabrig	1.00	Comm/Office	43.00	121.00	43	121	164	1.4
	Zone 126 Subtotal					43	121	164	1.4
127	#127 Seabrig	1.00	Retail/Office	22.00	61.00	22	61	83	0.7
	Zone 127 Subtotal					22	61	83	0.7
128	#128 Natural	1.00	Lt Industrial	11.00	15.00	11	15	26	0.2
128	#128 Natural	1.00	SFDU	10.00	15.00	10	15	25	0.2
	Zone 128 Subtotal					21	30	51	0.4
129	#129 Carbone	1.00	Residential	8.00	4.00	8	4	12	0.1
	Zone 129 Subtotal					8	4	12	0.1
130	#130 Eastsid	1.00	Mixed	53.00	100.00	53	100	153	1.3
	Zone 130 Subtotal					53	100	153	1.3
131	#131 Eastsid	1.00	Mixed	53.00	100.00	53	100	153	1.3
	Zone 131 Subtotal					53	100	153	1.3
132	#132 1606 So	1.00	Residential	14.00	6.00	14	6	20	0.2
	Zone 132 Subtotal					14	6	20	0.2
133	#133 Old Sas	1.00	Commercial	7.00	36.00	7	36	43	0.4

La Bahia Hotel Traffic Impact Analysis
GPBO + UCSC Growth

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
	Zone 133 Subtotal					7	36	43	0.4
134	#134 New Lea	1.00	Supermarket	77.00	74.00	77	74	151	1.3
	Zone 134 Subtotal					77	74	151	1.3
135	#135 Eastsid	1.00	Mixed Use	18.00	30.00	18	30	48	0.4
	Zone 135 Subtotal					18	30	48	0.4
TOTAL						4663	6887	11550	100.0

E. Parking Demand Calculations

Kimley-Horn and Associates, Inc.

Parking Generation Planner (ITE Parking Generation, 4th Edition)

Weekday/Weekend Parking Generation ***Project Name*** **La Bahia TIA**

Demand Based on Average Rates ***Project Number*** **97656001**

ITE Code	Land Use Description	Independent Variable	No. of Units	Day of Week	Month	Peak Rates Avg	Peak Rates 33%	Peak Rates 85%	Peak Demand Avg	Peak Demand 33%	Peak Demand 85%	8am	9am	10am	11am	Noon	1pm	2pm	3pm	4pm	5pm	6pm	7pm	8pm	9pm	10pm	11pm
310a	Hotel (suburban)	Occupied Room(s)	165	Mon-Thu	Avg	0.89	0.72	1.08	146.85	118.8	178.2	132	128	120	113	113	110	107	103	104	103	109	110	116	125	128	142
720	Medical-Dental Office Building	1,000 Sq Ft	0.75	Mon-Thu	Avg	3.2	2.68	4.27	2.4	2.01	3.20	2	2	2	2	2	2	2	2	2	1	2					
					Totals				**149**	**121**	**181**	134	130	123	115	115	112	109	105	106	104	110	110	116	125	128	142

F. Santa Cruz METRO Bus Schedules

SCMTD.COM

Customer Service (831) 425-8600

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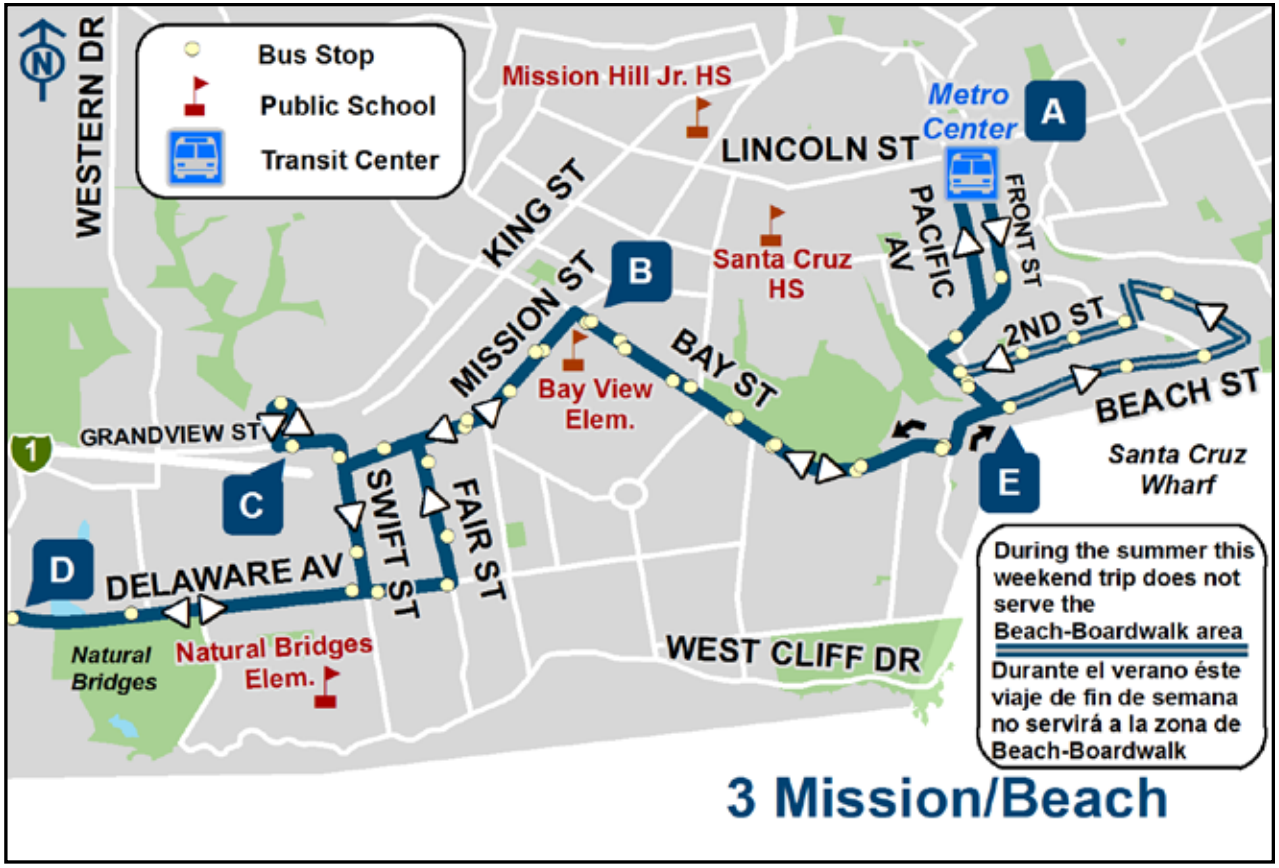
Local Area Service
Effective / Vigente: Jun. 06, 2013

APPENDIX D

3 Mission / Beach

Departs	Departs	Departs	Departs	Departs	Arrives
Santa Cruz Metro Lane 2	Bay & Mission	Grandview & Arroyo Seco	Delaware & Shaffer	Beach & Pacific	Santa Cruz Metro Center
A	B	C	D	E	A
MONDAY - FRIDAY					
6:50AM	6:58	7:02	7:10	7:20	7:35
7:50	7:58	8:02	8:10	8:20	8:35
8:50	8:58	9:02	9:10	9:20	9:35
9:50	9:58	10:02	10:10	10:20	10:35
10:50	10:58	11:02	11:10	11:20	11:35
11:50	11:58	**12:02PM**	**12:10**	**12:20**	**12:35**
12:50	**12:58**	**1:02**	**1:10**	**1:20**	**1:35**
1:50	**1:58**	**2:02**	**2:10**	**2:20**	**2:35**
2:50	**2:58**	**3:02**	**3:10**	**3:20**	**3:35**
3:50	**3:58**	**4:02**	**4:10**	**4:20**	**4:35**
4:50	**4:58**	**5:02**	**5:10**	**5:20**	**5:35**
5:50	**5:58**	**6:02**	**6:10**	**6:20**	**6:35**
SATURDAY - SUNDAY					
❶ 9:50AM	9:58	10:02	10:10	10:20	10:35
❶ 11:50	11:58	**12:02PM**	**12:10**	**12:20**	**12:35**
❶ **1:50**	**1:58**	**2:02**	**2:10**	**2:20**	**2:35**
❶ **3:50**	**3:58**	**4:02**	**4:10**	**4:20**	**4:35**
❶ **5:50**	**5:58**	**6:02**	**6:10**	**6:20**	**6:35**

❶During the summer (mid-June through mid-September) this weekend trip will not serve the Beach-Boardwalk area. For exact dates call SCMTD Customer Service (831)425-8600. ***NOTA:*** *Durante el verano (mediados de junio hasta mediados de septiembre) éste viaje de fin de semana no servirá a la zona de Beach-Boardwalk. Para fechas exactas llame al Servicio al Cliente de SCMTD (831) 425-8600.*



SCMTD.COM

Customer Service (831) 425-8600

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UCSC & Westside Service
Effective / Vigente: Jun 06, 2013

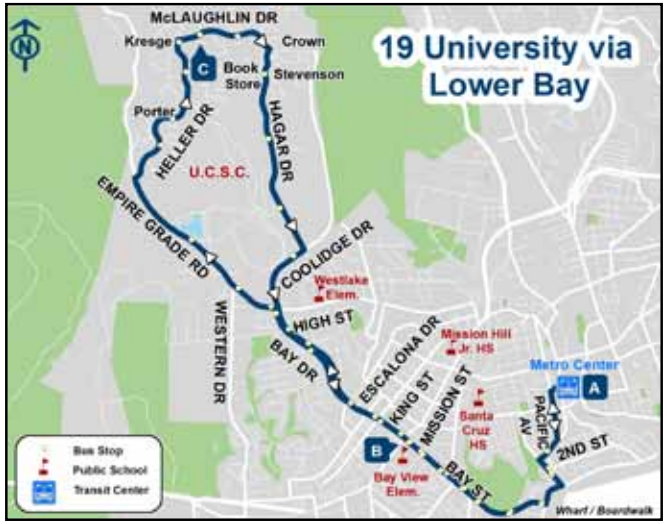
APPENDIX D

19 UCSC via Lower Bay

MONDAY - FRIDAY

Departs	Departs	Departs	Departs	Arrives
Santa Cruz Metro Lane 1	Bay & Mission	Science Hill	Bay & Mission	Santa Cruz Metro Center
A	B	C	B	A
7:30 AM	7:37	7:49	7:59	8:17
8:30	8:37	8:49	8:59	9:17
9:00	9:07	9:19	9:29	9:47
9:30	9:37	9:49	9:59	10:17
10:00	10:07	10:19	10:29	10:47
10:30	10:37	10:49	10:59	11:17
11:00	11:07	11:19	11:29	11:47
11:30	11:37	11:49	11:59	**12:17 PM**
12:00	**12:07**	**12:19**	**12:29**	**12:47**
12:30	**12:37**	**12:49**	**12:59**	**1:17**
1:00	**1:07**	**1:19**	**1:29**	**1:47**
1:30	**1:37**	**1:49**	**1:59**	**2:17**
2:00	**2:07**	**2:19**	**2:29**	**2:47**
2:30	**2:37**	**2:49**	**2:59**	**3:17**
3:00	**3:07**	**3:19**	**3:29**	**3:47**
3:30	**3:37**	**3:49**	**3:59**	**4:17**
4:00	**4:07**	**4:19**	**4:29**	**4:47**
4:30	**4:37**	**4:49**	**4:59**	**5:17**
5:00	**5:07**	**5:19**	**5:29**	**5:47**
5:30	**5:37**	**5:49**	**5:59**	**6:17**
6:00	**6:07**	**6:19**	**6:29**	**6:47**
6:30	**6:37**	**6:49**	**6:59**	**7:17**
7:30	**7:37**	**7:49**	**7:59**	**8:17**
8:30	**8:37**	**8:49**	**8:59**	**9:17**
ST 9:30	**9:37**	**9:49**	**9:59**	**10:17**
ST 10:30	**10:37**	**10:49**	**10:59**	**11:17**
ST 11:30	**11:37**	**11:49**	**11:59**	12:17

Trips marked "ST" adhere to the UCSC School Term Calendar
Viajes marcados "ST" se adhieren al calendario del término escolar de UCSC



UCSC School Term Calendar
is provided on a separate sticker.

El calendario del término escolar de UCSC está en una calcomanía separada.

19 UCSC via Lower Bay

SATURDAY - SUNDAY

Departs	Departs	Departs	Departs	Arrives
Santa Cruz Metro Lane 1	Bay & Mission	Science Hill	Bay & Mission	Santa Cruz Metro Center
A	B	C	B	A
10:00 AM	10:07	10:19	10:29	10:50
10:30	10:37	10:49	10:59	11:20
11:00	11:07	11:19	11:29	11:50
11:30	11:37	11:49	11:59	**12:20 PM**
12:00	**12:07**	**12:19**	**12:29**	**12:50**
12:30	**12:37**	**12:49**	**12:59**	**1:20**
1:00	**1:07**	**1:19**	**1:29**	**1:50**
1:30	**1:37**	**1:49**	**1:59**	**2:20**
2:00	**2:07**	**2:19**	**2:29**	**2:50**
2:30	**2:37**	**2:49**	**2:59**	**3:20**
3:00	**3:07**	**3:19**	**3:29**	**3:50**
3:30	**3:37**	**3:49**	**3:59**	**4:20**
4:00	**4:07**	**4:19**	**4:29**	**4:50**
4:30	**4:37**	**4:49**	**4:59**	**5:20**
5:00	**5:07**	**5:19**	**5:29**	**5:50**
5:30	**5:37**	**5:49**	**5:59**	**6:20**
6:00	**6:07**	**6:19**	**6:29**	**6:50**
6:30	**6:37**	**6:49**	**6:59**	**7:11**
7:00	**7:07**	**7:19**	**7:29**	**7:41**

SCMTD.COM | Customer Service (831) 425-8600

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UCSC & Westside Service
Effective / Vigente: Jun. 06, 2013

20 UCSC via Westside

Departs	Departs	Departs	Departs	Departs	Departs	Departs	Departs	Arrives
Santa Cruz Metro Lane 1	Delaware & Swift	Pacific Shores	Bay & High	Science Hill	Bay & High	Pacific Shores	Delaware & Swift	Santa Cruz Metro Center
A	B	C	D	E	D	C	B	A
MONDAY - FRIDAY								
❶ 7:20AM	7:30	------	7:40	7:50	------	7:57	8:03	8:18
❶ 8:20	8:30	8:33	8:43	8:53	------	9:00	9:08	9:20
ST 8:50	9:00	------	9:10	9:20	9:27	------	------	------
❶ 9:20	9:30	------	9:40	9:50	------	------	10:03	10:15
❶ 10:20	10:30	------	10:40	10:50	------	------	11:03	11:15
❶ 11:20	11:30	------	11:40	11:50	------	------	**12:03PM**	**12:15**
12:20	**12:30**	------	**12:40**	**12:50**	------	------	**1:03**	**1:15**
1:20	**1:30**	**1:33**	**1:43**	**1:53**	------	**2:00**	**2:08**	**2:20**
2:20	**2:30**	------	**2:40**	**2:50**	------	------	**3:03**	**3:15**
❶ **3:20**	**3:30**	------	**3:40**	**3:50**	------	------	**4:03**	**4:15**
❶ **4:20**	**4:30**	**4:33**	**4:43**	**4:53**	------	**5:00**	**5:08**	**5:20**
ST ------	------	------	**5:05**	**5:15**	------	------	**5:28**	**5:40**
❶ **5:20**	**5:30**	**5:33**	**5:43**	**5:53**	------	**6:00**	**6:08**	**6:20**
❶ **6:20**	**6:30**	------	**6:40**	**6:50**	------	------	**7:03**	**7:15**
7:20	**7:30**	------	**7:40**	**7:50**	------	------	**8:03**	**8:15**
8:20	**8:30**	------	**8:40**	**8:50**	------	------	**9:03**	**9:15**

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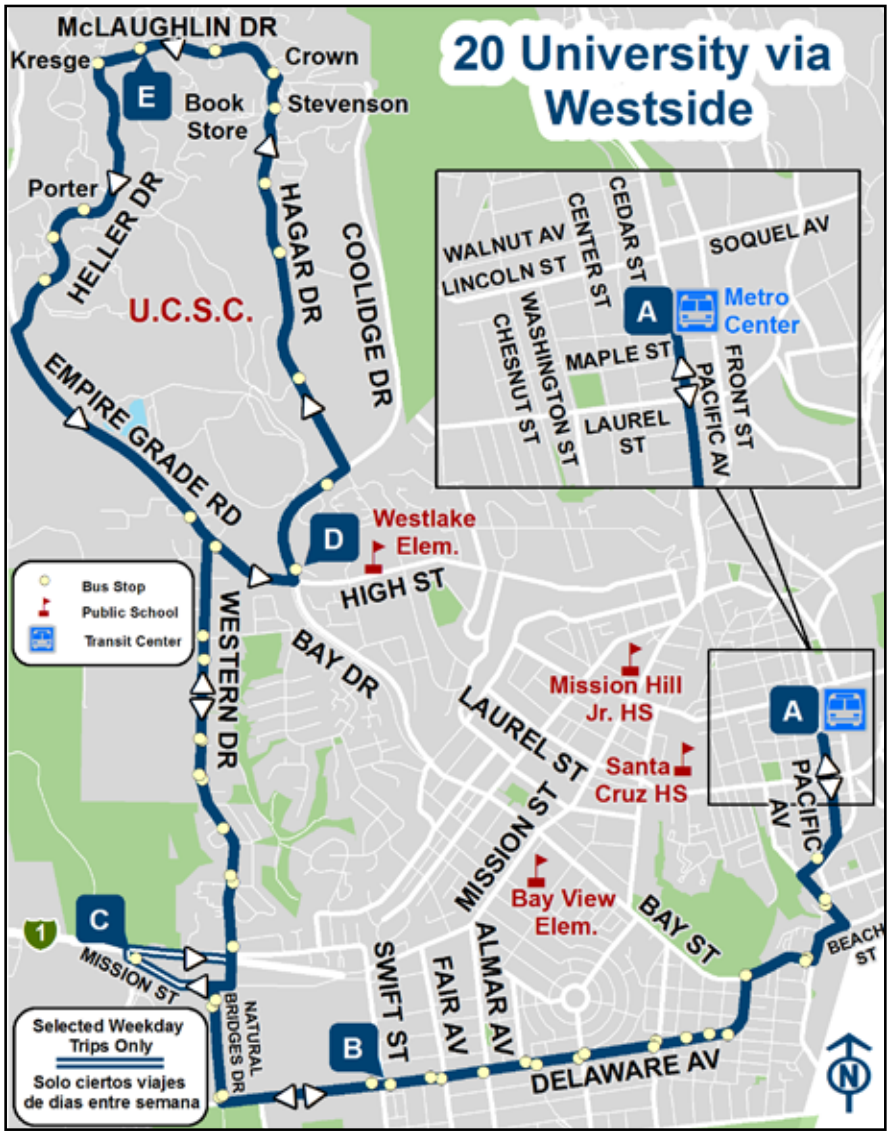
Viajes marcados "ST" se adhieren al calendario del término escolar de UCSC

❶ Route 20D buses run with these trips during the school term to handle overloads. ***NOTA:*** *Autobúses de ruta de 20D corren con éstos viajes durante el término escolar para manejar las sobrecargas.*

20 UCSC via Westside

Departs	Departs	Departs	Departs	Departs	Arrives
Santa Cruz Metro Lane 1	Delaware & Swift	Bay & High	Science Hill	Delaware & Swift	Santa Cruz Metro Center
A	B	D	E	B	A
SATURDAY - SUNDAY					
8:20AM	8:30	8:40	8:50	9:03	9:15
9:20	9:30	9:40	9:50	10:03	10:15
10:20	10:30	10:40	10:50	11:03	11:15
11:20	11:30	11:40	11:50	**12:03PM**	**12:15**
12:20	**12:30**	**12:40**	**12:50**	**1:03**	**1:15**
1:20	**1:30**	**1:40**	**1:50**	**2:03**	**2:15**
2:20	**2:30**	**2:40**	**2:50**	**3:03**	**3:15**
3:20	**3:30**	**3:40**	**3:50**	**4:03**	**4:15**
4:20	**4:30**	**4:40**	**4:50**	**5:03**	**5:15**
5:20	**5:30**	**5:40**	**5:50**	**6:03**	**6:15**
6:20	**6:30**	**6:40**	**6:50**	**7:03**	**7:15**
7:20	**7:30**	**7:40**	**7:50**	**8:03**	**8:15**
8:20	**8:30**	**8:40**	**8:50**	**9:03**	**9:15**



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Cabrillo/South County Service

Effective / Vigente: Jun. 06, 2013

71 Santa Cruz to Watsonville

Departs	Departs	Departs	Departs	Departs	Departs	Departs	Departs	Departs	Departs	Arrives
Santa Cruz Metro Lane 4	Soquel Ave & Hageman	Soquel Drive & Dominican Hospital	Soquel Drive & Daubenbiss	Cabrillo College	Soquel & Rancho Del Mar	Freedom Blvd. & Soquel Drive	Airport Blvd. & Freedom Centre	Crestview Center	Clifford & Pennsylvania	Watsonville Transit Center
A	B	C	D	E	F	G	H	I	J	K
MONDAY - FRIDAY										
6:10AM	6:16	6:21	6:26	6:33	6:36	6:42	6:54	7:01	------	7:13
6:45	6:54	7:00	7:06	7:15	7:18	7:25	7:39	------	7:47	8:00
7:15	7:24	7:30	7:36	7:45	7:48	7:55	8:10	8:17	------	8:30
7:45	7:54	8:00	8:06	8:15	8:18	8:25	8:39	------	8:47	9:00
8:15	8:24	8:30	8:36	8:45	8:48	8:55	9:10	9:17	------	9:30
8:45	8:54	9:00	9:06	9:15	9:18	9:25	9:39	------	9:47	10:00
9:15	9:24	9:30	9:36	9:45	9:48	9:55	10:10	10:17	------	10:30
9:45	9:54	10:00	10:06	10:15	10:18	10:25	10:39	------	10:47	11:00
10:15	10:24	10:30	10:36	10:45	10:48	10:55	11:10	11:17	------	11:30
10:45	10:54	11:00	11:06	11:15	11:18	11:25	11:39	------	11:47	**12:00PM**
11:15	11:26	11:32	11:38	11:47	11:50	11:57	**12:12**	**12:20**	------	**12:35**
11:45	11:56	**12:02**	**12:08**	**12:17**	**12:20**	**12:27**	**12:42**	------	**12:50**	**1:05**
12:15	**12:26**	**12:32**	**12:38**	**12:47**	**12:50**	**12:57**	**1:12**	**1:20**	------	**1:35**
12:45	**12:56**	**1:02**	**1:08**	**1:17**	**1:20**	**1:27**	**1:41**	------	**1:49**	**2:00**
1:15	**1:26**	**1:32**	**1:38**	**1:47**	**1:50**	**1:57**	**2:11**	**2:18**	------	**2:30**
1:45	**1:56**	**2:02**	**2:08**	**2:17**	**2:20**	**2:27**	**2:41**	------	**2:49**	**3:00**
2:00	**2:11**	**2:17**	**2:23**	**2:32**	**2:35**	**2:42**	**2:56**	**3:03**	------	**3:15**
2:15	**2:26**	**2:32**	**2:38**	**2:47**	**2:50**	**2:57**	**3:11**	**3:18**	------	**3:30**
2:30	**2:41**	**2:47**	**2:53**	**3:02**	**3:05**	**3:12**	**3:26**	------	**3:34**	**3:45**
2:45	**2:56**	**3:02**	**3:08**	**3:17**	**3:20**	**3:27**	**3:43**	------	**3:51**	**4:05**
3:00	**3:11**	**3:17**	**3:23**	**3:32**	**3:35**	**3:42**	**3:56**	**4:03**	------	**4:15**
3:15	**3:26**	**3:32**	**3:38**	**3:47**	**3:50**	**3:57**	**4:11**	**4:18**	------	**4:30**
3:30	**3:41**	**3:47**	**3:53**	**4:02**	**4:05**	**4:12**	**4:28**	------	**4:36**	**4:50**
3:45	**3:56**	**4:02**	**4:08**	**4:17**	**4:20**	**4:27**	**4:43**	------	**4:51**	**5:05**
4:00	**4:11**	**4:17**	**4:23**	**4:32**	**4:35**	**4:42**	**4:56**	**5:03**	------	**5:15**
4:15	**4:26**	**4:32**	**4:38**	**4:47**	**4:50**	**4:57**	**5:13**	**5:21**	------	**5:35**
4:30	**4:41**	**4:47**	**4:53**	**5:02**	**5:05**	**5:12**	**5:28**	------	**5:36**	**5:50**
4:45	**4:56**	**5:02**	**5:08**	**5:17**	**5:20**	**5:27**	**5:43**	------	**5:51**	**6:05**
5:00	**5:11**	**5:17**	**5:23**	**5:32**	**5:35**	**5:42**	**5:58**	**6:06**	------	**6:20**
5:15	**5:26**	**5:32**	**5:38**	**5:47**	**5:50**	**5:57**	**6:13**	**6:21**	------	**6:35**
5:30	**5:41**	**5:47**	**5:53**	**6:02**	**6:05**	**6:12**	**6:28**	------	**6:36**	**6:50**
5:45	**5:54**	**6:00**	**6:06**	**6:15**	**6:18**	**6:25**	**6:38**	------	**6:46**	**6:55**
6:00	**6:11**	**6:17**	**6:23**	**6:32**	**6:35**	**6:42**	**6:58**	**7:06**	------	**7:20**
6:15	**6:24**	**6:30**	**6:36**	**6:45**	**6:48**	**6:55**	**7:08**	**7:15**	------	**7:25**
6:45	**6:54**	**7:00**	**7:06**	**7:15**	**7:18**	**7:25**	**7:38**	------	**7:46**	**7:55**
7:15	**7:22**	**7:27**	**7:33**	**7:40**	**7:43**	**7:49**	**8:00**	**8:06**	------	**8:15**
7:45	**7:53**	**7:58**	**8:03**	**8:11**	**8:13**	**8:18**	**8:29**	------	**8:36**	**8:45**
8:15	**8:22**	**8:27**	**8:33**	**8:40**	**8:43**	**8:49**	**9:00**	**9:06**	------	**9:15**
8:45	**8:53**	**8:58**	**9:03**	**9:11**	**9:13**	**9:18**	**9:29**	------	**9:36**	**9:45**
9:45	**9:53**	**9:58**	**10:03**	**10:11**	**10:13**	**10:18**	**10:29**	------	**10:36**	**10:45**
10:45	**10:53**	**10:58**	**11:03**	**11:11**	**11:13**	**11:18**	**11:29**	------	**11:36**	**11:45**
❶ **11:45**	**11:53**	**11:58**	12:03	12:11	12:13	12:18	12:29	------	12:36	12:45

Transfers to MST are available from the Bus Operator on Routes 69-91X

Transferencias a MST están disponibles con el conductor de autobús en las Rutas 69-91X

❶See footnote on outbound Saturday-Sunday schedule. ***NOTA:*** *Véase la nota en el horario de salida el sábado-domingo.*

SCMTD.COM

Customer Service (831) 425-8600

All METRO buses are wheelchair accessible, while some bus stops on this route may not be. **NOTA**: *Todos los autobuses de METRO son accesibles en silla de ruedas, pero algunas paradas en ésta ruta no son accesibles.*

All METRO buses are equipped with front bicycle racks that can carry up to three bicycles at a time. **NOTA:** *Todos los autobuses están equipados con portabicicletas en frente que pueden portar hasta tres a la vez.*

Cabrillo/Soquel Loop Service

Effective / Vigente: Jun. 06, 2013

APPENDIX D

71 Santa Cruz to Watsonville

Departs	Departs	Departs	Departs	Departs	Departs	Departs	Departs	Departs	Departs	Arrives
Santa Cruz Metro Lane 4	Soquel Ave & Hageman	Soquel Drive & Dominican Hospital	Soquel Drive & Daubenbiss	Cabrillo College	Soquel & Rancho Del Mar	Freedom Blvd. & Soquel Drive	Airport Blvd. & Freedom Centre	Crestview Center	Clifford & Pennsylvania	Watsonville Transit Center
A	B	C	D	E	F	G	H	I	J	K
SATURDAY - SUNDAY										
7:15AM	7:22	7:28	7:35	7:45	7:48	7:56	8:12	8:18	------	8:30
7:45	7:52	7:58	8:05	8:15	8:18	8:26	8:42	------	8:48	9:00
8:15	8:22	8:28	8:35	8:45	8:48	8:56	9:12	9:18	------	9:30
8:45	8:52	8:58	9:05	9:15	9:18	9:26	9:42	------	9:48	10:00
9:15	9:22	9:28	9:35	9:45	9:48	9:56	10:12	10:18	------	10:30
9:45	9:52	9:58	10:05	10:15	10:18	10:26	10:42	------	10:48	11:00
10:15	10:22	10:28	10:35	10:45	10:48	10:56	11:12	11:18	------	11:30
10:45	10:52	10:58	11:05	11:15	11:18	11:26	11:42	------	11:48	12:00PM
11:15	11:22	11:28	11:35	11:45	11:48	11:56	12:12	12:18	------	12:30
11:45	11:52	11:58	12:05	12:15	12:18	12:26	12:42	------	12:48	1:00
12:15	12:22	12:28	12:35	12:45	12:48	12:56	1:12	1:18	------	1:30
12:45	12:52	12:58	1:05	1:15	1:18	1:26	1:42	------	1:48	2:00
1:15	1:22	1:28	1:35	1:45	1:48	1:56	2:12	2:18	------	2:30
1:45	1:52	1:58	2:05	2:15	2:18	2:26	2:42	------	2:48	3:00
2:15	2:22	2:28	2:35	2:45	2:48	2:56	3:12	3:18	------	3:30
2:45	2:52	2:58	3:05	3:15	3:18	3:26	3:42	------	3:48	4:00
3:15	3:22	3:28	3:35	3:45	3:48	3:56	4:12	4:18	------	4:30
3:45	3:52	3:58	4:05	4:15	4:18	4:26	4:42	------	4:48	5:00
4:15	4:22	4:28	4:35	4:45	4:48	4:56	5:12	5:18	------	5:30
4:45	4:52	4:58	5:05	5:15	5:18	5:26	5:42	------	5:48	6:00
5:15	5:22	5:28	5:35	5:45	5:48	5:56	6:12	6:18	------	6:30
5:45	5:52	5:58	6:05	6:15	6:18	6:26	6:42	------	6:48	7:00
6:15	6:22	6:28	6:35	6:45	6:48	6:56	7:12	7:18	------	7:30
6:45	6:51	6:56	7:00	7:10	7:11	7:17	7:26	------	7:32	7:45
7:15	7:21	7:26	7:30	7:40	7:41	7:47	7:56	8:02	------	8:15
7:45	7:51	7:56	8:00	8:10	8:11	8:17	8:26	------	8:32	8:45
8:15	8:21	8:26	8:30	8:40	8:41	8:47	8:56	9:02	------	9:15
8:45	8:51	8:56	9:00	9:10	9:11	9:17	9:26	------	9:32	9:45
9:45	9:51	9:56	10:00	10:10	10:11	10:17	10:26	------	10:32	10:45
10:45	10:51	10:56	11:00	11:10	11:11	11:17	11:26	------	11:32	11:45
❶ 11:45	11:51	11:56	12:00	12:10	12:11	12:17	12:26	------	12:32	12:45

Transfers to MST are available from the Bus Operator on Routes 69-91X

Transferencias a MST están disponibles con el conductor de autobús en las Rutas 69-91X

❶ During Summer Service (mid-June to mid-September) this trip begins 10 minutes earlier at 11:35pm, from Cliff & Beach at the Boardwalk, then departs as shown at 11:45pm. For exact dates call SCMTD Customer Service (831)425-8600. ***NOTA:*** *Durante el Servicio de Verano (mediados de junio a mediados de septiembre) éste viaje comenzará 10 minutos más temprano a las 11:35pm, de Cliff & Beach en el Boardwalk, y sale como indicado a las 11:45pm. Para fechas exactas llame al Servicio al Cliente de SCMTD (831) 425-8600.*

G. Santa Cruz County Regional Transportation Commission – Bike Map for City of Santa Cruz

APPENDIX D

NOT TO SCALE

Bike map retrieved from the Santa Cruz Regional Transportation Commission

H. Letter from Santa Cruz Seaside Company to the City of Santa Cruz Planning Department Detailing the La Bahia Hotel Alternative Transportation Program

SANTA CRUZ SEASIDE COMPANY

December 3, 2013

Mr. Ryan Bane, Senior Planner
City of Santa Cruz Planning Department
809 Center Street, Room 206
Santa Cruz, CA 95060

RE: La Bahia Hotel Alternative Transportation Program

Dear Ryan:

With regard to the Reduction in Parking Requirements for Non-Automobile Use Programs, below is the framework for an Alternative Transportation Program for the La Bahia Hotel:

1. The applicant and any subsequent hotel operator shall be members in the Ecology Action alternative transportation program, or other equivalent transportation management program and will actively encourage carpooling, transit and/or bicycle commuting for the employees of the hotel.

2. The hotel provides for 70 bicycle storage stalls including 40 interior stalls and 30 exterior stalls. This represents a 112% increase over the 33 bicycle parking stalls required by zoning codes.

3. The hotel operator shall provide hotel patrons information to encourage alternative methods of transportation to the hotel and beach area, including but not limited to promoting use of the Beach/Downtown Trolley.

4. The hotel operator shall provide for free bus passes to employees, encourage van and/or carpooling, provide free emergency rides home to employees, and promote other measures to reduce automobile use.

5. The hotel operator agrees to submit documentation of implementation of the Alternative Transportation Program prior to issuance of an occupancy permit to the Planning Department and agrees upon request of the Director of Public Works to provide a report on the status and success of the program subsequent to its implementation.

The hotel and its owners and operators are committed to alternative forms of transportation and are confident that program details contained herein will reduce parking demand for the project in a meaningful way.

Please let me know if you have any questions or comments at this time.

Karl J. Rice
Director, Investment and Acquisitions
Santa Cruz Seaside Company
831-460-3327 | karl.rice@scseaside.com

APPENDICES

A. Existing Traffic Counts

B. Intersection LOS Analysis Calculations

- **Existing PM Peak Hour**
- **Existing Plus Project PM Peak Hour**
- **Cumulative PM Peak Hour**

C. Peak Hour Highway Segment LOS Analysis Calculations

- **Existing PM Peak Hour**
- **Existing Plus Project PM Peak Hour**
- **Cumulative PM Peak Hour**

D. General Plan 2030 Cumulative Buildout + UCSC Growth Traffic Growth Projections

E. Parking Demand Calculations

F. Santa Cruz METRO Bus Schedules

G. Santa Cruz County Regional Transportation Commission – Bike Map for City of Santa Cruz

H. Letter from Santa Cruz Seaside Company to the City of Santa Cruz Planning Department Detailing La Bahia Hotel Alternative Transportation Program