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TRANSPORTATION IMPACT ANALYSIS

BLUE WAVE IB MIXED-USE

Imperial Beach, California
December 14, 2018

LLG Ref. 3-18-2909

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EXECUTIVE SUMMARY

Linscott, Law & Greenspan, Engineers (LLG) has been retained to assess the traffic impacts associated with the proposed Blue Wave IB Mixed-Use project (hereby referred to as the "Project"). The site is located in the City of Imperial Beach, north of State Route 75 (Palm Avenue) and west of 7th Street, adjacent to the Hampshire at Bayside Landing residential project currently under construction. The majority of the site is currently undeveloped, with the exception of one vacant single-family residential unit located on 7th Street through which the Project intends to take access.

The Project proposes 47 guest rooms, 51 apartment units, 5,385 square feet of quality restaurant (brewery tasting room) and up to 1,205 square feet of specialty retail. Using the published SANDAG rates for these uses, mixed-use Project is calculated to generate 1,227 net ADT with 63 total AM and 105 total PM net peak hour trips.

Based on the City of Imperial Beach significance criteria, ***no significant impacts*** were calculated with the addition of Project traffic to the existing, near-term, or long-term baseline conditions. Therefore, mitigation measures are not required.

The Project will provide 103 parking spaces to meet the 103 spaces required per City code.

Primary Project access is proposed via a mid-block, right-in/right-out driveway to State Route 75 (Palm Avenue) between signalized intersections at Rainbow Drive to the west, and 7th Street to the east. A one-way outbound-only unsignalized driveway is also proposed to 7th Street north of State Route 75 (Palm Avenue).

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BLUE WAVE IB MIXED-USE

Imperial Beach, California
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1.0 INTRODUCTION

The following traffic study has been prepared to determine and evaluate the traffic impacts on the local circulation system due to the development of the proposed Blue Wave IB Mixed Use Project ("Project") in the City of Imperial Beach. The purpose of this study is to assess the potential impacts to the local circulation system as a result of the addition of Project traffic.

Included in this traffic study are the following:

- Project Description
- Existing Conditions Discussion
- Study Area, Analysis Approach & Methodology
- Significance Criteria
- Analysis of Existing Conditions
- Trip Generation, Distribution & Assignment
- Analysis of Existing + Project Scenario
- Near-Term Cumulative Projects Discussion
- Analysis of Near-Term Scenarios
- Year 2040 Long-Term Conditions Discussion
- Analysis of Year 2040 Long-Term Scenarios
- Parking Summary
- Access Summary
- Conclusions & Recommendations

Figure 1–1 shows the vicinity map. ***Figure 1–2*** shows a more detailed Project area map.

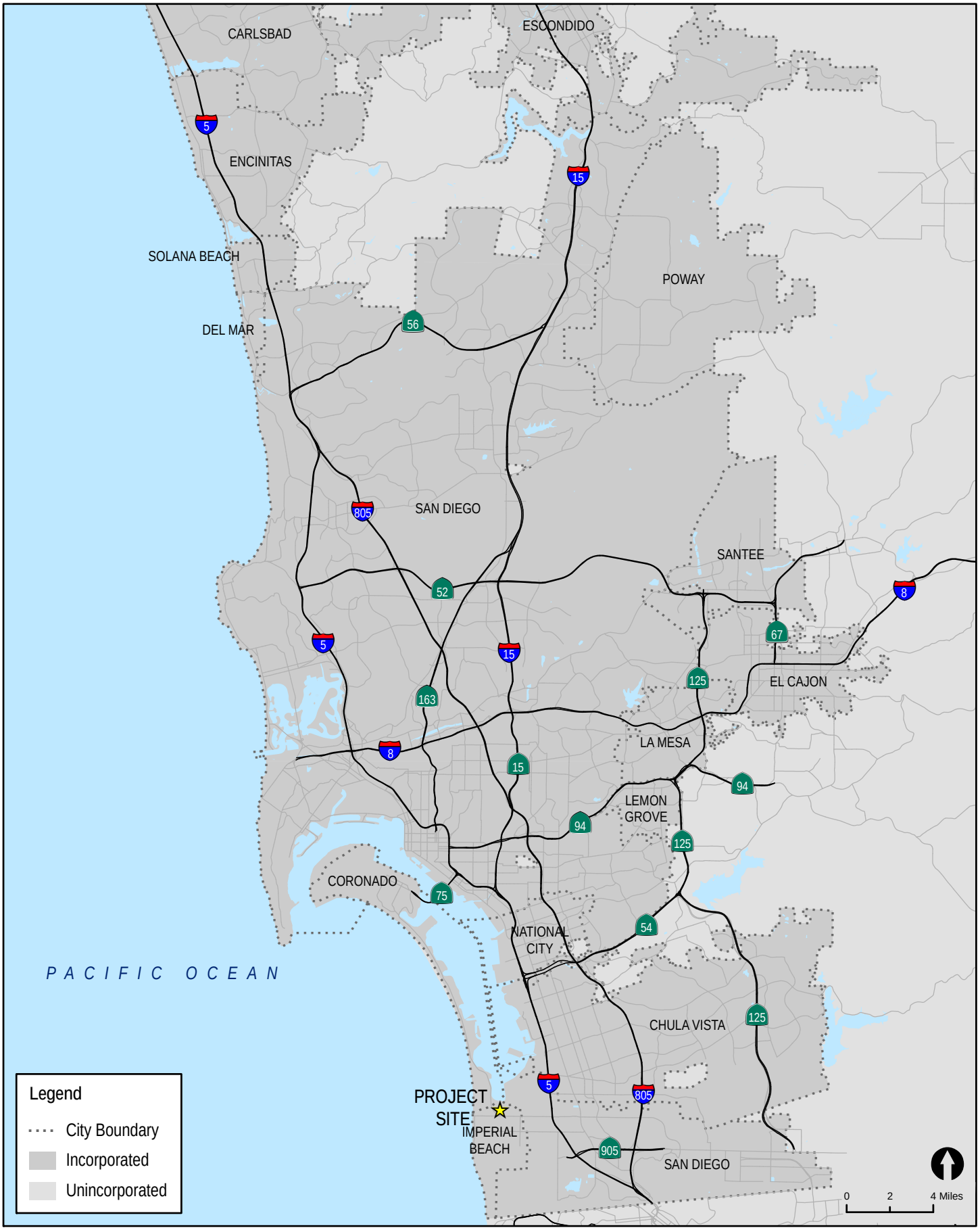

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Figure 1-1

Vicinity Map

BLUEWAVE PROJECT

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Figure 1-2

Project Area Map

BLUEWAVE PROJECT

2.0 PROJECT DESCRIPTION

2.1 Project Location

The Project is located on the north side of State Route (SR) 75 (Palm Avenue), adjacent to the Hampshire at Bayside Landing residential development in the City of Imperial Beach. The Project site is currently undeveloped with the exception of a single, vacant single-family dwelling unit located on 7th Street, which will be demolished to provide one-way outbound access to 7th Street. The Project is generally north and west of the residential core of Imperial Beach, and south of Coronado. Regional access to Interstate 5 is east via Palm Avenue, or north via SR-75 and the Coronado Bridge. Access to the Project will be provided via a mid-block right-in/right-out unsignalized driveway to SR-75. As mentioned, a secondary outbound access will be provided to 7th Street.

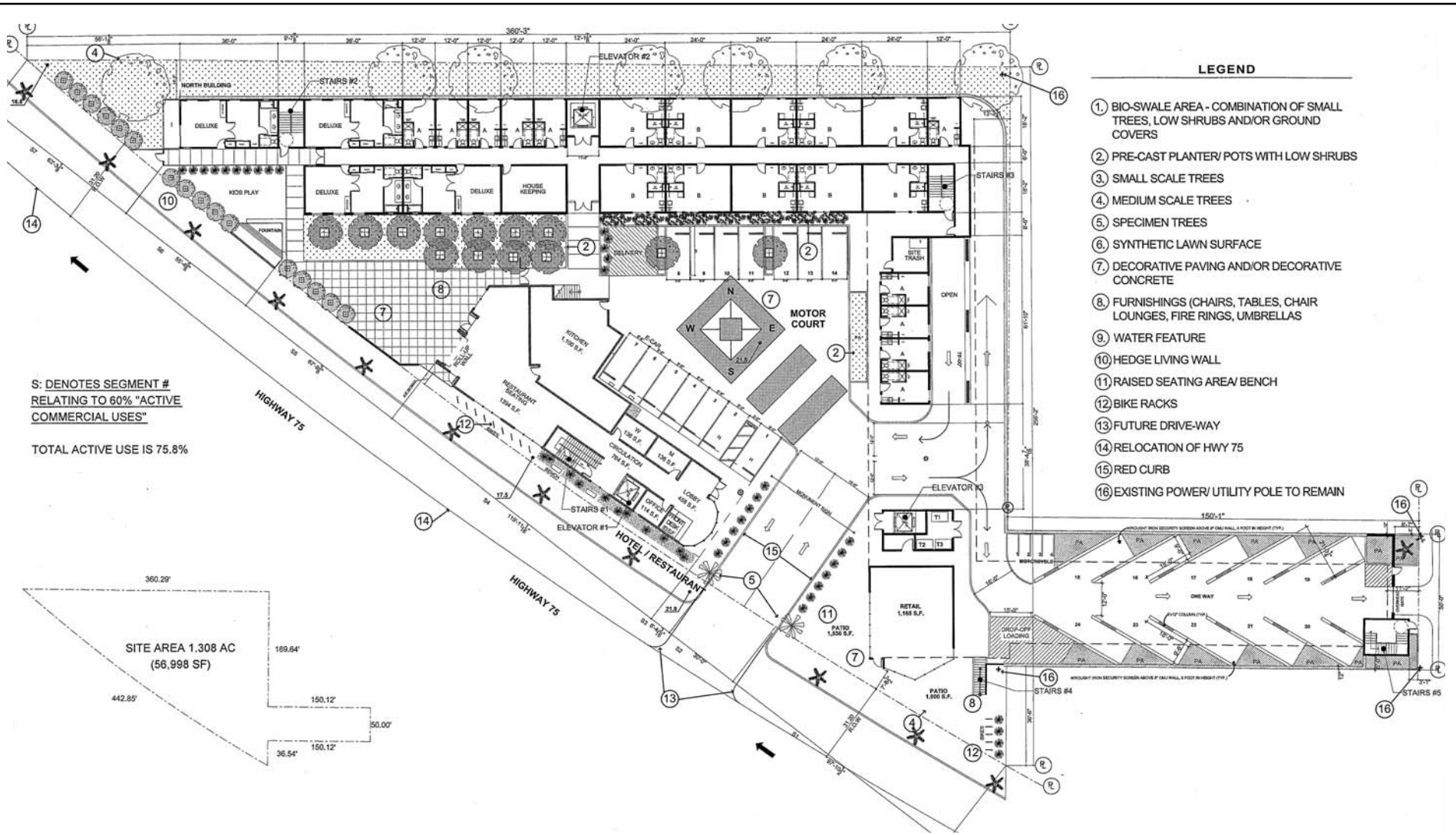
2.2 Project Description

The Blue Wave IB Mixed-Use project is a combination hotel/ apartment/ commercial development on approximately 1.3 acres of land currently zoned C/MU-1 (General Commercial and Mixed Use). The Project proposes the development of the following on the mixed-use site:

- 51 apartment units
- 41 hotel rooms
- 5,385 SF of restaurant ("brewery tasting room")
- Up to 1,205 SF of specialty retail/strip commercial

The Project will provide a total of 113 parking spaces on two levels, resulting in a surplus of 15 spaces over the City's required parking for these uses.

Figure 2–1 depicts the Project site plan.



SOURCE: M + C Corporation Architects, 11/16/18

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Figure 2-1

Site Plan

BLUEWAVE PROJECT

3.0 EXISTING CONDITIONS

3.1 Existing Street Network

The following provides a brief description of the street system in the Project area. Roadway classifications are based on the City of Imperial Beach General Plan and Local Coastal Plan Circulation Element, 1997 (updated 2010). A review of the SANTEC/ITE guidelines was used to develop the appropriate capacity based on the Imperial Beach classifications. ***Figure 3–1*** shows an existing conditions diagram, including signalized intersections and lane configurations.

State Route 75 (SR-75)/ Palm Avenue is an east-west facility State Route (Caltrans) in the City of Imperial Beach that turns north past Rainbow Drive as it continues to Coronado. In the study area SR-75 is classified on the Imperial Beach Circulation Element as a Four-Lane Major Street north of Rainbow Drive (where it transitions to Silver Stand Boulevard) and as a Six-Lane Prime Arterial east of Rainbow Drive to the City boundary. It is currently built to its ultimate classification as a Four-Lane Major Street from just west of 7th Street to north of Rainbow Drive continuing up Silver Strand Boulevard. From 7th Street to east of 9th Street, SR-75 it is built as a six-lane roadway with a raised median with cross-sections corresponding to Major Arterial standards, per SANTEC/ITE guidelines. The speed limit is 55 miles per hour (mph) north of Rainbow Road along Silver Strand Boulevard. From Rainbow Drive to the east, the posted speed limit is 40 mph. Bus stops are provided; curbside parking is prohibited, including along the Project frontage.

SR-75 is currently in the process of being relinquished from State of California control to the City of Imperial Beach. When this process is completed, the City will have jurisdiction and control over the route, and will be able to implement long-range plans to modify the street along its length to provide enhanced pedestrian/bicycle facilities, curbside parking, raised/landscaped medians and other operational and aesthetic amenities. The Project's design (right-of-way dedication, etc.) accounts for this future relinquishment.

Palm Avenue as a separate facility runs from Seacoast Drive to just east of 7th Street, where it merges and becomes SR-75. It is classified on the Imperial Beach Circulation Element as a Two-Lane Class III Collector. It is currently built as a two-lane roadway divided by a two-way left-turn lane (TWLTL) with cross-sections corresponding to Collector (continuous left-turn lane) standards, per SANTEC/ITE guidelines. The posted speed limit is 35 mph and curbside parking is prohibited. Two MTS bus routes use Palm Avenue but there are no stops in the study area between Rainbow Drive and SR-75.

Rainbow Drive is classified as a Three-Lane Class II Collector from SR-75 to Palm Avenue. It is currently built as a two-lane undivided roadway with cross-sections corresponding to Collector standards, per SANTEC/ITE guidelines. The posted speed limit is 30 mph and curbside parking is permitted along both sides of the roadway.

7th Street is classified as a 2 Lane Class III Collector from SR-75 to Iris Avenue to its northern terminus. It is currently built as a two-lane undivided roadway with a 40-foot curb-to-curb cross section (curbside parking allowed in both directions) in the study area. There is no posted speed limit Project vicinity, and bike route signs and "sharrow" pavement markings are present.

3.2 Existing Bicycle Network

In June 2008, the City of Imperial Beach approved the Final Draft Bicycle Transportation Plan, prepared by KTU+A and KOA Corporation. As documented in this plan, the Bayshore Bikeway traverses the City of Imperial Beach. The Bayshore Bikeway provides a 26-mile bicycle facility connecting cyclists around San Diego Bay through the cities of San Diego, National City, Chula Vista, Imperial Beach, and Coronado. Currently, approximately 13 miles of bicycle paths are in use on the Bikeway. The rest of the facility consists of on-street sections designated as either bicycle lanes or bicycle routes. The 0.81 mile section of bikeway within the City of Imperial Beach runs along the northern boundary between the City and the San Diego Bay. This Class 1 bike path is the only bike path within the City.

There is one section of a Class II bike lane within the City limits. This bike lane is on Palm Avenue from 13th Street to 12th Street, only 760 feet long with parallel parking between the bike lane and the curb. Signage includes one faint bike lane symbol.

According to SANDAG, there are three sections of Class III bike routes totaling 1.2 miles that can be found on 7th Street from the Bayshore Bikeway to Cypress Avenue, east on Cypress Avenue from 7th Street to 13th Street and 13th Street from the Bayshore Bikeway to Palm Avenue. The Class III route has been removed from Cypress Avenue based on the City of Imperial Beach General Plan. It stated that once the Bayshore Bikeway was complete, the east-west Cypress Avenue connection between 7th Street to 13th Street would be replaced by the Bayshore Bikeway.

Bicycle facilities connecting with adjacent cities are along the Class II section of Palm Avenue which heads east to the City of San Diego and the Bayshore Bikeway which connects to the Silver Strand Bike Path and into the City of Coronado to the north and Chula Vista to the east. Coronado Avenue is a Class III bike route which ends its designation when it turns into Imperial Beach Boulevard at the City limit line.

3.3 Existing Pedestrian Conditions

Based on field observations within the study area, the following pedestrian conditions are noted.

Continuous sidewalks are provided along both sides Palm Avenue and Rainbow Drive in the study area, with the exception of a gap on the south side of Palm Avenue between Delaware Street and 9th Street. SR-75 along Silver Strand Boulevard do not provide paved sidewalks as this roadway serves as a high speed highway connecting to Coronado with no developed land uses abutting the roadway for an extended distance.

3.4 Existing Transit Conditions

Based on the most recent information on the San Diego Metropolitan Transit System (MTS) website, the following transit conditions are noted.

Current local bus transit service is provided in the study area via Routes 901, 933, and 934. Bus stops are located directly adjacent to the Project access on SR-75 at Rainbow Drive, on the west side of Rainbow Drive just south of SR-75, as well as along Palm Avenue and SR-75 within close proximity to the Project site.

> ***Route 901*** travels from the Iris Avenue Trolley Station to Downtown San Diego via Coronado and travels along Palm Avenue within the study area. This route generally provides 15-minute headways during peak weekday hours and 30-minute headways the rest of the day, operating between 4:30 AM and 1:00 AM. Service is hourly on the weekends.
>
> ***Routes 933 and 934*** travel in opposite directions in a loop bounded by Seacoast Drive in the west, Palm Avenue in the north, Dennery Road in the east, and Tocayo Avenue in the south. These routes travel along SR-75 and Palm Avenue within the study area and serve both the Palm Avenue and Iris Avenue Trolley Stations. Routes 933 and 934 generally provide 15-minute peak hour headways and operate until 1:00 AM during the weekday and generally 30-minute headways during the weekend. Service ends at 8:00 PM on Sundays.

3.5 Existing Traffic Volumes

Existing 7:00-9:00 AM and 4:00-6:00 PM peak hour traffic volumes at key area intersections and 24-hour street segment volumes were collected in May 2018. Daily street segment volumes on the state highway (SR-75) were taken from the latest available Year 2016 data from Caltrans. Caltrans Year 2016 ADT volumes were grown by 1% per year for two years to approximate existing Year 2018 conditions. Peak hour intersection volumes were balanced and adjusted, where appropriate, to account for minor discrepancies that can result with manual traffic counts.

Table 3–1 is a summary of the existing average daily traffic volumes (ADTs) in the Project area.

Figure 3–2 shows the Existing AM/PM peak hour turning movement volumes and daily traffic volumes. ***Appendix A*** contains the peak hour intersection and daily segment count sheets.

TABLE 3–1
EXISTING TRAFFIC VOLUMES

Street Segment	ADT [a]	Date [b]	Source
SR-75			
1. North of Rainbow Drive	19,690	2016	Caltrans
2. Rainbow Drive to 7th Street	16,730	2016	Caltrans
3. 7th Street to Delaware Street	21,320	2016	Caltrans
4. Delaware Street to 9th Street	23,870	2016	Caltrans
5. 9th Street to Florida Street	35,190	2016	Caltrans
Palm Avenue			
6. Rainbow Drive to SR-75	13,640	2018	LLG
Rainbow Drive			
7. SR-75 to Palm Avenue	5,710	2018	LLG

Footnotes:

a. Average Daily Traffic Volumes. Volumes rounded to the nearest one-hundred or ten.
b. Year 2016 Caltrans counts increased by 1% per year for two years to estimate Year 2018 conditions.

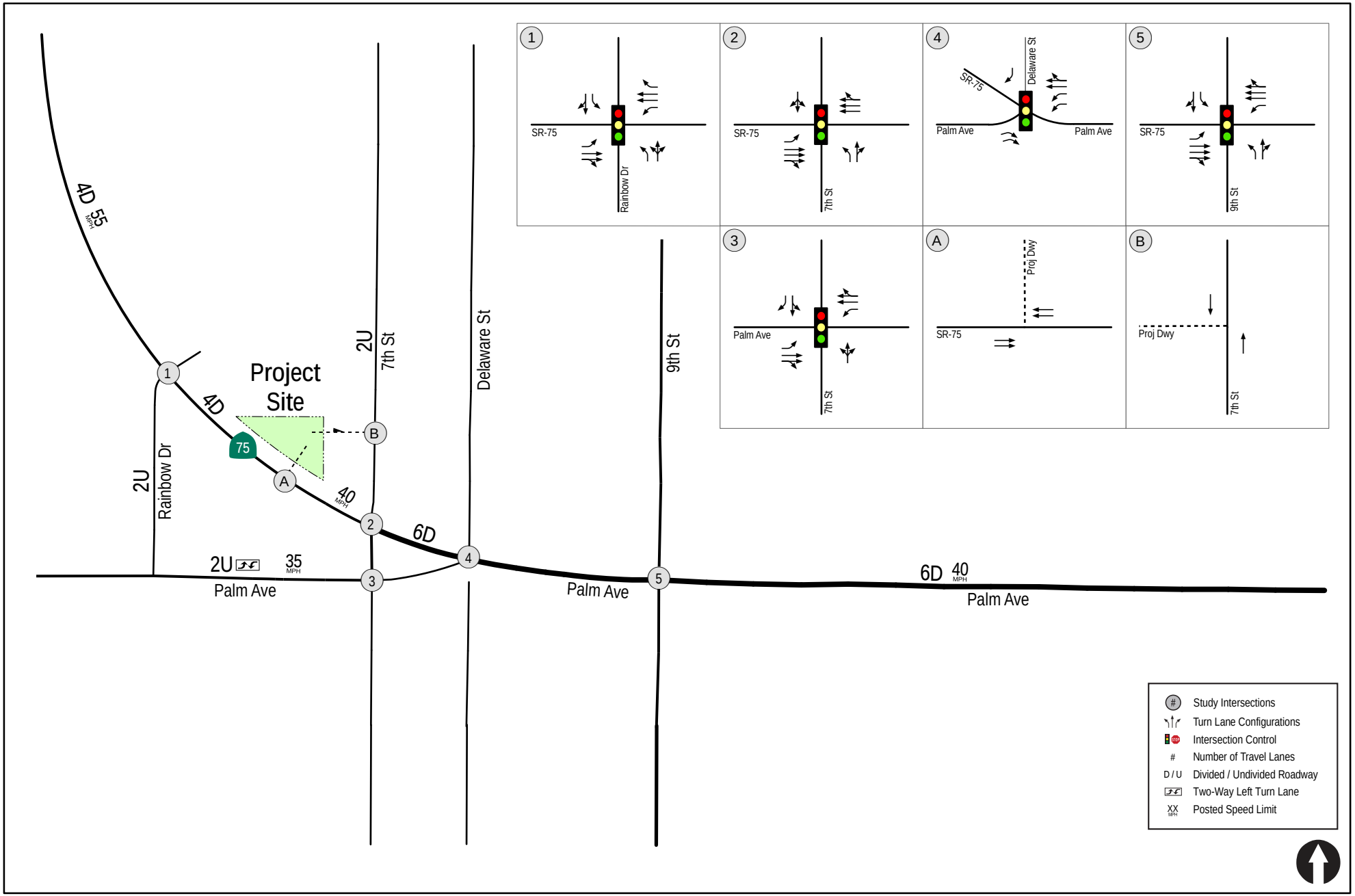

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Figure 3-1

Existing Conditions Diagram

BLUEWAVE PROJECT

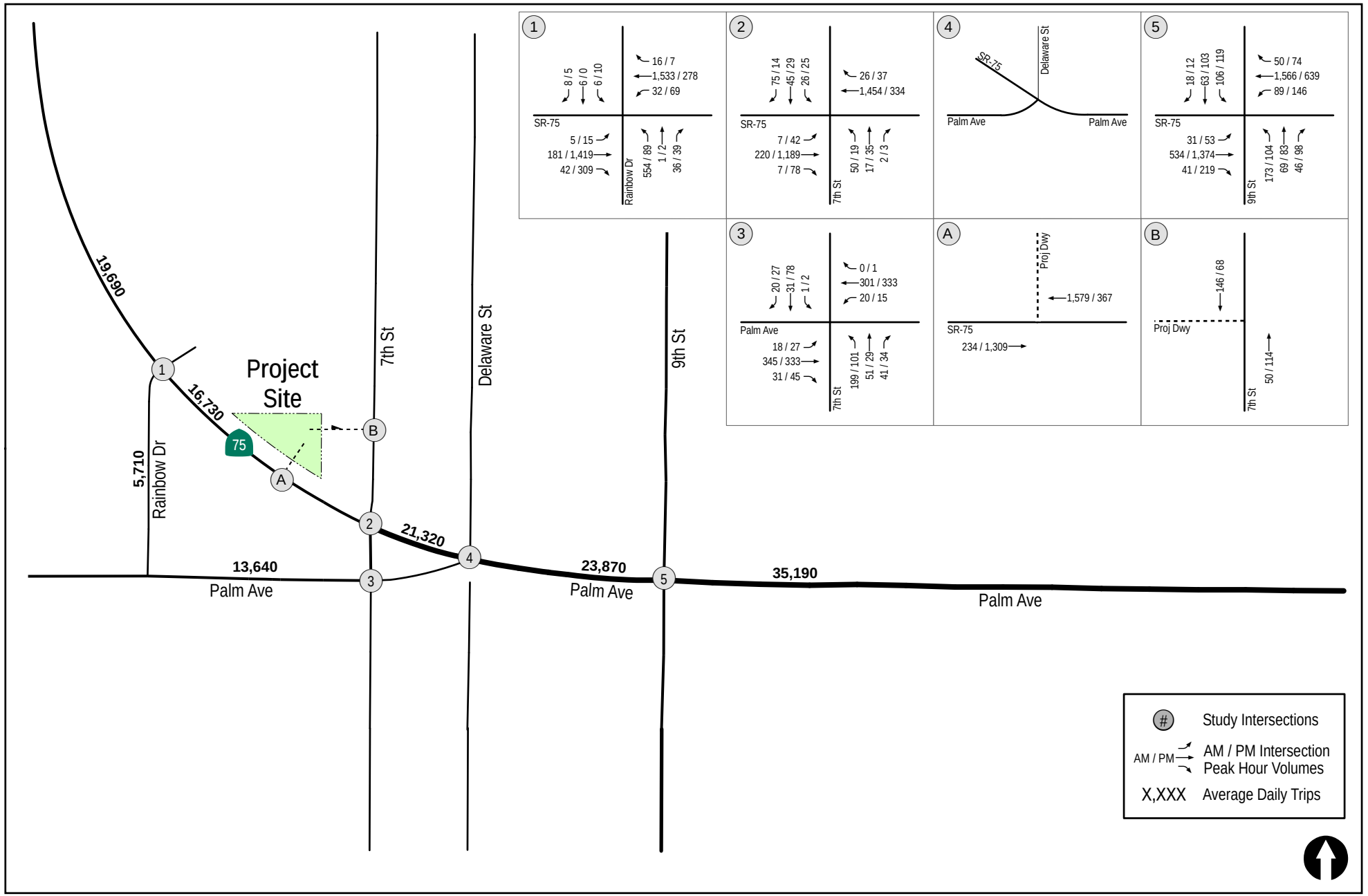

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Figure 3-2

Existing Traffic Volumes

BLUEWAVE PROJECT

4.0 STUDY AREA, ANALYSIS APPROACH AND METHODOLOGY

4.1 Study Area

The study area was based on the criteria identified in the San Diego Traffic Engineering Council (SANTEC)/Institute of Traffic Engineers (ITE) *Guidelines for Traffic Impact Studies in the San Diego Region*, March 2, 2000. Based on this criteria, the traffic study must include "all local roadway segments, intersections, and mainline freeway locations where the Project will add 50 or more peak hour trips in either direction to the existing roadway traffic."

Using the above criteria along with input from City staff, the Project study area includes the following locations:

Intersections

1. SR-75 (Palm Avenue) / Rainbow Drive
2. SR-75 (Palm Avenue) / 7th Street
3. Palm Avenue/ 7th Street
4. SR-75 (Palm Avenue) / Delaware Street
5. SR-75 (Palm Avenue) / 9th Street

Project Driveways

A. SR-75 (Palm Avenue) / Project Driveway
B. 7th Street / Project Driveway

Segments

SR-75

1. North of Rainbow Drive
2. Rainbow Drive to 7th Street
3. 7th Street to Delaware Street
4. Delaware Street to 9th Street
5. 9th Street to Florida Street

Palm Avenue

6. Rainbow Drive to SR-75

Rainbow Drive

7. SR-75 to Palm Avenue

4.2 Analysis Approach

The purpose of the traffic impact analysis is to evaluate the Project's direct and cumulative impacts on the local street system in the near-term and in the horizon year (2040). An assessment of near-term cumulative projects in the area is also made to evaluate the effects of these other proposed projects that could be developed and operating within the same near-term time period (approximately 2021) as the proposed Project.

Table 4–1 lists the scenarios analyzed in this report.

TABLE 4–1
ANALYSIS SCENARIOS

Existing & Near-Term Conditions
▪ Existing ▪ Existing + Project ▪ Near-Term Without Project ▪ Near-Term With Project
Year 2040 Conditions
▪ Year 2040 Without Project ▪ Year 2040 With Project

4.3 Methodology

Level of Service is the term used to denote the different operating conditions which occur on a given roadway segment under various traffic volume loads. It is a qualitative measure used to describe a quantitative analysis taking into account factors such as roadway geometries, signal phasing, speed, travel delay, freedom to maneuver, and safety. Level of Service provides an index to the operational qualities of a roadway segment or an intersection. Level of Service designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. Level of Service designation is reported differently for signalized and unsignalized intersections, as well as for roadway segments.

4.3.1 *Intersections*

Signalized intersections were analyzed under AM and PM peak hour conditions. Average vehicle delay was determined utilizing the methodology found in Chapter 19 of the *Highway Capacity Manual 6th Edition (HCM 6),* with the assistance of the *Synchro* (version 10) computer software, based on the timing and phasing characteristics of the study area intersections. The delay values (represented in seconds) were qualified with a corresponding intersection LOS.

Signalized intersections (all study area intersections along SR-75) were analyzed using the most recent Caltrans signal timing plans.

4.3.2 *Street Segments*

Street segment analysis is based upon the comparison of daily traffic volumes (ADTs) to the SANTEC/ITE *Roadway Classification, Level of Service, and ADT Table*. This table provides segment capacities for different street classifications, based on traffic volumes and roadway characteristics. The roadway classification table is attached in ***Appendix B.***

5.0 SIGNIFICANCE CRITERIA

The City of Imperial Beach uses the published SANTEC/ITE guidelines for the determination of the significance of impacts. A project is considered to have a significant impact if the new project traffic has decreased the operations of surrounding roadways by a defined threshold. The defined thresholds are shown in ***Table 5–1*** below for freeway segments, roadway segments, intersections, and ramp meter facilities.

If the project exceeds the thresholds in *Table 5–1*, then the project may be considered to have a significant project impact. A feasible mitigation measure will need to be identified to return the impact within the thresholds (pre-project + allowable increase) or the impact will be considered significant and unmitigated.

TABLE 5–1
TRAFFIC IMPACT SIGNIFICANT THRESHOLDS

Level of Service with Project [a]	Allowable Increase Due to Project Impacts [b]	
	Roadway Segments	Intersections
	V/C	Delay (sec.)
E & F	0.02	2

Source: SANTEC/ITE *Guidelines for Traffic Impact Studies in the San Diego Region*, March 2, 2000.

Footnotes:

a. All level of service measurements are based upon HCM procedures for peak-hour conditions. However, V/C ratios for Roadway Segments may be estimated on an ADT/24-hour traffic volume basis (using Table 2 or a similar LOS chart for each jurisdiction). The acceptable LOS for freeways, roadways, and intersections is generally "D" ("C" for undeveloped or not densely developed locations per jurisdiction definitions). For metered freeway ramps, LOS does not apply. However, ramp meter delays above 15 minutes are considered excessive.

b. If a proposed project's traffic causes the values shown in the table to be exceeded, the impacts are deemed to be significant. These impact changes may be measured from appropriate computer programs or expanded manual spreadsheets. The project applicant shall then identify feasible mitigations (within the Traffic Impact Study [TIS] report) that will maintain the traffic facility at an acceptable LOS. If the LOS with the proposed project becomes unacceptable (see note "a" above), the project applicant shall be responsible for mitigating significant impact changes.

General Notes:

1. V/C = Volume to Capacity Ratio
2. Speed = Arterial speed measured in miles per hour
3. Delay = Average stopped delay per vehicle measured in seconds for intersections.
4. LOS = Level of Service

6.0 ANALYSIS OF EXISTING CONDITIONS

The following section presents the existing analysis of the study area locations.

6.1 Peak Hour Intersection Operations

Table 6–1 summarizes the existing intersections LOS. As seen in *Table 6–1*, all intersections are calculated to currently operate at LOS D or better.

Appendix C contains the existing intersection analysis worksheets.

6.2 Daily Street Segment Operations

Table 6–2 summarizes the existing roadway segment operations. As seen in *Table 6–2*, the study area segments are calculated to currently operate at LOS D or better, except for:

- Segment #6. Palm Avenue: Rainbow Drive to SR-75 – LOS E

TABLE 6–1
EXISTING INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing	
			Delay [a]	LOS [b]
1. SR-75 (Palm Avenue) / Rainbow Drive	Signal	AM	34.4	C
		PM	26.0	C
2. SR-75 (Palm Avenue) / 7th Street	Signal	AM	12.5	B
		PM	14.4	B
3. Palm Avenue / 7th Street	Signal	AM	9.3	A
		PM	8.5	A
4. SR-75 (Palm Avenue) / Delaware Street	Signal	AM	20.4	C
		PM	29.8	C
5. SR-75 (Palm Avenue) / 9th Street	Signal	AM	39.4	D
		PM	51.6	D

Footnotes:
a. Average delay expressed in seconds per vehicle.
b. Level of Service.

SIGNALIZED

DELAY/LOS THRESHOLDS

Delay	LOS
0.0 ≤ 10.0	A
10.1 to 20.0	B
20.1 to 35.0	C
35.1 to 55.0	D
55.1 to 80.0	E
≥ 80.1	F

TABLE 6–2
EXISTING STREET SEGMENT OPERATIONS

Street Segment	Currently Built As [a]	Capacity (LOS E) [a]	ADT [b]	LOS [c]	V/C [d]
SR-75					
1. North of Rainbow Drive	4-lane Major Arterial	40,000	19,690	B	0.492
2. Rainbow Drive to 7th Street	4-lane Major Arterial	40,000	16,730	B	0.418
3. 7th Street to Delaware Street	6-lane Major Arterial	50,000	21,320	B	0.426
4. Delaware Street to 9th Street	6-lane Major Arterial	50,000	23,870	B	0.477
5. 9th Street to Florida Street	6-lane Major Arterial	50,000	35,190	C	0.704
Palm Avenue					
6. Rainbow Drive to SR-75	2-lane Collector w/ TWLTL	15,000	13,640	E	0.909
Rainbow Drive					
7. SR-75 to Palm Avenue	2-Ln Collector	8,000	5,710	D	0.714

Footnotes:

a. Classification based on City of Imperial Beach Circulation Element and capacities based on SANTEC/ITE Roadway Classification Table (See *Appendix B*).
b. Average Daily Traffic Volumes.
c. Level of Service.
d. Volume to Capacity.

General Notes:

1. TWLTL = Two-way left-turn lane.

7.0 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

7.1 Proposed Land Use

The Project proposes to develop 47 hotel (motel) rooms, 51 multifamily residential dwelling units, and 5,385 square feet of restaurant space (brewery tasting room with limited food service). Up to 1,205 square feet of specialty retail use is also proposed

7.2 Existing On-Site Land Use

The majority of the Project site is currently vacant, except for a single-family residence located at 624 7th Street. This unit was vacant at the time the traffic counts were conducted in May of 2018; as such, there are no on-site land use reductions to consider.

7.3 Trip Generation

Project traffic generation is calculated in the City of Imperial Beach using the published, regional SANDAG *(Not so) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region (*April 2002). The document provides standardized rates for nineteen general land use categories, including "lodging", "residential" and "commercial" land uses, as proposed by the Project.

Hotel Land Use – the "Brief Guide" provides four (4) general lodging rates, in descending order of traffic intensity:

- Hotel (w/convention facilities/restaurant)
- Motel
- Resort Hotel
- Business Hotel

None of these published rates suits the "hotel" component of the proposed Project, which is most accurately described as a "boutique" hotel. It does not provide convention facilities or a restaurant, per se. It is not a motel per se in that is collocated with restaurant and retail amenities in a desirable beach area. It is too small to be considered a Resort Hotel (typically very large and located on grounds with golf courses or fronting beaches, etc.), and the purpose of the majority of patron stays would be expected to be pleasure, rather than business, as with a business hotel.

LLG reviewed the local SANDAG rates as well as the descriptions of the various hotel/motel uses presented in the nationally published Institute of Transportation Engineers (ITE) trip generation manual. Upon review, it was clear that the size and layout of the proposed hotel comported most with the description for "motel" in that document. The SANDAG document notes that the primary source for its "motel" rate is ITE; therefore, the motel rate was used in the trip generation analysis.

The "brewery tasting room" is also a unique land use with respect to trip generation rates. While food service is limited, the length of stay is longer than for "sit-down, high-turnover" type restaurant uses. LLG applied SANDAG's "quality" restaurant rate for this use, consistent with other brewery tasting room projects LLG has completed throughout the region.

Table 7–1 tabulates the gross Project traffic generation before any mixed-use or other credits have been applied. The Project is calculated to generate 1,316 gross ADT with 66 gross trips during the AM peak hour (23 inbound/ 43 outbound), and 113 gross trips during the PM peak hour (75 inbound/ 38 outbound).

TABLE 7–1
GROSS PROJECT TRIP GENERATION

Land Use	Size	Daily Trip Ends (ADT) [a]		AM Peak Hour					PM Peak Hour				
		Rate [b]	Volume	Rate	In:Out Split %	Volume In	Volume Out	Volume Total	Rate	In:Out Split %	Volume In	Volume Out	Volume Total
Proposed Project													
Motel	47 Keys	9 /key	423	8%	40:60	14	20	34	9%	60:40	23	15	38
Apartments	51 DU	6/DU	306	8%	20:80	5	20	25	9%	70:30	20	8	28
Brewery Tasting Room (2 floors)	5.385 ksf	100/ksf	539	1%	60:40	3	2	5	8%	70:30	30	13	43
East Bldg Retail	1.205 ksf	40/ksf	48	3%	60:40	1	1	2	9%	50:50	2	2	4
Gross Project Trip Generation		—	***1,316***	—	—	***23***	***43***	***66***	—	—	***75***	***38***	***113***

Footnotes:

a. ADT = Average Daily Traffic.

b. Rates based on SANDAG's *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002. The tasting room uses the published rate for "Quality Restaurant". The east building retail uses the published rate for "specialty retail".

General Notes:

1. DU = Dwelling units

The Project is designed and located to be a mixed-use development. The restaurant and retail uses are intended to serve not only the onsite hotel guests and apartment residents, but also the local residents in the adjacent and nearby neighborhoods. As such, a standard 10% mixed-use reduction (per SANDAG) was applied to the apartment use to account for this phenomenon.

Table 7–2 tabulates the mixed-use trip reductions to be subtracted from the gross trips shown in *Table 7–1*.

TABLE 7–2
RESIDENTIAL MIXED-USE TRIP REDUCTIONS

Land Use	Size	Daily Trip Ends (ADT) [a]		AM Peak Hour					PM Peak Hour				
		Rate [b]	Volume	Rate	In:Out Split %	Volume In	Volume Out	Volume Total	Rate	In:Out Split %	Volume In	Volume Out	Volume Total
Proposed Project													
Apartments	51 DU	6/DU	306	8%	20:80	5	20	25	9%	70:30	20	8	28
10% Mixed-Use Reduction [b]		—	*(30)*	—	—	*(1)*	*(2)*	*(3)*	—	—	*(2)*	*(1)*	*(3)*

Footnotes:

a. ADT = Average Daily Traffic.

b. Rates/reductions based on SANDAG's *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002. The tasting room uses the published rate for "Quality Restaurant". The east building retail uses the published rate for "specialty retail". Note that 10% reduction is taken off of apartment-use only.

General Notes:

1. DU = Dwelling units

The Project site is located along SR-75 (Palm Avenue), a major thoroughfare connecting the City of Imperial Beach with Coronado. As shown in Figure 3–2, existing daily volumes along the Project site are 16,400 ADT. Given the visibility of the site and its location along a major arterial, reductions were taken for "pass-by" trips for the restaurant (brewery tasting room) and retail uses. Pass-by trips are new trips to the driveway that are already on the adjacent public road. As such, they are incidental trips that occur between an existing trip's origin and destination, and are therefore not new elsewhere in the system. The standard 10% pass-by reduction allowed by SANDAG was applied.

Table 7–3 shows the pass-by trip reductions to be subtracted from the gross trips shown in *Table 7–1*.

TABLE 7–3
COMMERCIAL PASS-BY TRIP GENERATION

Land Use	Size	Daily Trip Ends (ADT) [a]		AM Peak Hour					PM Peak Hour				
		Rate [b]	Volume	Rate	In:Out Split %	Volume In	Volume Out	Volume Total	Rate	In:Out Split %	Volume In	Volume Out	Volume Total
Proposed Project													
Brewery Tasting Room (2 floors)	5.385 ksf	100/ksf	539	1%	60:40	3	2	5	8%	70:30	30	13	43
East Bldg Retail	1.205 ksf	40/ksf	48	3%	60:40	1	1	1	9%	50:50	2	2	4
10% Pass-By Reduction [b]		—	*(59)*	—	—	*(0)*	*(0)*	*(0)*	—	—	*(3)*	*(2)*	*(5)*

Footnotes:

a. ADT = Average Daily Traffic.

b. Rates/reductions based on SANDAG's *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002. The tasting room uses the published rate for "Quality Restaurant". The east building retail uses the published rate for "specialty retail".

General Notes:

1. DU = Dwelling units

Table 7–4 shows the net-new trip generation on the street system once the mixed-use and pass-by trip reductions have been applied to the gross trip generation in *Table 7–1*. This table shows that the net new trips to the street system analyzed in this report are 1,227 ADT with 63 total AM peak hour trips (22 inbound/ 41 outbound), and 105 total PM peak hour trips (70 inbound/ 35 outbound).

TABLE 7–4
NET PROJECT TRIP GENERATION

Land Use	Size	Daily Trip Ends (ADT) [a]		AM Peak Hour					PM Peak Hour				
		Rate [b]	Volume	Rate	In:Out Split %	Volume In	Volume Out	Volume Total	Rate	In:Out Split %	Volume In	Volume Out	Volume Total
Proposed Project													
Motel	47 Keys	9 /key	423	8%	40:60	14	20	34	9%	60:40	23	15	38
Apartments	51 DU	6/DU	306	8%	20:80	5	20	25	9%	70:30	20	8	28
Brewery Tasting Room (2 floors)	5.385 ksf	100/ksf	539	1%	60:40	3	2	5	8%	70:30	30	13	43
East Bldg Retail	1.205 ksf	40/ksf	48	3%	60:40	1	1	2	9%	50:50	2	2	4
10% Mixed-Use Reduction [c]		—	(30)	—	—	(1)	(2)	(3)	—	—	(2)	(1)	(3)
Driveway Trips		—	1,286	—	—	22	41	63	—	—	73	37	110
10% Pass-By Reduction [b]		—	(59)	—	—	(0)	(0)	(0)	—	—	(3)	(2)	(5)
Net Project Trip Generation		**—**	***1,227***	**—**	**—**	***22***	***41***	***63***	**—**	**—**	***70***	***35***	***105***

Footnotes:

a. ADT = Average Daily Traffic.
b. Mixed-use reduction applied only to residential apartment component of Project.
c. Rates/reductions based on SANDAG's (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002. The tasting room uses the published rate for "Quality Restaurant". The east building retail uses the published rate for "specialty retail".

General Notes:

1. DU = Dwelling units

7.4 Trip Distribution/Assignment

The trip distribution for the proposed Project was based on the land use type, nearby areas of employment, commercial shopping opportunities and schools and the review of a SANDAG Select Zone Assignment (SZA) traffic model run that was utilized in the neighboring Hampshire at Bayside Landing residential project. A review of existing traffic volumes (ADT and peak hour turn moves) was also conducted to understand existing and future traffic patterns in the area that could apply in whole or part to the Project. Generally, 25% of traffic was assumed to travel to/from Coronado, with 45% assumed to travel to from Imperial Beach and San Diego to the east. 24% of traffic is assumed to Imperial Beach to the west and south, with a modest 6% total assumed to Imperial Beach to the north.

The distribution specifically accounts for the differential driveway access (right-in/right-out to SR-75 and one-way outbound to 7th Street), and corresponding U-turns are shown at the movement-specific distribution on ***Figure 7–1***.

Figure 7–2 depicts the total Project traffic assignment and ***Figure 7–3*** depicts the Existing + Project traffic volumes.

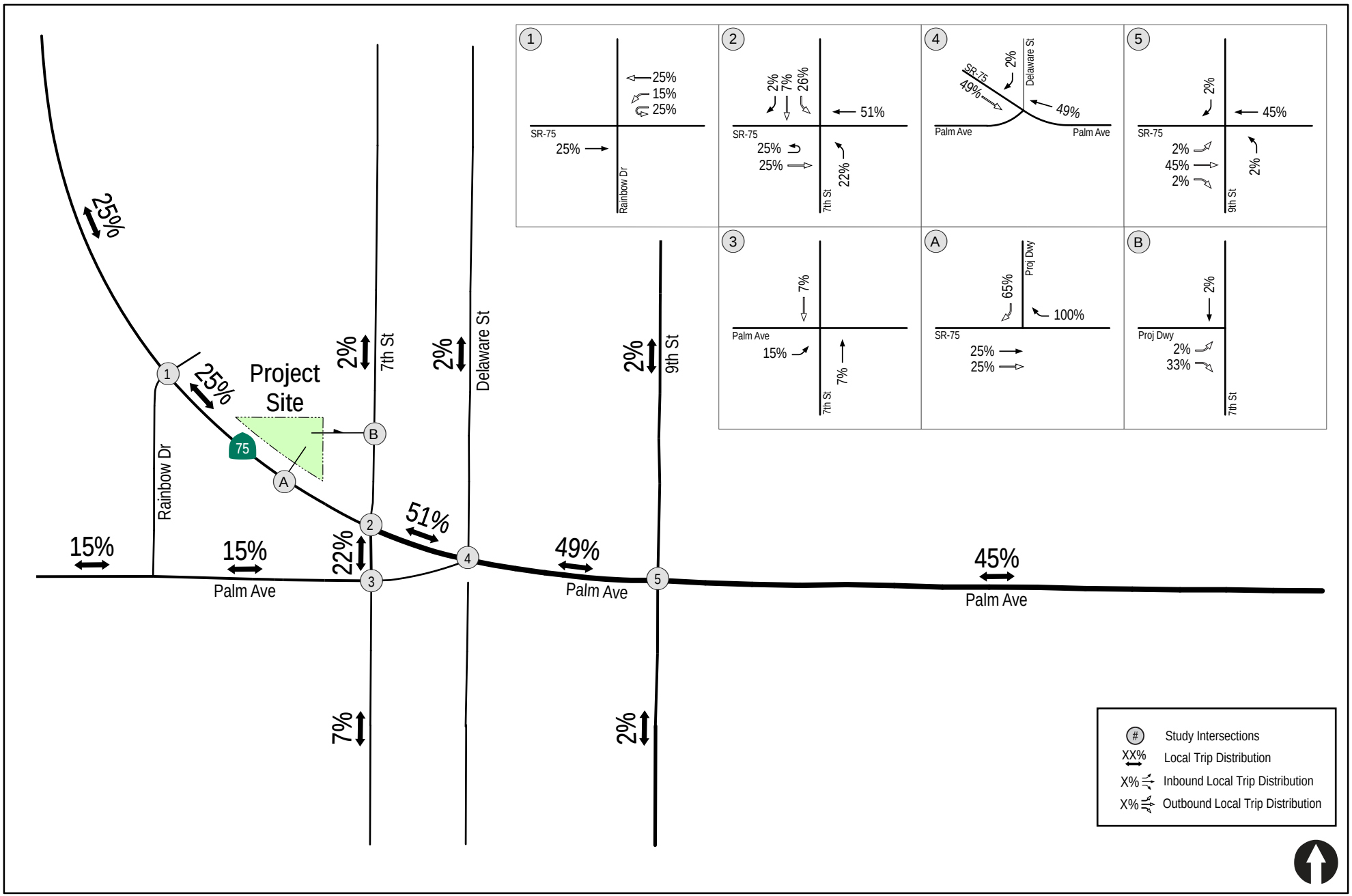

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Figure 7-1

Project Traffic Distribution

BLUEWAVE PROJECT

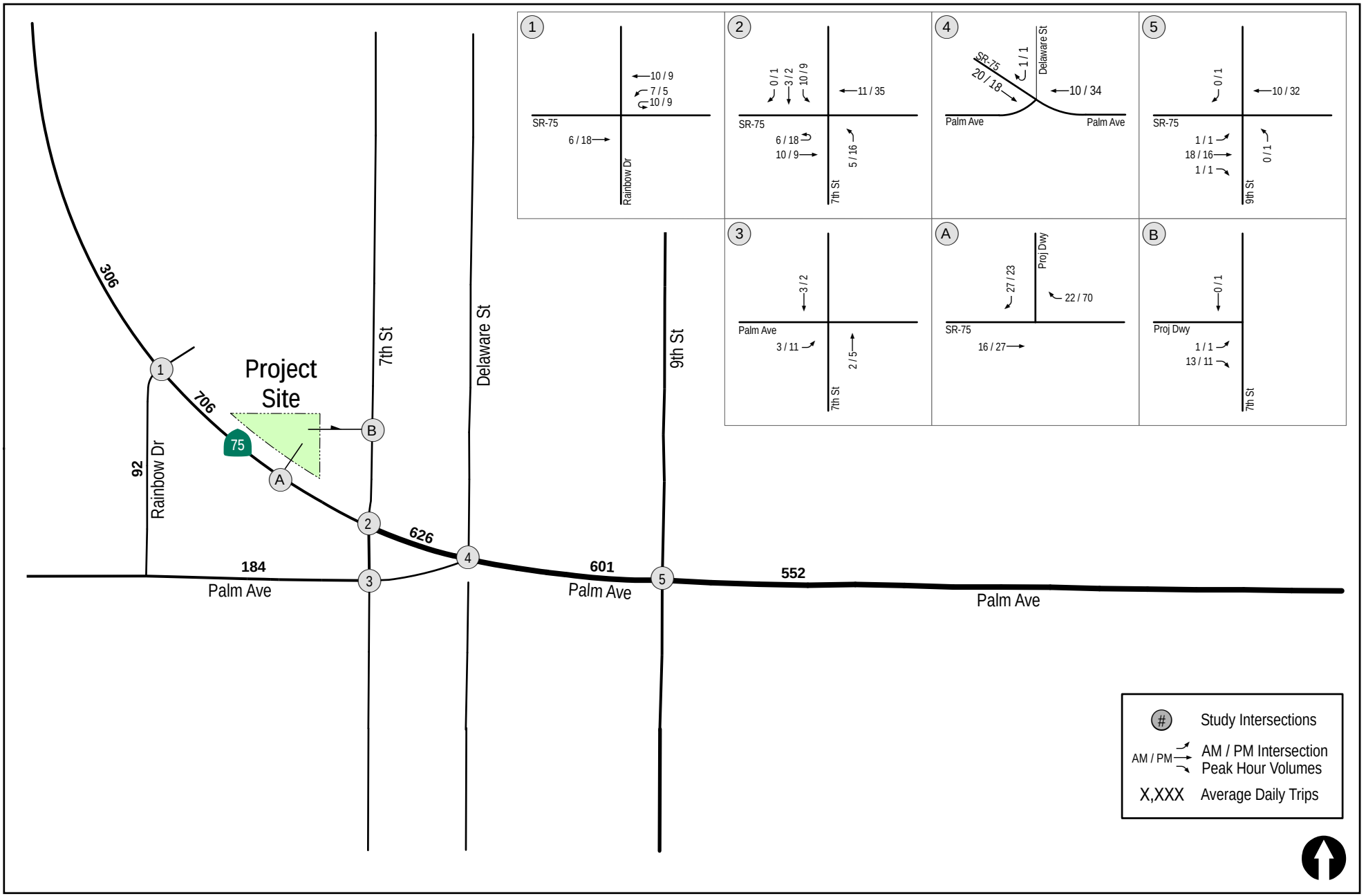

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Figure 7-2

Project Traffic Volumes

BLUEWAVE PROJECT

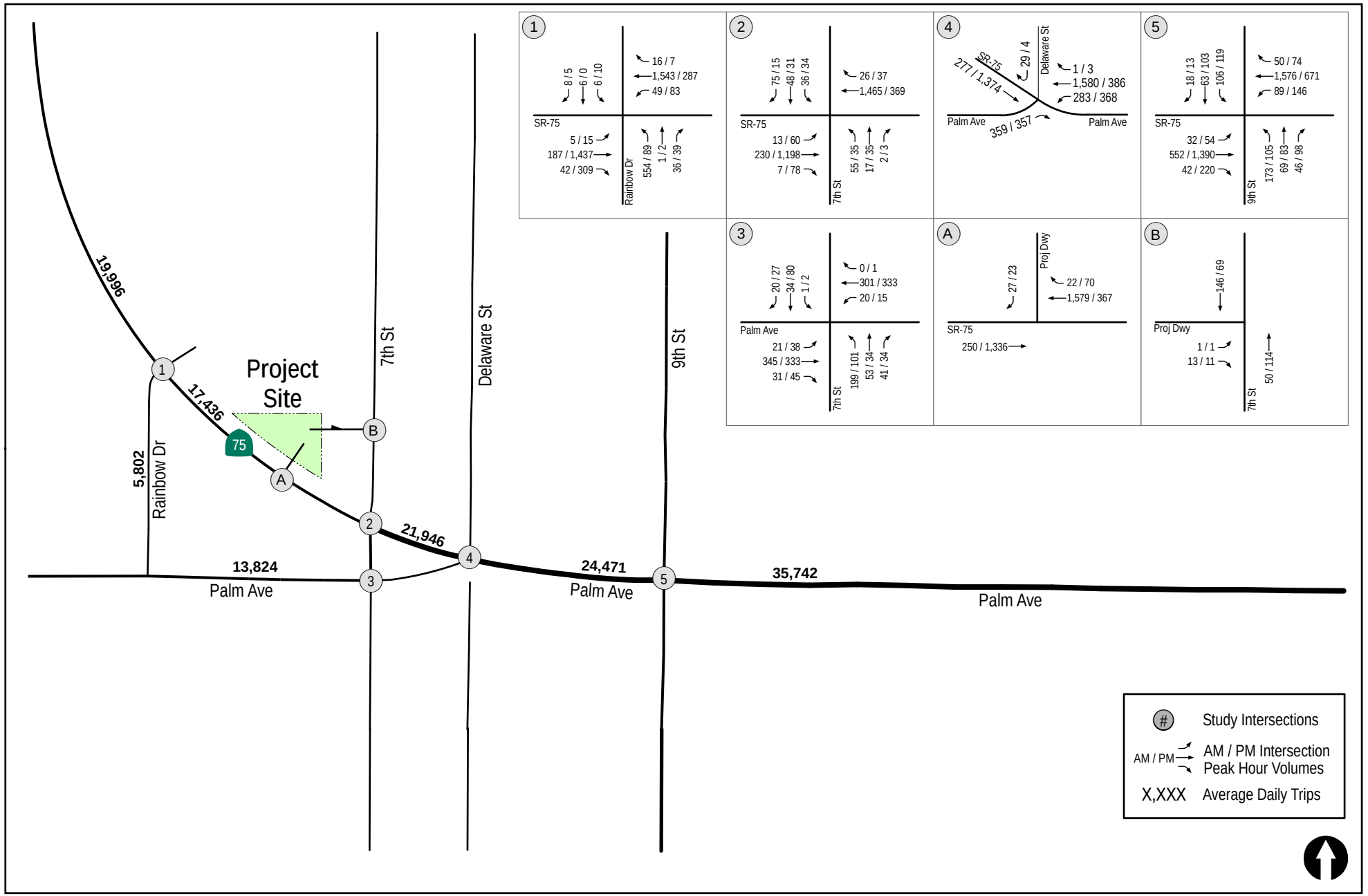

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Figure 7-3

Existing + Project Traffic Volumes

BLUEWAVE PROJECT

8.0 ANALYSIS OF EXISTING + PROJECT CONDITIONS

The following section presents the analysis of study area locations with the addition of Project traffic to the existing volumes.

8.1 Peak Hour Intersection Operations

Table 8–1 summarizes the intersections LOS with the addition of Project peak hour traffic volumes. As seen in *Table 8–1*, all intersections are calculated to continue to operate at LOS D or better. ***No significant direct impact*** would be occur with the development of the Project.

Appendix D contains the Existing + Project intersection analysis worksheets.

8.2 Daily Street Segment Operations

Table 8–2 summarizes the roadway segment operations with the addition of the Project's daily traffic volumes. As seen in *Table 8–2*, with the addition of Project traffic, the study area segments are calculated to continue to operate at LOS D or better, except for:

- Segment #6. Palm Avenue: Rainbow Drive to SR-75 – LOS E

Since the project-related increase in v/c ratio on this segment is less than the allowable 0.02, ***no significant direct impact*** would occur with development of the Project.

TABLE 8–1
EXISTING + PROJECT INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project		Delay Δ [c]	Sig?
			Delay [a]	LOS [b]	Delay	LOS		
1. SR-75 (Palm Avenue) / Rainbow Drive	Signal	AM	34.4	C	35.1	D	0.7	No
		PM	26.0	C	27.1	C	1.1	
2. SR-75 (Palm Avenue) / 7th Street	Signal	AM	12.5	B	13.8	B	1.3	No
		PM	14.4	B	16.8	B	2.4	
3. Palm Avenue/ 7th Street	Signal	AM	9.3	A	9.4	A	0.1	No
		PM	8.5	A	8.6	A	0.1	
4. SR-75 (Palm Avenue) / Delaware Street	Signal	AM	20.4	C	20.5	C	0.1	No
		PM	29.8	C	29.9	C	0.1	
5. SR-75 (Palm Avenue) / 9th Street	Signal	AM	39.4	D	39.5	D	0.1	No
		PM	51.6	D	51.7	D	0.1	
Project Driveways								
A. SR-75 / Project Driveway	TWSC	AM	—	—	18.5	C	—	No
		PM	—	—	9.9	A	—	
B. 7th Street / Project Driveway	TWSC	AM	—	—	9.2	A	—	No
		PM	—	—	8.8	A	—	

Footnotes:
a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Δ denotes the increase in delay due to Project.

General Notes:
1. Sig = Significant impact, yes or no.

SIGNALIZED		UNSIGNALIZED	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

TABLE 8–2
EXISTING + PROJECT STREET SEGMENT OPERATIONS

Street Segment	Existing Capacity (LOS E)[a]	Existing			Existing + Project			Δ [e]		Sig?
		ADT [b]	LOS [c]	V/C [d]	ADT	LOS	V/C	ADT	V/C	
SR-75										
1. North of Rainbow Drive	40,000	19,690	B	0.492	19,996	B	0.500	306	0.008	No
2. Rainbow Drive to 7th Street	40,000	16,730	B	0.418	17,436	B	0.436	706	0.018	No
3. 7th Street to Delaware Street	50,000	21,320	B	0.426	21,946	B	0.439	626	0.013	No
4. Delaware Street to 9th Street	50,000	23,870	B	0.477	24,471	B	0.489	601	0.012	No
5. 9th Street to Florida Street	50,000	35,190	C	0.704	35,742	C	0.715	552	0.011	No
Palm Avenue										
6. Rainbow Drive to SR-75	15,000	13,640	E	0.909	13,824	E	0.922	184	0.013	No
Rainbow Drive										
7. SR-75 to Palm Avenue	8,000	5,710	D	0.714	5,802	D	0.725	92	0.011	No

Footnotes:

a. Capacities based on SANTEC/ITE Roadway Classification & LOS table (See *Appendix B*).
b. Average Daily Traffic.
c. Level of Service.
d. Volume to Capacity ratio.
e. Δ denotes a Project-induced increase in ADT and Volume to Capacity ratio.

General Notes:

1. Sig = Significant impact, yes or no.

9.0 NEAR-TERM CUMULATIVE PROJECTS

Cumulative projects are other projects in the study area that will add traffic to the local circulation system in the near future. LLG consulted with the City of Imperial Beach staff to identify relevant, pending cumulative projects in the study area that could be constructed and generating traffic in the Project vicinity. Based on information received from City staff, twelve (12) cumulative projects are planned for the area. Trip generation, distribution, and assignment was manually conducted by LLG Engineers based on information provided by the City of Imperial Beach, unless otherwise noted in the individual description. Traffic generated by these projects was added to the existing traffic volumes to develop the Near-Term Without Project conditions. Project traffic was added to the near-term traffic volumes to arrive at the Near-Term With Project conditions. The following is a brief description of each of the cumulative projects.

9.1 Description of Projects

1. **Navy Coastal Campus** is a Navy project for training expansion in the City of Coronado, north of Imperial Beach. The project includes construction, renovation, and expansion of facilities to support logistics, equipment use, classroom and tactical skills instruction, administration, and storage. The project is currently under construction. *Trip generation, distribution, and assignment taken from the Kimley-Horn NBC Coastal Campus Traffic Impact Analysis, 2014.*

2. **IB Resort** proposes to develop a new hotel with 100 rooms, restaurant, view bar, patio dining, pool, meeting rooms, rooftop garden, new seawall, and landscaping at 1060 Seacoast Drive. The project is calculated to generate approximately 1,000 ADT with 36 inbound and 24 outbound net trips in the AM peak hour and 48 inbound and 32 outbound net trips in the PM peak hour. The project is currently pending entitlement.

3. **684-686 Ocean Lane** is a private project for two attached dwelling units. The project is calculated to generate approximately 20 ADT with 1 inbound and 1 outbound trip in the AM peak hour and 1 inbound and 1 outbound trip in the PM hour. The project is currently pending entitlement.

4. **812 Ocean Lane** is a private project for two attached dwelling units. The project is calculated to generate approximately 20 ADT with 1 inbound and 1 outbound trip in the AM peak hour and 1 inbound and 1 outbound trip in the PM hour. The project is approved and processing building permits.

5. **Bernardo Shores** is a project to replace an RV park with 187 residential units at 500 SR-75. The project is currently under construction. These units are calculated to generate 222 ADT with 4 inbound and 14 outbound trips in the AM peak hour and 14 inbound and 6 outbound trips in the PM peak hour. *Trip generation, distribution, and assignment taken from the LLG Engineers Bernardo Shores Traffic Impact Analysis, September 2014.*

6. **Breakwater Commercial Center (Phase II)** is a proposed 101-room hotel located adjacent to the constructed Breakwater Town Center commercial buildings which comprise Phase 1 of the project. The project is calculated to generate 909 ADT with 29 inbound and 44 outbound trips in the AM peak hour and 49 inbound and 33 outbound trips during the PM peak hour. The project is under review for building permits.

7. **1166 Holly Avenue** proposes development of 15 new single-family residences. The project is calculated to generate 150 ADT with 4 inbound and 8 outbound trips in the AM peak hour and 10 inbound trips and 5 outbound trips during the PM peak hour. The project discretionary permits have been approved.

8. **805 Ocean Lane** proposes to remodel an existing commercial building and adjacent lot to provide for a new eating and drinking establishment with a new kitchen area, bar, patios, and satellite bar. The project proposes the installation of two 40-foot shipping containers to be used as covered seating and 2nd-story deck area, and one 20-foot shipping container to be used as a satellite exterior bar. The project is calculated to generate approximately 144 ADT with 1 inbound and 1 outbound trip during the AM peak hour and 8 inbound and 4 outbound trips during the PM peak hour.

9. **495 Palm Avenue** proposes ten residential dwelling units. The project is calculated to generate 100 ADT with 2 inbound and 6 outbound trips during the AM peak hour and 7 inbound and 3 outbound trips during the PM peak hour. The project is currently processing discretionary permits.

10. **236 Palm Avenue** is a proposed mixed-use project with 14 residential units above 2,121 sf of commercial space. The project is currently processing discretionary permits.

11. **Siesta Residential** is a 65 unit residential project that will replace an existing RV Park at 490 Palm Avenue. The net traffic increase for the site with this project is 340 ADT.

12. **740 Palm Avenue** is a proposed mixed use project that will develop 32 residential units (29 market-rate and 3 affordable units) over 2,150 SF of ground floor retail. The project will generate 278 ADT.

It should be noted that The City of Imperial Beach has initiated the Imperial Beach Boulevard Enhancement Project to improve mobility, landscaping, and storm water and water quality infrastructure along Imperial Beach Boulevard (south of the Project study area) from Seacoast Drive to 15th Street. The overall objective is to create complete green streets that provide better-quality connections between residences, schools, transit stops, community attractors, and businesses while incorporating needed utility improvements that together enhance multimodal mobility along Imperial Beach Boulevard.

The design concept developed for Imperial Beach Boulevard proposes dedicated bike lanes, landscaped "pop-outs," enhanced bus stops, and updated pedestrian features. The design concept

applies the complete green street ideology on Imperial Beach Boulevard from Seacoast Drive to the easterly city limits near 15th Street by reallocating one vehicular lane of traffic in each direction to accommodate new bike lanes, on-street parking, and pedestrian features such as widened sidewalks and pop-outs to reduce crossing distances, improve visibility of pedestrians, and reduce vehicular speeds.

The Imperial Beach Boulevard Enhancement Project is entitled and construction would occur throughout 2019.

9.2 Summary of Near-Term Cumulative Projects Trips

Table 9–1 shows the summary of the cumulative projects' trip generation.

TABLE 9–1
NEAR-TERM CUMULATIVE PROJECTS SUMMARY

No.	Name	Land Use	ADT	AM		PM	
				In	Out	In	Out
1	Navy Coastal Campus	Military	1,250	98	10	22	89
2	IB Resort	100-room hotel	1,000	36	24	48	32
3	684-686 Ocean Lane	Two single-family dwelling units	20	1	1	1	1
4	812 Ocean Lane	Two single-family dwelling units	20	1	1	1	1
5	Hampshire at Bayside Landing	187 residential units (37 conservatively assumed built and occupied in the near-term)	222	4	14	14	6
6	Breakwater Commercial Center	101-room motel	909	29	44	49	33
7	1166 Holly Avenue	15 single-family dwelling units	150	4	8	10	5
8	805 Ocean Lane	1,440 sf restaurant	144	1	1	8	4
9	495 Palm Avenue	Ten single-family dwelling units	100	2	6	7	3
10	236 Palm Avenue	Mixed-use with 14 residential units and 2,121 sf of commercial space.	197	4	8	12	8
11	Siesta Residential	65 Multi-family dwelling units	340	8	27	20	14
12	740 Palm Avenue	Mixed-use with 32 residential units and 2,150 sf of commercial space.	278	4	8	12	8
Total Cumulative Projects			**4,630**	**192**	**152**	**204**	**204**

Figure 9–1 depicts the Near-Term Without Project traffic volumes and ***Figure 9–2*** depicts the Near-Term With Project traffic volumes.

Appendix F contains the individual near-term cumulative projects assignment sheets.

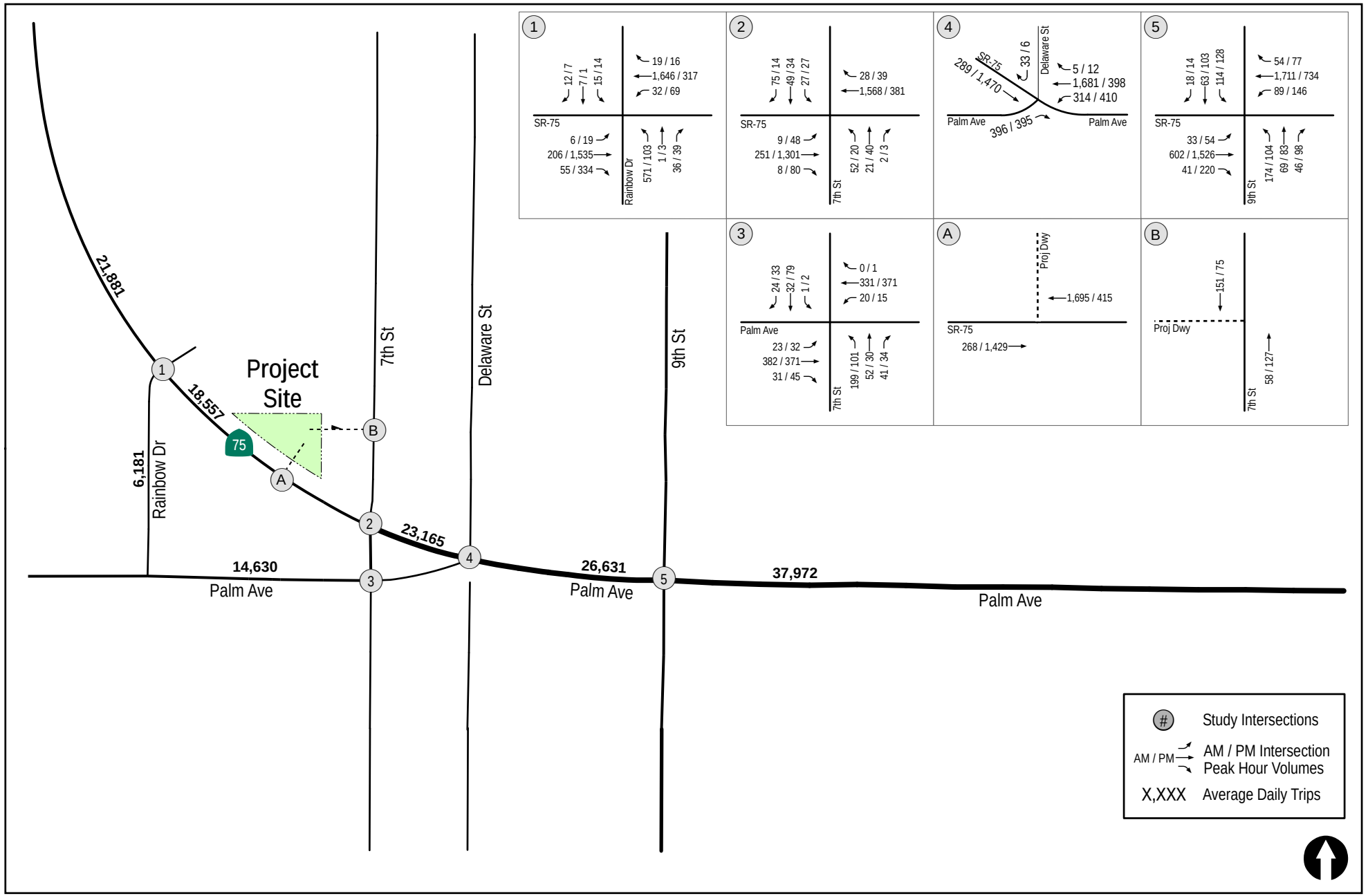

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Figure 9-1

Near-Term without Project Traffic Volumes

BLUEWAVE PROJECT

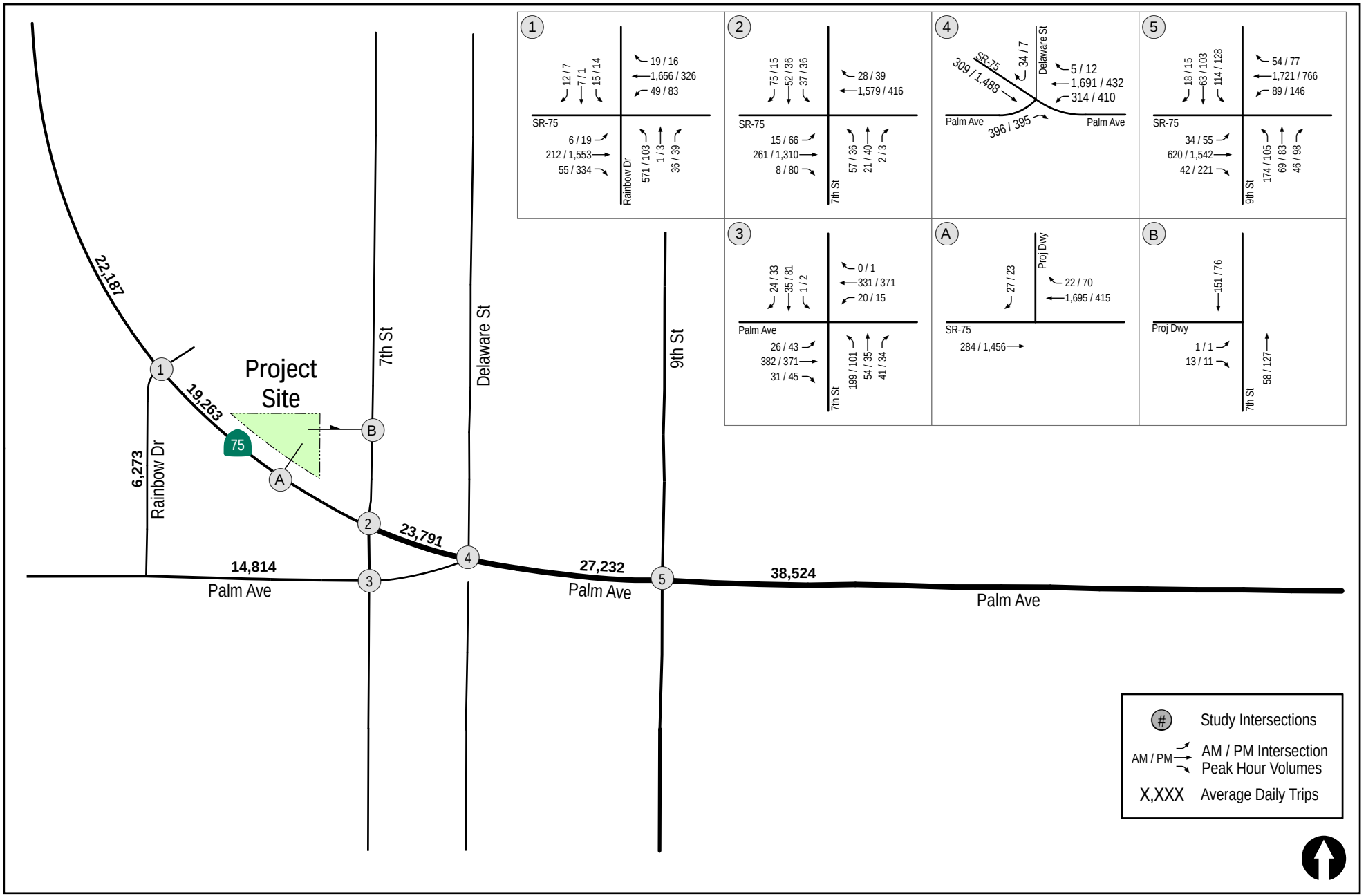

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Figure 9-2

Near-Term with Project Traffic Volumes

BLUEWAVE PROJECT

10.0 ANALYSIS OF NEAR-TERM SCENARIOS

The following section presents the near-term cumulative analysis of existing study area locations without and with Project traffic.

10.1 Near-Term Without Project

10.1.1 *Intersection Analysis*

Table 10–1 summarizes the peak hour intersection operations in the study area for the Near-Term Without Project condition. As seen in *Table 10–1*, with the addition of cumulative-only projects' traffic, all study area intersections are calculated to continue to operate at LOS D or better.

Appendix F contains the Near-Term Without Project intersection analysis worksheets.

10.1.2 *Segment Operations*

Table 10–2 summarizes the key segment operations in the study area for the Near-Term Without Project condition. As seen in *Table 10–2*, with the addition of cumulative-only projects' traffic, all study area segments are calculated to continue to operate at LOS D or better, except the following:

- Segment #6. Palm Avenue: Rainbow Drive to SR-75 – LOS E

10.2 Near-Term With Project

10.2.1 *Intersection Analysis*

Table 10–1 summarizes the peak hour intersection operations in the study area for the Near-Term With Project condition. As seen in *Table 10–1*, with the addition of cumulative projects' and Project traffic, all study area intersections are calculated to continue to operate at LOS D or better. ***No significant direct impact*** would be expected with the Project.

Appendix G contains the Near-Term With Project intersection analysis worksheets.

10.2.2 *Segment Operations*

Table 10–2 summarizes the key segment operations in the study area for the Near-Term With Project condition. As seen in *Table 10–2*, with the addition of cumulative projects' and Project traffic, all study area segments are calculated to continue to operate at LOS D or better, except the following:

- Segment #6. Palm Avenue: Rainbow Drive to SR-75 – LOS E

Since the project-related increase in v/c ratio on this segment is less than the allowable 0.02, ***no significant direct impact*** would be expected with the Project.

TABLE 10–1
NEAR-TERM INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Near-Term Without Project		Near-Term With Project		Delay Δ [c]	Sig?
			Delay [a]	LOS [b]	Delay	LOS		
1. SR--75 (Palm Avenue) / Rainbow Drive	Signal	AM	48.7	D	50.0	D	1.3	No
		PM	32.5	C	34.2	C	1.7	
2. SR-75 (Palm Avenue) / 7th Street	Signal	AM	12.8	B	14.0	B	1.2	No
		PM	14.7	B	17.1	B	2.4	
3. Palm Avenue / 7th Street	Signal	AM	9.5	A	9.6	A	0.1	No
		PM	8.6	A	8.7	A	0.1	
4. SR-75 (Palm Avenue) / Delaware Street	Signal	AM	20.6	C	20.7	C	0.1	No
		PM	31.7	C	31.8	C	0.1	
5. SR-75 (Palm Avenue) / 9th Street	Signal	AM	40.1	D	40.3	D	0.2	No
		PM	52.5	D	52.7	D	0.2	
Project Driveways								
A. SR-75 (Palm Avenue) / Project Driveway	TWSC	AM	—	—	20.1	C	—	No
		PM	—	—	10.1	B	—	
B. 7th Street / Project Driveway	TWSC	AM	—	—	9.2	A	—	No
		PM	—	—	8.8	A	—	

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Δ denotes the increase in delay due to Project.

General Notes:

1. Sig = Significant impact, yes **or** no.

SIGNALIZED		UNSIGNALIZED	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

TABLE 10–2
NEAR-TERM STREET SEGMENT OPERATIONS

Street Segment	Existing Capacity (LOS E)[a]	Near-Term Without Project			Near-Term With Project			Δ [e]		Sig?
		ADT [b]	LOS [c]	V/C [d]	ADT	LOS	V/C	ADT	V/C	
SR-75										
1. North of Rainbow Drive	40,000	21,881	C	0.547	22,187	C	0.555	306	0.008	No
2. Rainbow Drive to 7th Street	40,000	18,557	B	0.464	19,263	B	0.482	706	0.018	No
3. 7th Street to Delaware Street	50,000	23,165	B	0.463	23,791	B	0.476	626	0.013	No
4. Delaware Street to 9th Street	50,000	26,631	B	0.533	27,232	B	0.545	601	0.012	No
5. 9th Street to Florida Street	50,000	37,972	C	0.759	38,524	C	0.770	552	0.011	No
Palm Avenue										
6. Rainbow Drive to SR-75	15,000	14,630	E	0.975	14,814	E	0.988	184	0.013	No
Rainbow Drive										
7. SR-75 to Palm Avenue	8,000	6,181	D	0.773	6,273	D	0.784	92	0.011	No

Footnotes:
a. Capacities based on SANTEC/ITE Roadway Classification & LOS table (See *Appendix B*).
b. Average Daily Traffic.
c. Level of Service.
d. Volume to Capacity ratio.
e. Δ denotes a Project-induced increase in ADT and Volume to Capacity ratio.

General Notes:
1. Sig = Significant impact, yes or no.

11.0 YEAR 2040 CONDITIONS

11.1 Year 2040 Network Conditions

The City of Imperial Beach General Plan and the Otay Mesa-Nestor Community Plan identify several vehicular capacity enhancing projects; however, in order to be conservative, no circulation network changes or improvements are assumed for the Year 2040 conditions. These vehicular capacity enhancing projects are not fully funded. There are currently two planning projects proposed that would alter the geometry of the future roadway network that are not necessarily capacity enhancing. The *Imperial Beach Eco-Bikeway Traffic Impact Study* and the *Palm Avenue Commercial Corridor Master Plan Study*, both prepared by KOA Corporation (2008 and 2009, respectively). The *Imperial Beach Eco-Bikeway* project proposes to reduce the number of vehicular travel lanes on Palm Avenue from Third Street to Seventh Street. The *Palm Avenue Commercial Corridor Master Plan* project proposes to reconfigure, but not reduce the capacity of on Palm Avenue between 13th Street and Rainbow Drive to create more of a main street character. Neither project is funded; therefore, they are not included in as part of the background base assumptions for the Year 2040 analysis.

11.2 Year 2040 Traffic Volumes

The long-term forecast traffic volumes were obtained from the *Navy Base Coronado Coastal Campus (NBC) Project Environmental Impact Statement (EIS)*, which analyzed several locations within the Project study area for the forecast Year 2040. This is consistent with other development studies LLG has completed in Imperial Beach, including the neighboring Hampshire at Bayside Landing.

The net Project traffic volumes summarized in *Table 7–4* were added to the Year 2040 volumes to result in the Year 2040 With Project traffic volumes.

Figure 11–1 shows the Year 2040 Without Project traffic volumes and ***Figure 11–2*** shows the Year 2040 With Project traffic volumes.

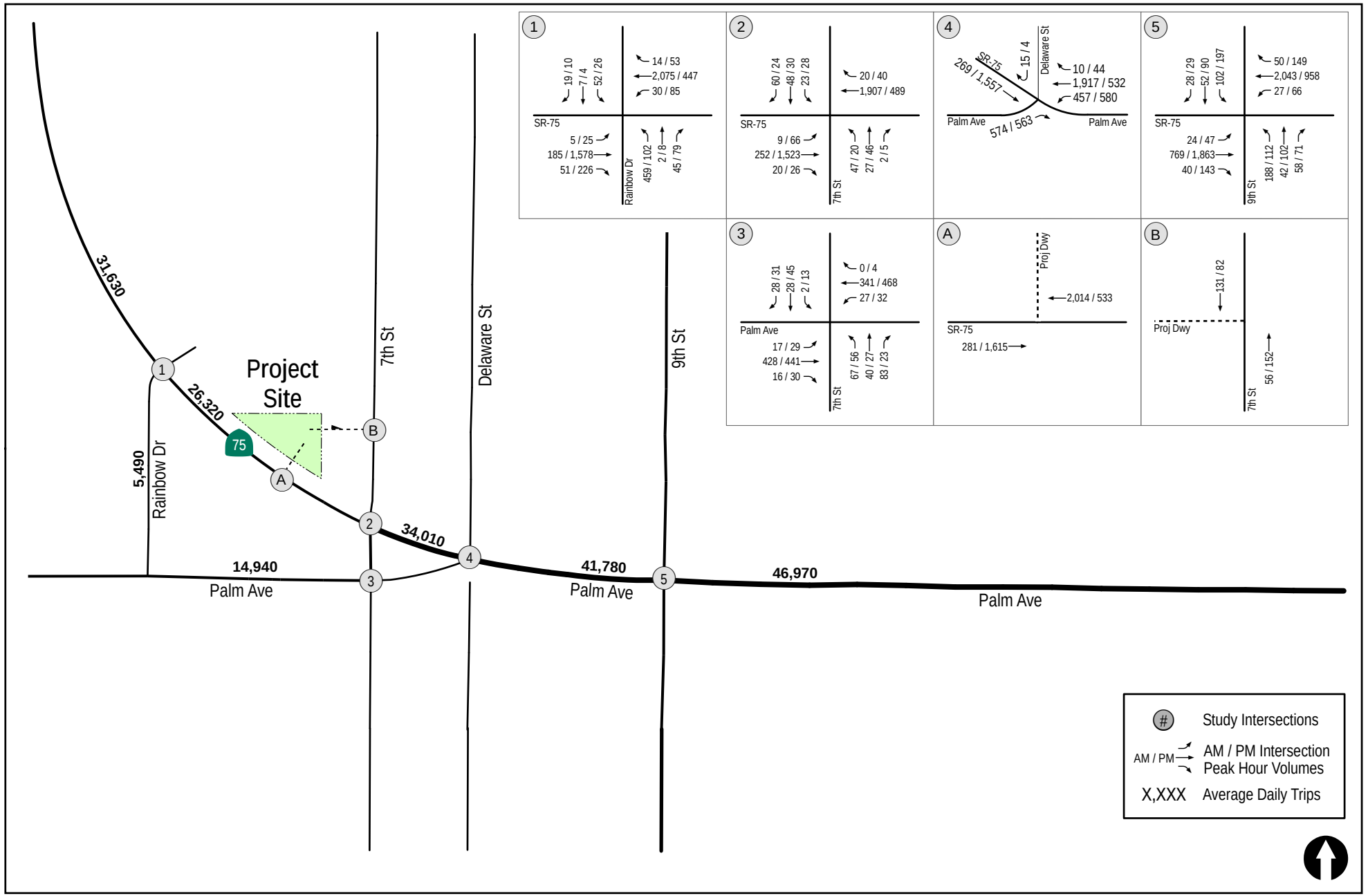

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Figure 11-1

Buildout Year 2040 Traffic Volumes

BLUEWAVE PROJECT

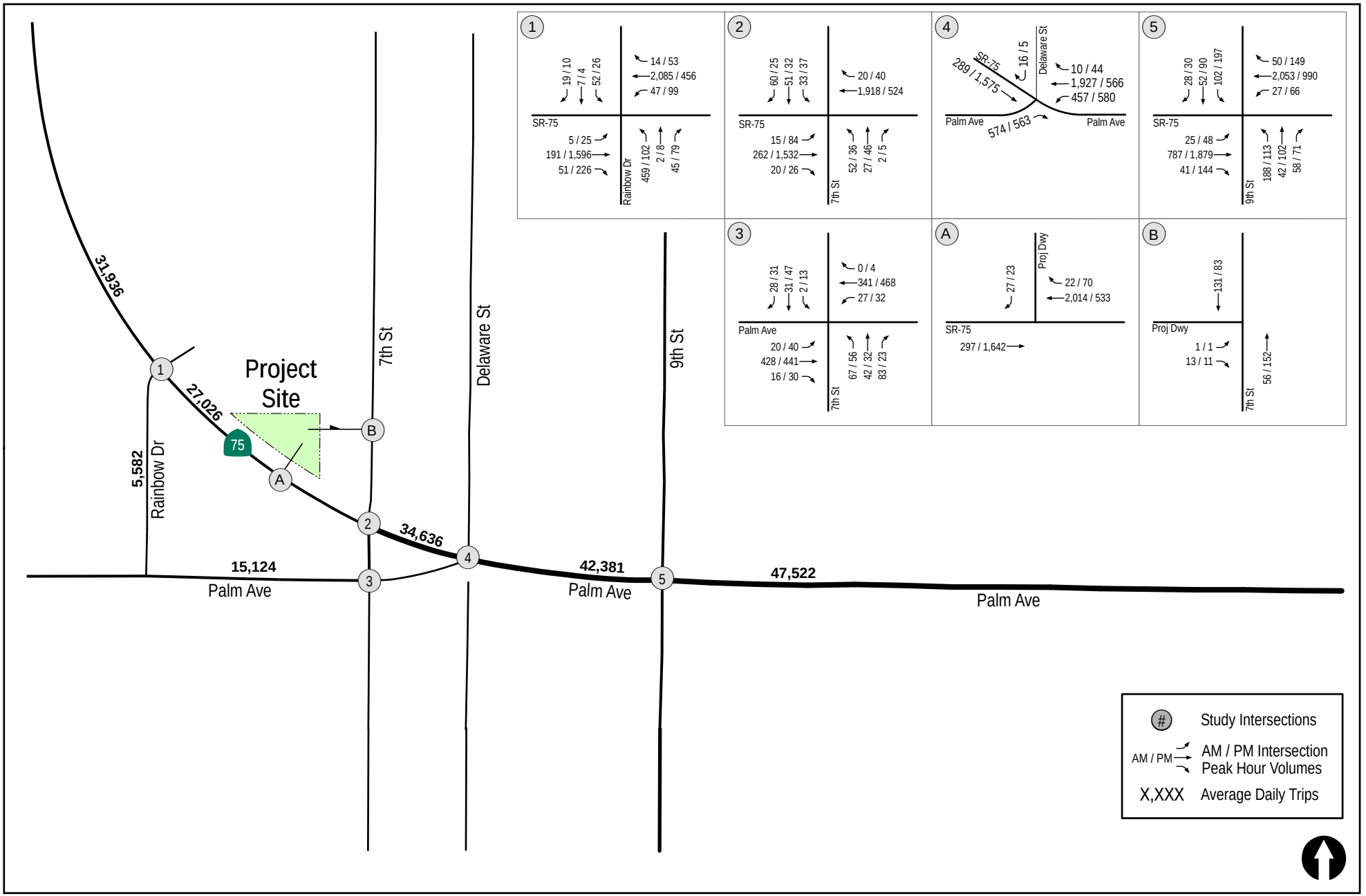

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Figure 11-2

Buildout Year 2040 with Project Traffic Volumes

BLUEWAVE PROJECT

12.0 ANALYSIS OF YEAR 2040 SCENARIOS

The following section presents the long-term Year 2040 analysis of existing study area locations without and with Project traffic.

12.1 Year 2040 Without Project

12.1.1 *Intersection Analysis*

Table 12–1 summarizes the peak hour intersection operations in the study area for the Year 2040 Without Project condition. As seen in *Table 12–1*, all study area intersections are calculated to operate at LOS D or better, except the following:

- Intersection #1. SR-75 (Palm Avenue) / Rainbow Drive – LOS E (AM peak hour)

Appendix H contains the Year 2040 Without Project intersection analysis worksheets.

12.1.2 *Segment Operations*

Table 12–2 summarizes the key segment operations in the study area for the Year 2040 Without Project condition. As seen in *Table 12–2*, all study area segments are calculated to operate at LOS D or better except for:

- Segment #5. SR-75: 9th Street to Florida Street – LOS E
- Segment #6. Palm Avenue: Rainbow Drive to SR-75 – LOS E

12.2 Year 2040 With Project

12.2.1 *Intersection Analysis*

Table 12–1 summarizes the peak hour intersection operations in the study area for the Year 2040 With Project condition. As seen in *Table 12–1*, with the addition of Project traffic, all study area intersections are calculated to continue to operate at LOS D or better except for the following:

- Intersection #1. SR-75 (Palm Avenue) / Rainbow Drive – LOS E (AM peak hour)

Since the increase in delay at the LOS F operating intersection under AM peak hour conditions is less than the allowable 2.0 second threshold with the addition of Project traffic to the Year 2040 baseline condition, ***no significant cumulative intersection impact*** would be expected to occur with the Project.

Appendix I contains the Year 2040 Without Project intersection analysis worksheets.

12.2.2 *Segment Operations*

Table 12–2 summarizes the key segment operations in the study area for the Year 2040 With Project condition. As seen in *Table 12–2*, with the addition of Project traffic, all study area segments are calculated to continue to operate at LOS D or better except for the following:

- Segment #5. Palm Avenue (SR-75) between 9th Street and Florida Street – LOS E
- Segment #6. Palm Avenue between Rainbow Drive and SR-75 – LOS F

It should be noted that the addition of daily Project traffic volumes causes a change in LOS from LOS E to LOS F (both unacceptable) on Segment #6 (Palm Avenue between Rainbow Drive and SR-75). This occurs because the pre-Project volume is just below the LOS E/F threshold for this segment, and therefore changes with only a small amount of volume. However, since the segment is operating at an unacceptable LOS pre-Project, and the Project increase in the v/c ratio is less than the allowable threshold of 0.02, ***no significant cumulative street segment impacts*** would occur for either segment.

TABLE 12–1
YEAR 2040 INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Year 2040 Without Project		Year 2040 With Project		Delay Δ [c]	Sig?
			Delay [a]	LOS [b]	Delay	LOS		
1. SR-75 (Palm Avenue) / Rainbow Drive/	Signal	AM	63.8	E	65.1	E	1.3	No
		PM	31.4	C	33.2	C	1.8	
2. SR-75 (Palm Avenue) / 7th Street	Signal	AM	11.2	B	12.4	B	1.2	No
		PM	15.3	B	16.7	B	1.4	
3. Palm Avenue / 7th Street	Signal	AM	9.0	A	9.1	A	0.1	No
		PM	8.9	A	9.0	A	0.1	
4. SR-75 (Palm Avenue) / Delaware Street	Signal	AM	24.6	C	24.7	C	0.1	No
		PM	35.4	D	35.5	D	0.1	
5. SR-75 (Palm Avenue) / 9th Street	Signal	AM	39.2	D	39.4	D	0.2	No
		PM	53.0	D	53.4	D	0.4	
Project Driveways								
A. SR-75 (Palm Avenue) / Project Driveway	TWSC	AM	—	—	25.5	D	—	No
		PM	—	—	10.6	B	—	
B. 7th Street / Project Driveway	TWSC	AM	—	—	9.1	A	—	No
		PM	—	—	8.9	A	—	

Footnotes:
a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Δ denotes the increase in delay due to Project.

General Notes:
1. Sig = Significant impact, yes **or** no.

SIGNALIZED		UNSIGNALIZED	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

TABLE 12–2
YEAR 2040 STREET SEGMENT OPERATIONS

Street Segment	Existing Capacity (LOS E)[a]	Year 2040 Without Project			Year 2040 With Project			Δ [e]		Sig?
		ADT [b]	LOS [c]	V/C [d]	ADT	LOS	V/C	ADT	V/C	
SR-75										
1. North of Rainbow Drive	40,000	31,630	D	0.791	31,936	D	0.798	306	0.007	No
2. Rainbow Drive to 7th St.	40,000	26,320	C	0.658	27,026	C	0.676	706	0.018	No
3. 7th Street to Delaware St.	50,000	34,010	C	0.680	34,636	C	0.693	626	0.013	No
4. Delaware Street to 9th St.	50,000	41,780	D	0.836	42,381	D	0.848	601	0.012	No
5. 9th Street to Florida Street	50,000	46,970	E	0.939	47,522	E	0.950	552	0.011	No
Palm Avenue										
6. Rainbow Drive to SR-75	15,000	14,940	E	0.996	15,124	F	1.008	184	0.012	No
Rainbow Drive										
7. SR-75 to Palm Avenue	8,000	5,490	D	0.686	5,582	D	0.698	92	0.012	No

Footnotes:

a. Capacities based on SANTEC/ITE Roadway Classification & LOS table (See *Appendix B*).
b. Average Daily Traffic.
c. Level of Service.
d. Volume to Capacity ratio.
e. Δ denotes a Project-induced increase in ADT and Volume to Capacity ratio.

General Notes:

1. Sig = Significant impact, yes or no.

13.0 PARKING SUMMARY

The Project will provide parking on two levels: the podium level and in a subterranean garage called the P1 level. Based on City of Imperial Beach code, the Project requires a total of 103 parking spaces including the 25% "vertical mixed use reduction" allowed by the City's Municipal Code, Section 19.48.035. The Project will provide 103 spaces, per the requirements.

Twenty-four spaces will be provided on the podium level (23%), and 79 spaces will be provided in the P1 level (77%). Motorcycle, handicapped and electric vehicle (EV) spaces will all be provided per code.

Appendix J contains the parking calculations from the Project's site plan "project data summary".

With respect to the vertical mixed use reduction taken for the site, programmatic intent of the Project's retail components is to provide a neighborhood asset for the residents of Imperial Beach. For these uses, the Project is not intended or expected to be a regional asset. The site is in the northwest quadrant of the City, an area of one square mile or approximately 4,000 residents. At the farthest distance (Imperial Beach Blvd.) of one mile this would be a 20-minute walk. For the most part, retail patronages will be from adjacent neighbors, recreational passers-by (walkers, joggers, and cyclists), military personnel, as well as the Project residents and hotel guests. In addition, the retail uses within the Project as will specifically cater to the military base in Coronado.

Besides the intrinsic parking demand reduction associated with the mix of uses and the proximate location to local residential patrons, the Project is actively providing Transportation Demand Management (TDM) features to further encourage transit use, carpooling, ped/bike (multimodal) use, and Transportation Network Company (TNC) use, such as Uber and Lyft. The following is a list of the TDM features to be provided:

- Monthly bus passes for employees
- Direct marketing/catering to military personnel including available shuttle service to-and-from the base
- Provision of bicycle racks (14) on-site for the general public
- Provision of motorcycle parking spaces (9)
- Resident bicycle storage racks
- Dedicated on-site pickup zones for Uber and Lyft
- Proximity to the existing MTS bus stop (Route 901)
- Retail discounts with proof of public ridership or alternative transportation
- Shuttle services from adjacent parking lots, as needed/required
- Flex-parking for hotel purposes (e.g. Uber/Lyft and/or rental)

These features, along with the site's mixed-use residential/hotel/commercial uses and proximity to other retail and recreational opportunities support application the City's provided vertical mixed use reduction.

14.0 ACCESS SUMMARY

Project access is proposed via two driveways to the public street system. The first is a right-in/right out unsignalized driveway located mid-block between signalized intersections at Rainbow Drive and 7th Street. The left-turn restrictions at these types of driveways result in out-of-direction travel and corresponding U-turns for left-turn demand into or out of the site. These movements are accommodated at the adjacent intersections described above, and included in the analyses presented in *Sections 8.0, 9.0 and 12.0* (existing + Project, Near-Term + Project and Year 2040 + Project, respectively). The analyses assumed 65% of outbound traffic would use this driveway, as would 100% of inbound traffic.

Traffic effects from right-in/right-out driveways are observed at the adjacent signalized intersections where U-turns occur, and the analysis results show no significant impacts at either intersection in the near or long-term, although the long-term AM peak hour LOS at the SR-75 (Palm Avenue)/ Rainbow Drive signalized intersection is LOS E without or with the Project (*Table 12–1*). The Project-attributable delay is 1.3 seconds, which is less than the allowable 2.0 seconds of delay.

A secondary, one-way outbound-only driveway is also proposed to 7th Street. The site plans show the parking along this driveway allocated for the retail uses, but the driveway itself could be used by any of the site's traffic. The analysis assumed 35% of the outbound trips to this driveway, with 33% of traffic distributed through the adjacent SR-75 (Palm Avenue)/ 7th Street signalized intersection (the remaining 2% is distributed north to the local neighborhood). Again, no significant impacts occur at this location, with LOS B operations calculated in both the Near-Term + Project and Year 2040 + Project conditions.

15.0 SIGNIFICANCE OF IMPACTS AND CONCLUSIONS

Per the published significance thresholds and the analysis methodology presented in this report, ***no significant impacts*** were calculated with the addition of Project traffic to the baseline analyses under existing, near-term, or Year 2040 long-term conditions. Therefore, no mitigation measures are required.

The Project will provide 103 parking spaces in two levels meeting the 103 required parking spaces.

End of Report

LINSCOTT LAW & GREENSPAN engineers

TECHNICAL APPENDICES

BLUE WAVE IB MIXED-USE

Imperial Beach, California
December 14, 2018

LLG Ref. 3-18-2909

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APPENDIX A

INTERSECTION AND SEGMENT MANUAL COUNT SHEETS

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Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#01	File Name:	ITM-18-060-01
Intersection:	Rainbow Drive & SR-75	Project:	LLG Ref. 3-18-2909
Date of Count:	Thursday, May 31, 2018		Imperial Beach

AM	Private Driveway Southbound			SR-75 Westbound			Rainbow Drive Northbound			SR-75 Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	2	2	2	3	436	6	156	1	6	0	36	3	653
7:15	1	1	2	1	453	3	176	0	8	0	43	3	691
7:30	1	1	2	17	367	2	129	0	13	2	45	24	603
7:45	2	2	2	11	277	5	93	0	9	3	57	12	473
8:00	0	0	3	23	256	5	65	0	12	3	70	12	449
8:15	3	3	1	11	253	2	68	0	23	2	73	15	454
8:30	2	2	1	6	235	5	78	0	10	2	58	14	413
8:45	2	2	2	9	171	1	47	0	9	2	47	13	305
Total	13	13	15	81	2448	29	812	1	90	14	429	96	4041
Approach%	31.7	31.7	36.6	3.2	95.7	1.1	89.9	0.1	10.0	2.6	79.6	17.8	
Total%	0.3	0.3	0.4	2.0	60.6	0.7	20.1	0.0	2.2	0.3	10.6	2.4	

AM Intersection Peak Hour: **07:00 to 08:00**

Volume	6	6	8	32	1,533	16	554	1	36	5	181	42	2,420
Approach%	30.0	30.0	40.0	2.0	97.0	1.0	93.7	0.2	6.1	2.2	79.4	18.4	
Total%	0.2	0.2	0.3	1.3	63.3	0.7	22.9	0.0	1.5	0.2	7.5	1.7	
PHF			0.83			0.86			0.80			0.79	0.89

PM	Private Driveway Southbound			SR-75 Westbound			Rainbow Drive Northbound			SR-75 Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	2	0	2	14	62	0	15	2	9	2	343	73	524
16:15	3	0	0	20	69	5	28	0	13	5	397	85	625
16:30	0	0	2	12	80	1	25	0	9	3	345	81	558
16:45	5	0	1	23	67	1	21	0	8	5	334	70	535
17:00	3	0	0	13	82	1	34	0	16	4	278	89	520
17:15	3	0	3	18	61	3	24	1	13	2	251	82	461
17:30	4	0	2	12	54	1	24	0	10	5	235	73	420
17:45	2	1	2	16	68	0	17	2	17	6	214	67	412
Total	22	1	12	128	543	12	188	5	95	32	2397	620	4055
Approach%	62.9	2.9	34.3	18.7	79.5	1.8	65.3	1.7	33.0	1.0	78.6	20.3	
Total%	0.5	0.0	0.3	3.2	13.4	0.3	4.7	0.1	2.4	0.8	59.3	15.3	

PM Intersection Peak Hour: **16:00 to 17:00**

Volume	10	-	5	69	278	7	89	2	39	15	1,419	309	2,242
Approach%	66.7	-	33.3	19.5	78.5	2.0	68.5	1.5	30.0	0.9	81.4	17.7	
Total%	0.4	-	0.2	2.9	11.5	0.3	3.7	0.1	1.6	0.6	58.6	12.8	
PHF			0.63			0.94			0.79			0.89	0.90

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

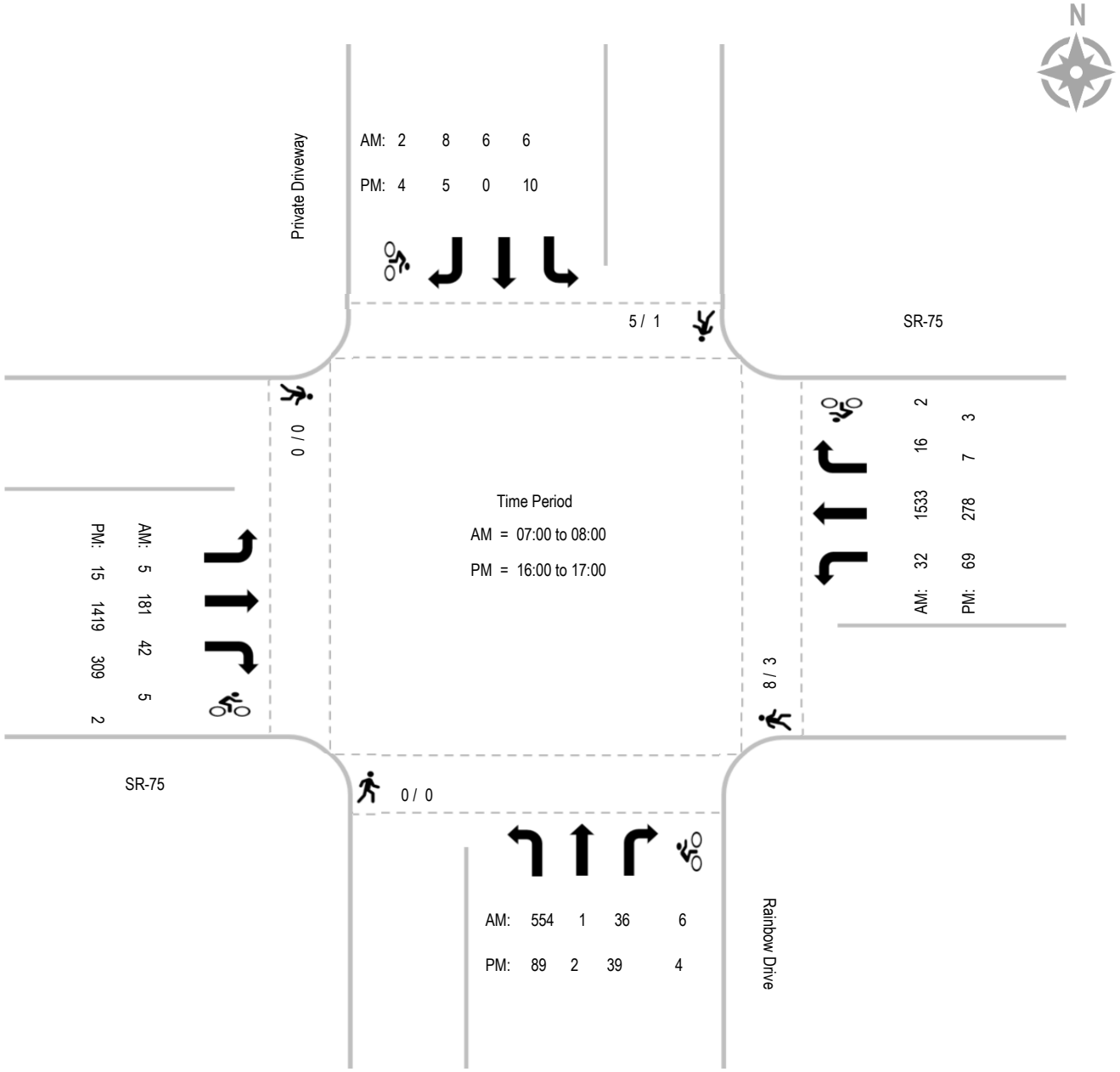
Location:	#01	File Name:	ITM-18-060-01
Intersection:	Rainbow Drive & SR-75	Project:	LLG Ref. 3-18-2909
Date of Count:	Thursday, May 31, 2018		Imperial Beach

AM	Private Driveway Southbound				SR-75 Westbound				Rainbow Drive Northbound				SR-75 Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
7:15	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	5	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:45	1	0	0	0	1	0	0	0	0	0	3	0	0	0	3	0	2	6
8:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
8:15	0	0	0	0	1	0	0	1	0	2	0	0	0	0	0	0	1	3
8:30	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	1	3
8:45	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0
Ped Total	5				8				0				0				13	
Bike Total		0	2	0		0	1	1		3	3	0		0	5	0		15

PM	Private Driveway Southbound				SR-75 Westbound				Rainbow Drive Northbound				SR-75 Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
16:15	1	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	2	2
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
17:15	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
17:30	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2
17:45	0	0	0	0	2	0	2	0	0	0	2	0	0	0	0	0	2	4
Ped Total	1				3				0				0				4	
Bike Total		0	4	0		0	3	0		1	3	0		0	2	0		13

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location:	#01	File Name:	ITM-18-060-01
	Intersection:	Rainbow Drive & SR-75	Project:	LLG Ref. 3-18-2909
	Date of Count:	Thursday, May 31, 2018		Imperial Beach



Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#02	File Name:	ITM-18-060-02
Intersection:	7th Street & SR-75	Project:	LLG Ref. 3-18-2909
Date of Count:	Thursday, May 31, 2018		Imperial Beach

AM	7th Street Southbound			SR-75 Westbound			7th Street Northbound			SR-75 Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	5	7	27	0	432	7	8	1	1	2	46	3	539
7:15	5	17	20	0	440	5	7	7	1	2	51	2	557
7:30	4	7	17	0	364	8	17	2	0	0	59	0	478
7:45	12	14	11	0	218	6	12	7	0	3	64	2	349
8:00	7	12	19	0	307	4	7	6	1	2	61	12	438
8:15	5	10	11	0	236	8	11	6	0	4	95	5	391
8:30	3	8	11	0	215	10	8	4	1	4	66	7	337
8:45	5	3	9	0	184	6	5	5	0	4	57	3	281
Total	46	78	125	0	2396	54	75	38	4	21	499	34	3370
Approach%	18.5	31.3	50.2	-	97.8	2.2	64.1	32.5	3.4	3.8	90.1	6.1	
Total%	1.4	2.3	3.7	-	71.1	1.6	2.2	1.1	0.1	0.6	14.8	1.0	

AM Intersection Peak Hour: **07:00 to 08:00**

Volume	26	45	75	-	1,454	26	44	17	2	7	220	7	1,923
Approach%	17.8	30.8	51.4	-	98.2	1.8	69.8	27.0	3.2	3.0	94.0	3.0	
Total%	1.4	2.3	3.9	-	75.6	1.4	2.3	0.9	0.1	0.4	11.4	0.4	
PHF			0.87			0.83			0.83			0.85	0.86

PM	7th Street Southbound			SR-75 Westbound			7th Street Northbound			SR-75 Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	7	6	5	0	68	2	5	10	0	5	314	20	442
16:15	6	7	4	0	84	12	4	5	1	17	317	18	475
16:30	7	4	3	0	89	5	3	3	1	6	276	21	418
16:45	9	7	4	0	79	10	4	12	0	11	306	23	465
17:00	3	11	3	0	82	10	8	15	1	8	290	16	447
17:15	12	4	6	0	71	13	5	6	0	6	239	12	374
17:30	8	10	2	0	71	15	3	11	2	14	203	25	364
17:45	6	10	6	0	56	15	1	9	1	17	193	21	335
Total	58	59	33	0	600	82	33	71	6	84	2138	156	3320
Approach%	38.7	39.3	22.0	-	88.0	12.0	30.0	64.5	5.5	3.5	89.9	6.6	
Total%	1.7	1.8	1.0	-	17.8	2.4	1.0	2.1	0.2	2.5	63.4	4.6	

PM Intersection Peak Hour: **16:15 to 17:15**

Volume	25	29	14	-	334	37	19	35	3	42	1,189	78	1,805
Approach%	36.8	42.6	20.6	-	90.0	10.0	33.3	61.4	5.3	3.2	90.8	6.0	
Total%	1.3	1.5	0.7	-	17.4	1.9	1.0	1.8	0.2	2.2	61.8	4.1	
PHF			0.85			0.97			0.59			0.93	0.95

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

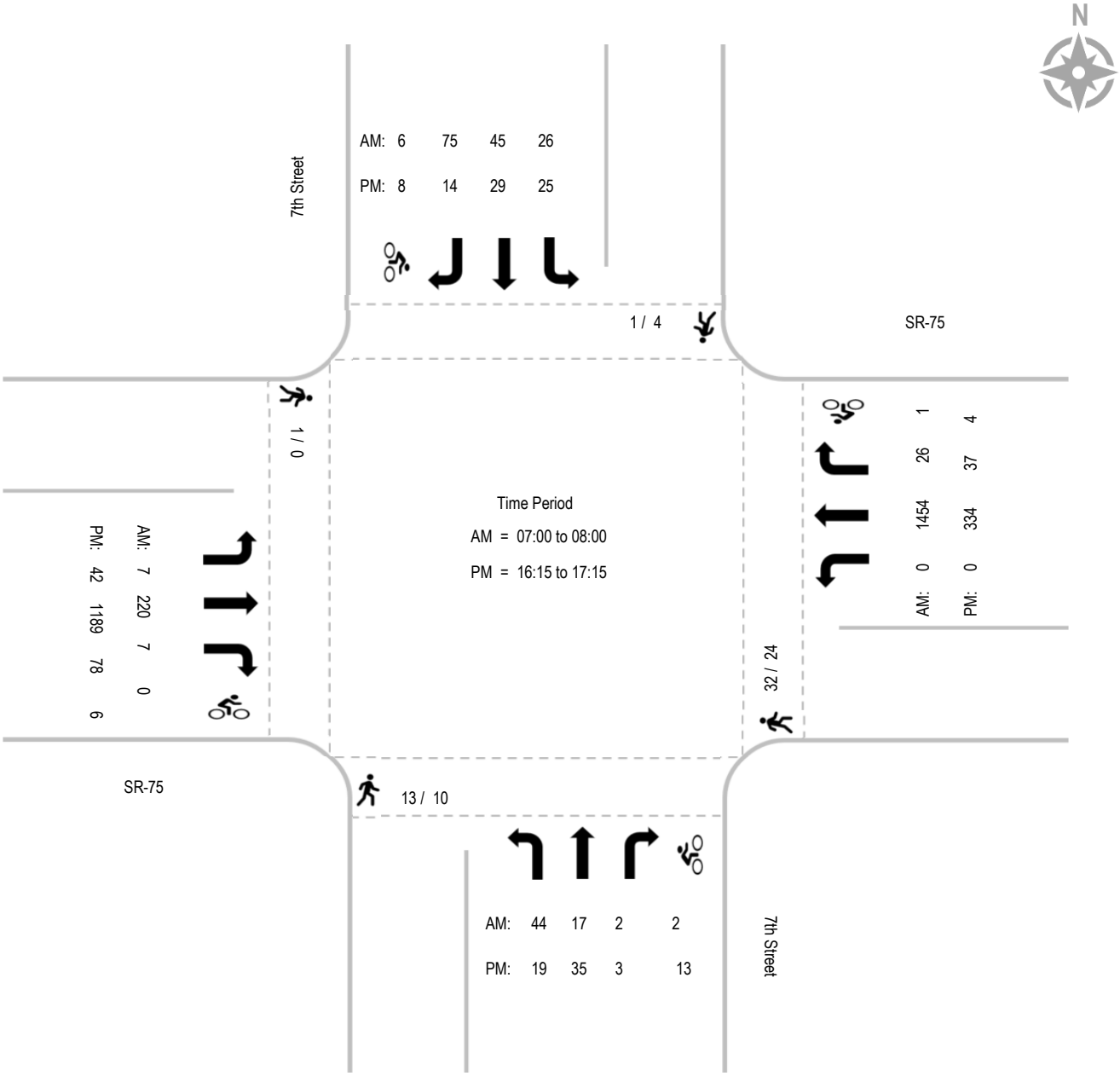
Location:	#02	File Name:	ITM-18-060-02
Intersection:	7th Street & SR-75	Project:	LLG Ref. 3-18-2909
Date of Count:	Thursday, May 31, 2018		Imperial Beach

AM	7th Street Southbound				SR-75 Westbound				7th Street Northbound				SR-75 Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	1	0	0	0	0	0	3	0	0	0	0	0	0	0	3	1
7:15	0	0	2	0	11	0	0	0	1	0	1	0	0	0	0	0	12	3
7:30	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	2
7:45	1	0	0	0	9	0	0	0	5	0	0	0	0	0	0	0	15	0
8:00	0	0	0	0	5	0	0	0	1	0	0	0	0	0	0	0	6	0
8:15	0	0	0	0	4	0	0	0	2	0	0	0	0	0	0	0	6	0
8:30	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	1	2
8:45	0	0	1	0	1	0	0	0	1	0	0	0	1	0	0	0	3	1
Ped Total	1				32				13				1				47	
Bike Total		0	6	0		0	1	0		0	2	0		0	0	0		9

PM	7th Street Southbound				SR-75 Westbound				7th Street Northbound				SR-75 Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
16:15	0	0	1	0	1	2	0	0	1	0	4	0	0	0	3	0	2	10
16:30	0	0	2	0	3	0	0	0	0	0	1	1	0	0	2	0	3	6
16:45	1	0	0	0	3	0	0	0	0	0	1	0	0	0	0	0	4	1
17:00	0	0	1	0	1	0	0	0	2	0	2	1	0	0	0	0	3	4
17:15	0	0	2	0	5	0	0	0	0	0	2	0	0	0	1	0	5	5
17:30	2	0	1	0	5	1	0	0	2	0	0	0	0	0	0	0	9	2
17:45	0	0	1	0	6	0	1	0	5	0	1	0	0	0	0	0	11	3
Ped Total	4				24				10				0				38	
Bike Total		0	8	0		3	1	0		0	11	2		0	6	0		31

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location:	#02	File Name:	ITM-18-060-02
	Intersection:	7th Street & SR-75	Project:	LLG Ref. 3-18-2909
	Date of Count:	Thursday, May 31, 2018		Imperial Beach



Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#03	File Name:	ITM-18-060-03
Intersection:	7th Street & Palm Avenue	Project:	LLG Ref. 3-18-2909
Date of Count:	Thursday, May 31, 2018		Imperial Beach

AM	7th Street Southbound			Palm Avenue Westbound			7th Street Northbound			Palm Avenue Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	0	2	9	1	45	0	62	13	16	1	61	6	216
7:15	0	7	1	4	87	0	75	11	19	8	100	13	325
7:30	0	2	7	2	69	0	47	16	11	4	88	6	252
7:45	0	2	6	5	71	0	36	14	4	2	71	4	215
8:00	1	18	6	9	74	0	41	10	7	4	86	8	264
8:15	0	8	4	4	69	1	23	14	14	7	94	7	245
8:30	0	9	8	4	68	0	16	11	12	3	60	2	193
8:45	0	1	3	8	95	0	16	9	4	8	53	5	202
Total	1	49	44	37	578	1	316	98	87	37	613	51	1912
Approach%	1.1	52.1	46.8	6.0	93.8	0.2	63.1	19.6	17.4	5.3	87.4	7.3	
Total%	0.1	2.6	2.3	1.9	30.2	0.1	16.5	5.1	4.6	1.9	32.1	2.7	

AM Intersection Peak Hour: **07:15 to 08:15**

Volume	1	29	20	20	301	-	199	51	41	18	345	31	1,056
Approach%	2.0	58.0	40.0	6.2	93.8	-	68.4	17.5	14.1	4.6	87.6	7.9	
Total%	0.1	2.7	1.9	1.9	28.5	-	18.8	4.8	3.9	1.7	32.7	2.9	
PHF			0.50			0.88			0.69			0.81	0.81

PM	7th Street Southbound			Palm Avenue Westbound			7th Street Northbound			Palm Avenue Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	1	16	7	4	88	0	13	7	7	9	78	19	249
16:15	0	15	6	5	79	1	51	7	14	4	112	8	302
16:30	1	16	7	5	82	0	19	3	8	3	57	13	214
16:45	0	26	7	1	84	0	18	6	5	11	86	5	249
17:00	0	15	6	5	74	4	11	11	4	10	92	8	240
17:15	0	18	4	5	83	0	15	11	9	7	89	11	252
17:30	0	22	7	4	86	0	17	9	10	7	67	11	240
17:45	2	17	9	8	81	1	13	4	9	10	74	4	232
Total	4	145	53	37	657	6	157	58	66	61	655	79	1978
Approach%	2.0	71.8	26.2	5.3	93.9	0.9	55.9	20.6	23.5	7.7	82.4	9.9	
Total%	0.2	7.6	2.8	1.9	34.4	0.3	8.2	3.0	3.5	3.2	34.3	4.1	

PM Intersection Peak Hour: **16:00 to 17:00**

Volume	2	73	27	15	333	1	101	23	34	27	333	45	1,014
Approach%	2.0	71.6	26.5	4.3	95.4	0.3	63.9	14.6	21.5	6.7	82.2	11.1	
Total%	0.2	6.9	2.6	1.4	31.5	0.1	9.6	2.2	3.2	2.6	31.5	4.3	
PHF			0.77			0.95			0.55			0.82	0.84

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

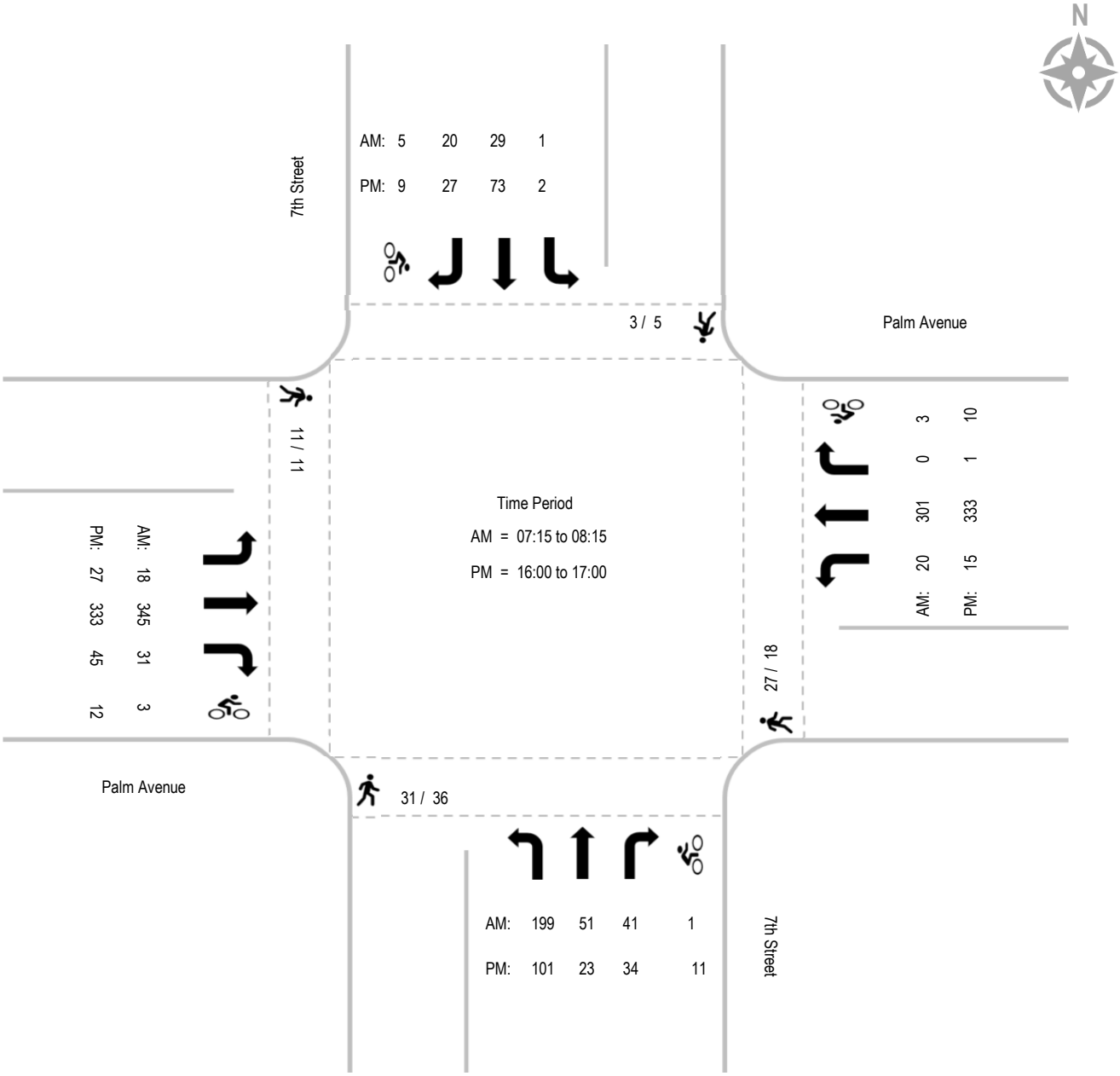
Location:	#03	File Name:	ITM-18-060-03
Intersection:	7th Street & Palm Avenue	Project:	LLG Ref. 3-18-2909
Date of Count:	Thursday, May 31, 2018		Imperial Beach

AM	7th Street Southbound				Palm Avenue Westbound				7th Street Northbound				Palm Avenue Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	2	0	9	0	0	0	5	0	0	0	3	0	0	0	17	2
7:15	0	0	1	0	7	0	0	0	9	0	0	0	3	0	0	0	19	1
7:30	1	0	0	0	4	0	0	0	6	0	0	0	1	0	1	0	12	1
7:45	1	0	0	0	3	0	0	0	2	0	0	0	4	0	2	0	10	2
8:00	1	0	0	0	2	0	3	0	2	0	0	0	0	0	0	0	5	3
8:15	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	1	2
8:30	0	0	1	0	0	0	0	0	3	0	0	0	0	0	0	0	3	1
8:45	0	0	0	0	1	0	0	0	4	0	0	0	0	0	0	0	5	0
Ped Total	3				27				31				11				72	
Bike Total		0	5	0		0	3	0		0	1	0		0	3	0		12

PM	7th Street Southbound				Palm Avenue Westbound				7th Street Northbound				Palm Avenue Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	1	0	0	2	1	1	2	1	0	1	0	3	6
16:15	0	0	1	0	5	5	0	0	10	0	1	0	2	0	3	0	17	10
16:30	0	0	0	0	0	0	0	0	9	0	1	0	4	0	1	0	13	2
16:45	3	0	1	0	3	1	0	0	5	0	0	0	0	0	1	0	11	3
17:00	0	0	1	1	0	1	0	0	2	0	2	0	0	0	1	0	2	6
17:15	1	0	0	1	6	0	0	0	2	0	1	1	0	1	0	1	9	5
17:30	0	0	2	1	2	1	0	0	4	1	0	0	1	0	1	1	7	7
17:45	1	0	1	0	2	1	0	0	2	0	0	0	3	1	0	0	8	3
Ped Total	5				18				36				11				70	
Bike Total		0	6	3		10	0	0		2	6	3		2	8	2		42

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location:	#03	File Name:	ITM-18-060-03
	Intersection:	7th Street & Palm Avenue	Project:	LLG Ref. 3-18-2909
	Date of Count:	Thursday, May 31, 2018		Imperial Beach



Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#04	File Name:	ITM-18-060-04
Intersection:	Delaware Street & Palm Avenue (SR-75)	Project:	LLG Ref. 3-18-2909
Date of Count:	Thursday, May 31, 2018		Imperial Beach

AM	Delaware Street Southbound			Palm Avenue (SR-75) Westbound			Palm Avenue Northbound			SR-75 Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	0	0	13	55	425	0	0	0	71	0	51	0	615
7:15	0	0	9	75	419	0	0	0	101	0	63	0	667
7:30	0	0	4	77	341	0	0	0	108	0	62	0	592
7:45	0	0	2	76	385	1	0	0	79	0	81	0	624
8:00	0	0	3	103	262	1	0	0	108	0	90	0	567
8:15	0	0	2	67	262	2	0	0	95	0	95	0	523
8:30	0	0	2	79	214	0	0	0	79	0	75	0	449
8:45	0	0	2	103	166	2	0	0	67	0	60	0	400
Total	0	0	37	635	2474	6	0	0	708	0	577	0	4437
Approach%	-	-	100.0	20.4	79.4	0.2	-	-	100.0	-	100.0	-	
Total%	-	-	0.8	14.3	55.8	0.1	-	-	16.0	-	13.0	-	

AM Intersection Peak Hour: **07:00 to 08:00**

Volume	-	-	28	283	1,570	1	-	-	359	-	257	-	2,498
Approach%	-	-	100.0	15.3	84.7	0.1	-	-	100.0	-	100.0	-	
Total%	-	-	1.1	11.3	62.9	0.0	-	-	14.4	-	10.3	-	
PHF			0.54			0.94			0.83			0.79	0.94

PM	Delaware Street Southbound			Palm Avenue (SR-75) Westbound			Palm Avenue Northbound			SR-75 Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	0	0	1	93	70	0	0	0	91	0	313	0	568
16:15	0	0	1	96	101	2	0	0	97	0	371	0	668
16:30	0	0	1	84	89	0	0	0	84	0	350	0	608
16:45	0	0	0	95	92	1	0	0	85	0	322	0	595
17:00	0	0	2	87	85	1	0	0	93	0	285	2	555
17:15	0	0	0	88	81	6	0	0	94	0	263	0	532
17:30	0	0	1	108	65	2	0	0	81	0	201	0	458
17:45	0	0	1	87	81	0	0	0	81	0	203	1	454
Total	0	0	7	738	664	12	0	0	706	0	2308	3	4438
Approach%	-	-	100.0	52.2	47.0	0.8	-	-	100.0	-	99.9	0.1	
Total%	-	-	0.2	16.6	15.0	0.3	-	-	15.9	-	52.0	0.1	

PM Intersection Peak Hour: **16:00 to 17:00**

Volume	-	-	3	368	352	3	-	-	357	-	1,356	-	2,439
Approach%	-	-	100.0	50.9	48.7	0.4	-	-	100.0	-	100.0	-	
Total%	-	-	0.1	14.7	14.1	0.1	-	-	14.3	-	54.3	-	
PHF			0.75			0.91			0.92			0.91	0.91

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

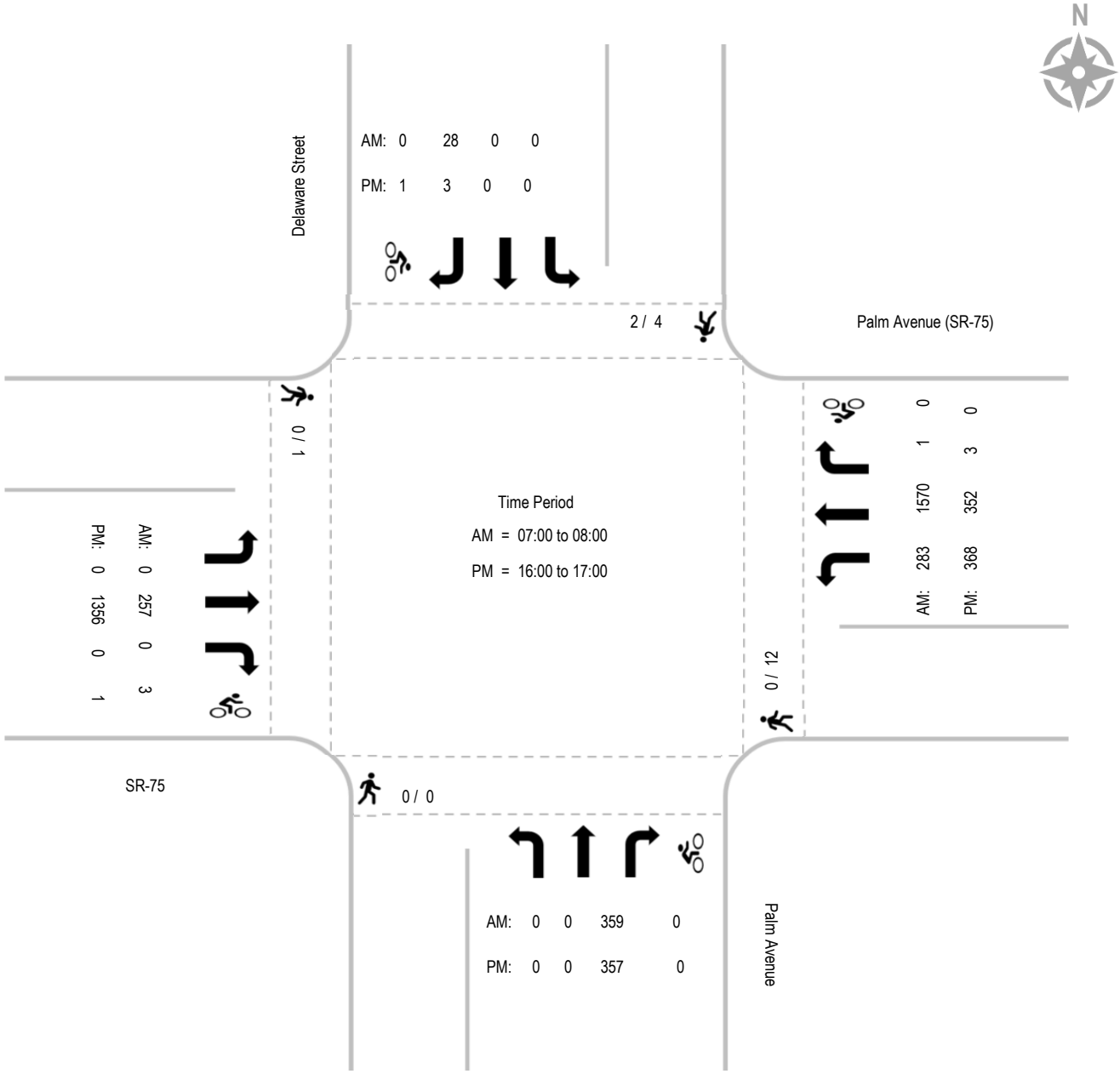
Location:	#04	File Name:	ITM-18-060-04
Intersection:	Delaware Street & Palm Avenue (SR-75)	Project:	LLG Ref. 3-18-2909
Date of Count:	Thursday, May 31, 2018		Imperial Beach

AM	Delaware Street Southbound				Palm Avenue (SR-75) Westbound				Palm Avenue Northbound				SR-75 Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	2				0				0				0				2	
Bike Total		0	0	0		0	0	0		0	0	0		0	3	0		3

PM	Delaware Street Southbound				Palm Avenue (SR-75) Westbound				Palm Avenue Northbound				SR-75 Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
16:15	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	2	1
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
17:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
17:15	3	0	0	0	6	0	0	0	0	0	0	0	1	0	0	0	10	0
17:30	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	3	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	4				12				0				1				17	
Bike Total		0	0	1		0	0	0		0	0	0		0	1	0		2

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location:	#04	File Name:	ITM-18-060-04
	Intersection:	Delaware Street & Palm Avenue (SR-75)	Project:	LLG Ref. 3-18-2909
	Date of Count:	Thursday, May 31, 2018		Imperial Beach



Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#05	File Name:	ITM-18-060-05
Intersection:	9th Street & Palm Avenue (SR-75)	Project:	LLG Ref. 3-18-2909
Date of Count:	Thursday, May 31, 2018		Imperial Beach

AM	9th Street Southbound			Palm Avenue (SR-75) Westbound			9th Street Northbound			Palm Avenue (SR-75) Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	25	14	1	14	494	13	45	10	10	9	106	9	750
7:15	18	15	6	18	388	12	49	17	3	9	141	10	686
7:30	28	12	5	32	358	11	43	20	12	5	158	11	695
7:45	35	22	6	25	326	14	36	22	21	8	129	11	655
8:00	24	23	3	29	262	13	57	21	15	7	149	13	616
8:15	22	19	2	27	252	13	53	28	25	9	143	23	616
8:30	23	10	6	11	250	17	54	11	33	9	134	10	568
8:45	19	20	1	22	218	20	28	13	25	9	106	6	487
Total	194	135	30	178	2548	113	365	142	144	65	1066	93	5073
Approach%	54.0	37.6	8.4	6.3	89.7	4.0	56.1	21.8	22.1	5.3	87.1	7.6	
Total%	3.8	2.7	0.6	3.5	50.2	2.2	7.2	2.8	2.8	1.3	21.0	1.8	

AM Intersection Peak Hour: **07:00 to 08:00**

Volume	106	63	18	89	1,566	50	173	69	46	31	534	41	2,786
Approach%	56.7	33.7	9.6	5.2	91.8	2.9	60.1	24.0	16.0	5.1	88.1	6.8	
Total%	3.8	2.3	0.6	3.2	56.2	1.8	6.2	2.5	1.7	1.1	19.2	1.5	
PHF			0.74			0.82			0.91			0.87	0.93

PM	9th Street Southbound			Palm Avenue (SR-75) Westbound			9th Street Northbound			Palm Avenue (SR-75) Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	34	26	1	31	134	18	32	16	22	10	324	54	702
16:15	27	21	4	34	180	17	27	21	17	9	378	58	793
16:30	23	32	4	39	162	19	22	18	28	18	352	52	769
16:45	35	24	3	42	163	20	23	28	31	16	320	55	760
17:00	28	25	0	35	159	25	24	21	21	16	292	45	691
17:15	40	24	6	43	124	31	35	22	22	17	227	41	632
17:30	32	15	4	42	146	15	23	17	17	15	207	37	570
17:45	31	15	4	38	136	21	28	16	16	15	214	39	573
Total	250	182	26	304	1204	166	214	159	174	116	2314	381	5490
Approach%	54.6	39.7	5.7	18.2	71.9	9.9	39.1	29.1	31.8	4.1	82.3	13.6	
Total%	4.9	3.6	0.5	6.0	23.7	3.3	4.2	3.1	3.4	2.3	45.6	7.5	

PM Intersection Peak Hour: **16:00 to 17:00**

Volume	119	103	12	146	639	74	104	83	98	53	1,374	219	3,024
Approach%	50.9	44.0	5.1	17.0	74.4	8.6	36.5	29.1	34.4	3.2	83.5	13.3	
Total%	4.3	3.7	0.4	5.2	22.9	2.7	3.7	3.0	3.5	1.9	49.3	7.9	
PHF			0.94			0.93			0.87			0.92	0.95

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

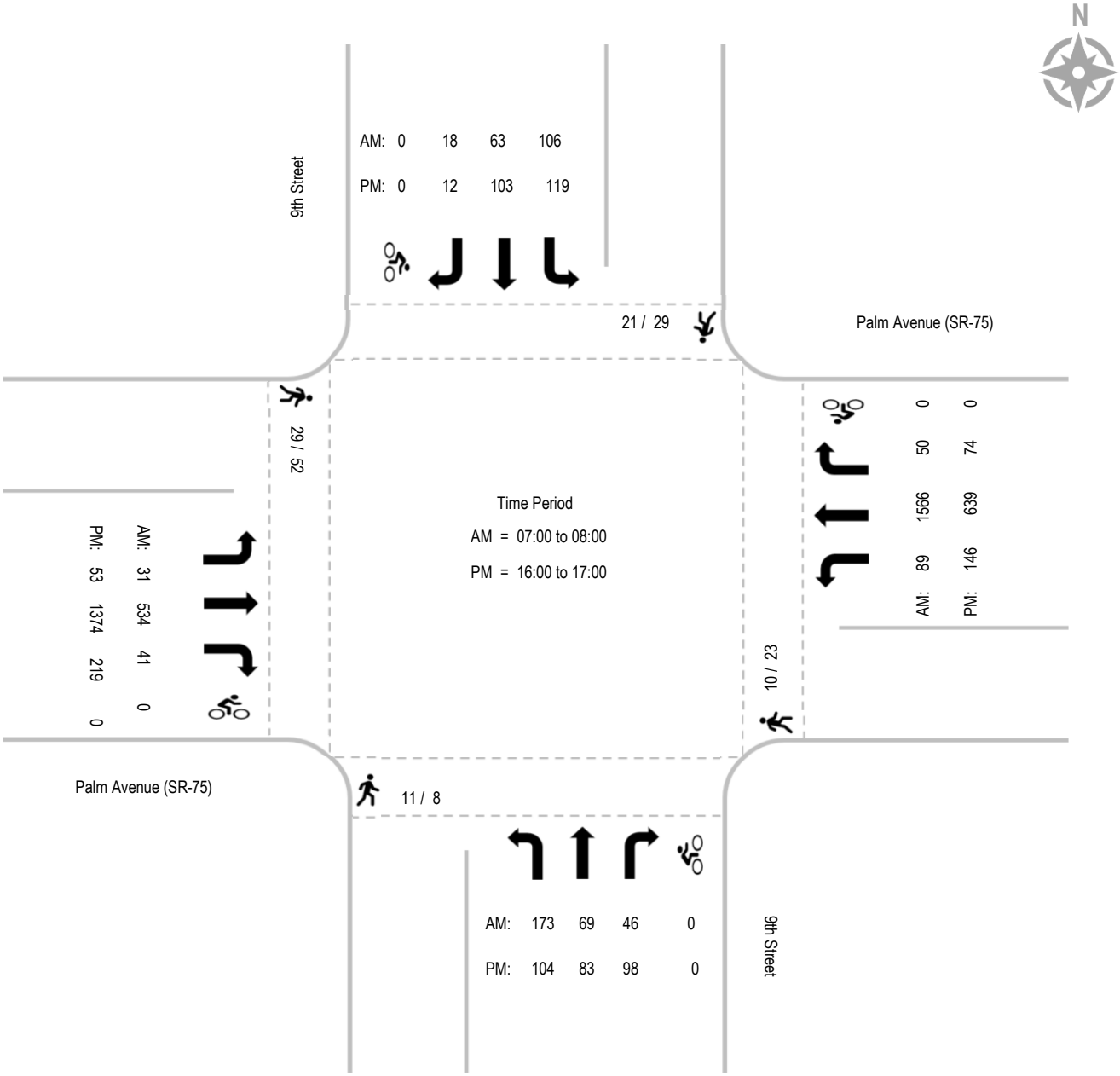
Location:	#05	File Name:	ITM-18-060-05
Intersection:	9th Street & Palm Avenue (SR-75)	Project:	LLG Ref. 3-18-2909
Date of Count:	Thursday, May 31, 2018		Imperial Beach

AM	9th Street Southbound				Palm Avenue (SR-75) Westbound				9th Street Northbound				Palm Avenue (SR-75) Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	1	0	0	0	1	0	0	0	1	0	0	0	2	0	0	0	5	0
7:15	0	0	0	0	0	0	0	0	3	0	0	0	7	0	0	0	10	0
7:30	4	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	6	0
7:45	1	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	4	0
8:00	3	0	0	0	1	0	0	0	4	0	0	0	6	0	0	0	14	0
8:15	6	0	0	0	6	0	0	0	1	0	0	0	4	0	0	0	17	0
8:30	3	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	5	0
8:45	3	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	10	0
Ped Total	21				10				11				29				71	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

PM	9th Street Southbound				Palm Avenue (SR-75) Westbound				9th Street Northbound				Palm Avenue (SR-75) Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	4	0	0	0	0	0	0	0	4	0	0	0	14	0	0	0	22	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	10	0	0	0	1	0	0	0	0	0	0	0	10	0	0	0	21	0
16:45	5	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	11	0
17:00	1	0	0	0	8	0	0	0	0	0	0	0	7	0	0	0	16	0
17:15	2	0	0	0	6	0	0	0	0	0	0	0	7	0	0	0	15	0
17:30	4	0	0	0	1	0	0	0	1	0	0	0	8	0	0	0	14	0
17:45	3	0	0	0	4	0	0	0	0	0	0	0	6	0	0	0	13	0
Ped Total	29				23				8				52				112	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location:	#05	File Name:	ITM-18-060-05
	Intersection:	9th Street & Palm Avenue (SR-75)	Project:	LLG Ref. 3-18-2909
	Date of Count:	Thursday, May 31, 2018		Imperial Beach



Dist	Route	County		Postmile	Description	Back Peak Hour	Back Peak Month	Back AADT	Ahead Peak Hour	Ahead Peak Month	Ahead AADT
08	074	RIV		0	ORANGE/RIVERSIDE COUNTY LINE				1050	11500	10500
08	074	RIV		11.825	ELSINORE, GRAND AVENUE	1050	11500	10500	1600	20700	19000
08	074	RIV	R	14.19	ELSINORE, LAKE SHORE DRIVE	2250	29000	26500	2150	27500	25000
08	074	RIV	R	14.997	GUNNERSON STREET/ STICKLAND AVENUE	2250	29000	26500	2250	29000	26500
08	074	RIV	R	16.335	ELSINORE, JCT. RTE. 15	2700	34500	31500	2700	33000	31500
08	074	RIV		25.748	PERRIS, SEVENTH STREET	2150	25000	24000	2250	27500	26500
08	074	RIV		27.54	JCT. RTE. 215	1700	21700	21000	2100	26000	25000
08	074	RIV		28.914	ETHANAC ROAD	2000	24700	24000	2000	26500	25000
08	074	RIV		29.8	MENIFEE ROAD	1950	25000	24500	2550	32000	30000
08	074	RIV		34.332	JCT. RTE. 79 SOUTH	2500	30500	29000	2950	34000	33000
08	074	RIV		36.928	WARREN ROAD	3300	34500	33000	2650	29500	28000
08	074	RIV		39.588	LYON AVENUE	2650	29500	28000	2450	31500	30000
08	074	RIV		40.588	HEMET, STATE STREET	2850	31500	30000	2250	30500	29000
08	074	RIV		41.338	JCT. RTE. 79 NORTH	2300	30500	29000	2400	28500	27000
08	074	RIV		41.84	HEMET, YALE STREET	2250	29500	28000	2000	26500	25000
08	074	RIV		42.34	CORNELL STREET	1950	26500	25000	1900	26500	25000
08	074	RIV		43.338	HEMET STREET	1950	26500	25000	1500	20000	19000
08	074	RIV		44.74	MOUNTAIN STREET	1200	15800	15000	1300	16000	15500
08	074	RIV		48.288	SAN BERNARDINO NATIONAL FOREST BOUNDARY	530	5000	4800	390	3700	3500
08	074	RIV		59.25	JCT. RTE. 243 NORTH	380	3500	3200	330	3500	3300
08	074	RIV		71.745	JCT. RTE. 371 WEST	310	2750	2600	440	3750	3400
08	074	RIV	R	92.34	PALM DESERT, JCT. RTE. 111	2450	21100	19000			
11	075	SD		8.93	BEGIN ROUTE 75, EAST OF ROUTE 5				2650	33000	32500
11	075	SD		9	SAN DIEGO, JCT. RTE. 5	2650	33000	32500	5200	70000	68000
11	075	SD		9.31	SAN DIEGO, SATURN/19TH STREET	5200	70000	68000	4250	52000	51000
11	075	SD		10.07	IMPERIAL BEACH, 13TH STREET	4250	52000	51000	2900	35000	32500
11	075	SD		10.57	IMPERIAL BEACH, 9TH STREET	2900	35000	34500	1950	23400	23300
11	075	SD		10.72	IMPERIAL BEACH, DELAWARE STREET	1950	23400	23300	1750	21100	20900
11	075	SD		10.79	IMPERIAL BEACH, 7TH STREET	1750	21100	20900	1350	16600	16400
11	075	SD		10.99	RAINBOW DRIVE	1350	16600	16400	2400	21200	19300
11	075	SD		13.973	CORONADO, SILVER STRAND STATE PARK	2400	21300	19300	2550	24900	23100
11	075	SD		17.61	CORONADO, GATE 3	2550	24900	23100	2700	26500	24200
11	075	SD		18.47	CORONADO, POMONA AVENUE	2700	26500	24200	2650	25500	24000
11	075	SD		18.93	CORONADO, 10TH STREET/ PARK PLACE	2650	25500	24000	2950	28000	27000
11	075	SD		19.05	CORONADO, 9TH STREET	2950	28000	27000	2950	28000	27000
11	075	SD		19.16	CORONADO, 8TH STREET	2950	28000	27000	2950	28000	27000
11	075	SD		19.38	CORONADO, 6TH STREET	2950	28000	27000	2200	30500	27500

Linscott, Law & Greenspan, Engineers

4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **Palm Avenue, between Rainbow Drive and SR-75**

Date: **Thursday, May 31, 2018** Total Daily Volume: **13637** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
100	68	60	82	105	314	606	998	796	704	642	848	801	744	915	936	887	832	818	718	621	479	359	204
31	19	20	21	17	57	96	219	248	167	160	216	191	192	213	226	220	221	223	191	178	129	112	70
19	13	19	17	20	66	137	330	196	186	166	196	203	172	224	218	239	209	195	194	144	137	106	49
22	19	9	21	34	79	184	251	165	167	149	212	220	195	241	236	206	216	198	191	157	109	64	44
28	17	12	23	34	112	189	198	187	184	167	224	187	185	237	256	222	186	202	142	142	104	77	41

Date: **Thursday, May 31, 2018** Total Daily Volume: **6628** Description: **Eastbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
49	34	36	53	61	157	176	365	349	348	355	455	409	397	480	488	448	435	405	350	288	221	163	106
16	9	9	14	9	33	33	71	109	85	93	113	96	104	98	126	108	117	105	101	95	57	48	31
10	7	12	10	14	36	41	120	107	84	84	121	110	94	112	108	120	116	94	87	65	64	52	21
9	9	6	13	20	43	49	98	63	83	87	104	110	97	135	108	107	100	99	96	70	50	25	30
14	9	9	16	18	45	53	76	70	96	91	117	93	102	135	146	113	102	107	66	58	50	38	24

Date: **Thursday, May 31, 2018** Total Daily Volume: **7009** Description: **Westbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
51	34	24	29	44	157	430	633	447	356	287	393	392	347	435	448	439	397	413	368	333	258	196	98
15	10	11	7	8	24	63	148	139	82	67	103	95	88	115	100	112	104	118	90	83	72	64	39
9	6	7	7	6	30	96	210	89	102	82	75	93	78	112	110	119	93	101	107	79	73	54	28
13	10	3	8	14	36	135	153	102	84	62	108	110	98	106	128	99	116	99	95	87	59	39	14
14	8	3	7	16	67	136	122	117	88	76	107	94	83	102	110	109	84	95	76	84	54	39	17

Linscott, Law & Greenspan, Engineers

4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **Rainbow Drive, between SR-75 and Palm Avenue**

Date: **Thursday, May 31, 2018** Total Daily Volume: **5707** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
13	23	11	15	41	247	600	653	337	240	202	272	304	272	335	376	422	428	332	226	156	103	53	46
4	3	3	3	5	34	111	191	84	62	62	67	69	86	65	98	97	117	99	70	49	31	19	23
2	5	3	4	6	50	129	196	88	58	47	68	81	68	96	84	112	124	90	69	30	26	14	7
1	10	0	4	11	71	172	162	98	73	51	67	75	49	90	88	113	97	66	49	32	18	12	12
6	5	5	4	19	92	188	104	67	47	42	70	79	69	84	106	100	90	77	38	45	28	8	4

Date: **Thursday, May 31, 2018** Total Daily Volume: **3784** Description: **Northbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
3	8	7	8	30	217	565	587	245	190	152	183	189	179	196	177	167	182	160	122	103	69	21	24
0	3	2	2	4	34	106	176	58	42	45	34	43	69	55	57	39	52	46	29	27	19	6	12
1	2	2	2	6	46	115	189	70	48	35	43	55	40	39	32	40	39	44	32	23	12	5	4
1	2	0	2	9	50	163	128	67	62	36	59	45	42	55	53	33	49	39	42	29	15	6	6
1	1	3	2	11	87	181	94	50	38	36	47	46	28	47	35	55	42	31	19	24	23	4	2

Date: **Thursday, May 31, 2018** Total Daily Volume: **1923** Description: **Southbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
10	15	4	7	11	30	35	66	92	50	50	89	115	93	139	199	255	246	172	104	53	34	32	22
4	0	1	1	1	0	5	15	26	20	17	33	26	17	10	41	58	65	53	41	22	12	13	11
1	3	1	2	0	4	14	7	18	10	12	25	26	28	57	52	72	85	46	37	7	14	9	3
0	8	0	2	2	21	9	34	31	11	15	8	30	7	35	35	80	48	27	7	3	3	6	6
5	4	2	2	8	5	7	10	17	9	6	23	33	41	37	71	45	48	46	19	21	5	4	2

APPENDIX B

SANTEC/ITE ROADWAY CLASSIFICATION TABLES

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Table 2

ROADWAY CLASSIFICATIONS, LEVELS OF SERVICE (LOS) AND AVERAGE DAILY TRAFFIC (ADT)

			LEVEL OF SERVICE W/ADT**				
STREET CLASSIFICATION	LANES	CROSS SECTIONS* (APPROX.)	A	B	C	D	E
Expressway	6 lanes	102-160/122-200	30,000	42,000	60,000	70,000	80,000
Prime Arterial	6 lanes	102-108/122-128	25,000	35,000	50,000	55,000	60,000
Major Arterial	6 lanes	102/122	20,000	28,000	40,000	45,000	50,000
Major Arterial	4 lanes	78-82/98-102	15,000	21,000	30,000	35,000	40,000
Secondary Arterial/ Collector	4 lanes	64-72/84-92	10,000	14,000	20,000	25,000	30,000
Collector (no center lane) (continuous left-turn lane)	4 lanes 2 lanes	64/84 50/70	5,000	7,000	10,000	13,000	15,000
Collector (no fronting property)	2 lanes	40/60	4,000	5,500	7,500	9,000	10,000
Collector (commercial-industrial fronting)	2 lanes	50/70	2,500	3,500	5,000	6,500	8,000
Collector (multi-family)	2 lanes	40/60	2,500	3,500	5,000	6,500	8,000
Sub-Collector (single-family)	2 lanes	36/56	---	---	2,200	---	---

LEGEND:

* Curb to curb width (feet)/right of way width (feet): based upon the City of San Diego Street Design Manual and other jurisdictions within the San Diego region.

** Approximate recommended ADT based upon the City of San Diego Street Design Manual.

NOTES:

1. The volumes and the average daily level of service listed above are only intended as a general planning guideline.
2. Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Levels of service normally apply to roads carrying through traffic between major trip generators and attractors.

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APPENDIX C

INTERSECTION ANALYSIS WORKSHEETS – EXISTING

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	181	42	32	1533	16	554	1	36	6	6	8
Future Volume (veh/h)	5	181	42	32	1533	16	554	1	36	6	6	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	6	203	47	36	1722	18	660	0	0	7	7	9
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	27	1365	308	107	1853	805	831	436	0	81	34	43
Arrive On Green	0.02	0.48	0.48	0.06	0.52	0.52	0.23	0.00	0.00	0.05	0.05	0.05
Sat Flow, veh/h	1781	2865	647	1781	3554	1544	3563	1870	0	1781	735	946
Grp Volume(v), veh/h	6	124	126	36	1722	18	660	0	0	7	0	16
Grp Sat Flow(s),veh/h/ln	1781	1777	1735	1781	1777	1544	1781	1870	0	1781	0	1681
Q Serve(g_s), s	0.4	4.4	4.6	2.2	50.5	0.6	19.6	0.0	0.0	0.4	0.0	1.0
Cycle Q Clear(g_c), s	0.4	4.4	4.6	2.2	50.5	0.6	19.6	0.0	0.0	0.4	0.0	1.0
Prop In Lane	1.00		0.37	1.00		1.00	1.00		0.00	1.00		0.56
Lane Grp Cap(c), veh/h	27	847	827	107	1853	805	831	436	0	81	0	77
V/C Ratio(X)	0.22	0.15	0.15	0.34	0.93	0.02	0.79	0.00	0.00	0.09	0.00	0.21
Avail Cap(c_a), veh/h	159	949	926	159	1897	824	1334	700	0	276	0	261
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.6	16.5	16.6	50.6	24.9	13.0	40.5	0.0	0.0	51.3	0.0	51.6
Incr Delay (d2), s/veh	4.0	0.1	0.1	1.8	8.6	0.0	1.8	0.0	0.0	0.5	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.8	1.8	1.0	22.3	0.2	8.7	0.0	0.0	0.2	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.6	16.6	16.7	52.4	33.5	13.0	42.3	0.0	0.0	51.7	0.0	52.9
LnGrp LOS	E	B	B	D	C	B	D	A	A	D	A	D
Approach Vol, veh/h		256			1776			660			23	
Approach Delay, s/veh		17.6			33.7			42.3			52.6	
Approach LOS		B			C			D			D	

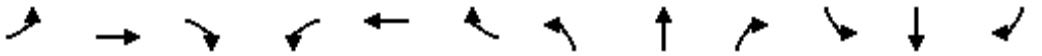
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.4	59.3		10.2	6.4	64.3		31.3				
Change Period (Y+Rc), s	* 4.7	5.8		5.1	* 4.7	5.8		5.1				
Max Green Setting (Gmax), s	* 10	59.9		17.4	* 10	59.9		42.0				
Max Q Clear Time (g_c+I1), s	4.2	6.6		3.0	2.4	52.5		21.6				
Green Ext Time (p_c), s	0.0	1.6		0.0	0.0	6.0		2.5				

Intersection Summary		
HCM 6th Ctrl Delay		34.4
HCM 6th LOS		C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



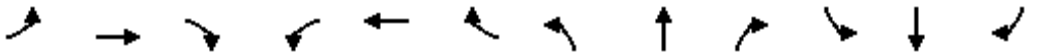
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	220	7	0	1454	26	50	17	2	26	45	75
Future Volume (veh/h)	7	220	7	0	1454	26	50	17	2	26	45	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.91	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	0	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	8	256	8	0	1691	30	58	20	2	30	52	87
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	0	2	2	2	2	2	2	2	2
Cap, veh/h	26	3324	103	0	3135	56	236	220	22	34	59	98
Arrive On Green	0.01	0.65	0.65	0.00	1.00	1.00	0.13	0.13	0.13	0.11	0.11	0.11
Sat Flow, veh/h	1781	5087	158	0	5332	92	1781	1657	166	297	515	861
Grp Volume(v), veh/h	8	171	93	0	1115	606	58	0	22	169	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1841	0	1702	1852	1781	0	1822	1673	0	0
Q Serve(g_s), s	0.8	3.3	3.3	0.0	0.0	0.0	5.3	0.0	1.9	17.9	0.0	0.0
Cycle Q Clear(g_c), s	0.8	3.3	3.3	0.0	0.0	0.0	5.3	0.0	1.9	17.9	0.0	0.0
Prop In Lane	1.00		0.09	0.00		0.05	1.00		0.09	0.18		0.51
Lane Grp Cap(c), veh/h	26	2224	1203	0	2067	1124	236	0	242	191	0	0
V/C Ratio(X)	0.31	0.08	0.08	0.00	0.54	0.54	0.25	0.00	0.09	0.89	0.00	0.00
Avail Cap(c_a), veh/h	92	2224	1203	0	2067	1124	355	0	363	278	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	0.88	0.88	0.76	0.00	0.76	1.00	0.00	0.00
Uniform Delay (d), s/veh	87.8	11.4	11.4	0.0	0.0	0.0	70.0	0.0	68.5	78.6	0.0	0.0
Incr Delay (d2), s/veh	6.5	0.1	0.1	0.0	0.9	1.6	0.4	0.0	0.1	20.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.3	1.5	0.0	0.3	0.5	2.5	0.0	0.9	8.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	94.2	11.5	11.5	0.0	0.9	1.6	70.4	0.0	68.7	98.8	0.0	0.0
LnGrp LOS	F	B	B	A	A	A	E	A	E	F	A	A
Approach Vol, veh/h		272			1721			80			169	
Approach Delay, s/veh		13.9			1.2			69.9			98.8	
Approach LOS		B			A			E			F	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	8.3	115.1		30.0		123.4		26.6				
Change Period (Y+Rc), s	* 5.7	5.8		6.1		5.8		6.1				
Max Green Setting (Gmax), s	* 9.3	81.2		35.9		96.2		29.9				
Max Q Clear Time (g_c+I1), s	2.8	2.0		7.3		5.3		19.9				
Green Ext Time (p_c), s	0.0	22.0		0.2		1.8		0.6				

Intersection Summary		
HCM 6th Ctrl Delay		12.5
HCM 6th LOS		B

Notes

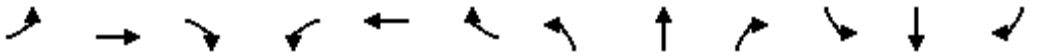
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	345	31	20	301	0	199	51	41	1	31	20
Future Volume (veh/h)	18	345	31	20	301	0	199	51	41	1	31	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93	0.98		1.00	0.99		0.97	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	426	38	25	372	0	246	63	51	1	38	25
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	451	1067	95	406	1157	0	523	131	80	107	720	600
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.00	0.39	0.39	0.39	0.39	0.39	0.39
Sat Flow, veh/h	1009	3278	291	909	3647	0	910	338	206	8	1858	1548
Grp Volume(v), veh/h	22	230	234	25	372	0	360	0	0	39	0	25
Grp Sat Flow(s),veh/h/ln	1009	1777	1792	909	1777	0	1454	0	0	1866	0	1548
Q Serve(g_s), s	0.6	3.6	3.6	0.8	2.8	0.0	6.1	0.0	0.0	0.0	0.0	0.4
Cycle Q Clear(g_c), s	3.4	3.6	3.6	4.4	2.8	0.0	7.0	0.0	0.0	0.5	0.0	0.4
Prop In Lane	1.00		0.16	1.00		0.00	0.68		0.14	0.03		1.00
Lane Grp Cap(c), veh/h	451	578	583	406	1157	0	734	0	0	827	0	600
V/C Ratio(X)	0.05	0.40	0.40	0.06	0.32	0.00	0.49	0.00	0.00	0.05	0.00	0.04
Avail Cap(c_a), veh/h	745	1095	1104	670	2189	0	1301	0	0	1561	0	1215
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.3	9.3	9.3	11.0	9.0	0.0	8.7	0.0	0.0	6.8	0.0	6.8
Incr Delay (d2), s/veh	0.0	0.4	0.4	0.1	0.2	0.0	0.5	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.1	1.1	0.1	0.8	0.0	1.6	0.0	0.0	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.4	9.7	9.7	11.1	9.2	0.0	9.2	0.0	0.0	6.8	0.0	6.8
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		486			397			360			64	
Approach Delay, s/veh		9.8			9.3			9.2			6.8	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		16.7		18.9		16.7		18.9				
Change Period (Y+Rc), s		5.1		5.1		5.1		5.1				
Max Green Setting (Gmax), s		21.9		27.9		21.9		27.9				
Max Q Clear Time (g_c+I1), s		5.6		2.5		6.4		9.0				
Green Ext Time (p_c), s		2.6		0.2		2.2		2.2				

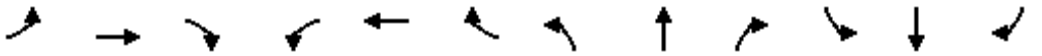
Intersection Summary												
HCM 6th Ctrl Delay			9.3									
HCM 6th LOS			A									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	257	0	283	1570	1	0	0	359	0	0	28
Future Volume (vph)	0	257	0	283	1570	1	0	0	359	0	0	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.8		5.7	4.0				6.1			6.8
Lane Util. Factor		0.91		0.97	0.95				0.88			1.00
Frpb, ped/bikes		1.00		1.00	1.00				1.00			1.00
Flpb, ped/bikes		1.00		1.00	1.00				1.00			1.00
Frt		1.00		1.00	1.00				0.85			0.86
Flt Protected		1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)		5085		3433	3539				2787			1611
Flt Permitted		1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)		5085		3433	3539				2787			1611
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	273	0	301	1670	1	0	0	382	0	0	30
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	370	0	0	8
Lane Group Flow (vph)	0	273	0	301	1671	0	0	0	12	0	0	22
Confl. Peds. (#/hr)						2						
Confl. Bikes (#/hr)			3			1						
Turn Type		NA		Prot	NA				Prot			Perm
Protected Phases		6		5	Free				4			
Permitted Phases												6
Actuated Green, G (s)		134.5		21.4	180.0				5.5			134.5
Effective Green, g (s)		134.5		21.4	180.0				5.5			134.5
Actuated g/C Ratio		0.75		0.12	1.00				0.03			0.75
Clearance Time (s)		6.8		5.7					6.1			6.8
Vehicle Extension (s)		3.0		3.0					3.0			3.0
Lane Grp Cap (vph)		3799		408	3539				85			1203
v/s Ratio Prot		0.05		c0.09	0.47				0.00			
v/s Ratio Perm												0.01
v/c Ratio		0.07		0.74	0.47				0.14			0.02
Uniform Delay, d1		6.1		76.6	0.0				84.9			5.8
Progression Factor		0.86		0.76	1.00				1.00			1.00
Incremental Delay, d2		0.0		5.8	0.4				0.7			0.0
Delay (s)		5.2		64.1	0.4				85.7			5.9
Level of Service		A		E	A				F			A
Approach Delay (s)		5.2			10.1			85.7			5.9	
Approach LOS		A			B			F			A	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	18.6
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



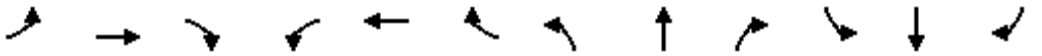
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	534	41	89	1566	50	173	69	46	106	63	18
Future Volume (veh/h)	31	534	41	89	1566	50	173	69	46	106	63	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	574	44	96	1684	54	186	74	49	114	68	19
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	43	1876	143	385	2978	95	207	176	117	189	223	62
Arrive On Green	0.02	0.39	0.39	0.22	0.59	0.59	0.12	0.17	0.17	0.11	0.16	0.16
Sat Flow, veh/h	1781	4837	368	1781	5080	163	1781	1042	690	1781	1387	388
Grp Volume(v), veh/h	33	402	216	96	1128	610	186	0	123	114	0	87
Grp Sat Flow(s),veh/h/ln	1781	1702	1800	1781	1702	1839	1781	0	1732	1781	0	1774
Q Serve(g_s), s	3.3	14.8	15.0	8.0	36.9	37.0	18.5	0.0	11.4	11.0	0.0	7.8
Cycle Q Clear(g_c), s	3.3	14.8	15.0	8.0	36.9	37.0	18.5	0.0	11.4	11.0	0.0	7.8
Prop In Lane	1.00		0.20	1.00		0.09	1.00		0.40	1.00		0.22
Lane Grp Cap(c), veh/h	43	1320	698	385	1995	1078	207	0	293	189	0	286
V/C Ratio(X)	0.77	0.30	0.31	0.25	0.57	0.57	0.90	0.00	0.42	0.60	0.00	0.30
Avail Cap(c_a), veh/h	92	1320	698	385	1995	1078	310	0	482	211	0	395
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	87.4	38.3	38.3	58.5	23.1	23.1	78.5	0.0	66.9	76.9	0.0	66.6
Incr Delay (d2), s/veh	25.1	0.6	1.1	0.3	1.2	2.2	20.1	0.0	1.0	4.0	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	6.4	7.0	3.7	15.4	16.9	9.7	0.0	5.2	5.3	0.0	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	112.5	38.9	39.5	58.8	24.2	25.2	98.6	0.0	67.8	80.9	0.0	67.2
LnGrp LOS	F	D	D	E	C	C	F	A	E	F	A	E
Approach Vol, veh/h		651			1834			309			201	
Approach Delay, s/veh		42.8			26.4			86.3			75.0	
Approach LOS		D			C			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	111.3	24.1	35.5	44.7	75.6	25.6	34.1
Change Period (Y+Rc), s	* 4.7	5.8	5.1	* 5.1	5.8	* 5.8	* 4.7	5.1
Max Green Setting (Gmax), s	* 9.3	79.0	21.3	* 50	18.5	* 70	* 31	40.1
Max Q Clear Time (g_c+I1), s	5.3	39.0	13.0	13.4	10.0	17.0	20.5	9.8
Green Ext Time (p_c), s	0.0	18.5	0.2	0.7	0.1	4.6	0.4	0.4

Intersection Summary	
HCM 6th Ctrl Delay	39.4
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	1419	309	69	278	7	89	2	39	10	0	5
Future Volume (veh/h)	15	1419	309	69	278	7	89	2	39	10	0	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	17	1577	343	77	309	8	72	40	43	11	0	6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	63	1854	388	131	2397	1045	163	74	80	63	0	55
Arrive On Green	0.04	0.64	0.64	0.07	0.67	0.67	0.09	0.09	0.09	0.04	0.00	0.04
Sat Flow, veh/h	1781	2913	609	1781	3554	1550	1781	810	871	1781	0	1548
Grp Volume(v), veh/h	17	937	983	77	309	8	72	0	83	11	0	6
Grp Sat Flow(s),veh/h/ln	1781	1777	1745	1781	1777	1550	1781	0	1681	1781	0	1548
Q Serve(g_s), s	1.2	51.6	59.6	5.3	3.9	0.2	4.9	0.0	6.0	0.8	0.0	0.5
Cycle Q Clear(g_c), s	1.2	51.6	59.6	5.3	3.9	0.2	4.9	0.0	6.0	0.8	0.0	0.5
Prop In Lane	1.00		0.35	1.00		1.00	1.00		0.52	1.00		1.00
Lane Grp Cap(c), veh/h	63	1131	1111	131	2397	1045	163	0	154	63	0	55
V/C Ratio(X)	0.27	0.83	0.88	0.59	0.13	0.01	0.44	0.00	0.54	0.17	0.00	0.11
Avail Cap(c_a), veh/h	142	1256	1234	140	2510	1095	588	0	555	244	0	212
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	59.7	17.8	19.2	57.0	7.4	6.8	54.7	0.0	55.2	59.5	0.0	59.4
Incr Delay (d2), s/veh	2.2	4.4	7.4	5.6	0.0	0.0	1.9	0.0	2.9	1.3	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	21.1	24.6	2.6	1.5	0.1	2.3	0.0	2.7	0.4	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.9	22.1	26.6	62.6	7.4	6.8	56.5	0.0	58.1	60.8	0.0	60.2
LnGrp LOS	E	C	C	E	A	A	E	A	E	E	A	E
Approach Vol, veh/h		1937			394			155			17	
Approach Delay, s/veh		24.8			18.2			57.4			60.6	
Approach LOS		C			B			E			E	

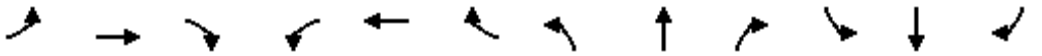
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.0	86.7		9.6	9.2	91.6		16.7				
Change Period (Y+Rc), s	* 4.7	5.8		5.1	* 4.7	5.8		5.1				
Max Green Setting (Gmax), s	* 10	89.9		17.4	* 10	89.8		42.0				
Max Q Clear Time (g_c+I1), s	7.3	61.6		2.8	3.2	5.9		8.0				
Green Ext Time (p_c), s	0.0	19.4		0.0	0.0	2.3		0.7				

Intersection Summary		
HCM 6th Ctrl Delay		26.0
HCM 6th LOS		C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



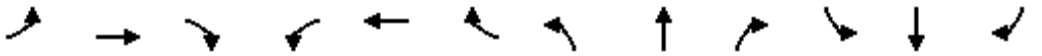
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	1189	78	0	334	37	19	35	3	25	29	14
Future Volume (veh/h)	42	1189	78	0	334	37	19	35	3	25	29	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.91	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	0	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	44	1252	82	0	352	39	20	37	3	26	31	15
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	0	2	2	2	2	2	2	2	2
Cap, veh/h	70	3561	233	0	3064	332	210	199	16	34	41	20
Arrive On Green	0.04	0.73	0.73	0.00	1.00	1.00	0.12	0.12	0.12	0.05	0.05	0.05
Sat Flow, veh/h	1781	4890	320	0	4831	505	1781	1692	137	633	755	365
Grp Volume(v), veh/h	44	872	462	0	255	136	20	0	40	72	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1806	0	1702	1764	1781	0	1829	1753	0	0
Q Serve(g_s), s	4.4	16.8	16.8	0.0	0.0	0.0	1.8	0.0	3.6	7.3	0.0	0.0
Cycle Q Clear(g_c), s	4.4	16.8	16.8	0.0	0.0	0.0	1.8	0.0	3.6	7.3	0.0	0.0
Prop In Lane	1.00		0.18	0.00		0.29	1.00		0.08	0.36		0.21
Lane Grp Cap(c), veh/h	70	2479	1315	0	2237	1159	210	0	215	95	0	0
V/C Ratio(X)	0.63	0.35	0.35	0.00	0.11	0.12	0.10	0.00	0.19	0.76	0.00	0.00
Avail Cap(c_a), veh/h	181	2479	1315	0	2237	1159	375	0	385	243	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.37	0.37	0.37	0.00	1.00	1.00	0.95	0.00	0.95	1.00	0.00	0.00
Uniform Delay (d), s/veh	85.1	8.9	8.9	0.0	0.0	0.0	70.9	0.0	71.6	84.0	0.0	0.0
Incr Delay (d2), s/veh	3.3	0.1	0.3	0.0	0.1	0.2	0.2	0.0	0.4	11.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	6.3	6.8	0.0	0.0	0.1	0.8	0.0	1.7	3.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.5	9.1	9.2	0.0	0.1	0.2	71.1	0.0	72.0	95.7	0.0	0.0
LnGrp LOS	F	A	A	A	A	A	E	A	E	F	A	A
Approach Vol, veh/h		1378			391			60			72	
Approach Delay, s/veh		11.7			0.1			71.7			95.7	
Approach LOS		B			A			E			F	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	12.8	124.1		27.3		136.9		15.8				
Change Period (Y+Rc), s	* 5.7	5.8		6.1		5.8		6.1				
Max Green Setting (Gmax), s	* 18	75.2		37.9		99.2		24.9				
Max Q Clear Time (g_c+I1), s	6.4	2.0		5.6		18.8		9.3				
Green Ext Time (p_c), s	0.0	2.8		0.2		13.7		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		14.4	
HCM 6th LOS		B	

Notes

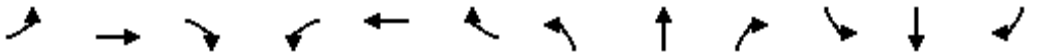
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	333	45	15	333	1	101	29	34	2	78	27
Future Volume (veh/h)	27	333	45	15	333	1	101	29	34	2	78	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.92	0.98		0.98	0.99		0.97	0.99		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	32	396	54	18	396	1	120	35	40	2	93	32
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	473	1075	145	440	1258	3	443	131	104	111	659	547
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	985	3108	419	918	3636	9	767	370	293	8	1858	1543
Grp Volume(v), veh/h	32	225	225	18	193	204	195	0	0	95	0	32
Grp Sat Flow(s),veh/h/ln	985	1777	1750	918	1777	1868	1431	0	0	1867	0	1543
Q Serve(g_s), s	0.8	3.2	3.3	0.5	2.7	2.7	1.9	0.0	0.0	0.0	0.0	0.5
Cycle Q Clear(g_c), s	3.6	3.2	3.3	3.8	2.7	2.7	3.2	0.0	0.0	1.2	0.0	0.5
Prop In Lane	1.00		0.24	1.00		0.00	0.62		0.21	0.02		1.00
Lane Grp Cap(c), veh/h	473	615	606	440	615	647	678	0	0	770	0	547
V/C Ratio(X)	0.07	0.37	0.37	0.04	0.31	0.31	0.29	0.00	0.00	0.12	0.00	0.06
Avail Cap(c_a), veh/h	794	1194	1176	739	1194	1255	1282	0	0	1575	0	1218
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.5	8.3	8.4	9.8	8.2	8.2	8.0	0.0	0.0	7.5	0.0	7.2
Incr Delay (d2), s/veh	0.1	0.4	0.4	0.0	0.3	0.3	0.2	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.9	0.9	0.1	0.8	0.8	0.7	0.0	0.0	0.3	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.5	8.7	8.7	9.8	8.5	8.5	8.3	0.0	0.0	7.5	0.0	7.3
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		482			415			195			127	
Approach Delay, s/veh		8.8			8.5			8.3			7.5	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		16.9		17.2		16.9		17.2				
Change Period (Y+Rc), s		5.1		5.1		5.1		5.1				
Max Green Setting (Gmax), s		22.9		26.9		22.9		26.9				
Max Q Clear Time (g_c+I1), s		5.6		3.2		5.8		5.2				
Green Ext Time (p_c), s		2.7		0.6		2.2		1.1				

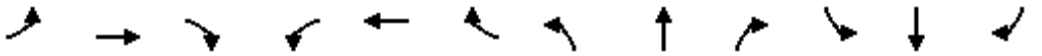
Intersection Summary												
HCM 6th Ctrl Delay			8.5									
HCM 6th LOS			A									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1356	0	368	352	3	0	0	357	0	0	3
Future Volume (vph)	0	1356	0	368	352	3	0	0	357	0	0	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.8		5.7	4.0				6.1			6.8
Lane Util. Factor		0.91		0.97	0.95				0.88			1.00
Frpb, ped/bikes		1.00		1.00	1.00				1.00			0.99
Flpb, ped/bikes		1.00		1.00	1.00				1.00			1.00
Frt		1.00		1.00	1.00				0.85			0.86
Flt Protected		1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)		5085		3433	3535				2787			1591
Flt Permitted		1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)		5085		3433	3535				2787			1591
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	1490	0	404	387	3	0	0	392	0	0	3
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	380	0	0	1
Lane Group Flow (vph)	0	1490	0	404	390	0	0	0	12	0	0	2
Confl. Peds. (#/hr)						4			12			1
Confl. Bikes (#/hr)			1			3						1
Turn Type		NA		Prot	NA				Prot			Perm
Protected Phases		6		5	Free				4			
Permitted Phases												6
Actuated Green, G (s)		129.4		26.5	180.0				5.5			129.4
Effective Green, g (s)		129.4		26.5	180.0				5.5			129.4
Actuated g/C Ratio		0.72		0.15	1.00				0.03			0.72
Clearance Time (s)		6.8		5.7					6.1			6.8
Vehicle Extension (s)		3.0		3.0					3.0			3.0
Lane Grp Cap (vph)		3655		505	3535				85			1143
v/s Ratio Prot		c0.29		c0.12	0.11				0.00			
v/s Ratio Perm												0.00
v/c Ratio		0.41		0.80	0.11				0.14			0.00
Uniform Delay, d1		10.1		74.2	0.0				84.9			7.1
Progression Factor		0.68		1.06	1.00				1.00			1.00
Incremental Delay, d2		0.3		8.6	0.1				0.8			0.0
Delay (s)		7.2		87.5	0.1				85.7			7.1
Level of Service		A		F	A				F			A
Approach Delay (s)		7.2			44.6			85.7			7.1	
Approach LOS		A			D			F			A	

Intersection Summary			
HCM 2000 Control Delay	29.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	18.6
Intersection Capacity Utilization	50.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	1374	219	146	639	74	104	83	98	119	103	12
Future Volume (veh/h)	53	1374	219	146	639	74	104	83	98	119	103	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.97	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	56	1446	231	154	673	78	109	87	103	125	108	13
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	71	1818	290	322	2583	296	128	158	187	144	354	43
Arrive On Green	0.04	0.41	0.41	0.18	0.56	0.56	0.07	0.21	0.21	0.08	0.22	0.22
Sat Flow, veh/h	1781	4435	708	1781	4637	532	1781	765	906	1781	1622	195
Grp Volume(v), veh/h	56	1110	567	154	492	259	109	0	190	125	0	121
Grp Sat Flow(s),veh/h/ln	1781	1702	1738	1781	1702	1765	1781	0	1670	1781	0	1817
Q Serve(g_s), s	5.6	51.4	51.5	14.0	13.5	13.7	10.9	0.0	18.3	12.5	0.0	10.0
Cycle Q Clear(g_c), s	5.6	51.4	51.5	14.0	13.5	13.7	10.9	0.0	18.3	12.5	0.0	10.0
Prop In Lane	1.00		0.41	1.00		0.30	1.00		0.54	1.00		0.11
Lane Grp Cap(c), veh/h	71	1396	713	322	1897	983	128	0	346	144	0	397
V/C Ratio(X)	0.79	0.80	0.80	0.48	0.26	0.26	0.85	0.00	0.55	0.87	0.00	0.31
Avail Cap(c_a), veh/h	124	1396	713	322	1897	983	191	0	374	201	0	417
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	85.7	46.5	46.5	66.1	20.6	20.7	82.6	0.0	63.9	81.7	0.0	58.9
Incr Delay (d2), s/veh	17.3	4.8	9.0	1.1	0.3	0.7	20.1	0.0	1.4	23.6	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	22.8	24.2	6.5	5.6	6.0	5.8	0.0	8.0	6.7	0.0	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	102.9	51.2	55.5	67.2	21.0	21.3	102.7	0.0	65.3	105.3	0.0	59.4
LnGrp LOS	F	D	E	E	C	C	F	A	E	F	A	E
Approach Vol, veh/h		1733			905			299			246	
Approach Delay, s/veh		54.3			28.9			78.9			82.7	
Approach LOS		D			C			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.9	106.1	19.7	42.3	38.4	79.6	17.7	44.4
Change Period (Y+Rc), s	* 4.7	5.8	5.1	* 5.1	5.8	* 5.8	* 4.7	5.1
Max Green Setting (Gmax), s	* 13	86.6	20.3	* 40	25.3	* 74	* 19	41.3
Max Q Clear Time (g_c+I1), s	7.6	15.7	14.5	20.3	16.0	53.5	12.9	12.0
Green Ext Time (p_c), s	0.0	5.9	0.1	1.0	0.3	12.3	0.1	0.7

Intersection Summary	
HCM 6th Ctrl Delay	51.6
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX D

INTERSECTION ANALYSIS WORKSHEETS – EXISTING + PROJECT

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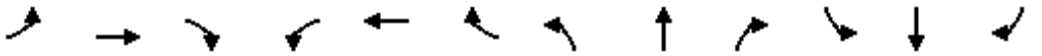


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	187	42	49	1543	16	554	1	36	6	6	8
Future Volume (veh/h)	5	187	42	49	1543	16	554	1	36	6	6	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	6	210	47	55	1734	18	660	0	0	7	7	9
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	27	1340	293	130	1855	806	830	436	0	81	34	43
Arrive On Green	0.02	0.46	0.46	0.07	0.52	0.52	0.23	0.00	0.00	0.05	0.05	0.05
Sat Flow, veh/h	1781	2885	631	1781	3554	1544	3563	1870	0	1781	735	945
Grp Volume(v), veh/h	6	127	130	55	1734	18	660	0	0	7	0	16
Grp Sat Flow(s),veh/h/ln	1781	1777	1739	1781	1777	1544	1781	1870	0	1781	0	1681
Q Serve(g_s), s	0.4	4.7	4.9	3.3	51.2	0.6	19.6	0.0	0.0	0.4	0.0	1.0
Cycle Q Clear(g_c), s	0.4	4.7	4.9	3.3	51.2	0.6	19.6	0.0	0.0	0.4	0.0	1.0
Prop In Lane	1.00		0.36	1.00		1.00	1.00		0.00	1.00		0.56
Lane Grp Cap(c), veh/h	27	825	807	130	1855	806	830	436	0	81	0	77
V/C Ratio(X)	0.22	0.15	0.16	0.42	0.93	0.02	0.79	0.00	0.00	0.09	0.00	0.21
Avail Cap(c_a), veh/h	158	946	926	158	1893	822	1330	698	0	276	0	260
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.7	17.4	17.4	49.9	25.1	13.0	40.6	0.0	0.0	51.4	0.0	51.7
Incr Delay (d2), s/veh	4.0	0.1	0.1	2.2	9.2	0.0	1.8	0.0	0.0	0.5	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.9	2.0	1.6	22.8	0.2	8.7	0.0	0.0	0.2	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.8	17.5	17.5	52.0	34.3	13.0	42.4	0.0	0.0	51.9	0.0	53.1
LnGrp LOS	E	B	B	D	C	B	D	A	A	D	A	D
Approach Vol, veh/h		263			1807			660			23	
Approach Delay, s/veh		18.4			34.6			42.4			52.7	
Approach LOS		B			C			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.9	58.0		10.2	6.4	64.5		31.3				
Change Period (Y+Rc), s	* 4.7	5.8		5.1	* 4.7	5.8		5.1				
Max Green Setting (Gmax), s	* 10	59.9		17.4	* 10	59.9		42.0				
Max Q Clear Time (g_c+I1), s	5.3	6.9		3.0	2.4	53.2		21.6				
Green Ext Time (p_c), s	0.0	1.6		0.0	0.0	5.5		2.5				

Intersection Summary		
HCM 6th Ctrl Delay	35.1	
HCM 6th LOS	D	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	230	7	0	1465	26	55	17	2	36	48	75
Future Volume (veh/h)	13	230	7	0	1465	26	55	17	2	36	48	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.91	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	0	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	15	267	8	0	1703	30	64	20	2	42	56	87
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	0	2	2	2	2	2	2	2	2
Cap, veh/h	42	3284	98	0	3044	54	236	220	22	47	63	97
Arrive On Green	0.02	0.64	0.64	0.00	1.00	1.00	0.13	0.13	0.13	0.12	0.12	0.12
Sat Flow, veh/h	1781	5094	152	0	5333	91	1781	1657	166	382	510	792
Grp Volume(v), veh/h	15	178	97	0	1122	611	64	0	22	185	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1842	0	1702	1852	1781	0	1822	1684	0	0
Q Serve(g_s), s	1.5	3.5	3.6	0.0	0.0	0.0	5.8	0.0	1.9	19.5	0.0	0.0
Cycle Q Clear(g_c), s	1.5	3.5	3.6	0.0	0.0	0.0	5.8	0.0	1.9	19.5	0.0	0.0
Prop In Lane	1.00		0.08	0.00		0.05	1.00		0.09	0.23		0.47
Lane Grp Cap(c), veh/h	42	2194	1187	0	2007	1091	236	0	242	207	0	0
V/C Ratio(X)	0.36	0.08	0.08	0.00	0.56	0.56	0.27	0.00	0.09	0.89	0.00	0.00
Avail Cap(c_a), veh/h	92	2194	1187	0	2007	1091	355	0	363	280	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	0.88	0.88	0.77	0.00	0.77	1.00	0.00	0.00
Uniform Delay (d), s/veh	86.6	12.0	12.0	0.0	0.0	0.0	70.2	0.0	68.5	77.8	0.0	0.0
Incr Delay (d2), s/veh	5.1	0.1	0.1	0.0	1.0	1.8	0.5	0.0	0.1	23.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.4	1.6	0.0	0.3	0.6	2.7	0.0	0.9	9.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	91.7	12.1	12.1	0.0	1.0	1.8	70.7	0.0	68.7	101.1	0.0	0.0
LnGrp LOS	F	B	B	A	A	A	E	A	E	F	A	A
Approach Vol, veh/h		290			1733			86			185	
Approach Delay, s/veh		16.2			1.3			70.2			101.1	
Approach LOS		B			A			E			F	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	9.9	111.9		30.0		121.8		28.2				
Change Period (Y+Rc), s	* 5.7	5.8		6.1		5.8		6.1				
Max Green Setting (Gmax), s	* 9.3	81.2		35.9		96.2		29.9				
Max Q Clear Time (g_c+I1), s	3.5	2.0		7.8		5.6		21.5				
Green Ext Time (p_c), s	0.0	22.4		0.3		1.9		0.6				

Intersection Summary		
HCM 6th Ctrl Delay	13.8	
HCM 6th LOS	B	

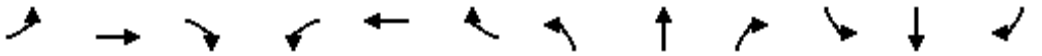
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	345	31	20	301	0	199	53	41	1	34	20
Future Volume (veh/h)	21	345	31	20	301	0	199	53	41	1	34	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93	0.98		1.00	0.99		0.97	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	426	38	25	372	0	246	65	51	1	42	25
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	450	1065	94	405	1155	0	521	134	80	106	723	602
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.00	0.39	0.39	0.39	0.39	0.39	0.39
Sat Flow, veh/h	1009	3278	291	909	3647	0	903	345	205	8	1859	1548
Grp Volume(v), veh/h	26	230	234	25	372	0	362	0	0	43	0	25
Grp Sat Flow(s),veh/h/ln	1009	1777	1792	909	1777	0	1453	0	0	1867	0	1548
Q Serve(g_s), s	0.7	3.6	3.6	0.8	2.8	0.0	6.1	0.0	0.0	0.0	0.0	0.4
Cycle Q Clear(g_c), s	3.5	3.6	3.6	4.4	2.8	0.0	7.1	0.0	0.0	0.5	0.0	0.4
Prop In Lane	1.00		0.16	1.00		0.00	0.68		0.14	0.02		1.00
Lane Grp Cap(c), veh/h	450	577	582	405	1155	0	734	0	0	829	0	602
V/C Ratio(X)	0.06	0.40	0.40	0.06	0.32	0.00	0.49	0.00	0.00	0.05	0.00	0.04
Avail Cap(c_a), veh/h	743	1092	1102	669	2185	0	1297	0	0	1559	0	1213
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.4	9.3	9.3	11.0	9.1	0.0	8.7	0.0	0.0	6.8	0.0	6.8
Incr Delay (d2), s/veh	0.1	0.4	0.4	0.1	0.2	0.0	0.5	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.1	1.1	0.1	0.8	0.0	1.6	0.0	0.0	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.4	9.8	9.8	11.1	9.2	0.0	9.2	0.0	0.0	6.8	0.0	6.8
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		490			397			362			68	
Approach Delay, s/veh		9.8			9.3			9.2			6.8	
Approach LOS		A			A			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	16.7	18.9	16.7	18.9
Change Period (Y+Rc), s	5.1	5.1	5.1	5.1
Max Green Setting (Gmax), s	21.9	27.9	21.9	27.9
Max Q Clear Time (g_c+I1), s	5.6	2.5	6.4	9.1
Green Ext Time (p_c), s	2.6	0.2	2.2	2.2

Intersection Summary	
HCM 6th Ctrl Delay	9.4
HCM 6th LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	277	0	283	1580	1	0	0	359	0	0	29
Future Volume (vph)	0	277	0	283	1580	1	0	0	359	0	0	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.8		5.7	4.0				6.1			6.8
Lane Util. Factor		0.91		0.97	0.95				0.88			1.00
Frpb, ped/bikes		1.00		1.00	1.00				1.00			1.00
Flpb, ped/bikes		1.00		1.00	1.00				1.00			1.00
Frt		1.00		1.00	1.00				0.85			0.86
Flt Protected		1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)		5085		3433	3539				2787			1611
Flt Permitted		1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)		5085		3433	3539				2787			1611
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	295	0	301	1681	1	0	0	382	0	0	31
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	370	0	0	8
Lane Group Flow (vph)	0	295	0	301	1682	0	0	0	12	0	0	23
Confl. Peds. (#/hr)						2						
Confl. Bikes (#/hr)			3			1						
Turn Type		NA		Prot	NA				Prot			Perm
Protected Phases		6		5	Free				4			
Permitted Phases												6
Actuated Green, G (s)		134.5		21.4	180.0				5.5			134.5
Effective Green, g (s)		134.5		21.4	180.0				5.5			134.5
Actuated g/C Ratio		0.75		0.12	1.00				0.03			0.75
Clearance Time (s)		6.8		5.7					6.1			6.8
Vehicle Extension (s)		3.0		3.0					3.0			3.0
Lane Grp Cap (vph)		3799		408	3539				85			1203
v/s Ratio Prot		0.06		c0.09	0.48				0.00			
v/s Ratio Perm												0.01
v/c Ratio		0.08		0.74	0.48				0.14			0.02
Uniform Delay, d1		6.1		76.6	0.0				84.9			5.8
Progression Factor		0.83		0.76	1.00				1.00			1.00
Incremental Delay, d2		0.0		5.8	0.4				0.7			0.0
Delay (s)		5.1		63.9	0.4				85.7			5.9
Level of Service		A		E	A				F			A
Approach Delay (s)		5.1			10.0			85.7			5.9	
Approach LOS		A			B			F			A	

Intersection Summary			
HCM 2000 Control Delay	20.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	18.6
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	552	42	89	1576	50	173	69	46	106	63	18
Future Volume (veh/h)	32	552	42	89	1576	50	173	69	46	106	63	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	34	594	45	96	1695	54	186	74	49	114	68	19
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	44	1877	141	385	2975	95	207	176	117	189	223	62
Arrive On Green	0.02	0.39	0.39	0.22	0.59	0.59	0.12	0.17	0.17	0.11	0.16	0.16
Sat Flow, veh/h	1781	4841	364	1781	5081	162	1781	1042	690	1781	1387	388
Grp Volume(v), veh/h	34	416	223	96	1135	614	186	0	123	114	0	87
Grp Sat Flow(s),veh/h/ln	1781	1702	1801	1781	1702	1839	1781	0	1732	1781	0	1774
Q Serve(g_s), s	3.4	15.3	15.6	8.0	37.3	37.4	18.5	0.0	11.4	11.0	0.0	7.8
Cycle Q Clear(g_c), s	3.4	15.3	15.6	8.0	37.3	37.4	18.5	0.0	11.4	11.0	0.0	7.8
Prop In Lane	1.00		0.20	1.00		0.09	1.00		0.40	1.00		0.22
Lane Grp Cap(c), veh/h	44	1320	698	385	1993	1077	207	0	293	189	0	286
V/C Ratio(X)	0.77	0.32	0.32	0.25	0.57	0.57	0.90	0.00	0.42	0.60	0.00	0.30
Avail Cap(c_a), veh/h	92	1320	698	385	1993	1077	310	0	482	211	0	395
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	87.3	38.4	38.5	58.5	23.2	23.2	78.5	0.0	66.9	76.9	0.0	66.6
Incr Delay (d2), s/veh	24.5	0.6	1.2	0.3	1.2	2.2	20.1	0.0	1.0	4.0	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	6.7	7.3	3.7	15.5	17.1	9.7	0.0	5.2	5.3	0.0	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	111.8	39.1	39.7	58.8	24.4	25.4	98.6	0.0	67.8	80.9	0.0	67.2
LnGrp LOS	F	D	D	E	C	C	F	A	E	F	A	E
Approach Vol, veh/h		673			1845			309			201	
Approach Delay, s/veh		42.9			26.5			86.3			75.0	
Approach LOS		D			C			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	111.2	24.1	35.5	44.7	75.6	25.6	34.1
Change Period (Y+Rc), s	* 4.7	5.8	5.1	* 5.1	5.8	* 5.8	* 4.7	5.1
Max Green Setting (Gmax), s	* 9.3	79.0	21.3	* 50	18.5	* 70	* 31	40.1
Max Q Clear Time (g_c+I1), s	5.4	39.4	13.0	13.4	10.0	17.6	20.5	9.8
Green Ext Time (p_c), s	0.0	18.5	0.2	0.7	0.1	4.8	0.4	0.4

Intersection Summary	
HCM 6th Ctrl Delay	39.5
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	250	1579	22	0	27
Future Vol, veh/h	0	250	1579	22	0	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	272	1716	24	0	29

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	870
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	295
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	295
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	18.5
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	295
HCM Lane V/C Ratio	-	-	-	0.099
HCM Control Delay (s)	-	-	-	18.5
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.3

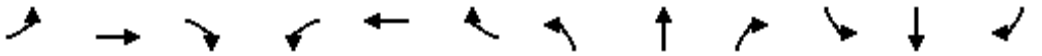
Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	13	0	50	146	0
Future Vol, veh/h	1	13	0	50	146	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	14	0	54	159	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	213	159	-	0	-	0
Stage 1	159	-	-	-	-	-
Stage 2	54	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	775	886	0	-	-	0
Stage 1	870	-	0	-	-	0
Stage 2	969	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	775	886	-	-	-	-
Mov Cap-2 Maneuver	775	-	-	-	-	-
Stage 1	870	-	-	-	-	-
Stage 2	969	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.2	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	877	-
HCM Lane V/C Ratio	-	0.017	-
HCM Control Delay (s)	-	9.2	-
HCM Lane LOS	-	A	-
HCM 95th %tile Q(veh)	-	0.1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	1437	309	83	287	7	89	2	39	10	0	5
Future Volume (veh/h)	15	1437	309	83	287	7	89	2	39	10	0	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	17	1597	343	92	319	8	72	40	43	11	0	6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	63	1865	385	133	2409	1050	161	73	79	63	0	55
Arrive On Green	0.04	0.64	0.64	0.07	0.68	0.68	0.09	0.09	0.09	0.04	0.00	0.04
Sat Flow, veh/h	1781	2921	602	1781	3554	1550	1781	810	871	1781	0	1548
Grp Volume(v), veh/h	17	946	994	92	319	8	72	0	83	11	0	6
Grp Sat Flow(s),veh/h/ln	1781	1777	1747	1781	1777	1550	1781	0	1680	1781	0	1548
Q Serve(g_s), s	1.2	52.9	61.5	6.5	4.1	0.2	4.9	0.0	6.1	0.8	0.0	0.5
Cycle Q Clear(g_c), s	1.2	52.9	61.5	6.5	4.1	0.2	4.9	0.0	6.1	0.8	0.0	0.5
Prop In Lane	1.00		0.34	1.00		1.00	1.00		0.52	1.00		1.00
Lane Grp Cap(c), veh/h	63	1134	1115	133	2409	1050	161	0	152	63	0	55
V/C Ratio(X)	0.27	0.83	0.89	0.69	0.13	0.01	0.45	0.00	0.54	0.17	0.00	0.11
Avail Cap(c_a), veh/h	140	1241	1220	138	2479	1081	581	0	548	241	0	209
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	60.5	18.0	19.5	58.1	7.3	6.7	55.5	0.0	56.0	60.3	0.0	60.1
Incr Delay (d2), s/veh	2.3	4.7	8.1	13.1	0.0	0.0	1.9	0.0	3.0	1.3	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	21.8	25.7	3.4	1.5	0.1	2.3	0.0	2.7	0.4	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.7	22.7	27.7	71.2	7.4	6.7	57.4	0.0	59.0	61.6	0.0	61.0
LnGrp LOS	E	C	C	E	A	A	E	A	E	E	A	E
Approach Vol, veh/h		1957			419			155			17	
Approach Delay, s/veh		25.6			21.4			58.3			61.4	
Approach LOS		C			C			E			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.3	88.0		9.7	9.3	93.0		16.8				
Change Period (Y+Rc), s	* 4.7	5.8		5.1	* 4.7	5.8		5.1				
Max Green Setting (Gmax), s	* 10	89.9		17.4	* 10	89.8		42.0				
Max Q Clear Time (g_c+I1), s	8.5	63.5		2.8	3.2	6.1		8.1				
Green Ext Time (p_c), s	0.0	18.6		0.0	0.0	2.4		0.7				

Intersection Summary		
HCM 6th Ctrl Delay		27.1
HCM 6th LOS		C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	1198	78	0	369	37	35	35	3	34	31	15
Future Volume (veh/h)	60	1198	78	0	369	37	35	35	3	34	31	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.91	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	0	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	63	1261	82	0	388	39	37	37	3	36	33	16
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	0	2	2	2	2	2	2	2	2
Cap, veh/h	79	3531	230	0	3042	300	211	200	16	44	41	20
Arrive On Green	0.04	0.72	0.72	0.00	1.00	1.00	0.12	0.12	0.12	0.06	0.06	0.06
Sat Flow, veh/h	1781	4892	318	0	4880	465	1781	1692	137	744	682	331
Grp Volume(v), veh/h	63	877	466	0	278	149	37	0	40	85	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1806	0	1702	1772	1781	0	1829	1757	0	0
Q Serve(g_s), s	6.3	17.4	17.4	0.0	0.0	0.0	3.4	0.0	3.5	8.6	0.0	0.0
Cycle Q Clear(g_c), s	6.3	17.4	17.4	0.0	0.0	0.0	3.4	0.0	3.5	8.6	0.0	0.0
Prop In Lane	1.00		0.18	0.00		0.26	1.00		0.08	0.42		0.19
Lane Grp Cap(c), veh/h	79	2457	1304	0	2198	1144	211	0	217	105	0	0
V/C Ratio(X)	0.79	0.36	0.36	0.00	0.13	0.13	0.18	0.00	0.18	0.81	0.00	0.00
Avail Cap(c_a), veh/h	181	2457	1304	0	2198	1144	375	0	385	243	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	0.95	0.00	0.95	1.00	0.00	0.00
Uniform Delay (d), s/veh	85.2	9.4	9.4	0.0	0.0	0.0	71.4	0.0	71.5	83.6	0.0	0.0
Incr Delay (d2), s/veh	16.1	0.4	0.8	0.0	0.1	0.2	0.4	0.0	0.4	13.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	6.6	7.2	0.0	0.0	0.1	1.6	0.0	1.7	4.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	101.3	9.8	10.1	0.0	0.1	0.2	71.8	0.0	71.9	97.3	0.0	0.0
LnGrp LOS	F	A	B	A	A	A	E	A	E	F	A	A
Approach Vol, veh/h		1406			427			77			85	
Approach Delay, s/veh		14.0			0.2			71.8			97.3	
Approach LOS		B			A			E			F	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	13.7	122.0		27.4		135.7		16.8				
Change Period (Y+Rc), s	5.7	5.8		6.1		5.8		6.1				
Max Green Setting (Gmax), s	8.0	75.2		37.9		99.2		24.9				
Max Q Clear Time (g_c+I1), s	19.3	2.0		5.5		19.4		10.6				
Green Ext Time (p_c), s	0.1	3.1		0.3		13.9		0.3				

Intersection Summary	
HCM 6th Ctrl Delay	16.8
HCM 6th LOS	B

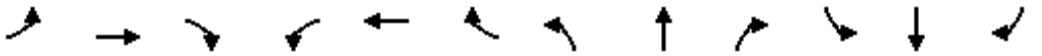
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	333	45	15	333	1	101	34	34	2	80	27
Future Volume (veh/h)	38	333	45	15	333	1	101	34	34	2	80	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.92	0.98		0.98	0.99		0.97	0.99		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	45	396	54	18	396	1	120	40	40	2	95	32
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	473	1075	145	440	1258	3	434	144	102	111	659	547
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	985	3108	419	918	3636	9	746	406	288	8	1859	1543
Grp Volume(v), veh/h	45	225	225	18	193	204	200	0	0	97	0	32
Grp Sat Flow(s),veh/h/ln	985	1777	1750	918	1777	1868	1440	0	0	1867	0	1543
Q Serve(g_s), s	1.2	3.2	3.3	0.5	2.7	2.7	1.9	0.0	0.0	0.0	0.0	0.5
Cycle Q Clear(g_c), s	3.9	3.2	3.3	3.8	2.7	2.7	3.2	0.0	0.0	1.2	0.0	0.5
Prop In Lane	1.00		0.24	1.00		0.00	0.60		0.20	0.02		1.00
Lane Grp Cap(c), veh/h	473	615	606	440	615	647	680	0	0	770	0	547
V/C Ratio(X)	0.10	0.37	0.37	0.04	0.31	0.31	0.29	0.00	0.00	0.13	0.00	0.06
Avail Cap(c_a), veh/h	794	1194	1176	739	1194	1255	1287	0	0	1575	0	1218
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.6	8.3	8.4	9.8	8.2	8.2	8.1	0.0	0.0	7.5	0.0	7.2
Incr Delay (d2), s/veh	0.1	0.4	0.4	0.0	0.3	0.3	0.2	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.9	0.9	0.1	0.8	0.8	0.8	0.0	0.0	0.3	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.7	8.7	8.7	9.8	8.5	8.5	8.3	0.0	0.0	7.6	0.0	7.3
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		495			415			200			129	
Approach Delay, s/veh		8.8			8.5			8.3			7.5	
Approach LOS		A			A			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	16.9	17.2	16.9	17.2
Change Period (Y+Rc), s	5.1	5.1	5.1	5.1
Max Green Setting (Gmax), s	22.9	26.9	22.9	26.9
Max Q Clear Time (g_c+I1), s	5.9	3.2	5.8	5.2
Green Ext Time (p_c), s	2.7	0.6	2.2	1.2

Intersection Summary	
HCM 6th Ctrl Delay	8.5
HCM 6th LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1374	0	368	386	3	0	0	357	0	0	4
Future Volume (vph)	0	1374	0	368	386	3	0	0	357	0	0	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.8		5.7	4.0				6.1			6.8
Lane Util. Factor		0.91		0.97	0.95				0.88			1.00
Frpb, ped/bikes		1.00		1.00	1.00				1.00			0.99
Flpb, ped/bikes		1.00		1.00	1.00				1.00			1.00
Frt		1.00		1.00	1.00				0.85			0.86
Flt Protected		1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)		5085		3433	3535				2787			1591
Flt Permitted		1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)		5085		3433	3535				2787			1591
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	1510	0	404	424	3	0	0	392	0	0	4
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	380	0	0	1
Lane Group Flow (vph)	0	1510	0	404	427	0	0	0	12	0	0	3
Confl. Peds. (#/hr)						4			12			1
Confl. Bikes (#/hr)			1			3						1
Turn Type		NA		Prot	NA				Prot			Perm
Protected Phases		6		5	Free				4			
Permitted Phases												6
Actuated Green, G (s)		129.4		26.5	180.0				5.5			129.4
Effective Green, g (s)		129.4		26.5	180.0				5.5			129.4
Actuated g/C Ratio		0.72		0.15	1.00				0.03			0.72
Clearance Time (s)		6.8		5.7					6.1			6.8
Vehicle Extension (s)		3.0		3.0					3.0			3.0
Lane Grp Cap (vph)		3655		505	3535				85			1143
v/s Ratio Prot		c0.30		c0.12	0.12				0.00			
v/s Ratio Perm												0.00
v/c Ratio		0.41		0.80	0.12				0.14			0.00
Uniform Delay, d1		10.1		74.2	0.0				84.9			7.1
Progression Factor		0.66		1.07	1.00				1.00			1.00
Incremental Delay, d2		0.3		8.6	0.1				0.8			0.0
Delay (s)		7.0		87.7	0.1				85.7			7.1
Level of Service		A		F	A				F			A
Approach Delay (s)		7.0			42.6			85.7			7.1	
Approach LOS		A			D			F			A	

Intersection Summary			
HCM 2000 Control Delay	29.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	18.6
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	1390	220	146	671	74	105	83	98	119	103	13
Future Volume (veh/h)	54	1390	220	146	671	74	105	83	98	119	103	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.97	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	57	1463	232	154	706	78	111	87	103	125	108	14
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	72	1820	288	322	2594	284	130	158	187	144	349	45
Arrive On Green	0.04	0.41	0.41	0.18	0.56	0.56	0.07	0.21	0.21	0.08	0.22	0.22
Sat Flow, veh/h	1781	4440	703	1781	4662	511	1781	765	906	1781	1606	208
Grp Volume(v), veh/h	57	1121	574	154	514	270	111	0	190	125	0	122
Grp Sat Flow(s),veh/h/ln	1781	1702	1739	1781	1702	1769	1781	0	1670	1781	0	1814
Q Serve(g_s), s	5.7	52.2	52.3	14.0	14.2	14.4	11.1	0.0	18.3	12.5	0.0	10.2
Cycle Q Clear(g_c), s	5.7	52.2	52.3	14.0	14.2	14.4	11.1	0.0	18.3	12.5	0.0	10.2
Prop In Lane	1.00		0.40	1.00		0.29	1.00		0.54	1.00		0.11
Lane Grp Cap(c), veh/h	72	1396	713	322	1894	984	130	0	346	144	0	394
V/C Ratio(X)	0.79	0.80	0.80	0.48	0.27	0.27	0.85	0.00	0.55	0.87	0.00	0.31
Avail Cap(c_a), veh/h	124	1396	713	322	1894	984	191	0	374	201	0	416
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	85.6	46.7	46.8	66.1	20.9	20.9	82.5	0.0	63.9	81.7	0.0	59.1
Incr Delay (d2), s/veh	17.1	5.0	9.4	1.1	0.4	0.7	20.9	0.0	1.4	23.6	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	23.2	24.6	6.5	5.9	6.3	5.9	0.0	8.0	6.7	0.0	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	102.7	51.7	56.2	67.2	21.2	21.6	103.4	0.0	65.3	105.3	0.0	59.6
LnGrp LOS	F	D	E	E	C	C	F	A	E	F	A	E
Approach Vol, veh/h		1752			938			301			247	
Approach Delay, s/veh		54.8			28.9			79.3			82.7	
Approach LOS		D			C			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	106.0	19.7	42.3	38.4	79.6	17.9	44.2
Change Period (Y+Rc), s	* 4.7	5.8	5.1	* 5.1	5.8	* 5.8	* 4.7	5.1
Max Green Setting (Gmax), s	* 13	86.6	20.3	* 40	25.3	* 74	* 19	41.3
Max Q Clear Time (g_c+I1), s	7.7	16.4	14.5	20.3	16.0	54.3	13.1	12.2
Green Ext Time (p_c), s	0.0	6.3	0.1	1.0	0.3	12.1	0.1	0.7

Intersection Summary	
HCM 6th Ctrl Delay	51.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1336	367	70	0	23
Future Vol, veh/h	0	1336	367	70	0	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1452	399	76	0	25

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	238
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	763
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	763
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.9
HCM LOS			A

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	763
HCM Lane V/C Ratio	-	-	-	0.033
HCM Control Delay (s)	-	-	-	9.9
HCM Lane LOS	-	-	-	A
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	11	0	114	69	0
Future Vol, veh/h	1	11	0	114	69	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	12	0	124	75	0

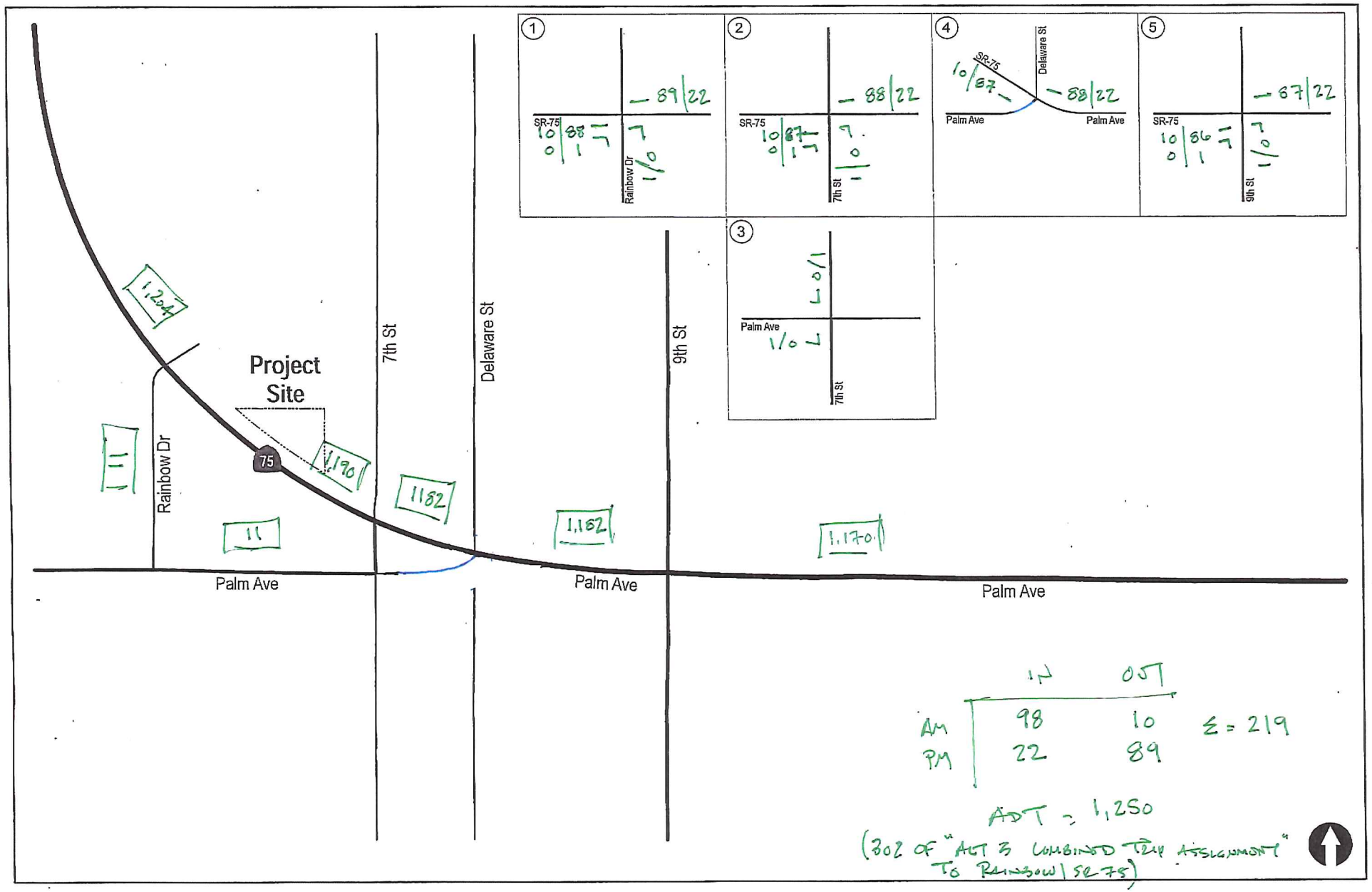
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	199	75	-	0	-	0
Stage 1	75	-	-	-	-	-
Stage 2	124	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	790	986	0	-	-	0
Stage 1	948	-	0	-	-	0
Stage 2	902	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	790	986	-	-	-	-
Mov Cap-2 Maneuver	790	-	-	-	-	-
Stage 1	948	-	-	-	-	-
Stage 2	902	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	966	-
HCM Lane V/C Ratio	-	0.014	-
HCM Control Delay (s)	-	8.8	-
HCM Lane LOS	-	A	-
HCM 95th %tile Q(veh)	-	0	-

APPENDIX E

INDIVIDUAL CUMULATIVE PROJECTS ASSIGNMENT



LINSCOTT LAW & GREENSPAN engineers

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Figure x

① Navy Coastal Campus

BLUEWAVE PROJECT

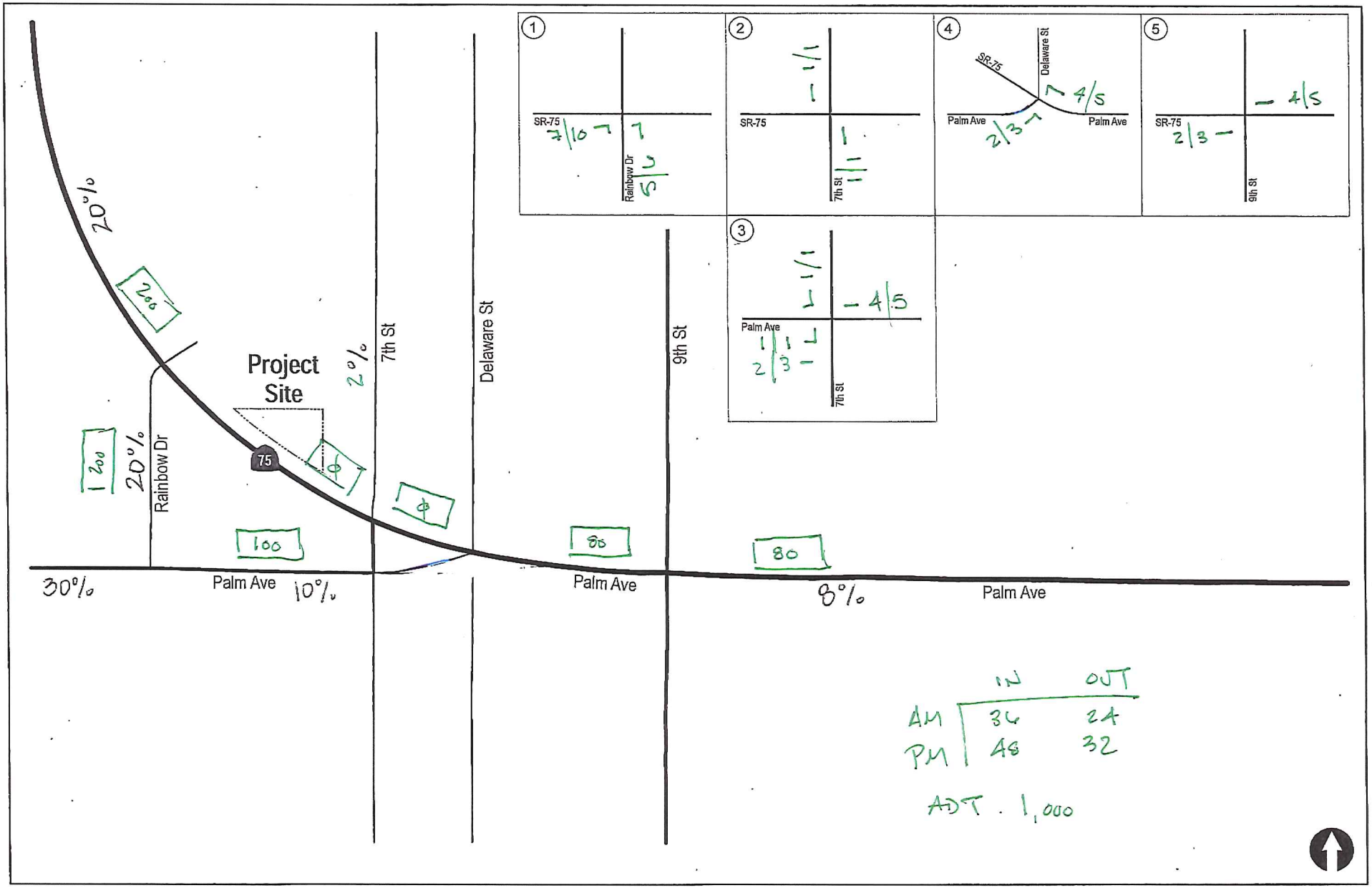

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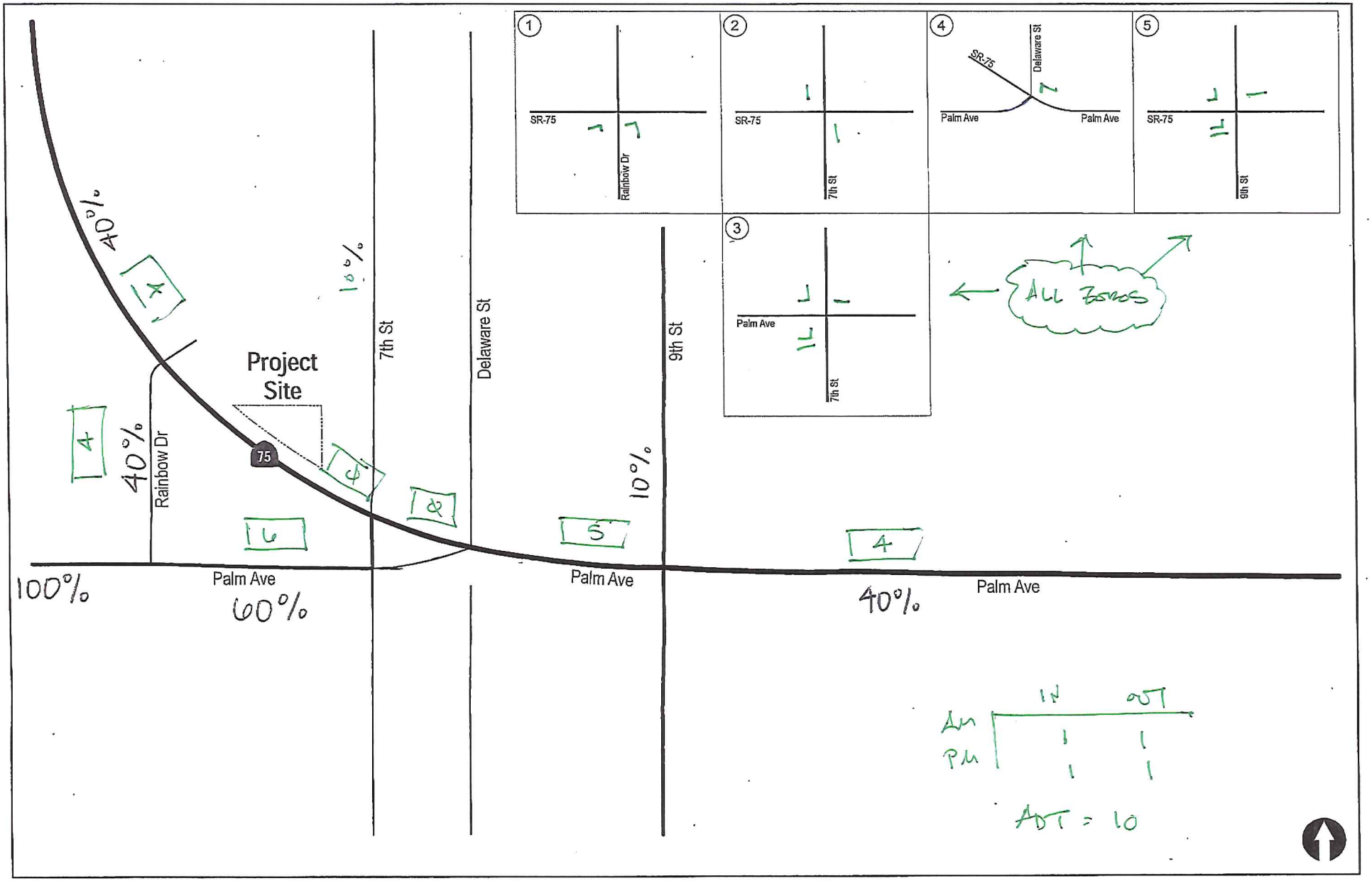
Figure x

(2) IB Resort

BLUEWAVE PROJECT



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(3)

Figure x

Private Project
684-686 Ocean Ln
BLUEWAVE PROJECT

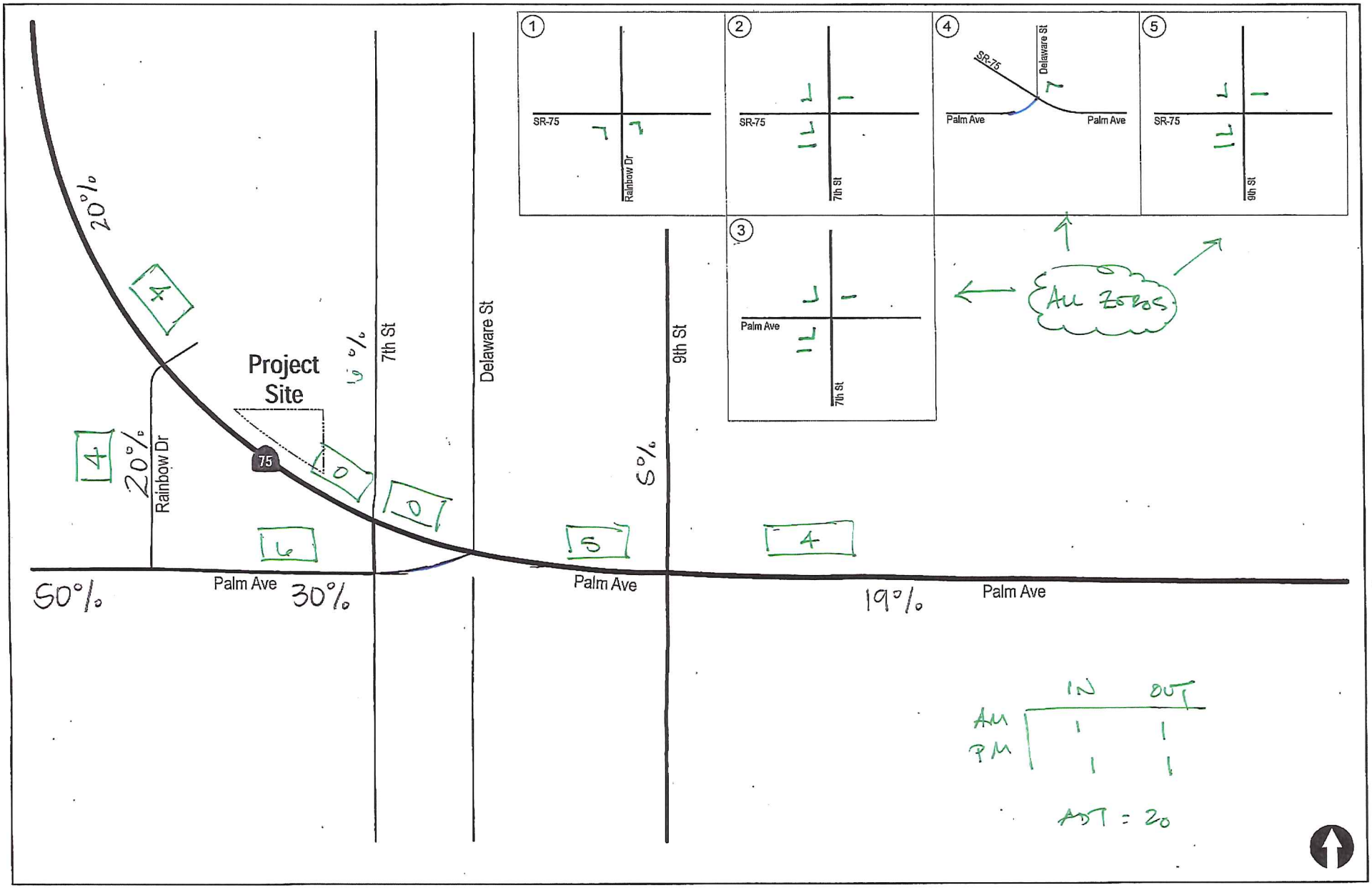

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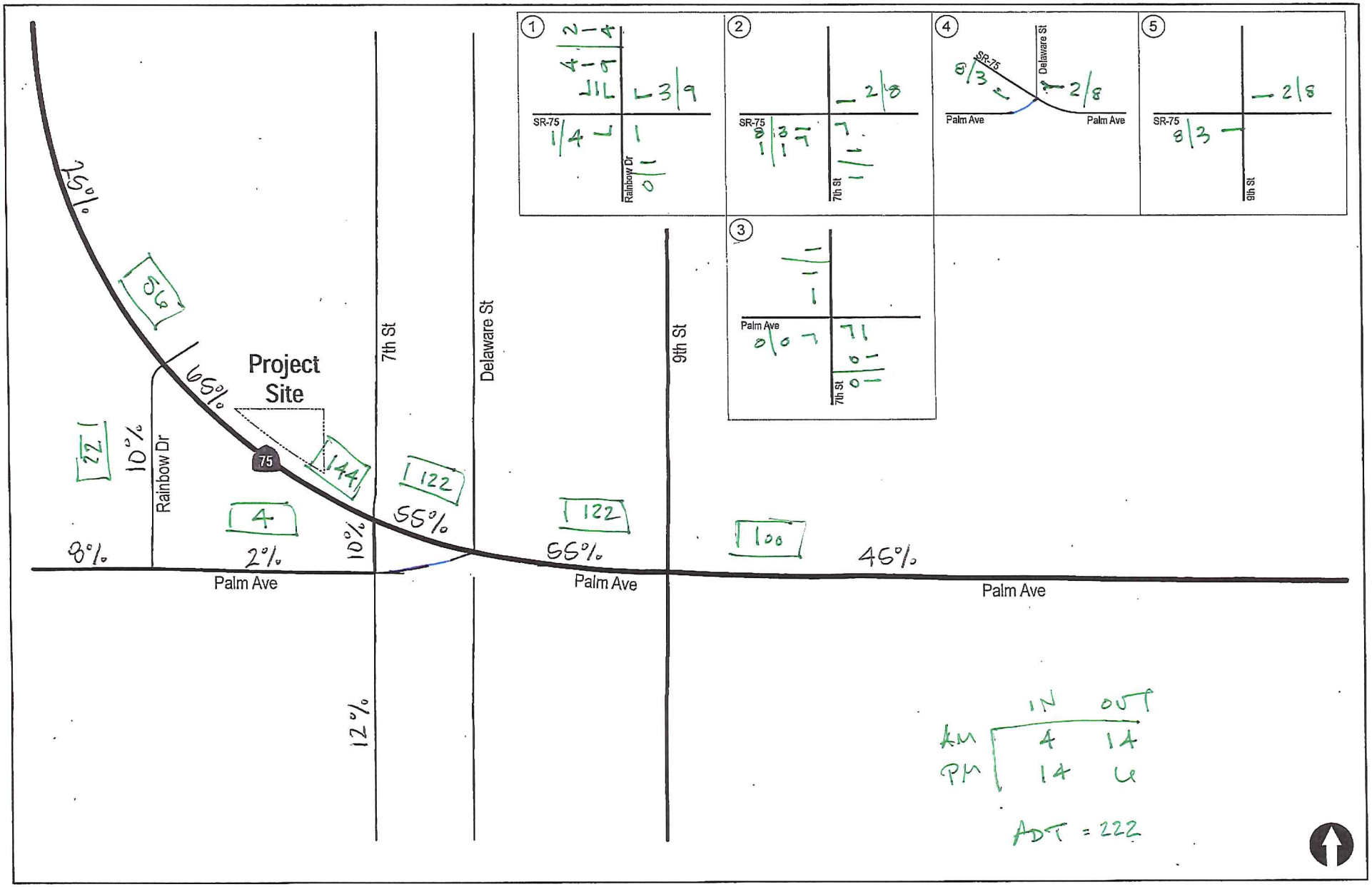
Figure x
Private Project
812 Ocean Lane
BLUEWAVE PROJECT



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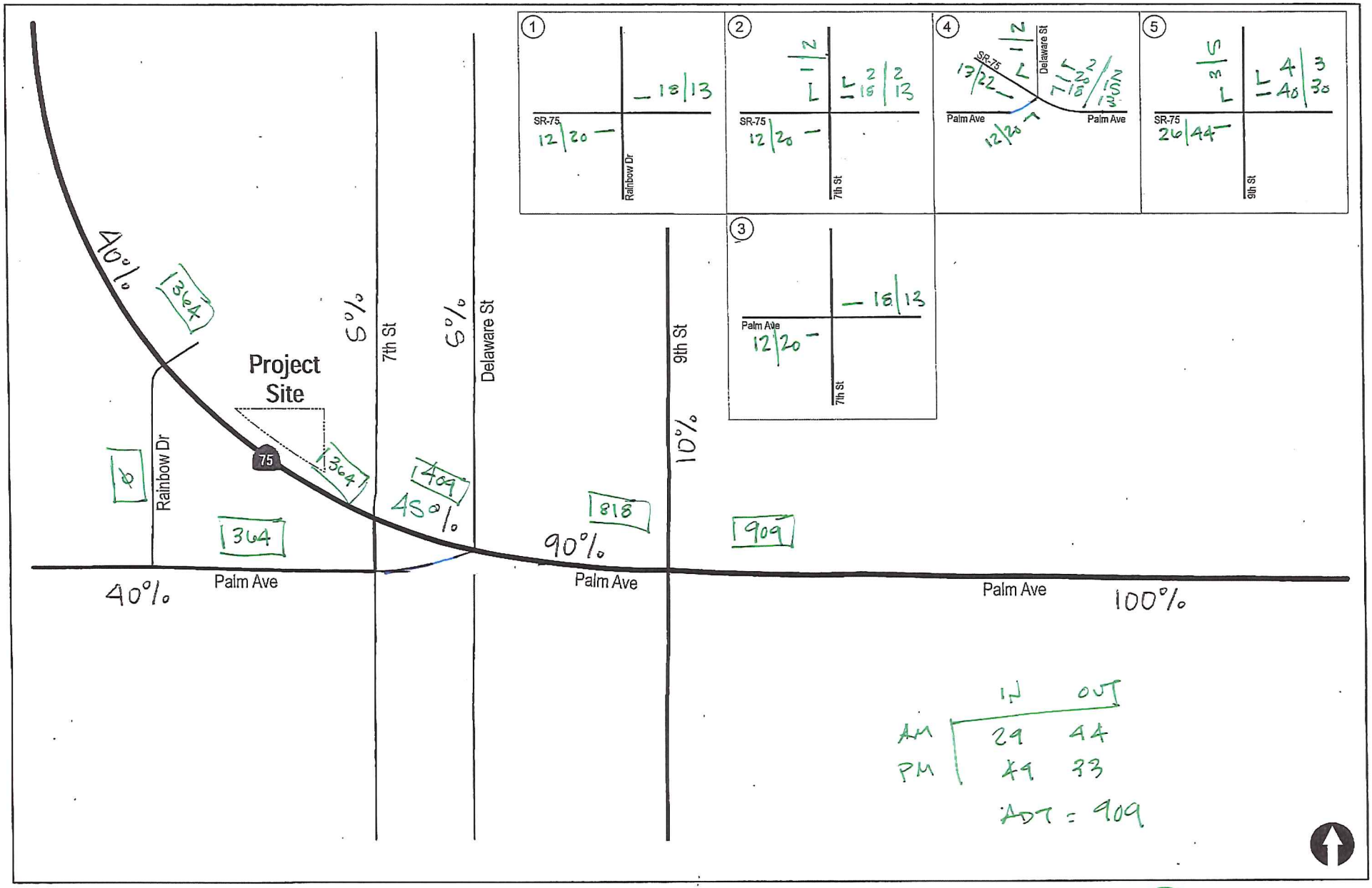
(5)

Figure x

Bernardo Shores

BLUEWAVE PROJECT



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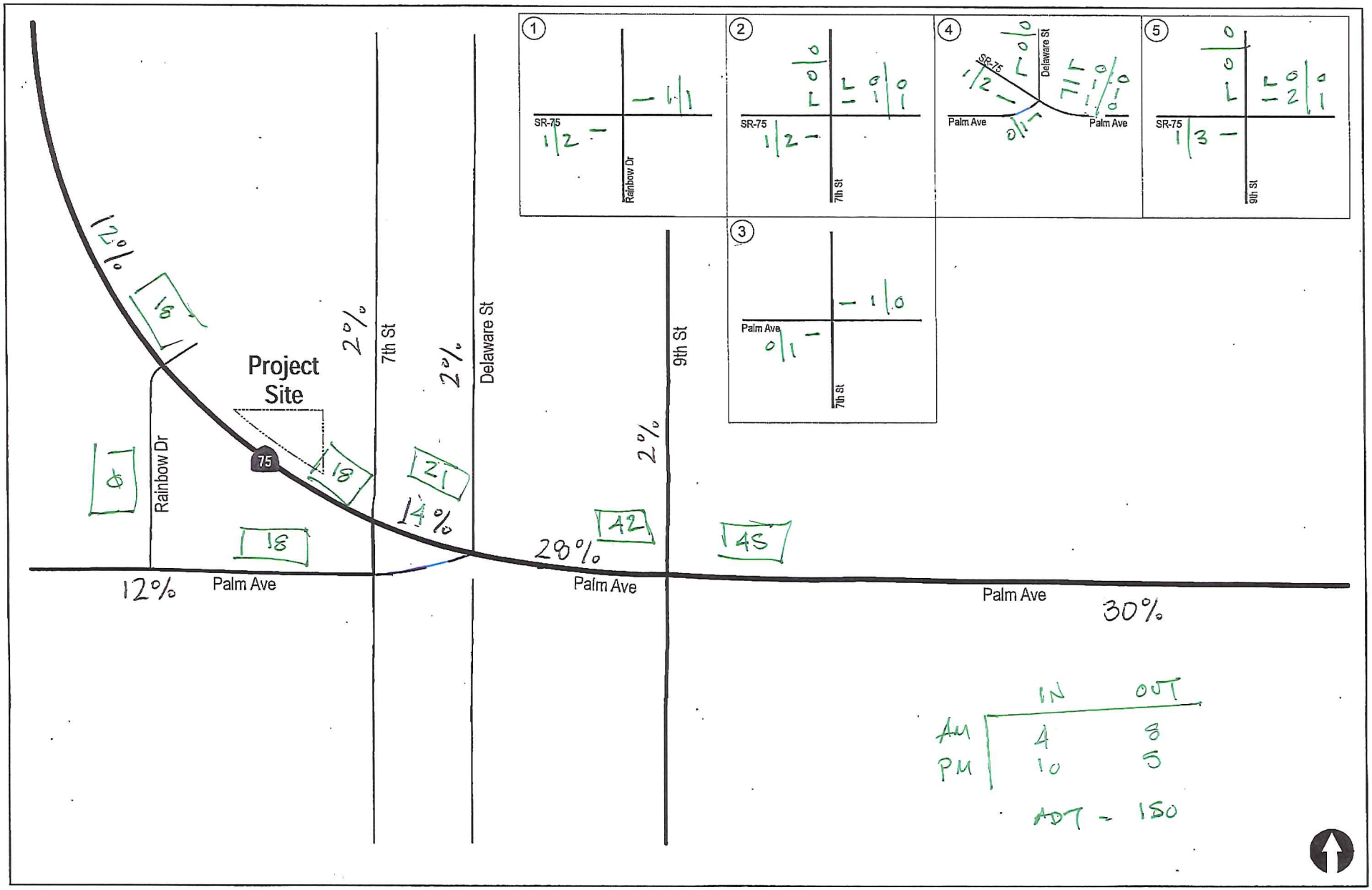
(4)

Figure x

Breakwater Commercial Center

BLUEWAVE PROJECT



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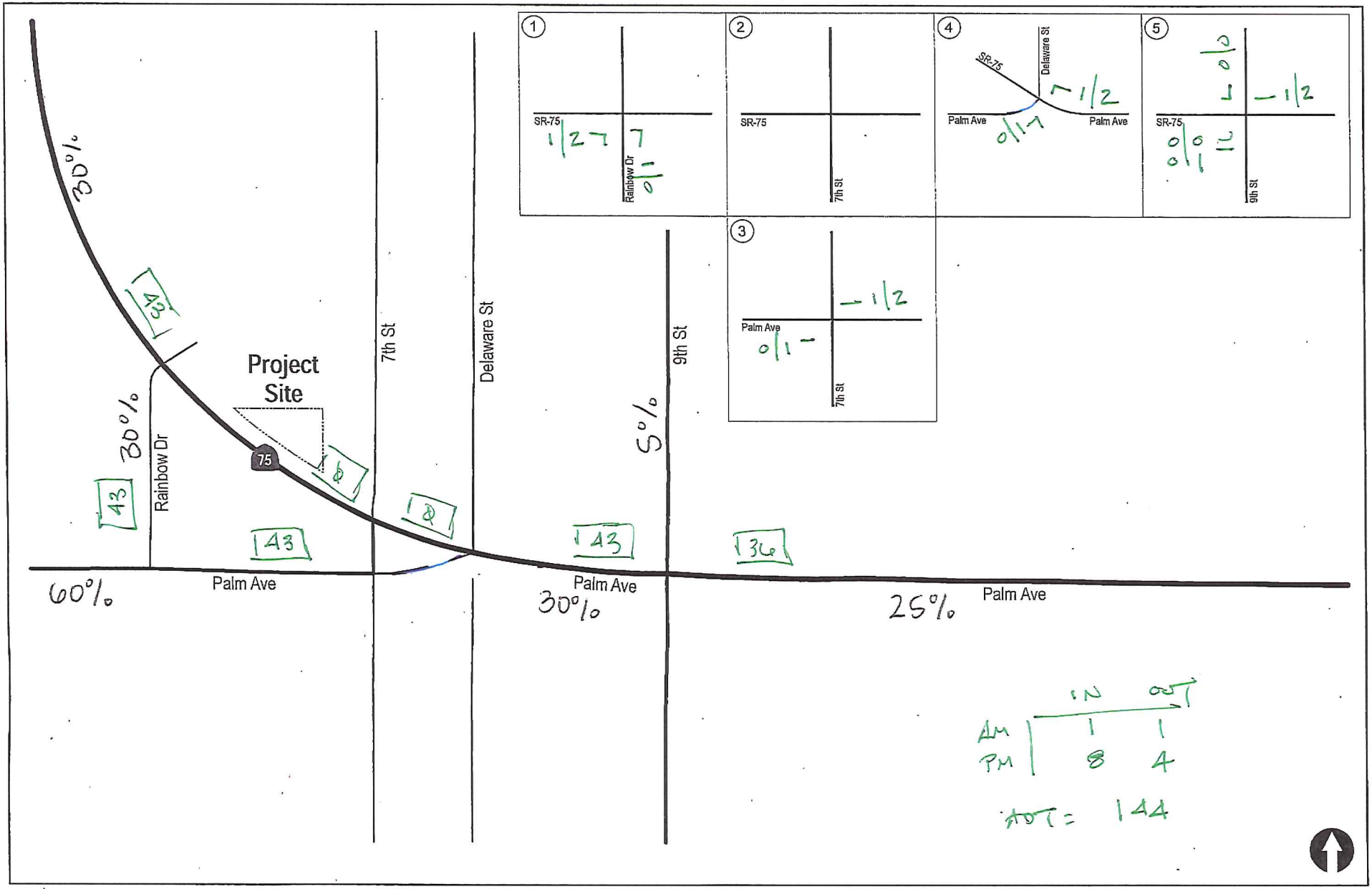
(7) 15 Single-Family Res.
1166 Holly Avenue

Figure x

BLUEWAVE PROJECT



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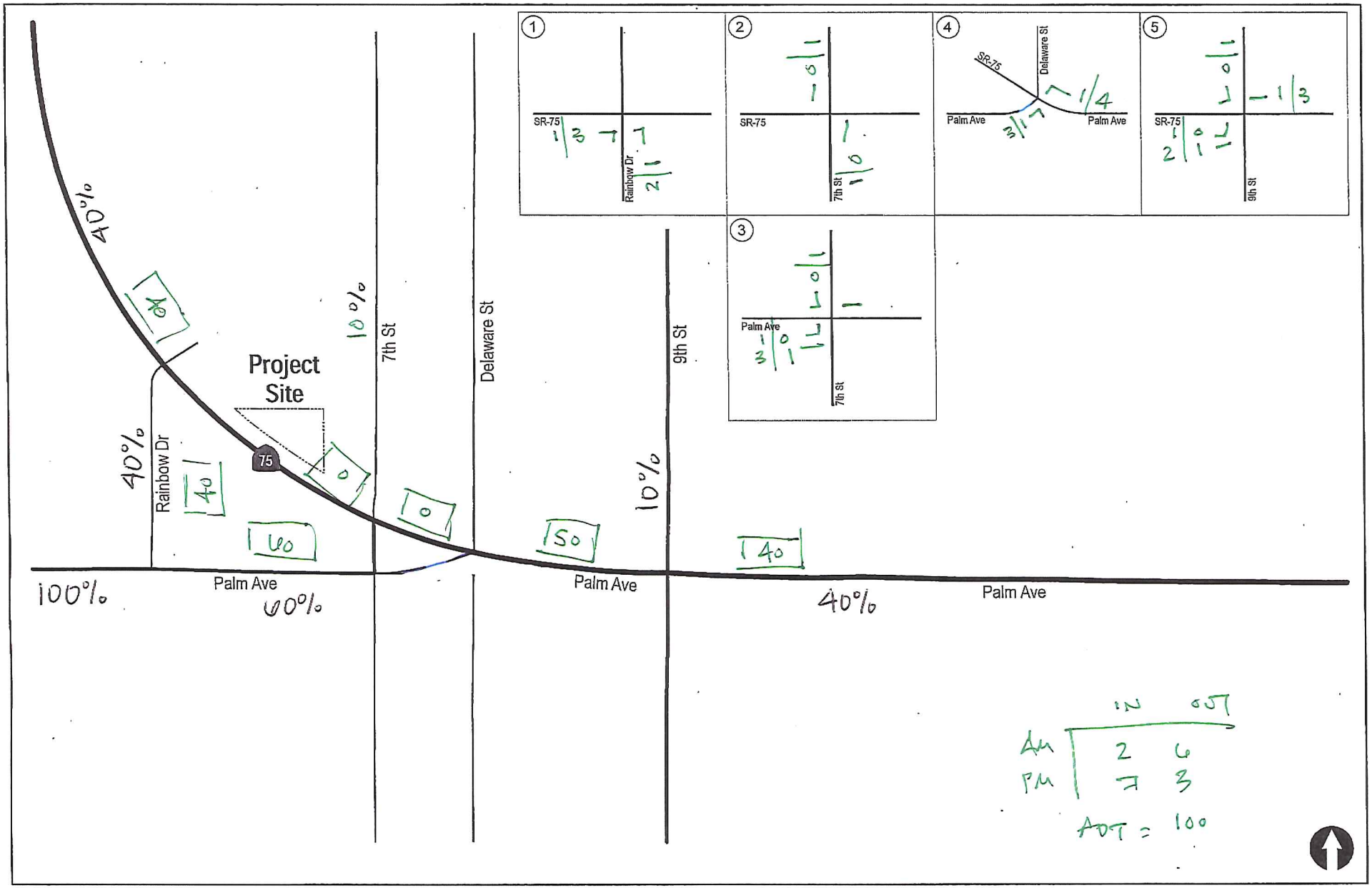
8

Figure x
New Restaurant
905 Ocean Lane
BLUEWAVE PROJECT



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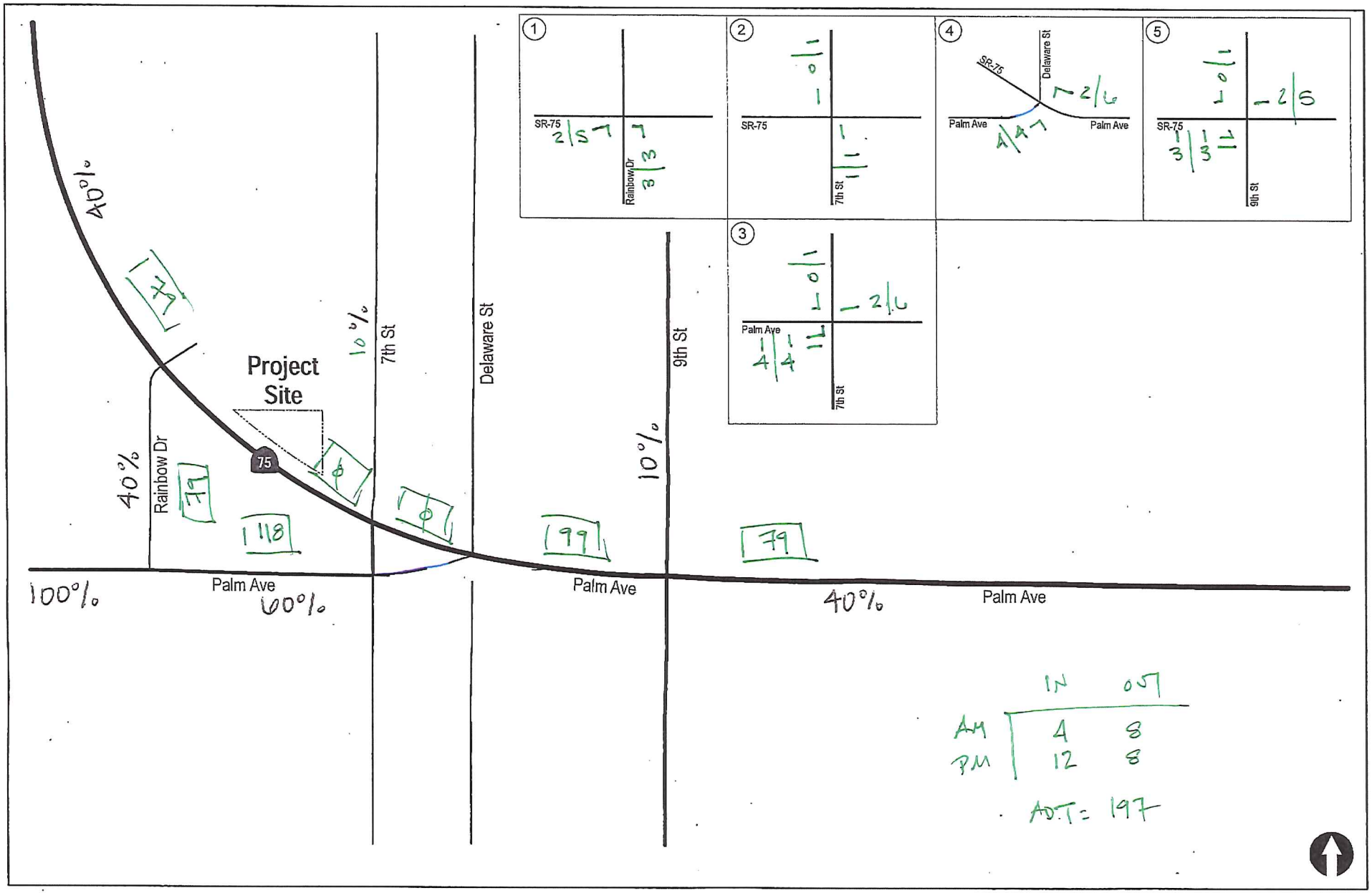
(19)

Figure x
10 Residential Units
495 Palm Ave
BLUEWAVE PROJECT



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10

Figure x
Mixed-use Project
236 Palm Ave
BLUEWAVE PROJECT

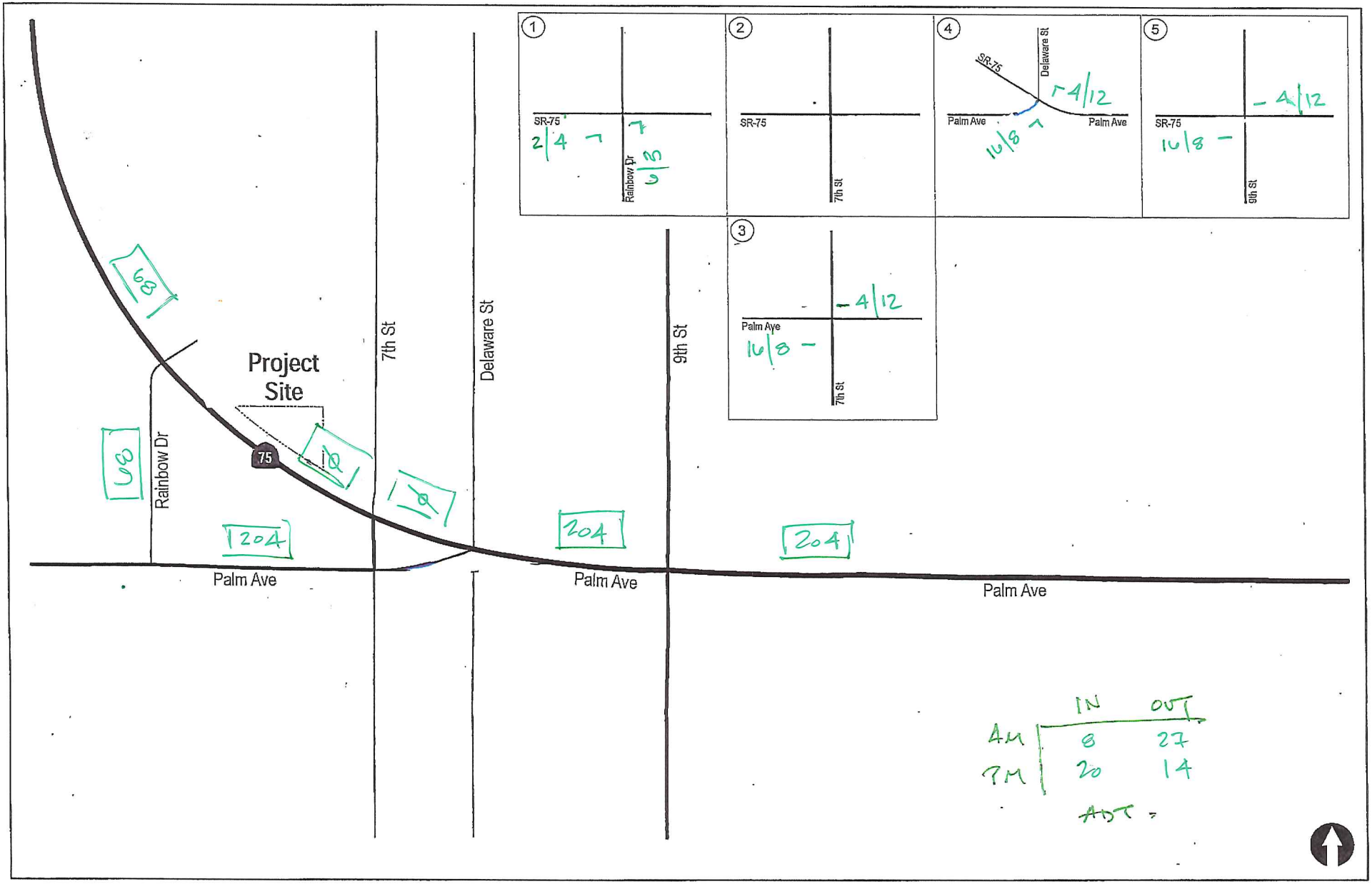

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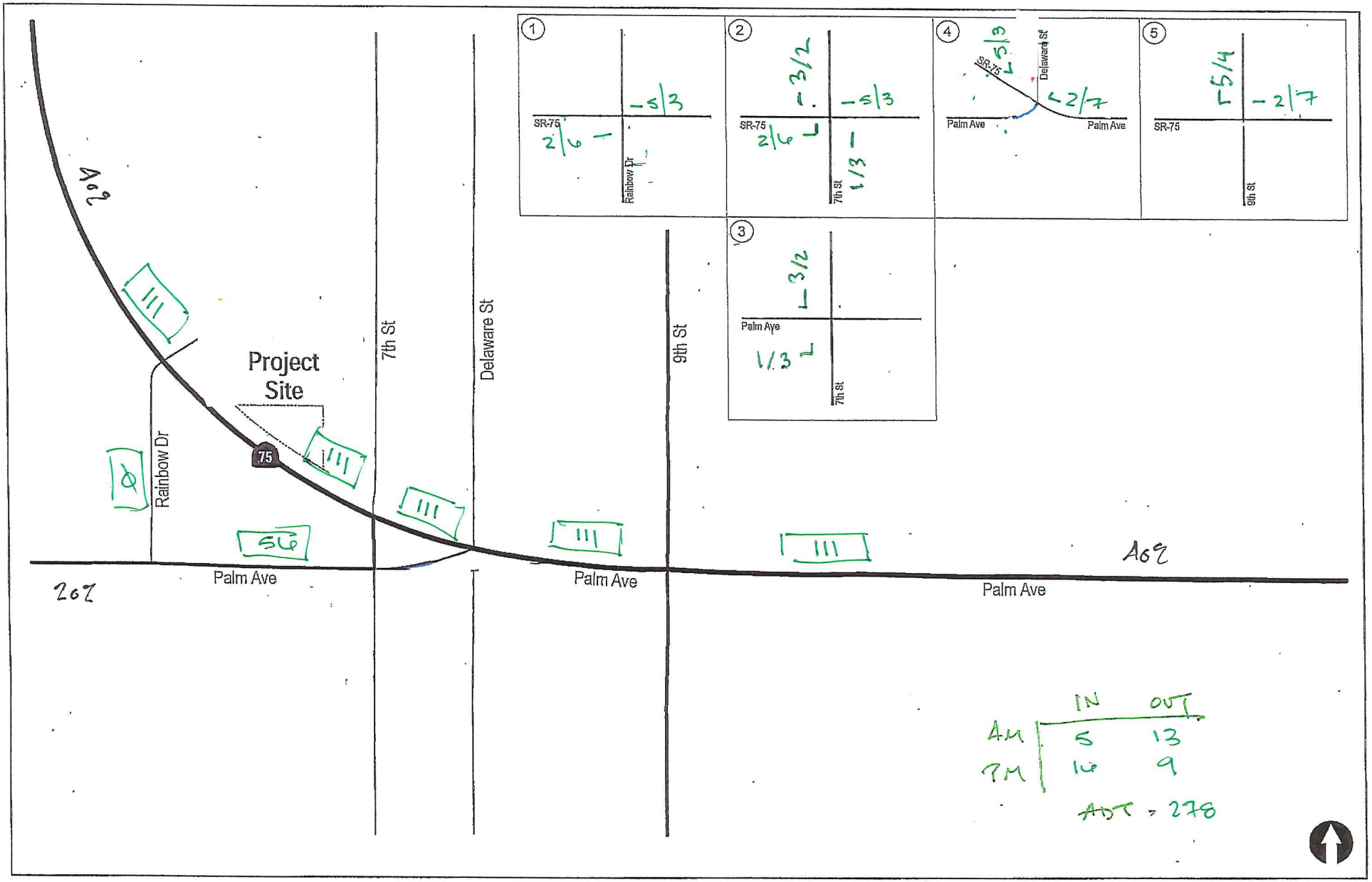
Figure x

11

SIESTA RESIDENTIAL

BLUEWAVE PROJECT



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Date: 07/16/18

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Mixed-Use
740 PALM AVE
BLUEWAVE PROJECT

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APPENDIX F

INTERSECTION ANALYSIS WORKSHEETS – NEAR-TERM WITHOUT PROJECT

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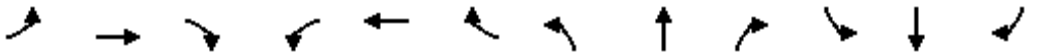


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	206	55	32	1646	19	571	1	36	15	7	12
Future Volume (veh/h)	6	206	55	32	1646	19	571	1	36	15	7	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	231	62	36	1849	21	680	0	0	17	8	13
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	31	1298	340	105	1812	787	840	441	0	108	38	62
Arrive On Green	0.02	0.47	0.47	0.06	0.51	0.51	0.24	0.00	0.00	0.06	0.06	0.06
Sat Flow, veh/h	1781	2771	725	1781	3554	1543	3563	1870	0	1781	634	1030
Grp Volume(v), veh/h	7	146	147	36	1849	21	680	0	0	17	0	21
Grp Sat Flow(s),veh/h/ln	1781	1777	1719	1781	1777	1543	1781	1870	0	1781	0	1664
Q Serve(g_s), s	0.5	5.6	5.8	2.3	59.9	0.8	21.2	0.0	0.0	1.1	0.0	1.4
Cycle Q Clear(g_c), s	0.5	5.6	5.8	2.3	59.9	0.8	21.2	0.0	0.0	1.1	0.0	1.4
Prop In Lane	1.00		0.42	1.00		1.00	1.00		0.00	1.00		0.62
Lane Grp Cap(c), veh/h	31	832	805	105	1812	787	840	441	0	108	0	101
V/C Ratio(X)	0.23	0.18	0.18	0.34	1.02	0.03	0.81	0.00	0.00	0.16	0.00	0.21
Avail Cap(c_a), veh/h	152	906	877	152	1812	787	1274	669	0	264	0	246
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.9	18.1	18.1	53.1	28.8	14.3	42.4	0.0	0.0	52.3	0.0	52.5
Incr Delay (d2), s/veh	3.6	0.1	0.1	1.9	26.4	0.0	2.4	0.0	0.0	0.7	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.3	2.3	1.1	30.9	0.3	9.5	0.0	0.0	0.5	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.6	18.2	18.2	55.0	55.2	14.3	44.8	0.0	0.0	53.0	0.0	53.5
LnGrp LOS	E	B	B	E	F	B	D	A	A	D	A	D
Approach Vol, veh/h		300			1906			680			38	
Approach Delay, s/veh		19.2			54.7			44.8			53.3	
Approach LOS		B			D			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.6	60.8		12.2	6.7	65.7		32.8				
Change Period (Y+Rc), s	* 4.7	5.8		5.1	* 4.7	5.8		5.1				
Max Green Setting (Gmax), s	* 10	59.9		17.4	* 10	59.9		42.0				
Max Q Clear Time (g_c+I1), s	4.3	7.8		3.4	2.5	61.9		23.2				
Green Ext Time (p_c), s	0.0	1.9		0.1	0.0	0.0		2.5				

Intersection Summary		
HCM 6th Ctrl Delay		48.7
HCM 6th LOS		D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

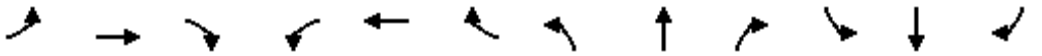
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	251	8	0	1568	28	52	21	2	27	49	75
Future Volume (veh/h)	9	251	8	0	1568	28	52	21	2	27	49	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.91	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	0	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	292	9	0	1823	33	60	24	2	31	57	87
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	0	2	2	2	2	2	2	2	2
Cap, veh/h	31	3311	101	0	3104	56	236	224	19	35	64	97
Arrive On Green	0.02	0.65	0.65	0.00	1.00	1.00	0.13	0.13	0.13	0.12	0.12	0.12
Sat Flow, veh/h	1781	5089	156	0	5330	93	1781	1689	141	297	547	835
Grp Volume(v), veh/h	10	195	106	0	1202	654	60	0	26	175	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1841	0	1702	1851	1781	0	1829	1679	0	0
Q Serve(g_s), s	1.0	3.8	3.9	0.0	0.0	0.0	5.4	0.0	2.3	18.5	0.0	0.0
Cycle Q Clear(g_c), s	1.0	3.8	3.9	0.0	0.0	0.0	5.4	0.0	2.3	18.5	0.0	0.0
Prop In Lane	1.00		0.08	0.00		0.05	1.00		0.08	0.18		0.50
Lane Grp Cap(c), veh/h	31	2215	1198	0	2047	1113	236	0	243	196	0	0
V/C Ratio(X)	0.32	0.09	0.09	0.00	0.59	0.59	0.25	0.00	0.11	0.89	0.00	0.00
Avail Cap(c_a), veh/h	92	2215	1198	0	2047	1113	375	0	385	260	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.99	0.99	0.00	0.86	0.86	0.77	0.00	0.77	1.00	0.00	0.00
Uniform Delay (d), s/veh	87.4	11.7	11.7	0.0	0.0	0.0	70.1	0.0	68.7	78.4	0.0	0.0
Incr Delay (d2), s/veh	5.7	0.1	0.1	0.0	1.1	2.0	0.4	0.0	0.1	24.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.5	1.7	0.0	0.3	0.6	2.5	0.0	1.1	9.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	93.1	11.7	11.8	0.0	1.1	2.0	70.5	0.0	68.8	103.0	0.0	0.0
LnGrp LOS	F	B	B	A	A	A	E	A	E	F	A	A
Approach Vol, veh/h		311			1856			86			175	
Approach Delay, s/veh		14.4			1.4			70.0			103.0	
Approach LOS		B			A			E			F	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	8.8	114.1		30.0		122.9		27.1				
Change Period (Y+Rc), s	* 5.7	5.8		6.1		5.8		6.1				
Max Green Setting (Gmax), s	* 9.3	81.2		37.9		96.2		27.9				
Max Q Clear Time (g_c+I1), s	3.0	2.0		7.4		5.9		20.5				
Green Ext Time (p_c), s	0.0	25.8		0.3		2.1		0.5				

Intersection Summary			
HCM 6th Ctrl Delay		12.8	
HCM 6th LOS		B	

Notes

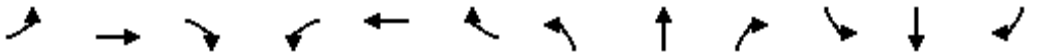
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	382	31	20	331	0	199	52	41	1	32	24
Future Volume (veh/h)	23	382	31	20	331	0	199	52	41	1	32	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93	0.98		1.00	0.99		0.97	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	472	38	25	409	0	246	64	51	1	40	30
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	434	1076	86	387	1155	0	521	132	80	107	722	602
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.00	0.39	0.39	0.39	0.39	0.39	0.39
Sat Flow, veh/h	975	3311	265	873	3647	0	904	340	205	8	1859	1548
Grp Volume(v), veh/h	28	252	258	25	409	0	361	0	0	41	0	30
Grp Sat Flow(s),veh/h/ln	975	1777	1799	873	1777	0	1449	0	0	1867	0	1548
Q Serve(g_s), s	0.8	4.0	4.0	0.8	3.1	0.0	6.1	0.0	0.0	0.0	0.0	0.4
Cycle Q Clear(g_c), s	3.9	4.0	4.0	4.8	3.1	0.0	7.1	0.0	0.0	0.5	0.0	0.4
Prop In Lane	1.00		0.15	1.00		0.00	0.68		0.14	0.02		1.00
Lane Grp Cap(c), veh/h	434	578	585	387	1155	0	733	0	0	829	0	602
V/C Ratio(X)	0.06	0.44	0.44	0.06	0.35	0.00	0.49	0.00	0.00	0.05	0.00	0.05
Avail Cap(c_a), veh/h	716	1093	1106	640	2185	0	1295	0	0	1559	0	1213
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.7	9.5	9.5	11.4	9.2	0.0	8.7	0.0	0.0	6.8	0.0	6.8
Incr Delay (d2), s/veh	0.1	0.5	0.5	0.1	0.2	0.0	0.5	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.2	1.2	0.1	0.9	0.0	1.6	0.0	0.0	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.7	10.0	10.0	11.4	9.4	0.0	9.2	0.0	0.0	6.8	0.0	6.8
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		538			434			361			71	
Approach Delay, s/veh		10.0			9.5			9.2			6.8	
Approach LOS		B			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		16.7		18.9		16.7		18.9				
Change Period (Y+Rc), s		5.1		5.1		5.1		5.1				
Max Green Setting (Gmax), s		21.9		27.9		21.9		27.9				
Max Q Clear Time (g_c+I1), s		6.0		2.5		6.8		9.1				
Green Ext Time (p_c), s		2.9		0.2		2.5		2.2				

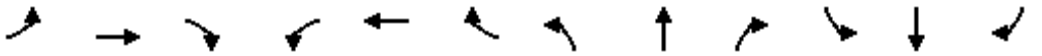
Intersection Summary												
HCM 6th Ctrl Delay			9.5									
HCM 6th LOS			A									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	289	0	314	1681	5	0	0	396	0	0	33
Future Volume (vph)	0	289	0	314	1681	5	0	0	396	0	0	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.8		5.7	4.0				6.1			6.8
Lane Util. Factor		0.91		0.97	0.95				0.88			1.00
Frpb, ped/bikes		1.00		1.00	1.00				1.00			1.00
Flpb, ped/bikes		1.00		1.00	1.00				1.00			1.00
Frt		1.00		1.00	1.00				0.85			0.86
Flt Protected		1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)		5085		3433	3538				2787			1611
Flt Permitted		1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)		5085		3433	3538				2787			1611
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	307	0	334	1788	5	0	0	421	0	0	35
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	408	0	0	9
Lane Group Flow (vph)	0	307	0	334	1793	0	0	0	13	0	0	26
Confl. Peds. (#/hr)						2						
Confl. Bikes (#/hr)			3			1						
Turn Type		NA		Prot	NA				Prot			Perm
Protected Phases		6		5	Free				4			
Permitted Phases												6
Actuated Green, G (s)		132.8		23.1	180.0				5.5			132.8
Effective Green, g (s)		132.8		23.1	180.0				5.5			132.8
Actuated g/C Ratio		0.74		0.13	1.00				0.03			0.74
Clearance Time (s)		6.8		5.7					6.1			6.8
Vehicle Extension (s)		3.0		3.0					3.0			3.0
Lane Grp Cap (vph)		3751		440	3538				85			1188
v/s Ratio Prot		0.06		c0.10	0.51				0.00			
v/s Ratio Perm												0.02
v/c Ratio		0.08		0.76	0.51				0.15			0.02
Uniform Delay, d1		6.6		75.8	0.0				85.0			6.3
Progression Factor		0.85		0.74	1.00				1.00			1.00
Incremental Delay, d2		0.0		6.0	0.4				0.8			0.0
Delay (s)		5.6		61.9	0.4				85.8			6.3
Level of Service		A		E	A				F			A
Approach Delay (s)		5.6			10.1			85.8			6.3	
Approach LOS		A			B			F			A	

Intersection Summary			
HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	18.6
Intersection Capacity Utilization	64.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



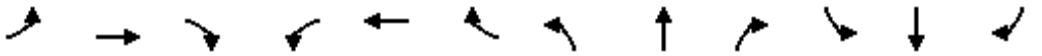
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	602	41	89	1711	54	174	69	46	114	63	18
Future Volume (veh/h)	33	602	41	89	1711	54	174	69	46	114	63	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	35	647	44	96	1840	58	187	74	49	123	68	19
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	45	1893	128	384	2969	94	208	176	117	190	223	62
Arrive On Green	0.03	0.39	0.39	0.22	0.58	0.58	0.12	0.17	0.17	0.11	0.16	0.16
Sat Flow, veh/h	1781	4882	330	1781	5083	160	1781	1042	690	1781	1387	388
Grp Volume(v), veh/h	35	450	241	96	1232	666	187	0	123	123	0	87
Grp Sat Flow(s),veh/h/ln	1781	1702	1808	1781	1702	1839	1781	0	1732	1781	0	1774
Q Serve(g_s), s	3.5	16.8	17.0	8.0	42.4	42.5	18.6	0.0	11.4	11.9	0.0	7.8
Cycle Q Clear(g_c), s	3.5	16.8	17.0	8.0	42.4	42.5	18.6	0.0	11.4	11.9	0.0	7.8
Prop In Lane	1.00		0.18	1.00		0.09	1.00		0.40	1.00		0.22
Lane Grp Cap(c), veh/h	45	1320	701	384	1988	1074	208	0	293	190	0	286
V/C Ratio(X)	0.77	0.34	0.34	0.25	0.62	0.62	0.90	0.00	0.42	0.65	0.00	0.30
Avail Cap(c_a), veh/h	92	1320	701	384	1988	1074	310	0	482	211	0	395
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	87.2	38.9	38.9	58.5	24.4	24.4	78.5	0.0	66.9	77.2	0.0	66.6
Incr Delay (d2), s/veh	23.9	0.7	1.3	0.3	1.5	2.7	20.3	0.0	1.0	5.9	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	7.3	8.0	3.7	17.7	19.5	9.8	0.0	5.2	5.8	0.0	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	111.1	39.6	40.3	58.9	25.9	27.1	98.7	0.0	67.8	83.1	0.0	67.2
LnGrp LOS	F	D	D	E	C	C	F	A	E	F	A	E
Approach Vol, veh/h		726			1994			310			210	
Approach Delay, s/veh		43.3			27.9			86.5			76.5	
Approach LOS		D			C			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	110.9	24.3	35.5	44.6	75.6	25.7	34.1
Change Period (Y+Rc), s	* 4.7	5.8	5.1	* 5.1	5.8	* 5.8	* 4.7	5.1
Max Green Setting (Gmax), s	* 9.3	79.0	21.3	* 50	18.5	* 70	* 31	40.1
Max Q Clear Time (g_c+I1), s	5.5	44.5	13.9	13.4	10.0	19.0	20.6	9.8
Green Ext Time (p_c), s	0.0	19.4	0.2	0.7	0.1	5.3	0.4	0.4

Intersection Summary	
HCM 6th Ctrl Delay	40.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	1535	334	69	317	16	103	3	39	14	1	7
Future Volume (veh/h)	19	1535	334	69	317	16	103	3	39	14	1	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	1706	371	77	352	18	80	51	43	16	1	8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	72	1885	393	124	2402	1048	155	80	68	80	8	63
Arrive On Green	0.04	0.65	0.65	0.07	0.68	0.68	0.09	0.09	0.09	0.04	0.04	0.04
Sat Flow, veh/h	1781	2914	608	1781	3554	1550	1781	922	778	1781	175	1402
Grp Volume(v), veh/h	21	1012	1065	77	352	18	80	0	94	16	0	9
Grp Sat Flow(s),veh/h/ln	1781	1777	1745	1781	1777	1550	1781	0	1700	1781	0	1577
Q Serve(g_s), s	1.6	63.6	75.3	5.7	4.9	0.5	5.8	0.0	7.3	1.2	0.0	0.7
Cycle Q Clear(g_c), s	1.6	63.6	75.3	5.7	4.9	0.5	5.8	0.0	7.3	1.2	0.0	0.7
Prop In Lane	1.00		0.35	1.00		1.00	1.00		0.46	1.00		0.89
Lane Grp Cap(c), veh/h	72	1149	1129	124	2402	1048	155	0	148	80	0	71
V/C Ratio(X)	0.29	0.88	0.94	0.62	0.15	0.02	0.52	0.00	0.64	0.20	0.00	0.13
Avail Cap(c_a), veh/h	132	1173	1152	131	2402	1048	549	0	524	228	0	201
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	63.5	19.7	21.8	61.6	7.9	7.2	59.5	0.0	60.1	62.7	0.0	62.5
Incr Delay (d2), s/veh	2.2	7.9	14.8	8.1	0.0	0.0	2.7	0.0	4.5	1.2	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	27.2	33.3	2.9	1.8	0.2	2.8	0.0	3.3	0.6	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.7	27.6	36.6	69.8	8.0	7.2	62.1	0.0	64.6	63.9	0.0	63.3
LnGrp LOS	E	C	D	E	A	A	E	A	E	E	A	E
Approach Vol, veh/h		2098			447			174			25	
Approach Delay, s/veh		32.6			18.6			63.5			63.7	
Approach LOS		C			B			E			E	

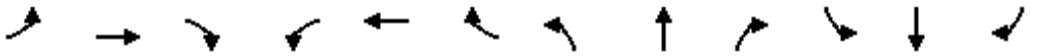
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.2	93.9		11.2	10.2	97.9		16.9				
Change Period (Y+Rc), s	* 4.7	5.8		5.1	* 4.7	5.8		5.1				
Max Green Setting (Gmax), s	* 10	89.9		17.4	* 10	89.8		42.0				
Max Q Clear Time (g_c+I1), s	7.7	77.3		3.2	3.6	6.9		9.3				
Green Ext Time (p_c), s	0.0	10.8		0.0	0.0	2.7		0.8				

Intersection Summary		
HCM 6th Ctrl Delay		32.5
HCM 6th LOS		C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



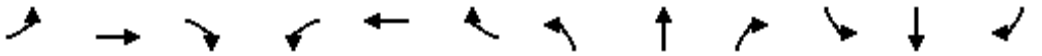
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	1301	80	0	381	39	20	40	3	27	34	14
Future Volume (veh/h)	48	1301	80	0	381	39	20	40	3	27	34	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.91	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	0	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	51	1369	84	0	401	41	21	42	3	28	36	15
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	0	2	2	2	2	2	2	2	2
Cap, veh/h	73	3567	219	0	3073	308	210	202	14	35	45	19
Arrive On Green	0.04	0.73	0.73	0.00	1.00	1.00	0.12	0.12	0.12	0.06	0.06	0.06
Sat Flow, veh/h	1781	4912	301	0	4871	472	1781	1711	122	624	802	334
Grp Volume(v), veh/h	51	949	504	0	288	154	21	0	45	79	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1810	0	1702	1771	1781	0	1833	1761	0	0
Q Serve(g_s), s	5.1	19.0	19.0	0.0	0.0	0.0	1.9	0.0	4.0	8.0	0.0	0.0
Cycle Q Clear(g_c), s	5.1	19.0	19.0	0.0	0.0	0.0	1.9	0.0	4.0	8.0	0.0	0.0
Prop In Lane	1.00		0.17	0.00		0.27	1.00		0.07	0.35		0.19
Lane Grp Cap(c), veh/h	73	2472	1314	0	2224	1157	210	0	216	98	0	0
V/C Ratio(X)	0.70	0.38	0.38	0.00	0.13	0.13	0.10	0.00	0.21	0.80	0.00	0.00
Avail Cap(c_a), veh/h	181	2472	1314	0	2224	1157	375	0	386	244	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.17	0.17	0.17	0.00	1.00	1.00	0.95	0.00	0.95	1.00	0.00	0.00
Uniform Delay (d), s/veh	85.2	9.4	9.4	0.0	0.0	0.0	70.8	0.0	71.8	84.0	0.0	0.0
Incr Delay (d2), s/veh	2.1	0.1	0.1	0.0	0.1	0.2	0.2	0.0	0.4	13.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	7.1	7.6	0.0	0.0	0.1	0.9	0.0	1.9	4.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	87.3	9.4	9.5	0.0	0.1	0.2	71.0	0.0	72.2	97.9	0.0	0.0
LnGrp LOS	F	A	A	A	A	A	E	A	E	F	A	A
Approach Vol, veh/h		1504			442			66			79	
Approach Delay, s/veh		12.1			0.2			71.8			97.9	
Approach LOS		B			A			E			F	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	13.1	123.4		27.3		136.5		16.2				
Change Period (Y+Rc), s	* 5.7	5.8		6.1		5.8		6.1				
Max Green Setting (Gmax), s	* 18	75.2		37.9		99.2		24.9				
Max Q Clear Time (g_c+I1), s	7.1	2.0		6.0		21.0		10.0				
Green Ext Time (p_c), s	0.1	3.2		0.3		16.0		0.3				

Intersection Summary			
HCM 6th Ctrl Delay		14.7	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	371	45	15	371	1	101	30	34	2	79	33
Future Volume (veh/h)	32	371	45	15	371	1	101	30	34	2	79	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.92	0.98		0.98	0.99		0.97	0.99		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	38	442	54	18	442	1	120	36	40	2	94	39
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	453	1092	132	421	1259	3	440	134	103	111	659	547
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	945	3155	382	882	3637	8	759	376	291	8	1858	1543
Grp Volume(v), veh/h	38	247	249	18	216	227	196	0	0	96	0	39
Grp Sat Flow(s),veh/h/ln	945	1777	1761	882	1777	1869	1427	0	0	1867	0	1543
Q Serve(g_s), s	1.1	3.6	3.7	0.5	3.1	3.1	1.9	0.0	0.0	0.0	0.0	0.6
Cycle Q Clear(g_c), s	4.1	3.6	3.7	4.2	3.1	3.1	3.2	0.0	0.0	1.2	0.0	0.6
Prop In Lane	1.00		0.22	1.00		0.00	0.61		0.20	0.02		1.00
Lane Grp Cap(c), veh/h	453	615	609	421	615	647	676	0	0	770	0	547
V/C Ratio(X)	0.08	0.40	0.41	0.04	0.35	0.35	0.29	0.00	0.00	0.12	0.00	0.07
Avail Cap(c_a), veh/h	760	1194	1183	709	1194	1255	1278	0	0	1575	0	1218
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.8	8.5	8.5	10.1	8.3	8.3	8.1	0.0	0.0	7.5	0.0	7.3
Incr Delay (d2), s/veh	0.1	0.4	0.4	0.0	0.3	0.3	0.2	0.0	0.0	0.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.0	1.0	0.1	0.9	0.9	0.8	0.0	0.0	0.3	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.9	8.9	8.9	10.1	8.6	8.6	8.3	0.0	0.0	7.6	0.0	7.3
LnGrp LOS	A	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		534			461			196			135	
Approach Delay, s/veh		9.0			8.7			8.3			7.5	
Approach LOS		A			A			A			A	

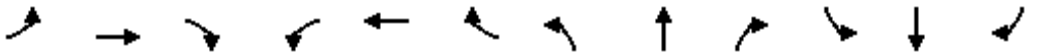
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		16.9		17.2		16.9		17.2				
Change Period (Y+Rc), s		5.1		5.1		5.1		5.1				
Max Green Setting (Gmax), s		22.9		26.9		22.9		26.9				
Max Q Clear Time (g_c+I1), s		6.1		3.2		6.2		5.2				
Green Ext Time (p_c), s		3.0		0.6		2.5		1.2				

Intersection Summary												
HCM 6th Ctrl Delay			8.6									
HCM 6th LOS			A									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1470	0	410	398	12	0	0	395	0	0	6
Future Volume (vph)	0	1470	0	410	398	12	0	0	395	0	0	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.8		5.7	4.0				6.1			6.8
Lane Util. Factor		0.91		0.97	0.95				0.88			1.00
Frpb, ped/bikes		1.00		1.00	1.00				1.00			0.99
Flpb, ped/bikes		1.00		1.00	1.00				1.00			1.00
Frt		1.00		1.00	1.00				0.85			0.86
Flt Protected		1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)		5085		3433	3522				2787			1591
Flt Permitted		1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)		5085		3433	3522				2787			1591
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	1615	0	451	437	13	0	0	434	0	0	7
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	421	0	0	2
Lane Group Flow (vph)	0	1615	0	451	450	0	0	0	13	0	0	5
Confl. Peds. (#/hr)						4			12			1
Confl. Bikes (#/hr)			1			3						1
Turn Type		NA		Prot	NA				Prot			Perm
Protected Phases		6		5	Free				4			
Permitted Phases												6
Actuated Green, G (s)		126.9		29.0	180.0				5.5			126.9
Effective Green, g (s)		126.9		29.0	180.0				5.5			126.9
Actuated g/C Ratio		0.71		0.16	1.00				0.03			0.71
Clearance Time (s)		6.8		5.7					6.1			6.8
Vehicle Extension (s)		3.0		3.0					3.0			3.0
Lane Grp Cap (vph)		3584		553	3522				85			1121
v/s Ratio Prot		c0.32		c0.13	0.13				0.00			
v/s Ratio Perm												0.00
v/c Ratio		0.45		0.82	0.13				0.16			0.00
Uniform Delay, d1		11.5		72.9	0.0				85.0			7.9
Progression Factor		0.79		1.13	1.00				1.00			1.00
Incremental Delay, d2		0.4		8.7	0.1				0.9			0.0
Delay (s)		9.5		91.1	0.1				85.8			7.9
Level of Service		A		F	A				F			A
Approach Delay (s)		9.5			45.6			85.8			7.9	
Approach LOS		A			D			F			A	

Intersection Summary			
HCM 2000 Control Delay	31.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	18.6
Intersection Capacity Utilization	54.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	1526	220	146	734	77	104	83	98	128	103	14
Future Volume (veh/h)	54	1526	220	146	734	77	104	83	98	128	103	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.97	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	57	1606	232	154	773	81	109	87	103	135	108	15
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	72	1902	274	291	2583	269	128	158	187	154	356	49
Arrive On Green	0.04	0.42	0.42	0.16	0.55	0.55	0.07	0.21	0.21	0.09	0.22	0.22
Sat Flow, veh/h	1781	4505	649	1781	4689	488	1781	765	906	1781	1590	221
Grp Volume(v), veh/h	57	1212	626	154	560	294	109	0	190	135	0	123
Grp Sat Flow(s),veh/h/ln	1781	1702	1749	1781	1702	1773	1781	0	1670	1781	0	1811
Q Serve(g_s), s	5.7	57.5	57.9	14.3	15.9	16.1	10.9	0.0	18.3	13.5	0.0	10.2
Cycle Q Clear(g_c), s	5.7	57.5	57.9	14.3	15.9	16.1	10.9	0.0	18.3	13.5	0.0	10.2
Prop In Lane	1.00		0.37	1.00		0.28	1.00		0.54	1.00		0.12
Lane Grp Cap(c), veh/h	72	1437	739	291	1875	977	128	0	346	154	0	405
V/C Ratio(X)	0.79	0.84	0.85	0.53	0.30	0.30	0.85	0.00	0.55	0.87	0.00	0.30
Avail Cap(c_a), veh/h	124	1437	739	291	1875	977	193	0	372	201	0	412
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	85.6	46.7	46.8	69.0	21.7	21.8	82.6	0.0	63.9	81.2	0.0	58.2
Incr Delay (d2), s/veh	17.1	6.2	11.6	1.8	0.4	0.8	19.6	0.0	1.5	26.8	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	25.7	27.7	6.7	6.7	7.1	5.8	0.0	8.0	7.4	0.0	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	102.7	52.9	58.3	70.8	22.1	22.6	102.2	0.0	65.3	108.1	0.0	58.6
LnGrp LOS	F	D	E	E	C	C	F	A	E	F	A	E
Approach Vol, veh/h		1895			1008			299			258	
Approach Delay, s/veh		56.2			29.7			78.8			84.5	
Approach LOS		E			C			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	105.0	20.7	42.3	35.2	81.8	17.7	45.4
Change Period (Y+Rc), s	* 4.7	5.8	5.1	* 5.1	5.8	* 5.8	* 4.7	5.1
Max Green Setting (Gmax), s	* 13	86.8	20.3	* 40	23.3	* 76	* 20	40.9
Max Q Clear Time (g_c+I1), s	7.7	18.1	15.5	20.3	16.3	59.9	12.9	12.2
Green Ext Time (p_c), s	0.0	7.0	0.1	1.0	0.2	11.4	0.1	0.7

Intersection Summary	
HCM 6th Ctrl Delay	52.5
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX G

INTERSECTION ANALYSIS WORKSHEETS – NEAR-TERM WITH PROJECT

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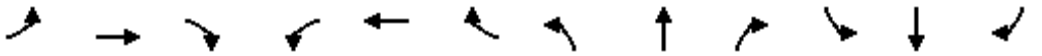


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	212	55	49	1656	19	571	1	36	15	7	12
Future Volume (veh/h)	6	212	55	49	1656	19	571	1	36	15	7	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	238	62	55	1861	21	680	0	0	17	8	13
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	31	1273	324	126	1812	787	840	441	0	108	38	62
Arrive On Green	0.02	0.46	0.46	0.07	0.51	0.51	0.24	0.00	0.00	0.06	0.06	0.06
Sat Flow, veh/h	1781	2790	709	1781	3554	1543	3563	1870	0	1781	634	1030
Grp Volume(v), veh/h	7	149	151	55	1861	21	680	0	0	17	0	21
Grp Sat Flow(s),veh/h/ln	1781	1777	1722	1781	1777	1543	1781	1870	0	1781	0	1664
Q Serve(g_s), s	0.5	5.9	6.1	3.5	59.9	0.8	21.2	0.0	0.0	1.1	0.0	1.4
Cycle Q Clear(g_c), s	0.5	5.9	6.1	3.5	59.9	0.8	21.2	0.0	0.0	1.1	0.0	1.4
Prop In Lane	1.00		0.41	1.00		1.00	1.00		0.00	1.00		0.62
Lane Grp Cap(c), veh/h	31	811	786	126	1812	787	840	441	0	108	0	101
V/C Ratio(X)	0.23	0.18	0.19	0.43	1.03	0.03	0.81	0.00	0.00	0.16	0.00	0.21
Avail Cap(c_a), veh/h	152	906	878	152	1812	787	1274	669	0	264	0	246
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.9	18.9	19.0	52.3	28.8	14.3	42.4	0.0	0.0	52.3	0.0	52.5
Incr Delay (d2), s/veh	3.6	0.1	0.1	2.3	28.3	0.0	2.4	0.0	0.0	0.7	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.4	2.5	1.6	31.4	0.3	9.5	0.0	0.0	0.5	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.6	19.1	19.1	54.6	57.1	14.3	44.8	0.0	0.0	53.0	0.0	53.5
LnGrp LOS	E	B	B	D	F	B	D	A	A	D	A	D
Approach Vol, veh/h		307			1937			680			38	
Approach Delay, s/veh		20.0			56.6			44.8			53.3	
Approach LOS		C			E			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.0	59.4		12.2	6.7	65.7		32.8				
Change Period (Y+Rc), s	* 4.7	5.8		5.1	* 4.7	5.8		5.1				
Max Green Setting (Gmax), s	* 10	59.9		17.4	* 10	59.9		42.0				
Max Q Clear Time (g_c+I1), s	5.5	8.1		3.4	2.5	61.9		23.2				
Green Ext Time (p_c), s	0.0	2.0		0.1	0.0	0.0		2.5				

Intersection Summary		
HCM 6th Ctrl Delay		50.0
HCM 6th LOS		D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	261	8	0	1579	28	57	21	2	37	52	75
Future Volume (veh/h)	15	261	8	0	1579	28	57	21	2	37	52	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.91	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	0	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	17	303	9	0	1836	33	66	24	2	43	60	87
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	0	2	2	2	2	2	2	2	2
Cap, veh/h	45	3274	97	0	3022	54	237	224	19	48	67	96
Arrive On Green	0.03	0.64	0.64	0.00	1.00	1.00	0.13	0.13	0.13	0.12	0.12	0.12
Sat Flow, veh/h	1781	5096	150	0	5331	93	1781	1689	141	382	533	773
Grp Volume(v), veh/h	17	202	110	0	1210	659	66	0	26	190	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1842	0	1702	1851	1781	0	1829	1689	0	0
Q Serve(g_s), s	1.7	4.1	4.1	0.0	0.0	0.0	6.0	0.0	2.3	20.0	0.0	0.0
Cycle Q Clear(g_c), s	1.7	4.1	4.1	0.0	0.0	0.0	6.0	0.0	2.3	20.0	0.0	0.0
Prop In Lane	1.00		0.08	0.00		0.05	1.00		0.08	0.23		0.46
Lane Grp Cap(c), veh/h	45	2187	1184	0	1993	1084	237	0	243	211	0	0
V/C Ratio(X)	0.38	0.09	0.09	0.00	0.61	0.61	0.28	0.00	0.11	0.90	0.00	0.00
Avail Cap(c_a), veh/h	92	2187	1184	0	1993	1084	375	0	385	262	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	0.86	0.86	0.77	0.00	0.77	1.00	0.00	0.00
Uniform Delay (d), s/veh	86.3	12.2	12.2	0.0	0.0	0.0	70.3	0.0	68.7	77.7	0.0	0.0
Incr Delay (d2), s/veh	5.1	0.1	0.2	0.0	1.2	2.2	0.5	0.0	0.1	27.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.6	1.8	0.0	0.3	0.7	2.8	0.0	1.1	10.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	91.4	12.3	12.4	0.0	1.2	2.2	70.8	0.0	68.8	105.3	0.0	0.0
LnGrp LOS	F	B	B	A	A	A	E	A	E	F	A	A
Approach Vol, veh/h		329			1869			92			190	
Approach Delay, s/veh		16.4			1.5			70.2			105.3	
Approach LOS		B			A			E			F	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.3	111.2		30.0		121.4		28.6				
Change Period (Y+Rc), s	5.7	5.8		6.1		5.8		6.1				
Max Green Setting (Gmax), s	4.3	81.2		37.9		96.2		27.9				
Max Q Clear Time (g_c+I1), s	3.7	2.0		8.0		6.1		22.0				
Green Ext Time (p_c), s	0.0	26.2		0.3		2.2		0.5				

Intersection Summary	
HCM 6th Ctrl Delay	14.0
HCM 6th LOS	B

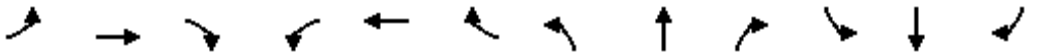
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	382	31	20	331	0	199	54	41	1	35	24
Future Volume (veh/h)	26	382	31	20	331	0	199	54	41	1	35	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93	0.98		1.00	0.99		0.97	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	32	472	38	25	409	0	246	67	51	1	43	30
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	432	1074	86	386	1153	0	518	137	79	106	725	604
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.00	0.39	0.39	0.39	0.39	0.39	0.39
Sat Flow, veh/h	975	3311	265	873	3647	0	895	351	203	7	1859	1548
Grp Volume(v), veh/h	32	252	258	25	409	0	364	0	0	44	0	30
Grp Sat Flow(s),veh/h/ln	975	1777	1799	873	1777	0	1450	0	0	1867	0	1548
Q Serve(g_s), s	0.9	4.0	4.0	0.8	3.1	0.0	6.2	0.0	0.0	0.0	0.0	0.4
Cycle Q Clear(g_c), s	4.1	4.0	4.0	4.9	3.1	0.0	7.1	0.0	0.0	0.5	0.0	0.4
Prop In Lane	1.00		0.15	1.00		0.00	0.68		0.14	0.02		1.00
Lane Grp Cap(c), veh/h	432	576	583	386	1153	0	734	0	0	831	0	604
V/C Ratio(X)	0.07	0.44	0.44	0.06	0.35	0.00	0.50	0.00	0.00	0.05	0.00	0.05
Avail Cap(c_a), veh/h	714	1090	1104	638	2180	0	1291	0	0	1555	0	1210
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.8	9.5	9.5	11.4	9.2	0.0	8.7	0.0	0.0	6.8	0.0	6.8
Incr Delay (d2), s/veh	0.1	0.5	0.5	0.1	0.2	0.0	0.5	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.2	1.2	0.1	0.9	0.0	1.6	0.0	0.0	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.8	10.0	10.0	11.5	9.4	0.0	9.2	0.0	0.0	6.8	0.0	6.8
LnGrp LOS	B	B	B	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		542			434			364			74	
Approach Delay, s/veh		10.1			9.5			9.2			6.8	
Approach LOS		B			A			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	16.7	19.0	16.7	19.0
Change Period (Y+Rc), s	5.1	5.1	5.1	5.1
Max Green Setting (Gmax), s	21.9	27.9	21.9	27.9
Max Q Clear Time (g_c+I1), s	6.1	2.5	6.9	9.1
Green Ext Time (p_c), s	2.9	0.3	2.5	2.2

Intersection Summary	
HCM 6th Ctrl Delay	9.5
HCM 6th LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	309	0	314	1691	5	0	0	396	0	0	34
Future Volume (vph)	0	309	0	314	1691	5	0	0	396	0	0	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.8		5.7	4.0				6.1			6.8
Lane Util. Factor		0.91		0.97	0.95				0.88			1.00
Frpb, ped/bikes		1.00		1.00	1.00				1.00			1.00
Flpb, ped/bikes		1.00		1.00	1.00				1.00			1.00
Frt		1.00		1.00	1.00				0.85			0.86
Flt Protected		1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)		5085		3433	3538				2787			1611
Flt Permitted		1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)		5085		3433	3538				2787			1611
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	329	0	334	1799	5	0	0	421	0	0	36
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	408	0	0	9
Lane Group Flow (vph)	0	329	0	334	1804	0	0	0	13	0	0	27
Confl. Peds. (#/hr)						2						
Confl. Bikes (#/hr)			3			1						
Turn Type		NA		Prot	NA				Prot			Perm
Protected Phases		6		5	Free				4			
Permitted Phases												6
Actuated Green, G (s)		132.8		23.1	180.0				5.5			132.8
Effective Green, g (s)		132.8		23.1	180.0				5.5			132.8
Actuated g/C Ratio		0.74		0.13	1.00				0.03			0.74
Clearance Time (s)		6.8		5.7					6.1			6.8
Vehicle Extension (s)		3.0		3.0					3.0			3.0
Lane Grp Cap (vph)		3751		440	3538				85			1188
v/s Ratio Prot		0.06		c0.10	0.51				0.00			
v/s Ratio Perm												0.02
v/c Ratio		0.09		0.76	0.51				0.15			0.02
Uniform Delay, d1		6.6		75.8	0.0				85.0			6.3
Progression Factor		0.82		0.74	1.00				1.00			1.00
Incremental Delay, d2		0.0		5.9	0.4				0.8			0.0
Delay (s)		5.5		61.7	0.4				85.8			6.3
Level of Service		A		E	A				F			A
Approach Delay (s)		5.5			10.0			85.8			6.3	
Approach LOS		A			A			F			A	

Intersection Summary			
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	18.6
Intersection Capacity Utilization	64.2%	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												
Traffic Volume (veh/h)	34	620	42	89	1721	54	174	69	46	114	63	18
Future Volume (veh/h)	34	620	42	89	1721	54	174	69	46	114	63	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	37	667	45	96	1851	58	187	74	49	123	68	19
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	48	1894	127	384	2962	93	208	176	117	190	223	62
Arrive On Green	0.03	0.39	0.39	0.22	0.58	0.58	0.12	0.17	0.17	0.11	0.16	0.16
Sat Flow, veh/h	1781	4885	328	1781	5085	159	1781	1042	690	1781	1387	388
Grp Volume(v), veh/h	37	464	248	96	1239	670	187	0	123	123	0	87
Grp Sat Flow(s),veh/h/ln	1781	1702	1808	1781	1702	1840	1781	0	1732	1781	0	1774
Q Serve(g_s), s	3.7	17.4	17.6	8.0	43.0	43.1	18.6	0.0	11.4	11.9	0.0	7.8
Cycle Q Clear(g_c), s	3.7	17.4	17.6	8.0	43.0	43.1	18.6	0.0	11.4	11.9	0.0	7.8
Prop In Lane	1.00		0.18	1.00		0.09	1.00		0.40	1.00		0.22
Lane Grp Cap(c), veh/h	48	1320	701	384	1983	1072	208	0	293	190	0	286
V/C Ratio(X)	0.77	0.35	0.35	0.25	0.62	0.63	0.90	0.00	0.42	0.65	0.00	0.30
Avail Cap(c_a), veh/h	92	1320	701	384	1983	1072	310	0	482	211	0	395
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	87.0	39.1	39.1	58.5	24.6	24.7	78.5	0.0	66.9	77.2	0.0	66.6
Incr Delay (d2), s/veh	22.8	0.7	1.4	0.3	1.5	2.8	20.3	0.0	1.0	5.9	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	7.6	8.2	3.7	17.9	19.8	9.8	0.0	5.2	5.8	0.0	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	109.9	39.8	40.5	58.9	26.1	27.4	98.7	0.0	67.8	83.1	0.0	67.2
LnGrp LOS	F	D	D	E	C	C	F	A	E	F	A	E
Approach Vol, veh/h		749			2005			310			210	
Approach Delay, s/veh		43.5			28.1			86.5			76.5	
Approach LOS		D			C			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	110.7	24.3	35.5	44.6	75.6	25.7	34.1
Change Period (Y+Rc), s	* 4.7	5.8	5.1	* 5.1	5.8	* 5.8	* 4.7	5.1
Max Green Setting (Gmax), s	* 9.3	79.0	21.3	* 50	18.5	* 70	* 31	40.1
Max Q Clear Time (g_c+I1), s	15.7	45.1	13.9	13.4	10.0	19.6	20.6	9.8
Green Ext Time (p_c), s	0.0	19.4	0.2	0.7	0.1	5.4	0.4	0.4

Intersection Summary	
HCM 6th Ctrl Delay	40.3
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	284	1695	22	0	27
Future Vol, veh/h	0	284	1695	22	0	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	309	1842	24	0	29

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	933
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	268
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	268
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	20.1
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	268
HCM Lane V/C Ratio	-	-	-	0.11
HCM Control Delay (s)	-	-	-	20.1
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.4

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	13	0	58	151	0
Future Vol, veh/h	1	13	0	58	151	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	14	0	63	164	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	227	164	-	0	-	0
Stage 1	164	-	-	-	-	-
Stage 2	63	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	761	881	0	-	-	0
Stage 1	865	-	0	-	-	0
Stage 2	960	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	761	881	-	-	-	-
Mov Cap-2 Maneuver	761	-	-	-	-	-
Stage 1	865	-	-	-	-	-
Stage 2	960	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.2	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	871	-
HCM Lane V/C Ratio	-	0.017	-
HCM Control Delay (s)	-	9.2	-
HCM Lane LOS	-	A	-
HCM 95th %tile Q(veh)	-	0.1	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	1553	334	83	326	16	103	3	39	14	1	7
Future Volume (veh/h)	19	1553	334	83	326	16	103	3	39	14	1	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	1726	371	92	362	18	80	51	43	16	1	8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	72	1889	390	126	2407	1050	155	80	67	80	8	63
Arrive On Green	0.04	0.65	0.65	0.07	0.68	0.68	0.09	0.09	0.09	0.04	0.04	0.04
Sat Flow, veh/h	1781	2921	603	1781	3554	1550	1781	922	778	1781	175	1402
Grp Volume(v), veh/h	21	1022	1075	92	362	18	80	0	94	16	0	9
Grp Sat Flow(s),veh/h/ln	1781	1777	1747	1781	1777	1550	1781	0	1700	1781	0	1577
Q Serve(g_s), s	1.6	65.5	77.6	6.9	5.0	0.5	5.9	0.0	7.3	1.2	0.0	0.8
Cycle Q Clear(g_c), s	1.6	65.5	77.6	6.9	5.0	0.5	5.9	0.0	7.3	1.2	0.0	0.8
Prop In Lane	1.00		0.34	1.00		1.00	1.00		0.46	1.00		0.89
Lane Grp Cap(c), veh/h	72	1149	1129	126	2407	1050	155	0	147	80	0	71
V/C Ratio(X)	0.29	0.89	0.95	0.73	0.15	0.02	0.52	0.00	0.64	0.20	0.00	0.13
Avail Cap(c_a), veh/h	131	1165	1145	130	2407	1050	546	0	521	226	0	200
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	63.9	20.1	22.3	62.4	7.9	7.2	59.9	0.0	60.5	63.1	0.0	62.9
Incr Delay (d2), s/veh	2.2	8.6	16.3	18.2	0.0	0.0	2.7	0.0	4.5	1.2	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	28.2	34.7	3.8	1.9	0.2	2.8	0.0	3.4	0.6	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.1	28.8	38.6	80.6	8.0	7.2	62.5	0.0	65.0	64.3	0.0	63.7
LnGrp LOS	E	C	D	F	A	A	E	A	E	E	A	E
Approach Vol, veh/h		2118			472			174			25	
Approach Delay, s/veh		34.1			22.1			63.9			64.1	
Approach LOS		C			C			E			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.4	94.5		11.2	10.2	98.6		17.0				
Change Period (Y+Rc), s	* 4.7	5.8		5.1	* 4.7	5.8		5.1				
Max Green Setting (Gmax), s	* 10	89.9		17.4	* 10	89.8		42.0				
Max Q Clear Time (g_c+I1), s	8.9	79.6		3.2	3.6	7.0		9.3				
Green Ext Time (p_c), s	0.0	9.1		0.0	0.0	2.7		0.8				

Intersection Summary		
HCM 6th Ctrl Delay		34.2
HCM 6th LOS		C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	1310	80	0	416	39	36	40	3	36	36	15
Future Volume (veh/h)	66	1310	80	0	416	39	36	40	3	36	36	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.91	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	0	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	69	1379	84	0	438	41	38	42	3	38	38	16
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	0	2	2	2	2	2	2	2	2
Cap, veh/h	86	3527	215	0	3026	279	211	203	15	46	46	20
Arrive On Green	0.05	0.72	0.72	0.00	1.00	1.00	0.12	0.12	0.12	0.06	0.06	0.06
Sat Flow, veh/h	1781	4915	299	0	4914	437	1781	1711	122	728	728	307
Grp Volume(v), veh/h	69	955	508	0	312	167	38	0	45	92	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1810	0	1702	1778	1781	0	1834	1764	0	0
Q Serve(g_s), s	6.9	19.8	19.8	0.0	0.0	0.0	3.5	0.0	4.0	9.3	0.0	0.0
Cycle Q Clear(g_c), s	6.9	19.8	19.8	0.0	0.0	0.0	3.5	0.0	4.0	9.3	0.0	0.0
Prop In Lane	1.00		0.17	0.00		0.25	1.00		0.07	0.41		0.17
Lane Grp Cap(c), veh/h	86	2443	1299	0	2171	1134	211	0	218	112	0	0
V/C Ratio(X)	0.80	0.39	0.39	0.00	0.14	0.15	0.18	0.00	0.21	0.82	0.00	0.00
Avail Cap(c_a), veh/h	181	2443	1299	0	2171	1134	375	0	386	244	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	0.94	0.00	0.94	1.00	0.00	0.00
Uniform Delay (d), s/veh	84.8	10.0	10.0	0.0	0.0	0.0	71.4	0.0	71.7	83.2	0.0	0.0
Incr Delay (d2), s/veh	15.6	0.5	0.9	0.0	0.1	0.3	0.4	0.0	0.4	13.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	7.6	8.2	0.0	0.0	0.1	1.6	0.0	1.9	4.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	100.3	10.4	10.9	0.0	0.1	0.3	71.8	0.0	72.1	96.6	0.0	0.0
LnGrp LOS	F	B	B	A	A	A	E	A	E	F	A	A
Approach Vol, veh/h		1532			479			83			92	
Approach Delay, s/veh		14.6			0.2			72.0			96.6	
Approach LOS		B			A			E			F	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	14.4	120.6		27.5		135.0		17.6				
Change Period (Y+Rc), s	5.7	5.8		6.1		5.8		6.1				
Max Green Setting (Gmax), s	8.8	75.2		37.9		99.2		24.9				
Max Q Clear Time (g_c+I1), s	8.9	2.0		6.0		21.8		11.3				
Green Ext Time (p_c), s	0.1	3.5		0.3		16.1		0.3				

Intersection Summary	
HCM 6th Ctrl Delay	17.1
HCM 6th LOS	B

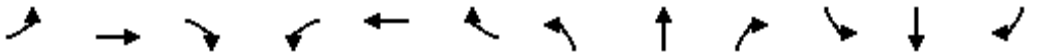
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	371	45	15	371	1	101	35	34	2	81	33
Future Volume (veh/h)	43	371	45	15	371	1	101	35	34	2	81	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.92	0.98		0.98	0.99		0.97	0.99		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	51	442	54	18	442	1	120	42	40	2	96	39
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	453	1092	132	421	1259	3	429	149	101	111	659	547
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	945	3155	382	882	3637	8	735	419	285	8	1859	1543
Grp Volume(v), veh/h	51	247	249	18	216	227	202	0	0	98	0	39
Grp Sat Flow(s),veh/h/ln	945	1777	1761	882	1777	1869	1439	0	0	1867	0	1543
Q Serve(g_s), s	1.4	3.6	3.7	0.5	3.1	3.1	1.9	0.0	0.0	0.0	0.0	0.6
Cycle Q Clear(g_c), s	4.5	3.6	3.7	4.2	3.1	3.1	3.3	0.0	0.0	1.2	0.0	0.6
Prop In Lane	1.00		0.22	1.00		0.00	0.59		0.20	0.02		1.00
Lane Grp Cap(c), veh/h	453	615	609	421	615	647	679	0	0	770	0	547
V/C Ratio(X)	0.11	0.40	0.41	0.04	0.35	0.35	0.30	0.00	0.00	0.13	0.00	0.07
Avail Cap(c_a), veh/h	760	1194	1183	709	1194	1255	1284	0	0	1575	0	1218
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.0	8.5	8.5	10.1	8.3	8.3	8.1	0.0	0.0	7.5	0.0	7.3
Incr Delay (d2), s/veh	0.1	0.4	0.4	0.0	0.3	0.3	0.2	0.0	0.0	0.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.0	1.0	0.1	0.9	0.9	0.8	0.0	0.0	0.3	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.1	8.9	8.9	10.1	8.6	8.6	8.3	0.0	0.0	7.6	0.0	7.3
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		547			461			202			137	
Approach Delay, s/veh		9.0			8.7			8.3			7.5	
Approach LOS		A			A			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	16.9	17.2	16.9	17.2
Change Period (Y+Rc), s	5.1	5.1	5.1	5.1
Max Green Setting (Gmax), s	22.9	26.9	22.9	26.9
Max Q Clear Time (g_c+I1), s	6.5	3.2	6.2	5.3
Green Ext Time (p_c), s	3.0	0.6	2.5	1.2

Intersection Summary	
HCM 6th Ctrl Delay	8.6
HCM 6th LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1488	0	410	432	12	0	0	395	0	0	7
Future Volume (vph)	0	1488	0	410	432	12	0	0	395	0	0	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.8		5.7	4.0				6.1			6.8
Lane Util. Factor		0.91		0.97	0.95				0.88			1.00
Frpb, ped/bikes		1.00		1.00	1.00				1.00			0.99
Flpb, ped/bikes		1.00		1.00	1.00				1.00			1.00
Frt		1.00		1.00	1.00				0.85			0.86
Flt Protected		1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)		5085		3433	3523				2787			1591
Flt Permitted		1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)		5085		3433	3523				2787			1591
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	1635	0	451	475	13	0	0	434	0	0	8
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	421	0	0	2
Lane Group Flow (vph)	0	1635	0	451	488	0	0	0	13	0	0	6
Confl. Peds. (#/hr)						4			12			1
Confl. Bikes (#/hr)			1			3						1
Turn Type		NA		Prot	NA				Prot			Perm
Protected Phases		6		5	Free				4			
Permitted Phases												6
Actuated Green, G (s)		126.9		29.0	180.0				5.5			126.9
Effective Green, g (s)		126.9		29.0	180.0				5.5			126.9
Actuated g/C Ratio		0.71		0.16	1.00				0.03			0.71
Clearance Time (s)		6.8		5.7					6.1			6.8
Vehicle Extension (s)		3.0		3.0					3.0			3.0
Lane Grp Cap (vph)		3584		553	3523				85			1121
v/s Ratio Prot		c0.32		c0.13	0.14				0.00			
v/s Ratio Perm												0.00
v/c Ratio		0.46		0.82	0.14				0.16			0.01
Uniform Delay, d1		11.5		72.9	0.0				85.0			7.9
Progression Factor		0.77		1.13	1.00				1.00			1.00
Incremental Delay, d2		0.4		8.7	0.1				0.9			0.0
Delay (s)		9.3		91.0	0.1				85.8			7.9
Level of Service		A		F	A				F			A
Approach Delay (s)		9.3			43.8			85.8			7.9	
Approach LOS		A			D			F			A	

Intersection Summary			
HCM 2000 Control Delay	31.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	18.6
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	1542	221	146	766	77	105	83	98	128	103	15
Future Volume (veh/h)	55	1542	221	146	766	77	105	83	98	128	103	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.97	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	58	1623	233	154	806	81	111	87	103	135	108	16
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	73	1904	272	291	2592	259	130	158	187	154	351	52
Arrive On Green	0.04	0.42	0.42	0.16	0.55	0.55	0.07	0.21	0.21	0.09	0.22	0.22
Sat Flow, veh/h	1781	4509	645	1781	4710	471	1781	765	906	1781	1574	233
Grp Volume(v), veh/h	58	1224	632	154	581	306	111	0	190	135	0	124
Grp Sat Flow(s),veh/h/ln	1781	1702	1750	1781	1702	1777	1781	0	1670	1781	0	1808
Q Serve(g_s), s	5.8	58.4	58.8	14.3	16.7	16.8	11.1	0.0	18.3	13.5	0.0	10.3
Cycle Q Clear(g_c), s	5.8	58.4	58.8	14.3	16.7	16.8	11.1	0.0	18.3	13.5	0.0	10.3
Prop In Lane	1.00		0.37	1.00		0.26	1.00		0.54	1.00		0.13
Lane Grp Cap(c), veh/h	73	1437	739	291	1873	978	130	0	346	154	0	403
V/C Ratio(X)	0.79	0.85	0.86	0.53	0.31	0.31	0.85	0.00	0.55	0.87	0.00	0.31
Avail Cap(c_a), veh/h	124	1437	739	291	1873	978	193	0	372	201	0	411
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	85.5	46.9	47.0	69.0	22.0	22.0	82.5	0.0	63.9	81.2	0.0	58.4
Incr Delay (d2), s/veh	17.0	6.5	12.2	1.8	0.4	0.8	20.4	0.0	1.5	26.8	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	26.1	28.2	6.7	7.0	7.5	5.9	0.0	8.0	7.4	0.0	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	102.5	53.5	59.2	70.8	22.4	22.8	102.9	0.0	65.3	108.1	0.0	58.8
LnGrp LOS	F	D	E	E	C	C	F	A	E	F	A	E
Approach Vol, veh/h		1914			1041			301			259	
Approach Delay, s/veh		56.8			29.7			79.2			84.5	
Approach LOS		E			C			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.1	104.8	20.7	42.3	35.2	81.8	17.9	45.2
Change Period (Y+Rc), s	* 4.7	5.8	5.1	* 5.1	5.8	* 5.8	* 4.7	5.1
Max Green Setting (Gmax), s	* 13	86.8	20.3	* 40	23.3	* 76	* 20	40.9
Max Q Clear Time (g_c+I1), s	7.8	18.8	15.5	20.3	16.3	60.8	13.1	12.3
Green Ext Time (p_c), s	0.0	7.3	0.1	1.0	0.2	11.0	0.1	0.7

Intersection Summary	
HCM 6th Ctrl Delay	52.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↱
Traffic Vol, veh/h	0	1456	415	70	0	23
Future Vol, veh/h	0	1456	415	70	0	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1583	451	76	0	25

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	264
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	734
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	734
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.1
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	734
HCM Lane V/C Ratio	-	-	-	0.034
HCM Control Delay (s)	-	-	-	10.1
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	11	0	127	76	0
Future Vol, veh/h	1	11	0	127	76	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	12	0	138	83	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	221	83	-	0	-	0
Stage 1	83	-	-	-	-	-
Stage 2	138	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	767	976	0	-	-	0
Stage 1	940	-	0	-	-	0
Stage 2	889	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	767	976	-	-	-	-
Mov Cap-2 Maneuver	767	-	-	-	-	-
Stage 1	940	-	-	-	-	-
Stage 2	889	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	954	-
HCM Lane V/C Ratio	-	0.014	-
HCM Control Delay (s)	-	8.8	-
HCM Lane LOS	-	A	-
HCM 95th %tile Q(veh)	-	0	-

APPENDIX H

INTERSECTION ANALYSIS WORKSHEETS – YEAR 2040 WITHOUT PROJECT

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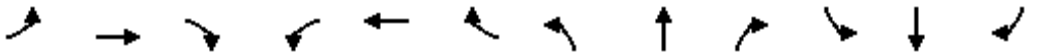


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	185	51	30	2075	14	459	2	45	52	7	19
Future Volume (veh/h)	5	185	51	30	2075	14	459	2	45	52	7	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	201	55	33	2255	15	546	0	0	57	8	21
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	22	1544	410	88	2119	921	674	354	0	115	29	76
Arrive On Green	0.01	0.56	0.56	0.05	0.60	0.60	0.19	0.00	0.00	0.06	0.06	0.06
Sat Flow, veh/h	1781	2761	734	1781	3554	1545	3563	1870	0	1781	450	1181
Grp Volume(v), veh/h	5	127	129	33	2255	15	546	0	0	57	0	29
Grp Sat Flow(s),veh/h/ln	1781	1777	1718	1781	1777	1545	1781	1870	0	1781	0	1631
Q Serve(g_s), s	0.4	5.1	5.4	2.7	89.9	0.6	22.1	0.0	0.0	4.7	0.0	2.6
Cycle Q Clear(g_c), s	0.4	5.1	5.4	2.7	89.9	0.6	22.1	0.0	0.0	4.7	0.0	2.6
Prop In Lane	1.00		0.43	1.00		1.00	1.00		0.00	1.00		0.72
Lane Grp Cap(c), veh/h	22	994	960	88	2119	921	674	354	0	115	0	105
V/C Ratio(X)	0.22	0.13	0.13	0.37	1.06	0.02	0.81	0.00	0.00	0.50	0.00	0.28
Avail Cap(c_a), veh/h	118	1060	1024	118	2119	921	993	521	0	206	0	188
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	73.7	15.8	15.8	69.4	30.4	12.4	58.5	0.0	0.0	68.1	0.0	67.2
Incr Delay (d2), s/veh	5.0	0.1	0.1	2.6	39.2	0.0	3.2	0.0	0.0	3.3	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.2	2.2	1.3	48.4	0.2	10.3	0.0	0.0	2.2	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.7	15.8	15.9	72.0	69.7	12.4	61.7	0.0	0.0	71.4	0.0	68.6
LnGrp LOS	E	B	B	E	F	B	E	A	A	E	A	E
Approach Vol, veh/h		261			2303			546			86	
Approach Delay, s/veh		17.1			69.3			61.7			70.5	
Approach LOS		B			E			E			E	

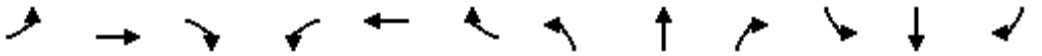
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.2	90.1		14.8	6.6	95.7		33.6				
Change Period (Y+Rc), s	* 4.7	5.8		5.1	* 4.7	5.8		5.1				
Max Green Setting (Gmax), s	* 10	89.9		17.4	* 10	89.9		42.0				
Max Q Clear Time (g_c+I1), s	4.7	7.4		6.7	2.4	91.9		24.1				
Green Ext Time (p_c), s	0.0	1.7		0.2	0.0	0.0		1.9				

Intersection Summary			
HCM 6th Ctrl Delay		63.8	
HCM 6th LOS		E	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



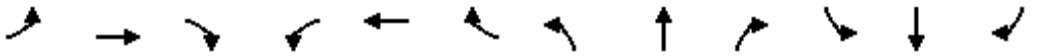
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	252	20	0	1907	20	47	27	2	23	48	60
Future Volume (veh/h)	9	252	20	0	1907	20	47	27	2	23	48	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.91	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	0	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	293	23	0	2217	23	55	31	2	27	56	70
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	0	2	2	2	2	2	2	2	2
Cap, veh/h	31	3214	248	0	3209	33	236	229	15	30	63	79
Arrive On Green	0.02	0.67	0.67	0.00	1.00	1.00	0.13	0.13	0.13	0.10	0.10	0.10
Sat Flow, veh/h	1781	4832	373	0	5378	54	1781	1727	111	298	619	773
Grp Volume(v), veh/h	10	205	111	0	1448	792	55	0	33	153	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1801	0	1702	1859	1781	0	1838	1690	0	0
Q Serve(g_s), s	1.0	3.9	4.0	0.0	0.0	0.0	5.0	0.0	2.9	16.1	0.0	0.0
Cycle Q Clear(g_c), s	1.0	3.9	4.0	0.0	0.0	0.0	5.0	0.0	2.9	16.1	0.0	0.0
Prop In Lane	1.00		0.21	0.00		0.03	1.00		0.06	0.18		0.46
Lane Grp Cap(c), veh/h	31	2264	1198	0	2097	1145	236	0	244	173	0	0
V/C Ratio(X)	0.32	0.09	0.09	0.00	0.69	0.69	0.23	0.00	0.14	0.89	0.00	0.00
Avail Cap(c_a), veh/h	82	2264	1198	0	2097	1145	349	0	360	215	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.99	0.99	0.00	0.79	0.79	0.94	0.00	0.94	1.00	0.00	0.00
Uniform Delay (d), s/veh	87.4	10.7	10.8	0.0	0.0	0.0	69.9	0.0	68.9	79.8	0.0	0.0
Incr Delay (d2), s/veh	5.7	0.1	0.2	0.0	1.5	2.7	0.5	0.0	0.2	28.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.5	1.7	0.0	0.4	0.9	2.3	0.0	1.4	8.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	93.1	10.8	10.9	0.0	1.5	2.7	70.3	0.0	69.2	108.4	0.0	0.0
LnGrp LOS	F	B	B	A	A	A	E	A	E	F	A	A
Approach Vol, veh/h		326			2240			88			153	
Approach Delay, s/veh		13.4			1.9			69.9			108.4	
Approach LOS		B			A			E			F	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	8.8	116.7		30.0		125.5		24.5				
Change Period (Y+Rc), s	* 5.7	5.8		6.1		5.8		6.1				
Max Green Setting (Gmax), s	* 8.3	89.8		35.3		103.8		22.9				
Max Q Clear Time (g_c+I1), s	3.0	2.0		7.0		6.0		18.1				
Green Ext Time (p_c), s	0.0	39.8		0.3		2.2		0.3				

Intersection Summary		
HCM 6th Ctrl Delay		11.2
HCM 6th LOS		B

Notes

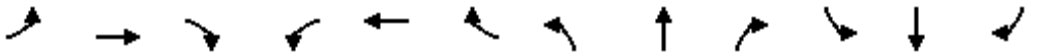
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	428	16	27	341	0	67	40	83	2	28	28
Future Volume (veh/h)	17	428	16	27	341	0	67	40	83	2	28	28
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93	0.98		1.00	0.99		0.97	0.98		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	528	20	33	421	0	83	49	102	2	35	35
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	446	1165	44	391	1190	0	285	180	251	118	679	571
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.00	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	965	3480	132	844	3647	0	390	489	679	20	1839	1547
Grp Volume(v), veh/h	21	269	279	33	421	0	234	0	0	37	0	35
Grp Sat Flow(s),veh/h/ln	965	1777	1835	844	1777	0	1557	0	0	1859	0	1547
Q Serve(g_s), s	0.6	4.1	4.1	1.1	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Cycle Q Clear(g_c), s	3.7	4.1	4.1	5.2	3.1	0.0	3.5	0.0	0.0	0.4	0.0	0.5
Prop In Lane	1.00		0.07	1.00		0.00	0.35		0.44	0.05		1.00
Lane Grp Cap(c), veh/h	446	595	614	391	1190	0	716	0	0	796	0	571
V/C Ratio(X)	0.05	0.45	0.45	0.08	0.35	0.00	0.33	0.00	0.00	0.05	0.00	0.06
Avail Cap(c_a), veh/h	764	1182	1220	670	2363	0	1336	0	0	1546	0	1209
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.0	9.0	9.0	11.0	8.6	0.0	7.9	0.0	0.0	7.0	0.0	7.0
Incr Delay (d2), s/veh	0.0	0.5	0.5	0.1	0.2	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.2	1.2	0.2	0.9	0.0	0.9	0.0	0.0	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.1	9.5	9.5	11.1	8.8	0.0	8.2	0.0	0.0	7.0	0.0	7.1
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		569			454			234			72	
Approach Delay, s/veh		9.5			9.0			8.2			7.0	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		16.6		17.8		16.6		17.8				
Change Period (Y+Rc), s		5.1		5.1		5.1		5.1				
Max Green Setting (Gmax), s		22.9		26.9		22.9		26.9				
Max Q Clear Time (g_c+I1), s		6.1		2.5		7.2		5.5				
Green Ext Time (p_c), s		3.2		0.2		2.6		1.4				

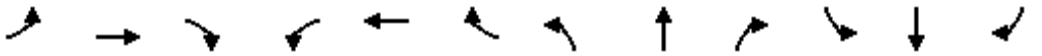
Intersection Summary												
HCM 6th Ctrl Delay			9.0									
HCM 6th LOS			A									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	269	0	457	1917	10	0	0	574	0	0	15
Future Volume (vph)	0	269	0	457	1917	10	0	0	574	0	0	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.8		5.7	4.0				6.1			6.8
Lane Util. Factor		0.91		0.97	0.95				0.88			1.00
Frpb, ped/bikes		1.00		1.00	1.00				1.00			1.00
Flpb, ped/bikes		1.00		1.00	1.00				1.00			1.00
Frt		1.00		1.00	1.00				0.85			0.86
Flt Protected		1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)		5085		3433	3536				2787			1611
Flt Permitted		1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)		5085		3433	3536				2787			1611
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	286	0	486	2039	11	0	0	611	0	0	16
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	592	0	0	5
Lane Group Flow (vph)	0	286	0	486	2050	0	0	0	19	0	0	11
Confl. Peds. (#/hr)						2						
Confl. Bikes (#/hr)			3			1						
Turn Type		NA		Prot	NA				Prot			Perm
Protected Phases		6		5	Free				4			
Permitted Phases												6
Actuated Green, G (s)		124.2		31.5	180.0				5.7			124.2
Effective Green, g (s)		124.2		31.5	180.0				5.7			124.2
Actuated g/C Ratio		0.69		0.18	1.00				0.03			0.69
Clearance Time (s)		6.8		5.7					6.1			6.8
Vehicle Extension (s)		3.0		3.0					3.0			3.0
Lane Grp Cap (vph)		3508		600	3536				88			1111
v/s Ratio Prot		0.06		c0.14	0.58				0.01			
v/s Ratio Perm												0.01
v/c Ratio		0.08		0.81	0.58				0.22			0.01
Uniform Delay, d1		9.2		71.4	0.0				85.0			8.7
Progression Factor		0.92		0.74	1.00				1.00			1.00
Incremental Delay, d2		0.0		5.8	0.5				1.3			0.0
Delay (s)		8.4		58.6	0.5				86.2			8.7
Level of Service		A		E	A				F			A
Approach Delay (s)		8.4			11.6			86.2			8.7	
Approach LOS		A			B			F			A	

Intersection Summary			
HCM 2000 Control Delay	24.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	18.6
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	769	40	27	2043	50	188	42	58	102	52	28
Future Volume (veh/h)	24	769	40	27	2043	50	188	42	58	102	52	28
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	827	43	29	2197	54	202	45	62	110	56	30
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	36	2346	122	219	2978	73	222	117	162	209	181	97
Arrive On Green	0.02	0.47	0.47	0.12	0.58	0.58	0.12	0.17	0.17	0.12	0.16	0.16
Sat Flow, veh/h	1781	4968	258	1781	5125	126	1781	704	970	1781	1121	601
Grp Volume(v), veh/h	26	566	304	29	1458	793	202	0	107	110	0	86
Grp Sat Flow(s),veh/h/ln	1781	1702	1822	1781	1702	1846	1781	0	1675	1781	0	1722
Q Serve(g_s), s	2.6	18.9	19.0	2.6	56.4	56.8	20.2	0.0	10.2	10.5	0.0	7.9
Cycle Q Clear(g_c), s	2.6	18.9	19.0	2.6	56.4	56.8	20.2	0.0	10.2	10.5	0.0	7.9
Prop In Lane	1.00		0.14	1.00		0.07	1.00		0.58	1.00		0.35
Lane Grp Cap(c), veh/h	36	1607	860	219	1978	1073	222	0	279	209	0	278
V/C Ratio(X)	0.72	0.35	0.35	0.13	0.74	0.74	0.91	0.00	0.38	0.53	0.00	0.31
Avail Cap(c_a), veh/h	52	1607	860	219	1978	1073	270	0	438	209	0	384
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	87.7	30.1	30.1	70.4	27.6	27.7	77.8	0.0	66.8	74.8	0.0	66.6
Incr Delay (d2), s/veh	23.6	0.6	1.1	0.3	2.5	4.6	29.1	0.0	0.9	2.5	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	8.1	8.8	1.2	23.7	26.5	11.1	0.0	4.5	5.0	0.0	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	111.3	30.7	31.2	70.6	30.1	32.3	106.9	0.0	67.7	77.2	0.0	67.3
LnGrp LOS	F	C	C	E	C	C	F	A	E	E	A	E
Approach Vol, veh/h		896			2280			309			196	
Approach Delay, s/veh		33.2			31.4			93.3			72.9	
Approach LOS		C			C			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.3	110.4	26.2	35.1	28.0	90.8	27.1	34.1
Change Period (Y+Rc), s	* 4.7	5.8	5.1	* 5.1	5.8	* 5.8	* 4.7	5.1
Max Green Setting (Gmax), s	* 5.3	87.0	20.3	* 47	7.3	* 85	* 27	40.1
Max Q Clear Time (g_c+I1), s	4.6	58.8	12.5	12.2	4.6	21.0	22.2	9.9
Green Ext Time (p_c), s	0.0	20.7	0.1	0.6	0.0	7.1	0.2	0.5

Intersection Summary	
HCM 6th Ctrl Delay	39.2
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	1578	226	85	447	53	102	8	79	26	4	10
Future Volume (veh/h)	25	1578	226	85	447	53	102	8	79	26	4	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	1715	246	92	486	58	103	20	86	28	4	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	84	1937	270	126	2290	999	175	30	127	105	25	70
Arrive On Green	0.05	0.62	0.62	0.07	0.64	0.64	0.10	0.10	0.10	0.06	0.06	0.06
Sat Flow, veh/h	1781	3122	436	1781	3554	1549	1781	300	1291	1781	432	1189
Grp Volume(v), veh/h	27	955	1006	92	486	58	103	0	106	28	0	15
Grp Sat Flow(s),veh/h/ln	1781	1777	1781	1781	1777	1549	1781	0	1591	1781	0	1622
Q Serve(g_s), s	2.0	60.4	67.3	6.9	7.7	1.9	7.6	0.0	8.8	2.1	0.0	1.2
Cycle Q Clear(g_c), s	2.0	60.4	67.3	6.9	7.7	1.9	7.6	0.0	8.8	2.1	0.0	1.2
Prop In Lane	1.00		0.24	1.00		1.00	1.00		0.81	1.00		0.73
Lane Grp Cap(c), veh/h	84	1103	1105	126	2290	999	175	0	157	105	0	95
V/C Ratio(X)	0.32	0.87	0.91	0.73	0.21	0.06	0.59	0.00	0.68	0.27	0.00	0.16
Avail Cap(c_a), veh/h	132	1168	1171	130	2333	1017	547	0	489	227	0	206
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	63.1	21.3	22.6	62.2	10.0	9.0	59.0	0.0	59.6	61.5	0.0	61.1
Incr Delay (d2), s/veh	2.2	6.8	10.2	18.0	0.0	0.0	3.1	0.0	5.0	1.3	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	25.9	29.8	3.8	3.0	0.6	3.6	0.0	3.8	1.0	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.3	28.1	32.9	80.2	10.1	9.0	62.1	0.0	64.6	62.9	0.0	61.9
LnGrp LOS	E	C	C	F	B	A	E	A	E	E	A	E
Approach Vol, veh/h		1988			636			209			43	
Approach Delay, s/veh		31.0			20.1			63.4			62.5	
Approach LOS		C			C			E			E	

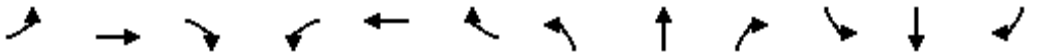
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.4	90.7		13.1	11.1	94.0		18.6				
Change Period (Y+Rc), s	* 4.7	5.8		5.1	* 4.7	5.8		5.1				
Max Green Setting (Gmax), s	* 10	89.9		17.4	* 10	89.8		42.0				
Max Q Clear Time (g_c+I1), s	8.9	69.3		4.1	4.0	9.7		10.8				
Green Ext Time (p_c), s	0.0	15.5		0.1	0.0	3.9		0.9				

Intersection Summary		
HCM 6th Ctrl Delay		31.4
HCM 6th LOS		C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



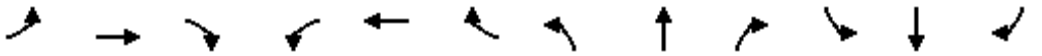
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	1523	26	0	489	40	20	46	5	28	30	24
Future Volume (veh/h)	66	1523	26	0	489	40	20	46	5	28	30	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.91	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	0	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	69	1603	27	0	515	42	21	48	5	29	32	25
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	0	2	2	2	2	2	2	2	2
Cap, veh/h	86	3725	63	0	3078	248	211	195	20	36	39	31
Arrive On Green	0.05	0.72	0.72	0.00	1.00	1.00	0.12	0.12	0.12	0.06	0.06	0.06
Sat Flow, veh/h	1781	5170	87	0	4974	387	1781	1647	172	582	642	502
Grp Volume(v), veh/h	69	1055	575	0	363	194	21	0	53	86	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1853	0	1702	1789	1781	0	1819	1726	0	0
Q Serve(g_s), s	6.9	22.6	22.6	0.0	0.0	0.0	1.9	0.0	4.8	8.9	0.0	0.0
Cycle Q Clear(g_c), s	6.9	22.6	22.6	0.0	0.0	0.0	1.9	0.0	4.8	8.9	0.0	0.0
Prop In Lane	1.00		0.05	0.00		0.22	1.00		0.09	0.34		0.29
Lane Grp Cap(c), veh/h	86	2453	1335	0	2180	1146	211	0	215	105	0	0
V/C Ratio(X)	0.80	0.43	0.43	0.00	0.17	0.17	0.10	0.00	0.25	0.82	0.00	0.00
Avail Cap(c_a), veh/h	211	2453	1335	0	2180	1146	375	0	383	229	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.25	0.25	0.25	0.00	0.99	0.99	0.99	0.00	0.99	1.00	0.00	0.00
Uniform Delay (d), s/veh	84.8	10.2	10.2	0.0	0.0	0.0	70.8	0.0	72.1	83.5	0.0	0.0
Incr Delay (d2), s/veh	4.3	0.1	0.3	0.0	0.2	0.3	0.2	0.0	0.6	14.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	8.5	9.3	0.0	0.0	0.1	0.9	0.0	2.3	4.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	89.1	10.3	10.4	0.0	0.2	0.3	71.0	0.0	72.6	97.5	0.0	0.0
LnGrp LOS	F	B	B	A	A	A	E	A	E	F	A	A
Approach Vol, veh/h		1699			557			74			86	
Approach Delay, s/veh		13.6			0.2			72.2			97.5	
Approach LOS		B			A			E			F	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	14.4	121.1		27.4		135.5		17.1				
Change Period (Y+Rc), s	* 5.7	5.8		6.1		5.8		6.1				
Max Green Setting (Gmax), s	* 21	73.2		37.9		100.2		23.9				
Max Q Clear Time (g_c+I1), s	8.9	2.0		6.8		24.6		10.9				
Green Ext Time (p_c), s	0.1	4.1		0.3		19.6		0.3				

Intersection Summary			
HCM 6th Ctrl Delay		15.3	
HCM 6th LOS		B	

Notes

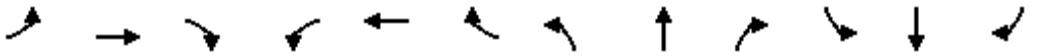
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	441	30	32	468	4	56	27	23	13	45	31
Future Volume (veh/h)	29	441	30	32	468	4	56	27	23	13	45	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.92	0.98		0.98	0.99		0.97	0.99		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	35	525	36	38	557	5	67	32	27	15	54	37
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	410	1196	82	405	1287	12	391	181	113	197	554	539
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	847	3353	229	833	3608	32	663	519	322	202	1586	1542
Grp Volume(v), veh/h	35	277	284	38	274	288	126	0	0	69	0	37
Grp Sat Flow(s),veh/h/ln	847	1777	1805	833	1777	1864	1504	0	0	1788	0	1542
Q Serve(g_s), s	1.1	4.1	4.2	1.3	4.1	4.1	0.0	0.0	0.0	0.0	0.0	0.6
Cycle Q Clear(g_c), s	5.2	4.1	4.2	5.4	4.1	4.1	1.7	0.0	0.0	0.9	0.0	0.6
Prop In Lane	1.00		0.13	1.00		0.02	0.53		0.21	0.22		1.00
Lane Grp Cap(c), veh/h	410	634	644	405	634	665	685	0	0	751	0	539
V/C Ratio(X)	0.09	0.44	0.44	0.09	0.43	0.43	0.18	0.00	0.00	0.09	0.00	0.07
Avail Cap(c_a), veh/h	667	1173	1191	657	1173	1230	1305	0	0	1482	0	1196
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.5	8.5	8.5	10.6	8.5	8.5	7.9	0.0	0.0	7.6	0.0	7.5
Incr Delay (d2), s/veh	0.1	0.5	0.5	0.1	0.5	0.4	0.1	0.0	0.0	0.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.2	1.2	0.2	1.2	1.2	0.5	0.0	0.0	0.3	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.6	9.0	9.0	10.7	9.0	8.9	8.0	0.0	0.0	7.7	0.0	7.6
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		596			600			126			106	
Approach Delay, s/veh		9.1			9.1			8.0			7.6	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		17.5		17.2		17.5		17.2				
Change Period (Y+Rc), s		5.1		5.1		5.1		5.1				
Max Green Setting (Gmax), s		22.9		26.9		22.9		26.9				
Max Q Clear Time (g_c+I1), s		7.2		2.9		7.4		3.7				
Green Ext Time (p_c), s		3.3		0.4		3.2		0.7				

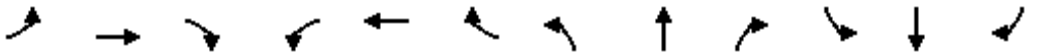
Intersection Summary												
HCM 6th Ctrl Delay			8.9									
HCM 6th LOS			A									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1557	0	580	532	44	0	0	563	0	0	4
Future Volume (vph)	0	1557	0	580	532	44	0	0	563	0	0	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.8		5.7	4.0				6.1			6.8
Lane Util. Factor		0.91		0.97	0.95				0.88			1.00
Frpb, ped/bikes		1.00		1.00	1.00				1.00			0.99
Flpb, ped/bikes		1.00		1.00	1.00				1.00			1.00
Frt		1.00		1.00	0.99				0.85			0.86
Flt Protected		1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)		5085		3433	3492				2787			1591
Flt Permitted		1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)		5085		3433	3492				2787			1591
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)	0	1692	0	630	578	48	0	0	612	0	0	4
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	590	0	0	1
Lane Group Flow (vph)	0	1692	0	630	626	0	0	0	22	0	0	3
Confl. Peds. (#/hr)						4			12			1
Confl. Bikes (#/hr)			1			3						1
Turn Type		NA		Prot	NA				Prot			Perm
Protected Phases		6		5	Free				4			
Permitted Phases												6
Actuated Green, G (s)		116.4		38.5	180.0				6.5			116.4
Effective Green, g (s)		116.4		38.5	180.0				6.5			116.4
Actuated g/C Ratio		0.65		0.21	1.00				0.04			0.65
Clearance Time (s)		6.8		5.7					6.1			6.8
Vehicle Extension (s)		3.0		3.0					3.0			3.0
Lane Grp Cap (vph)		3288		734	3492				100			1028
v/s Ratio Prot		c0.33		c0.18	0.18				0.01			
v/s Ratio Perm												0.00
v/c Ratio		0.51		0.86	0.18				0.22			0.00
Uniform Delay, d1		16.8		68.1	0.0				84.3			11.3
Progression Factor		0.61		1.16	1.00				1.00			1.00
Incremental Delay, d2		0.5		9.2	0.1				1.1			0.0
Delay (s)		10.8		88.2	0.1				85.4			11.3
Level of Service		B		F	A				F			B
Approach Delay (s)		10.8			44.3			85.4			11.3	
Approach LOS		B			D			F			B	

Intersection Summary			
HCM 2000 Control Delay	35.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	18.6
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	1863	143	66	958	149	112	102	71	197	90	29
Future Volume (veh/h)	47	1863	143	66	958	149	112	102	71	197	90	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.97	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	49	1961	151	69	1008	157	118	107	75	207	95	31
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	63	2197	168	163	2298	357	137	207	145	227	342	112
Arrive On Green	0.04	0.45	0.45	0.09	0.52	0.52	0.08	0.21	0.21	0.13	0.26	0.26
Sat Flow, veh/h	1781	4835	370	1781	4445	691	1781	1008	706	1781	1327	433
Grp Volume(v), veh/h	49	1378	734	69	771	394	118	0	182	207	0	126
Grp Sat Flow(s),veh/h/ln	1781	1702	1801	1781	1702	1732	1781	0	1714	1781	0	1760
Q Serve(g_s), s	4.9	66.8	67.6	6.6	25.5	25.6	11.8	0.0	17.0	20.7	0.0	10.3
Cycle Q Clear(g_c), s	4.9	66.8	67.6	6.6	25.5	25.6	11.8	0.0	17.0	20.7	0.0	10.3
Prop In Lane	1.00		0.21	1.00		0.40	1.00		0.41	1.00		0.25
Lane Grp Cap(c), veh/h	63	1547	819	163	1759	895	137	0	353	227	0	454
V/C Ratio(X)	0.78	0.89	0.90	0.42	0.44	0.44	0.86	0.00	0.52	0.91	0.00	0.28
Avail Cap(c_a), veh/h	106	1547	819	163	1759	895	209	0	382	270	0	454
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	86.1	45.0	45.2	77.3	27.2	27.2	82.1	0.0	63.5	77.6	0.0	53.4
Incr Delay (d2), s/veh	18.7	8.1	14.6	1.7	0.8	1.6	19.4	0.0	1.2	30.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	29.9	33.5	3.1	10.8	11.2	6.2	0.0	7.6	11.4	0.0	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	104.8	53.1	59.8	79.0	28.0	28.8	101.4	0.0	64.7	107.6	0.0	53.7
LnGrp LOS	F	D	E	E	C	C	F	A	E	F	A	D
Approach Vol, veh/h		2161			1234			300			333	
Approach Delay, s/veh		56.6			31.1			79.1			87.2	
Approach LOS		E			C			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	98.8	28.0	42.1	22.3	87.6	18.6	51.5
Change Period (Y+Rc), s	* 4.7	5.8	5.1	* 5.1	5.8	* 5.8	* 4.7	5.1
Max Green Setting (Gmax), s	* 11	81.6	27.3	* 40	10.5	* 82	* 21	46.3
Max Q Clear Time (g_c+I1), s	6.9	27.6	22.7	19.0	8.6	69.6	13.8	12.3
Green Ext Time (p_c), s	0.0	10.8	0.2	1.0	0.0	10.0	0.1	0.7

Intersection Summary	
HCM 6th Ctrl Delay	53.0
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX I

INTERSECTION ANALYSIS WORKSHEETS – YEAR 2040 WITH PROJECT

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	191	51	47	2085	14	459	2	45	52	7	19
Future Volume (veh/h)	5	191	51	47	2085	14	459	2	45	52	7	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	208	55	51	2266	15	546	0	0	57	8	21
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	22	1531	394	104	2119	921	674	354	0	115	29	76
Arrive On Green	0.01	0.55	0.55	0.06	0.60	0.60	0.19	0.00	0.00	0.06	0.06	0.06
Sat Flow, veh/h	1781	2782	716	1781	3554	1545	3563	1870	0	1781	450	1181
Grp Volume(v), veh/h	5	131	132	51	2266	15	546	0	0	57	0	29
Grp Sat Flow(s),veh/h/ln	1781	1777	1721	1781	1777	1545	1781	1870	0	1781	0	1631
Q Serve(g_s), s	0.4	5.4	5.6	4.2	89.9	0.6	22.1	0.0	0.0	4.7	0.0	2.6
Cycle Q Clear(g_c), s	0.4	5.4	5.6	4.2	89.9	0.6	22.1	0.0	0.0	4.7	0.0	2.6
Prop In Lane	1.00		0.42	1.00		1.00	1.00		0.00	1.00		0.72
Lane Grp Cap(c), veh/h	22	978	947	104	2119	921	674	354	0	115	0	105
V/C Ratio(X)	0.22	0.13	0.14	0.49	1.07	0.02	0.81	0.00	0.00	0.50	0.00	0.28
Avail Cap(c_a), veh/h	118	1060	1026	118	2119	921	993	521	0	206	0	188
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	73.7	16.5	16.5	68.8	30.4	12.4	58.5	0.0	0.0	68.1	0.0	67.2
Incr Delay (d2), s/veh	5.0	0.1	0.1	3.5	41.1	0.0	3.2	0.0	0.0	3.3	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.3	2.3	2.0	48.9	0.2	10.3	0.0	0.0	2.2	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.7	16.5	16.6	72.3	71.6	12.4	61.7	0.0	0.0	71.4	0.0	68.6
LnGrp LOS	E	B	B	E	F	B	E	A	A	E	A	E
Approach Vol, veh/h		268			2332			546			86	
Approach Delay, s/veh		17.7			71.2			61.7			70.5	
Approach LOS		B			E			E			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.5	88.8		14.8	6.6	95.7		33.6				
Change Period (Y+Rc), s	* 4.7	5.8		5.1	* 4.7	5.8		5.1				
Max Green Setting (Gmax), s	* 10	89.9		17.4	* 10	89.9		42.0				
Max Q Clear Time (g_c+I1), s	6.2	7.6		6.7	2.4	91.9		24.1				
Green Ext Time (p_c), s	0.0	1.7		0.2	0.0	0.0		1.9				

Intersection Summary		
HCM 6th Ctrl Delay		65.1
HCM 6th LOS		E

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	262	20	0	1918	20	52	27	2	33	51	60
Future Volume (veh/h)	15	262	20	0	1918	20	52	27	2	33	51	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.91	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	0	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	17	305	23	0	2230	23	60	31	2	38	59	70
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	0	2	2	2	2	2	2	2	2
Cap, veh/h	45	3188	237	0	3129	32	237	229	15	42	66	78
Arrive On Green	0.03	0.66	0.66	0.00	1.00	1.00	0.13	0.13	0.13	0.11	0.11	0.11
Sat Flow, veh/h	1781	4847	360	0	5378	54	1781	1727	111	387	600	712
Grp Volume(v), veh/h	17	213	115	0	1456	797	60	0	33	167	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1803	0	1702	1859	1781	0	1838	1700	0	0
Q Serve(g_s), s	1.7	4.1	4.2	0.0	0.0	0.0	5.4	0.0	2.9	17.5	0.0	0.0
Cycle Q Clear(g_c), s	1.7	4.1	4.2	0.0	0.0	0.0	5.4	0.0	2.9	17.5	0.0	0.0
Prop In Lane	1.00		0.20	0.00		0.03	1.00		0.06	0.23		0.42
Lane Grp Cap(c), veh/h	45	2239	1186	0	2044	1117	237	0	244	186	0	0
V/C Ratio(X)	0.38	0.10	0.10	0.00	0.71	0.71	0.25	0.00	0.14	0.90	0.00	0.00
Avail Cap(c_a), veh/h	82	2239	1186	0	2044	1117	349	0	360	216	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	0.79	0.79	0.94	0.00	0.94	1.00	0.00	0.00
Uniform Delay (d), s/veh	86.3	11.2	11.3	0.0	0.0	0.0	70.0	0.0	68.9	79.1	0.0	0.0
Incr Delay (d2), s/veh	5.1	0.1	0.2	0.0	1.7	3.1	0.5	0.0	0.2	32.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.6	1.8	0.0	0.5	1.0	2.5	0.0	1.4	9.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	91.4	11.3	11.4	0.0	1.7	3.1	70.6	0.0	69.2	111.2	0.0	0.0
LnGrp LOS	F	B	B	A	A	A	E	A	E	F	A	A
Approach Vol, veh/h		345			2253			93			167	
Approach Delay, s/veh		15.3			2.2			70.1			111.2	
Approach LOS		B			A			E			F	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.3	113.9		30.0		124.2		25.8				
Change Period (Y+Rc), s	5.7	5.8		6.1		5.8		6.1				
Max Green Setting (Gmax), s	8.3	89.8		35.3		103.8		22.9				
Max Q Clear Time (g_c+I1), s	3.7	2.0		7.4		6.2		19.5				
Green Ext Time (p_c), s	0.0	40.3		0.3		2.3		0.3				

Intersection Summary	
HCM 6th Ctrl Delay	12.4
HCM 6th LOS	B

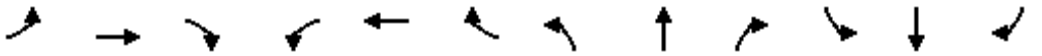
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	428	16	27	341	0	67	42	83	2	31	28
Future Volume (veh/h)	20	428	16	27	341	0	67	42	83	2	31	28
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93	0.98		1.00	0.99		0.97	0.98		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	25	528	20	33	421	0	83	52	102	2	38	35
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	446	1165	44	391	1190	0	283	187	248	117	679	571
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.00	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	965	3480	132	844	3647	0	383	506	672	19	1841	1547
Grp Volume(v), veh/h	25	269	279	33	421	0	237	0	0	40	0	35
Grp Sat Flow(s),veh/h/ln	965	1777	1835	844	1777	0	1560	0	0	1860	0	1547
Q Serve(g_s), s	0.7	4.1	4.1	1.1	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Cycle Q Clear(g_c), s	3.8	4.1	4.1	5.2	3.1	0.0	3.5	0.0	0.0	0.5	0.0	0.5
Prop In Lane	1.00		0.07	1.00		0.00	0.35		0.43	0.05		1.00
Lane Grp Cap(c), veh/h	446	595	614	391	1190	0	717	0	0	796	0	571
V/C Ratio(X)	0.06	0.45	0.45	0.08	0.35	0.00	0.33	0.00	0.00	0.05	0.00	0.06
Avail Cap(c_a), veh/h	764	1182	1220	670	2363	0	1337	0	0	1547	0	1209
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.1	9.0	9.0	11.0	8.6	0.0	8.0	0.0	0.0	7.0	0.0	7.0
Incr Delay (d2), s/veh	0.1	0.5	0.5	0.1	0.2	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.2	1.2	0.2	0.9	0.0	0.9	0.0	0.0	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.1	9.5	9.5	11.1	8.8	0.0	8.2	0.0	0.0	7.0	0.0	7.1
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		573			454			237			75	
Approach Delay, s/veh		9.5			9.0			8.2			7.0	
Approach LOS		A			A			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	16.6	17.8	16.6	17.8
Change Period (Y+Rc), s	5.1	5.1	5.1	5.1
Max Green Setting (Gmax), s	22.9	26.9	22.9	26.9
Max Q Clear Time (g_c+I1), s	6.1	2.5	7.2	5.5
Green Ext Time (p_c), s	3.2	0.3	2.6	1.4

Intersection Summary	
HCM 6th Ctrl Delay	9.0
HCM 6th LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	289	0	457	1927	10	0	0	574	0	0	16
Future Volume (vph)	0	289	0	457	1927	10	0	0	574	0	0	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.8		5.7	4.0				6.1			6.8
Lane Util. Factor		0.91		0.97	0.95				0.88			1.00
Frpb, ped/bikes		1.00		1.00	1.00				1.00			1.00
Flpb, ped/bikes		1.00		1.00	1.00				1.00			1.00
Frt		1.00		1.00	1.00				0.85			0.86
Flt Protected		1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)		5085		3433	3536				2787			1611
Flt Permitted		1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)		5085		3433	3536				2787			1611
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	307	0	486	2050	11	0	0	611	0	0	17
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	592	0	0	5
Lane Group Flow (vph)	0	307	0	486	2061	0	0	0	19	0	0	12
Confl. Peds. (#/hr)						2						
Confl. Bikes (#/hr)			3			1						
Turn Type		NA		Prot	NA				Prot			Perm
Protected Phases		6		5	Free				4			
Permitted Phases												6
Actuated Green, G (s)		124.2		31.5	180.0				5.7			124.2
Effective Green, g (s)		124.2		31.5	180.0				5.7			124.2
Actuated g/C Ratio		0.69		0.18	1.00				0.03			0.69
Clearance Time (s)		6.8		5.7					6.1			6.8
Vehicle Extension (s)		3.0		3.0					3.0			3.0
Lane Grp Cap (vph)		3508		600	3536				88			1111
v/s Ratio Prot		0.06		c0.14	0.58				0.01			
v/s Ratio Perm												0.01
v/c Ratio		0.09		0.81	0.58				0.22			0.01
Uniform Delay, d1		9.2		71.4	0.0				85.0			8.7
Progression Factor		0.89		0.74	1.00				1.00			1.00
Incremental Delay, d2		0.0		5.8	0.5				1.3			0.0
Delay (s)		8.2		58.5	0.5				86.2			8.7
Level of Service		A		E	A				F			A
Approach Delay (s)		8.2			11.6			86.2			8.7	
Approach LOS		A			B			F			A	

Intersection Summary			
HCM 2000 Control Delay	24.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	18.6
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	787	41	27	2053	50	188	42	58	102	52	28
Future Volume (veh/h)	25	787	41	27	2053	50	188	42	58	102	52	28
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	846	44	29	2208	54	202	45	62	110	56	30
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	37	2346	122	219	2977	73	222	117	162	209	181	97
Arrive On Green	0.02	0.47	0.47	0.12	0.58	0.58	0.12	0.17	0.17	0.12	0.16	0.16
Sat Flow, veh/h	1781	4968	258	1781	5125	125	1781	704	970	1781	1121	601
Grp Volume(v), veh/h	27	579	311	29	1465	797	202	0	107	110	0	86
Grp Sat Flow(s),veh/h/ln	1781	1702	1822	1781	1702	1846	1781	0	1675	1781	0	1722
Q Serve(g_s), s	2.7	19.5	19.6	2.6	57.0	57.4	20.2	0.0	10.2	10.5	0.0	7.9
Cycle Q Clear(g_c), s	2.7	19.5	19.6	2.6	57.0	57.4	20.2	0.0	10.2	10.5	0.0	7.9
Prop In Lane	1.00		0.14	1.00		0.07	1.00		0.58	1.00		0.35
Lane Grp Cap(c), veh/h	37	1607	860	219	1977	1072	222	0	279	209	0	278
V/C Ratio(X)	0.74	0.36	0.36	0.13	0.74	0.74	0.91	0.00	0.38	0.53	0.00	0.31
Avail Cap(c_a), veh/h	52	1607	860	219	1977	1072	270	0	438	209	0	384
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	87.7	30.2	30.2	70.4	27.8	27.8	77.8	0.0	66.8	74.8	0.0	66.6
Incr Delay (d2), s/veh	26.8	0.6	1.2	0.3	2.5	4.7	29.1	0.0	0.9	2.5	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	8.3	9.1	1.2	23.9	26.8	11.1	0.0	4.5	5.0	0.0	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	114.5	30.8	31.4	70.6	30.3	32.5	106.9	0.0	67.7	77.2	0.0	67.3
LnGrp LOS	F	C	C	E	C	C	F	A	E	E	A	E
Approach Vol, veh/h		917			2291			309			196	
Approach Delay, s/veh		33.5			31.6			93.3			72.9	
Approach LOS		C			C			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.4	110.3	26.2	35.1	28.0	90.8	27.1	34.1
Change Period (Y+Rc), s	* 4.7	5.8	5.1	* 5.1	5.8	* 5.8	* 4.7	5.1
Max Green Setting (Gmax), s	* 5.3	87.0	20.3	* 47	7.3	* 85	* 27	40.1
Max Q Clear Time (g_c+I1), s	4.7	59.4	12.5	12.2	4.6	21.6	22.2	9.9
Green Ext Time (p_c), s	0.0	20.5	0.1	0.6	0.0	7.3	0.2	0.5

Intersection Summary	
HCM 6th Ctrl Delay	39.4
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	297	2014	22	0	27
Future Vol, veh/h	0	297	2014	22	0	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	323	2189	24	0	29

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	1107
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	205
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	205
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	25.5
HCM LOS			D

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	205
HCM Lane V/C Ratio	-	-	-	0.143
HCM Control Delay (s)	-	-	-	25.5
HCM Lane LOS	-	-	-	D
HCM 95th %tile Q(veh)	-	-	-	0.5

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	13	0	56	131	0
Future Vol, veh/h	1	13	0	56	131	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	14	0	61	142	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	203	142	-	0	-	0
Stage 1	142	-	-	-	-	-
Stage 2	61	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	786	906	0	-	-	0
Stage 1	885	-	0	-	-	0
Stage 2	962	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	786	906	-	-	-	-
Mov Cap-2 Maneuver	786	-	-	-	-	-
Stage 1	885	-	-	-	-	-
Stage 2	962	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.1	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	896	-
HCM Lane V/C Ratio	-	0.017	-
HCM Control Delay (s)	-	9.1	-
HCM Lane LOS	-	A	-
HCM 95th %tile Q(veh)	-	0.1	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	1596	226	99	456	53	102	8	79	26	4	10
Future Volume (veh/h)	25	1596	226	99	456	53	102	8	79	26	4	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	1735	246	108	496	58	103	20	86	28	4	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	83	1943	268	129	2299	1002	175	29	127	104	25	70
Arrive On Green	0.05	0.62	0.62	0.07	0.65	0.65	0.10	0.10	0.10	0.06	0.06	0.06
Sat Flow, veh/h	1781	3127	431	1781	3554	1549	1781	300	1291	1781	432	1189
Grp Volume(v), veh/h	27	965	1016	108	496	58	103	0	106	28	0	15
Grp Sat Flow(s),veh/h/ln	1781	1777	1782	1781	1777	1549	1781	0	1591	1781	0	1621
Q Serve(g_s), s	2.0	62.2	69.4	8.3	7.9	1.9	7.6	0.0	8.9	2.1	0.0	1.2
Cycle Q Clear(g_c), s	2.0	62.2	69.4	8.3	7.9	1.9	7.6	0.0	8.9	2.1	0.0	1.2
Prop In Lane	1.00		0.24	1.00		1.00	1.00		0.81	1.00		0.73
Lane Grp Cap(c), veh/h	83	1104	1107	129	2299	1002	175	0	156	104	0	95
V/C Ratio(X)	0.32	0.87	0.92	0.84	0.22	0.06	0.59	0.00	0.68	0.27	0.00	0.16
Avail Cap(c_a), veh/h	130	1156	1159	129	2310	1007	541	0	484	224	0	204
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	63.7	21.7	23.1	63.3	10.0	8.9	59.6	0.0	60.2	62.2	0.0	61.8
Incr Delay (d2), s/veh	2.2	7.4	11.2	36.0	0.0	0.0	3.1	0.0	5.1	1.4	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	26.9	31.0	5.1	3.1	0.6	3.6	0.0	3.8	1.0	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.0	29.1	34.3	99.3	10.1	9.0	62.8	0.0	65.3	63.6	0.0	62.6
LnGrp LOS	E	C	C	F	B	A	E	A	E	E	A	E
Approach Vol, veh/h		2008			662			209			43	
Approach Delay, s/veh		32.2			24.5			64.1			63.2	
Approach LOS		C			C			E			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.7	91.6		13.2	11.2	95.2		18.7				
Change Period (Y+Rc), s	* 4.7	5.8		5.1	* 4.7	5.8		5.1				
Max Green Setting (Gmax), s	* 10	89.9		17.4	* 10	89.8		42.0				
Max Q Clear Time (g_c+I1), s	10.3	71.4		4.1	4.0	9.9		10.9				
Green Ext Time (p_c), s	0.0	14.4		0.1	0.0	4.0		0.9				

Intersection Summary		
HCM 6th Ctrl Delay		33.2
HCM 6th LOS		C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	1532	26	0	524	40	36	46	5	37	32	25
Future Volume (veh/h)	84	1532	26	0	524	40	36	46	5	37	32	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.91	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	0	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	88	1613	27	0	552	42	38	48	5	39	34	26
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	0	2	2	2	2	2	2	2	2
Cap, veh/h	107	3683	62	0	3001	226	212	196	20	47	41	31
Arrive On Green	0.06	0.71	0.71	0.00	1.00	1.00	0.12	0.12	0.12	0.07	0.07	0.07
Sat Flow, veh/h	1781	5170	87	0	5002	364	1781	1647	172	683	595	455
Grp Volume(v), veh/h	88	1062	578	0	387	207	38	0	53	99	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1853	0	1702	1794	1781	0	1819	1733	0	0
Q Serve(g_s), s	8.8	23.5	23.5	0.0	0.0	0.0	3.5	0.0	4.8	10.2	0.0	0.0
Cycle Q Clear(g_c), s	8.8	23.5	23.5	0.0	0.0	0.0	3.5	0.0	4.8	10.2	0.0	0.0
Prop In Lane	1.00		0.05	0.00		0.20	1.00		0.09	0.39		0.26
Lane Grp Cap(c), veh/h	107	2425	1320	0	2113	1113	212	0	216	119	0	0
V/C Ratio(X)	0.82	0.44	0.44	0.00	0.18	0.19	0.18	0.00	0.25	0.83	0.00	0.00
Avail Cap(c_a), veh/h	211	2425	1320	0	2113	1113	375	0	383	230	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	0.99	0.99	0.98	0.00	0.98	1.00	0.00	0.00
Uniform Delay (d), s/veh	83.7	10.8	10.8	0.0	0.0	0.0	71.4	0.0	72.0	82.8	0.0	0.0
Incr Delay (d2), s/veh	14.5	0.6	1.1	0.0	0.2	0.4	0.4	0.0	0.6	13.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	9.1	10.0	0.0	0.1	0.1	1.6	0.0	2.3	5.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	98.1	11.4	11.9	0.0	0.2	0.4	71.8	0.0	72.6	96.3	0.0	0.0
LnGrp LOS	F	B	B	A	A	A	E	A	E	F	A	A
Approach Vol, veh/h		1728			594			91			99	
Approach Delay, s/veh		16.0			0.3			72.2			96.3	
Approach LOS		B			A			E			F	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	16.5	117.5		27.5		134.0		18.5				
Change Period (Y+Rc), s	5.7	5.8		6.1		5.8		6.1				
Max Green Setting (Gmax), s	10.8	73.2		37.9		100.2		23.9				
Max Q Clear Time (g_c+I1), s	10.8	2.0		6.8		25.5		12.2				
Green Ext Time (p_c), s	0.1	4.4		0.4		19.8		0.3				

Intersection Summary	
HCM 6th Ctrl Delay	17.5
HCM 6th LOS	B

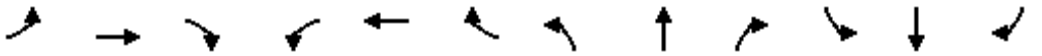
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	441	30	32	468	4	56	32	23	13	47	31
Future Volume (veh/h)	40	441	30	32	468	4	56	32	23	13	47	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.92	0.98		0.98	0.99		0.97	0.99		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	48	525	36	38	557	5	67	38	27	15	56	37
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	413	1211	83	407	1303	12	373	202	108	192	554	535
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	847	3353	229	833	3608	32	629	581	311	193	1597	1542
Grp Volume(v), veh/h	48	277	284	38	274	288	132	0	0	71	0	37
Grp Sat Flow(s),veh/h/ln	847	1777	1805	833	1777	1864	1521	0	0	1790	0	1542
Q Serve(g_s), s	1.6	4.1	4.2	1.3	4.1	4.1	0.0	0.0	0.0	0.0	0.0	0.6
Cycle Q Clear(g_c), s	5.7	4.1	4.2	5.4	4.1	4.1	1.8	0.0	0.0	0.9	0.0	0.6
Prop In Lane	1.00		0.13	1.00		0.02	0.51		0.20	0.21		1.00
Lane Grp Cap(c), veh/h	413	642	652	407	642	673	683	0	0	746	0	535
V/C Ratio(X)	0.12	0.43	0.43	0.09	0.43	0.43	0.19	0.00	0.00	0.10	0.00	0.07
Avail Cap(c_a), veh/h	662	1163	1182	652	1163	1220	1304	0	0	1471	0	1186
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.6	8.5	8.5	10.5	8.4	8.4	8.0	0.0	0.0	7.7	0.0	7.6
Incr Delay (d2), s/veh	0.1	0.5	0.5	0.1	0.5	0.4	0.1	0.0	0.0	0.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.2	1.2	0.2	1.2	1.2	0.5	0.0	0.0	0.3	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.7	8.9	8.9	10.6	8.9	8.9	8.2	0.0	0.0	7.8	0.0	7.7
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		609			600			132			108	
Approach Delay, s/veh		9.1			9.0			8.2			7.8	
Approach LOS		A			A			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	17.7	17.2	17.7	17.2
Change Period (Y+Rc), s	5.1	5.1	5.1	5.1
Max Green Setting (Gmax), s	22.9	26.9	22.9	26.9
Max Q Clear Time (g_c+I1), s	7.7	2.9	7.4	3.8
Green Ext Time (p_c), s	3.3	0.4	3.2	0.7

Intersection Summary	
HCM 6th Ctrl Delay	8.9
HCM 6th LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1575	0	580	566	44	0	0	563	0	0	5
Future Volume (vph)	0	1575	0	580	566	44	0	0	563	0	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.8		5.7	4.0				6.1			6.8
Lane Util. Factor		0.91		0.97	0.95				0.88			1.00
Frpb, ped/bikes		1.00		1.00	1.00				1.00			0.99
Flpb, ped/bikes		1.00		1.00	1.00				1.00			1.00
Frt		1.00		1.00	0.99				0.85			0.86
Flt Protected		1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)		5085		3433	3495				2787			1591
Flt Permitted		1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)		5085		3433	3495				2787			1591
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)	0	1712	0	630	615	48	0	0	612	0	0	5
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	590	0	0	2
Lane Group Flow (vph)	0	1712	0	630	663	0	0	0	22	0	0	3
Confl. Peds. (#/hr)						4			12			1
Confl. Bikes (#/hr)			1			3						1
Turn Type		NA		Prot	NA				Prot			Perm
Protected Phases		6		5	Free				4			
Permitted Phases												6
Actuated Green, G (s)		116.4		38.5	180.0				6.5			116.4
Effective Green, g (s)		116.4		38.5	180.0				6.5			116.4
Actuated g/C Ratio		0.65		0.21	1.00				0.04			0.65
Clearance Time (s)		6.8		5.7					6.1			6.8
Vehicle Extension (s)		3.0		3.0					3.0			3.0
Lane Grp Cap (vph)		3288		734	3495				100			1028
v/s Ratio Prot		c0.34		c0.18	0.19				0.01			
v/s Ratio Perm												0.00
v/c Ratio		0.52		0.86	0.19				0.22			0.00
Uniform Delay, d1		16.9		68.1	0.0				84.3			11.3
Progression Factor		0.60		1.16	1.00				1.00			1.00
Incremental Delay, d2		0.5		9.2	0.1				1.1			0.0
Delay (s)		10.6		88.1	0.1				85.4			11.3
Level of Service		B		F	A				F			B
Approach Delay (s)		10.6			43.0			85.4			11.3	
Approach LOS		B			D			F			B	

Intersection Summary			
HCM 2000 Control Delay	34.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	18.6
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	1879	144	66	990	149	113	102	71	197	90	30
Future Volume (veh/h)	48	1879	144	66	990	149	113	102	71	197	90	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.97	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	51	1978	152	69	1042	157	119	107	75	207	95	32
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	65	2198	168	163	2303	346	138	207	145	227	338	114
Arrive On Green	0.04	0.45	0.45	0.09	0.52	0.52	0.08	0.21	0.21	0.13	0.26	0.26
Sat Flow, veh/h	1781	4836	370	1781	4468	672	1781	1008	706	1781	1314	443
Grp Volume(v), veh/h	51	1389	741	69	793	406	119	0	182	207	0	127
Grp Sat Flow(s),veh/h/ln	1781	1702	1802	1781	1702	1736	1781	0	1714	1781	0	1757
Q Serve(g_s), s	5.1	67.7	68.6	6.6	26.5	26.6	11.9	0.0	17.0	20.7	0.0	10.4
Cycle Q Clear(g_c), s	5.1	67.7	68.6	6.6	26.5	26.6	11.9	0.0	17.0	20.7	0.0	10.4
Prop In Lane	1.00		0.21	1.00		0.39	1.00		0.41	1.00		0.25
Lane Grp Cap(c), veh/h	65	1547	819	163	1755	895	138	0	353	227	0	452
V/C Ratio(X)	0.78	0.90	0.90	0.42	0.45	0.45	0.86	0.00	0.52	0.91	0.00	0.28
Avail Cap(c_a), veh/h	106	1547	819	163	1755	895	209	0	382	270	0	452
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	86.0	45.3	45.5	77.3	27.5	27.6	82.0	0.0	63.5	77.6	0.0	53.5
Incr Delay (d2), s/veh	18.2	8.6	15.4	1.7	0.8	1.7	19.7	0.0	1.2	30.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	30.5	34.2	3.1	11.2	11.7	6.3	0.0	7.6	11.4	0.0	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	104.2	53.9	60.9	79.0	28.4	29.2	101.7	0.0	64.7	107.6	0.0	53.8
LnGrp LOS	F	D	E	E	C	C	F	A	E	F	A	D
Approach Vol, veh/h		2181			1268			301			334	
Approach Delay, s/veh		57.4			31.4			79.3			87.2	
Approach LOS		E			C			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.3	98.6	28.0	42.1	22.3	87.6	18.7	51.4
Change Period (Y+Rc), s	* 4.7	5.8	5.1	* 5.1	5.8	* 5.8	* 4.7	5.1
Max Green Setting (Gmax), s	* 11	81.6	27.3	* 40	10.5	* 82	* 21	46.3
Max Q Clear Time (g_c+I1), s	7.1	28.6	22.7	19.0	8.6	70.6	13.9	12.4
Green Ext Time (p_c), s	0.0	11.3	0.2	1.0	0.0	9.3	0.1	0.7

Intersection Summary	
HCM 6th Ctrl Delay	53.4
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↱
Traffic Vol, veh/h	0	1642	533	70	0	23
Future Vol, veh/h	0	1642	533	70	0	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1785	579	76	0	25

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	328
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	668
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	668
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.6
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	668
HCM Lane V/C Ratio	-	-	-	0.037
HCM Control Delay (s)	-	-	-	10.6
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	11	0	152	83	0
Future Vol, veh/h	1	11	0	152	83	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	12	0	165	90	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	255	90	-	0	-	0
Stage 1	90	-	-	-	-	-
Stage 2	165	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	734	968	0	-	-	0
Stage 1	934	-	0	-	-	0
Stage 2	864	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	734	968	-	-	-	-
Mov Cap-2 Maneuver	734	-	-	-	-	-
Stage 1	934	-	-	-	-	-
Stage 2	864	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	943	-
HCM Lane V/C Ratio	-	0.014	-
HCM Control Delay (s)	-	8.9	-
HCM Lane LOS	-	A	-
HCM 95th %tile Q(veh)	-	0	-

APPENDIX J

SITE PLAN PROJECT DATA SHEET

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PROJECT DATA

Project Address - 550 Highway 75 Imperial Beach, CA. 91932
Assesor's Parcel #: 625-140-08-00, 626-070-33-00, and 626-070-57-00
Zoning/ General Plan Designation: Zoning - C/MU-1 General Commercial & Mixed Use

HOTEL GUESTROOMS	1 ST FLR	2 ND FLR	3 RD FLR	4TH FLR	
MICRO	10	9	0	0	19
STANDARD	10	10	0	0	20
DELUXE	4	4	0	0	8
TOTAL	24	23	0	0	**47 GUESTROOMS**

REQUIRED PARKING - HOTEL	Ratio	Spaces		
	1.0	19		
	1.0	20		
	1.5	12		
TOTAL			**51**	(38)

APARTMENT UNITS	1 ST FLR	2 ND FLR	3 RD FLR	4TH FLR	
ONE BEDROOM	0	11	11	8	30
TWO BEDROOM	0	0	10	11	21
TOTAL	0	11	21	19	**51 APARTMENTS**

REQUIRED PARKING - APTS	Ratio	Spaces		
	1.5	45		
	1.5	32		
TOTAL			**77**	(58)

PARKING - HOTEL	Standard	Tandem	HC	Motorcycle	E-Cars	
PODIUM LEVEL	20	0	2	4	0	22
P1 LEVEL	17	0	2	4	4	23
SUB-TOTAL						**45**

PARKING - APTS	Standard	Tandem	HC	Motorcycle	E-Cars	
PODIUM LEVEL	0	0	0	0	2	2
P1 LEVEL	45	3	2	5	6	56
SUB-TOTAL						**58**

PARKING - RETAIL

Gross Area -	7,880	2,813	First Floor
Net Assignable -	4,486	1,673	Second Floor

TOTAL PARKING PROVIDED **103**

100% Schematics - Net Assignable

PARKING SQ.FT.

BELOW GRADE -	**40,750**	**Sq. Ft.**
ABOVE GRADE -	**17,138**	**Sq. Ft.**
SUB-TOTAL -	**57,888**	**Sq. Ft.**

STORAGE/ STAIR & ELEV./ TRASH

BELOW GRADE -	**2,202**	**Sq. Ft.**

REQUIRED PARKING (RETAIL)

Ratio	Spaces		
0.002 (1:500)	9	**9**	(7)

TOTAL REQUIRED PARKING **137** (103)

* Vertical Mixed-use 25% Reduction to Parking per Section 19.48.035

THEREFORE,
(137 x 0.75 = 103) TOTAL REQUIRED: 103 SPACES

SITE AREA

PARCEL AREA	56,998 Sq. Ft.
BUILDING FOOTPRINT	21,367 Sq. Ft.
LOT COVERAGE	37.5%
LANDSCAPE COVERAGE	15.1%
CONDITIONED GSF (GSFC)	73,847 Sq. Ft.
TOTAL ABOVE GRADE GSFC and OUTDOOR VENUES	79,921 Sq. Ft.

OVERALL SQ. FT.		OUTDOOR VENUES
RESIDENTIAL -	40,149 Sq. Ft.	
HOTEL -	18,148 Sq. Ft.	
(COURTYARD PATIO)		1,800 Sq. Ft.
(POOL TERRACE)		4,306 Sq. Ft.
OFFICE/ SHOP/ RESTAURANT -	6,675 Sq. Ft.	
(DECK)		1,768 Sq. Ft.
EAST BLDG. RETAIL -	1,205 Sq. Ft.	
SUB-TOTALS	**66,177 Sq. Ft.**	**7,874 Sq. Ft.**

EXT. CORR./ STAIR & ELEV/ STORAGE TRASH

RESIDENTIAL -	14,325 Sq. Ft.
HOTEL -	SEE BELOW

INT. CORR./ STAIR & ELEV/ STORAGE TRASH

RESIDENTIAL -	SEE ABOVE
HOTEL -	7,670 Sq. Ft.

SHEET T2