Appendix I

Traffic Impact Analysis

Breeze Luxury Townhomes (34 Units)
Southeast Corner of Ditmar St/Godfrey St
City of Oceanside
February 12, 2019

Traffic Impact Analysis

Prepared for:

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Executive Summary
Breeze Luxury Townhomes (34 Units)

The proposed residential project of 34 luxury townhomes is generally located on the southeast corner of Ditmar Street at Godfrey Street in Oceanside, California. The project site is elongated with a footprint that starts at Ditmar Street and extends east past Nevada Street and is generally between Oceanside Blvd and the North County Transit District Sprinter rail line. The project site of approximately 2.6 acres is currently vacant.

The project is calculated to generate 272 ADT, 21 AM peak hour trips (4 inbound and 17 outbound), and 27 PM peak hour trips (19 inbound and 8 outbound). The main project driveway (for all residential access) is proposed at the southeast corner of Ditmar Street and Godfrey Street. There are two additional gated and controlled access points. One gated access point for only emergency service vehicles is from Nevada Street. The other gated access point for emergency service and solid waste vehicles is from Oceanside Boulevard. On-site parking includes 78 spaces (68 garage and 10 guest).

Four cumulative projects were identified and included in this analysis. The cumulative projects included: 1) Fairfield Inn & Suites Hotel on Oceanside Blvd, 2) Oceanside multi-family project on Vine St, 3) El Corazon mixed use project on the northeast corner of Oceanside Blvd at El Camino Real, and 4) Mariners Commons multi-family project on the northeast corner of Coast Highway/Morse St.

Four (4) scenarios were analyzed, which included Existing, Existing + Project, Existing + Cumulative, and Existing + Cumulative + Project. Operational findings by scenario are summarized below:

1) Under existing conditions, the study intersections and street segments were calculated to operate at LOS D or better.

2) Under existing + project conditions, the study intersections and street segments were calculated to operate at LOS D or better with no significant project impacts.

3) Under existing + cumulative conditions, the study intersections and street segments were calculated to operate at LOS D or better.

4) Under existing + cumulative + project conditions, the study intersections and street segments were calculated to operate at LOS D or better with no cumulatively considerable impacts.

The intersection operations are summarized in **Table ES-1** with street segment operations shown in **Table ES-2**.

TABLE ES-1: INTERSECTION LEVEL OF SERVICE

Intersection and (Analysis)[1]	Move-ment	Peak Hour	Existing	Existing + Project	Existing + Cumulative	Existing + Cumulative + Project
			LOS	LOS	LOS	LOS
1) Oceanside Blvd at	All	AM	B	B	C	C
Coast Hwy (S)	All	PM	C	C	C	C
2) Oceanside Blvd at	All	AM	B	B	B	B
Ditmar St (S)	All	PM	B	B	B	B
3) Oceanside Blvd at	All	AM	B	B	B	B
Vine St (S)	All	PM	B	B	C	C
4) Coast Hwy at	WB	AM	C	C	C	C
Godfrey St (U)	WB	PM	C	C	C	C

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized; LOS - Level of Service

TABLE ES-2: STREET SEGMENT LEVEL OF SERVICE

Segment	Existing	Existing + Project	Existing + Cumulative	Existing + Cumulative + Project
Coast Highway				
From Oceanside to Godfrey	D	D	D	D
Oceanside Boulevard				
From Coast Hwy to Ditmar	C	C	C	C
From Ditmar St to Vine St	C	C	D	D

LOS: Level of Service.

This analysis has documented no traffic impacts from the project traffic; therefore, mitigation measures are not required.

As part of the project, the following physical improvements are proposed by the applicant to be completed to the satisfaction of the City Engineer:

1) Corner of Ditmar Street at Godfrey Street will be improved as a standard knuckle.

2) The southern terminus of Nevada Street (adjacent to the project site) will be improved to full public street standards cul-de-sac.

1.0 Introduction

The scope of this study is to determine and analyze traffic impacts for a proposed residential project with 34 townhomes generally located on the southeast corner of Ditmar Street at Godfrey Street in Oceanside, California. The location of the project is shown in **Figure 1** with the site plan shown in **Figure 2**.

This report describes the existing roadway network in the vicinity of the project and includes a review of existing and proposed activities for weekday peak and daily traffic conditions when the project is completed. The format of this study includes the following chapters:

1.0 Introduction
2.0 Traffic Analysis Methodology and Significance Criteria
3.0 Existing Conditions
4.0 Project Description
5.0 Existing + Project Conditions
6.0 Cumulative Projects
7.0 Existing + Cumulative Conditions
8.0 Existing + Cumulative + Project Conditions
9.0 Mitigation Measures and Project Features
10.0 Conclusion

Figure 1: Project Location

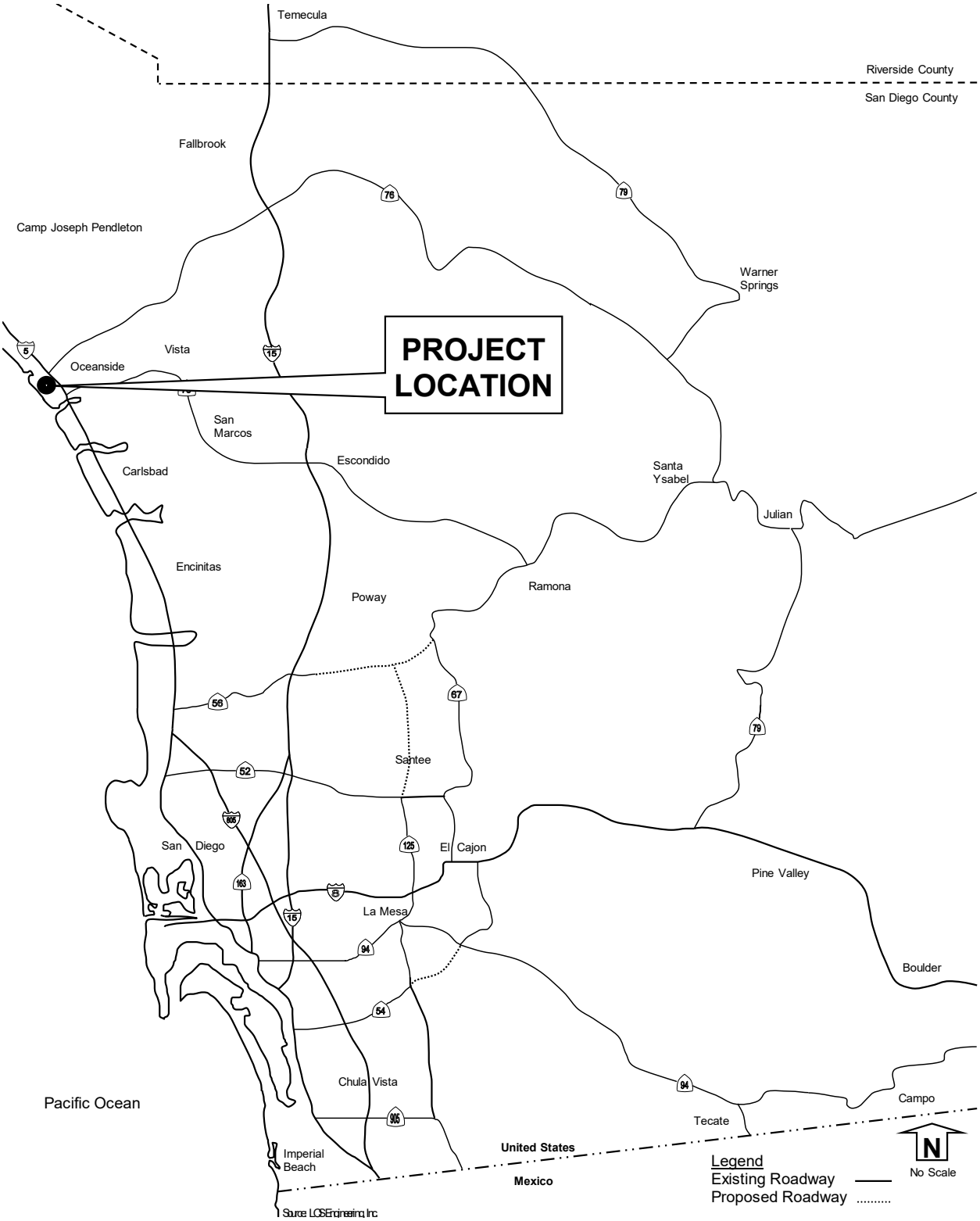


Figure 2a: Site Plan (North half)

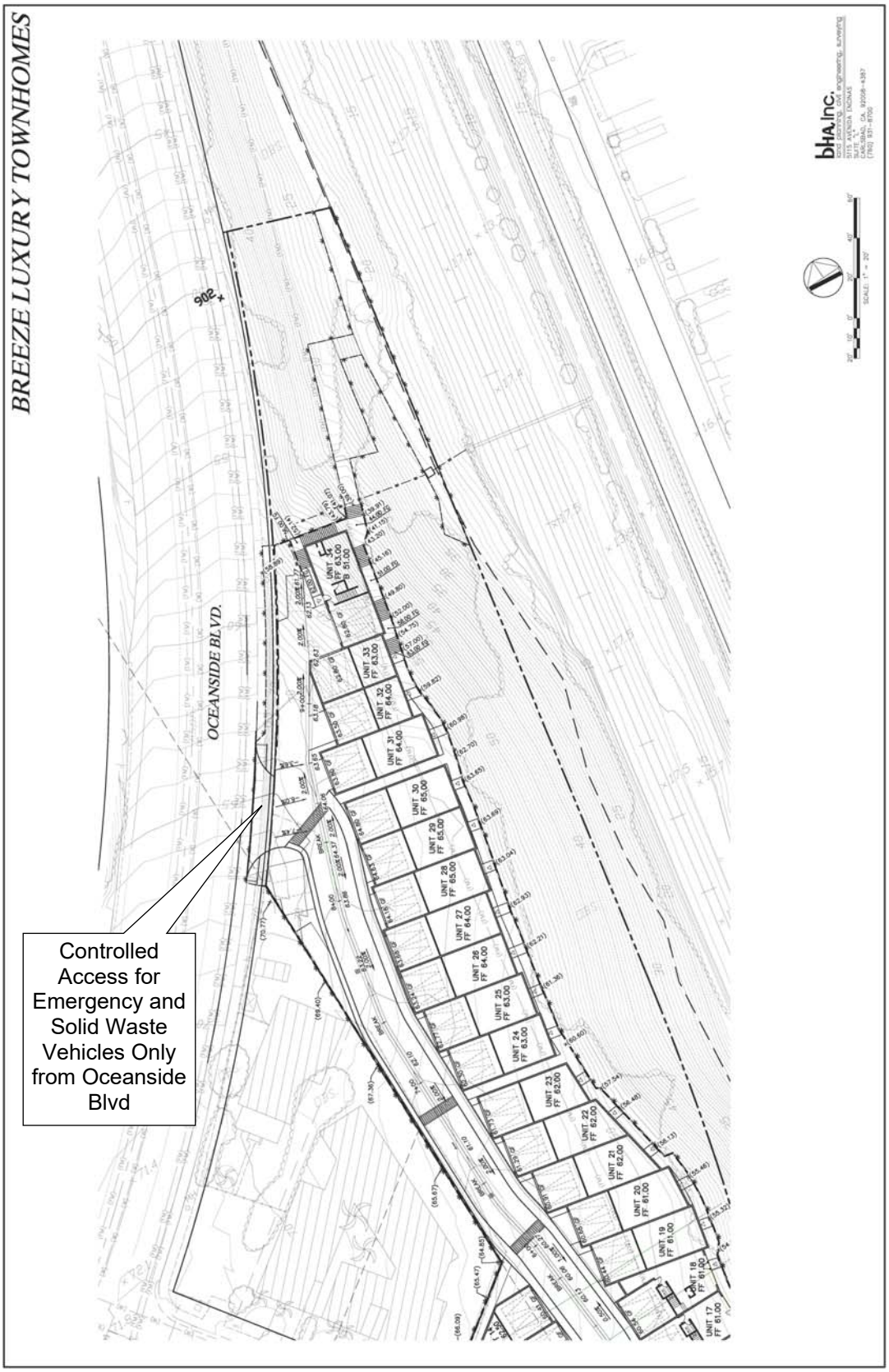
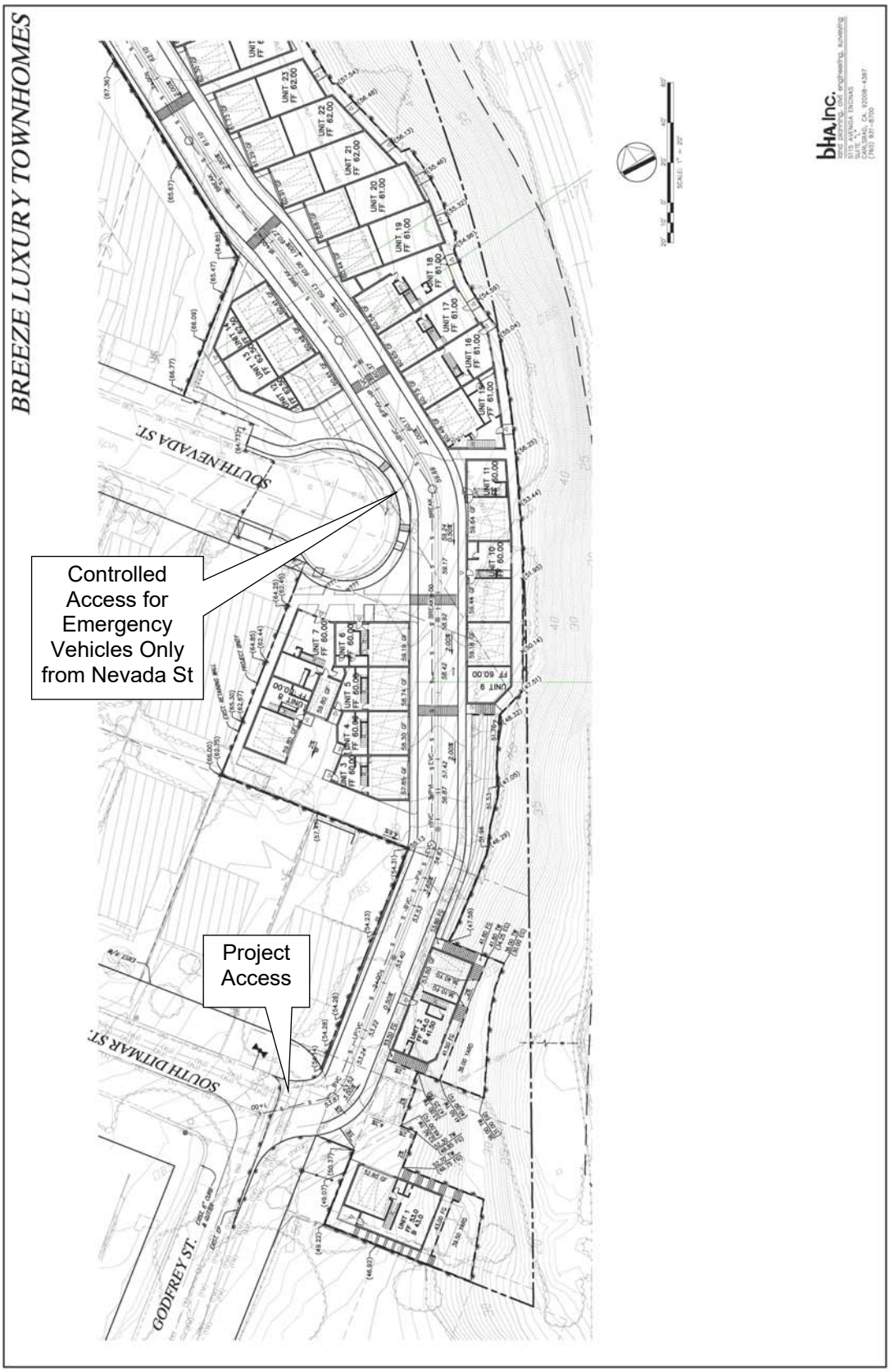


Figure 2b: Site Plan (South half)



2.0 Traffic Analysis Methodology and Significance Criteria

The parameters used to prepare this traffic study include the determination of what intersections and roadways are to be analyzed, the scenarios to be analyzed and the methods required for analysis. The criteria for each of these parameters are included herein.

2.1 Study Area Criteria

The project study area is generally determined by the limits or extent of where 50 peak hour project trips would travel to or from the site, which is based on the San Diego Traffic Engineers' Council (SANTEC) guidelines. Additionally, the study area can be identified by City staff.

For this project, the following intersections were analyzed as part of this study:

1) Oceanside Boulevard/Coast Highway (signalized)
2) Oceanside Boulevard/Ditmar Street (signalized)
3) Oceanside Boulevard/Vine Street (signalized)
4) Coast Highway/Godfrey Street (un-signalized)

The following street segments was also analyzed as part of this study:

1) Oceanside Boulevard from Coast Highway to Ditmar Street
2) Oceanside Boulevard from Ditmar Street to Vine Street
3) Coast Highway from Oceanside Boulevard to Godfrey Street

2.2 Scenario Criteria

The number of scenarios to be analyzed is typically based on the size of the project, the number of cumulative projects and whether the project conforms to current zoning. For this project, the following scenarios were included:

1) Existing Conditions
2) Existing + Project Conditions
3) Existing + Cumulative Conditions
4) Existing + Cumulative + Project Conditions

2.3 Traffic Analysis Criteria

The traffic analyses prepared for this study were based on the *2010 Highway Capacity Manual* (HCM) operations analysis using Level of Service (LOS) evaluation criteria. The operating conditions of the study intersections, street segments, and freeway segments were measured using the HCM LOS designations, which ranges from A through F. LOS A represents the best operating condition and LOS F denotes the worst operating condition. The LOS criteria for each roadway component are described below.

2.3.1 Intersections

The study intersections were analyzed based on the **operational analysis** outlined in the 2010 HCM. This process defines LOS in terms of **average control delay** per vehicle, which is measured in seconds. LOS at the intersections were calculated using the computer software program Synchro 10 (Trafficware Corporation). The HCM LOS for the range of delay by seconds for un-signalized and signalized intersections is described in **Table 1**.

TABLE 1: INTERSECTION LEVEL OF SERVICE DEFINITIONS (HCM 2010)

Level of Service	Un-Signalized (TWSC and AWSC) Control Delay (seconds/vehicle)	Signalized Control Delay (seconds/vehicle)
A	0-10	≤ 10
B	> 10-15	> 10-20
C	> 15-25	> 20-35
D	> 25-35	> 35-55
E	> 35-50	> 55-80
F	> 50	> 80

TWSC: Two Way Stop Control. AWSC: All Way Stop Control. Source: Highway Capacity Manual 2010 (exhibit 19-1 for two way stop control, exhibit 20-2 for all way stop control, and exhibit 18-4 for signalized intersections).

2.3.2 Street Segments

The street segments were analyzed based on the functional classification of the roadway using the City of Oceanside *Average Daily Vehicle Trips* capacity lookup table. The roadway segment capacity and LOS standards used to analyze street segments are summarized in **Table 2**.

TABLE 2: STREET SEGMENT DAILY CAPACITY AND LOS (CITY OF OCEANSIDE)

Circulation Element Road Classification	Lanes	LOS A	LOS B	LOS C	LOS D	LOS E
Expressway	6	<30,000	<42,000	<60,000	<70,000	<80,000
Expressway	4	<25,000	<35,000	<50,000	<55,000	<60,000
Prime Arterial	6	<25,000	<35,000	<50,000	<55,000	<60,000
6-Lane Major Arterial	6	<20,000	<28,000	<40,000	<45,000	<50,000
5-Lane Major Arterial	5	<17,500	<24,500	<35,000	<40,000	<45,000
4-Lane Major Arterial	4	<15,000	<21,000	<30,000	<35,000	<40,000
Secondary Collector with TWLTL	4	<10,000	<14,000	<20,000	<25,000	<30,000
Secondary Collector no TWLTL	4	<9,000	<13,000	<18,000	<22,000	<25,000
Collector – Commercial Fronting	2	<5,000	<7,000	<10,000	<13,000	<15,000
Collector – Residential Fronting	2	<4,000	<5,500	<7,500	<9,000	<10,000
Local Street	2	na	na	<2,200	na	na

Source: *City of Oceanside General Plan Circulation*, 2012.

2.4 Significance Criteria

The following significance criteria is from the *Oceanside General Plan Circulation Element* dated September 2012:

> Any proposed development project that causes a street segment or intersection to operate worse than LOS D is a significant project impact. If a segment or intersection operates at LOS E or F under pre-project conditions, a significant impact is determined as outlined in the most recent version of the SANTEC/ITE Guidelines [**Table 3** below]. The developer shall propose, prepare and provide feasible mitigation measure(s) for the City to review that would improve the impacted location(s) to an acceptable LOS. Mitigation measures should be used to construct on-and off-site transportation infrastructure improvements and dedicate right-of-way connected to impacts resulting from new development. The City also may require a developer to provide improvements to pedestrian and/or bicycle facilities as part of the project's mitigation measures. Chapters 6 and 7 focus on the Pedestrian and Bicycle Facility networks in the City of Oceanside.
>
> Any proposed development project that affects a street segment that already operates, or is projected to operate worse than LOS D, regardless of peak hour analysis, the developer shall propose, prepare and provide mitigation measure(s) for the City to review. If there are no feasible mitigation measures that would fully mitigate traffic impacts, the developer shall propose, prepare and provide various mitigation measures, such as adaptive signal timing, that may not include physical improvements to the impacted facility. Where various mitigation measures have been prepared, agreed upon by the City, and will be implemented, yet are not sufficient to fully mitigate the traffic impacts, then LOS E during peak hour periods will be considered acceptable. A project's fair share contributions may also be considered by the City for predetermined project improvements (i.e. TMC, adaptive signals) in lieu of prepared and implemented mitigation measures.

As described above, a project is considered to have a significant impact if project traffic is calculated to decrease the operations to worse than LOS D or exceed the allowable increase due to the addition of project traffic at locations operating under LOS E or F conditions as shown in **Table 3**.

TABLE 3: CITY OF OCEANSIDE IMPACT SIGNIFICANT THRESHOLDS (BASED ON SANTEC/ITE)

Level of Service with Project	Allowable Increase Due to Project Impacts				
	Freeways	Roadway Segments		Intersections	Ramp Metering
	V/C	V/C	Speed (mph)	Delay (sec.)	Delay (min.)
E & F	0.01	0.02	1	2	2*

Source: SANTEC. Notes: * The impact is only considered significant if the total delay exceeds 15 minutes; Delay = Average stopped delay per vehicle measured in seconds; V/C = Volume to Capacity Ratio (capacity at LOS E should be used); Speed = Arterial speed measured in miles per hour for Congestion Management Program (CMP) analyses

2.1 Congestion Management Program Criteria

The San Diego Association of Governments (SANDAG) has the following statement on their website regarding the Congestion Management Program (CMP) - details included in **Appendix A**:

> "In October 2009, the San Diego region elected to be exempt from the State CMP and, since this decision, SANDAG has been abiding by 23 CFR 450.320 to ensure the region's continued compliance with the federal congestion management process."

2.2 Study Limitations

The findings and recommendations of this report were prepared in accordance with generally accepted professional traffic and transportation engineering principles and practice for the City of Oceanside at this time. No other warranty, express or implied is made.

3.0 Existing Conditions

This section describes the study area street system, existing daily roadway, peak hour intersection traffic volumes, and existing LOS conditions.

3.1 Existing Street System

In the vicinity of the project, the following roadway was analyzed as part of this study:

Coast Highway is classified as a *Secondary Collector* from Oceanside Boulevard to Godfrey Street. This section of Coast Highway is currently built as an un-divided roadway with two travel lanes and a bike lane in each direction along with a center Two Way Left Turn Lane (TWLTL). The posted speed limit is 35 Miles Per Hour (MPH). The City of Oceanside is in process of a programmatic Environmental Impact Report (EIR) for the Coast Highway Corridor to analyze modifying lane configurations to accommodate bicyclists, pedestrians, and transit riders, as well as motorists. In association with that work, the City Council recently approved a Traffic Calming Pilot Design for Coast Highway between Oceanside Boulevard and Morse Street. Implementation included restriping Coast Highway to one-lane in each direction, with wider bike lanes with buffer, and the installation of a mid-block crosswalk at the entrance to the Loma Alta Creek Path. This Traffic Calming Pilot Design project is to allow staff to evaluate the impacts of Coast Highway as a two-lane road and the effects it may, or may not have, on a driver's travel time and speed along the corridor.

Oceanside Boulevard is classified as a *Secondary Collector* from Coast Highway to Vine Street. This section of Oceanside Boulevard is currently built as an un-divided roadway with two travel lanes and a bike lane in each direction. The posted speed limit is 40 MPH.

The above classifications are from the *Oceanside General Plan Circulation Element*, September 2012 – excerpts are included in **Appendix B**.

3.2 Existing Traffic Volumes and LOS Analyses

Existing traffic volume data collected on Wednesday, September 12, 2018 from 7-9 AM and 4-6 PM are included in **Appendix C** for the following intersections:

1) Oceanside Boulevard/Coast Highway
2) Oceanside Boulevard/Ditmar Street
3) Oceanside Boulevard/Vine Street
4) Coast Highway/Godfrey Street

Existing Average Daily Traffic (ADT) volumes collected on Wednesday, September 12, 2018 are also included in Appendix C for the following segments:

1) Oceanside Boulevard from Coast Highway to Ditmar Street
2) Oceanside Boulevard from Ditmar Street to Vine Street
3) Coast Highway from Oceanside Boulevard to Godfrey Street

The above traffic counts were collected while the Oceanside Unified School District schools were in session (school started August 14, 2018).

The existing roadway conditions are shown in **Figure 3** and the existing AM, PM, and daily volumes are shown on **Figure 4.**

Figure 3: Existing Roadway Conditions

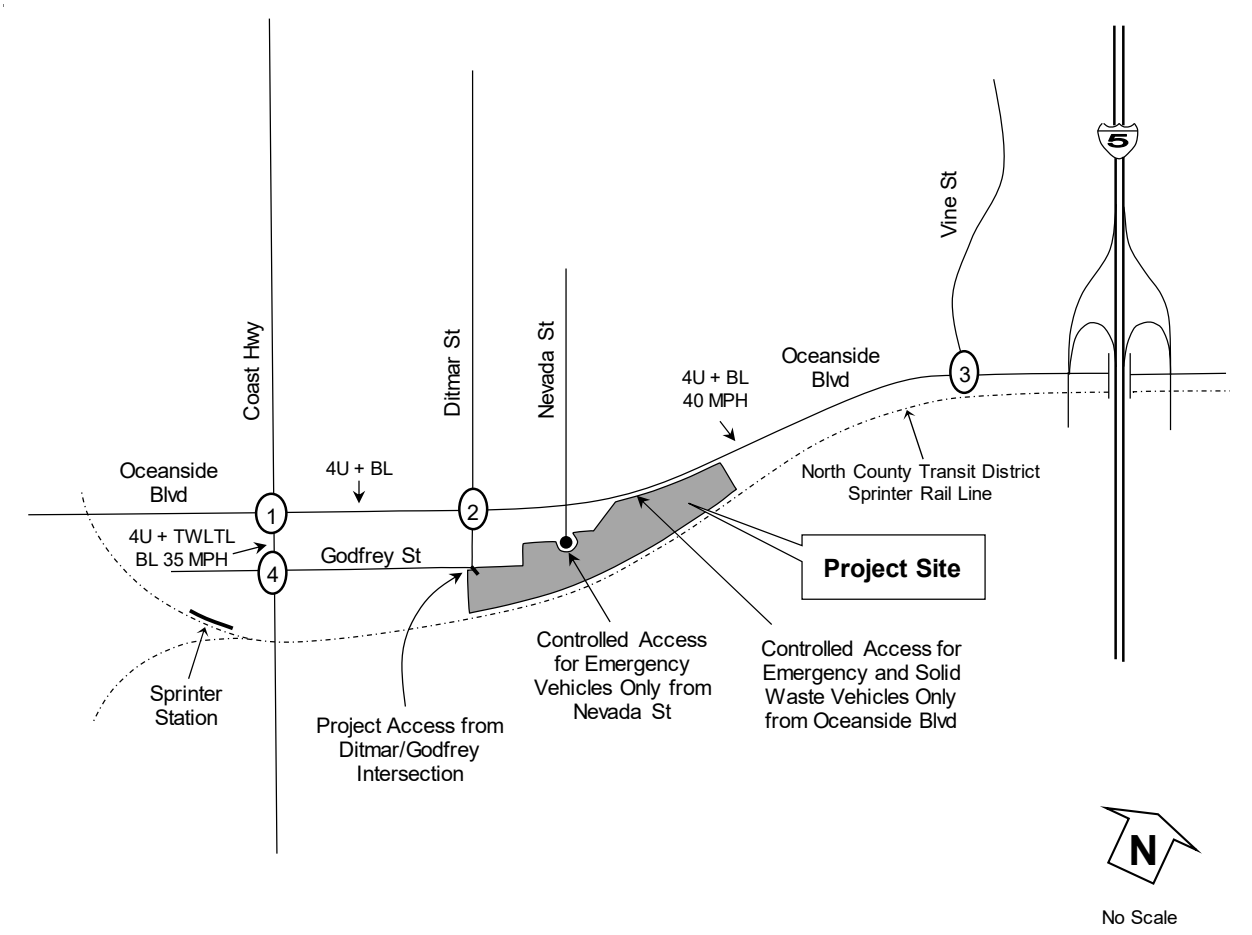
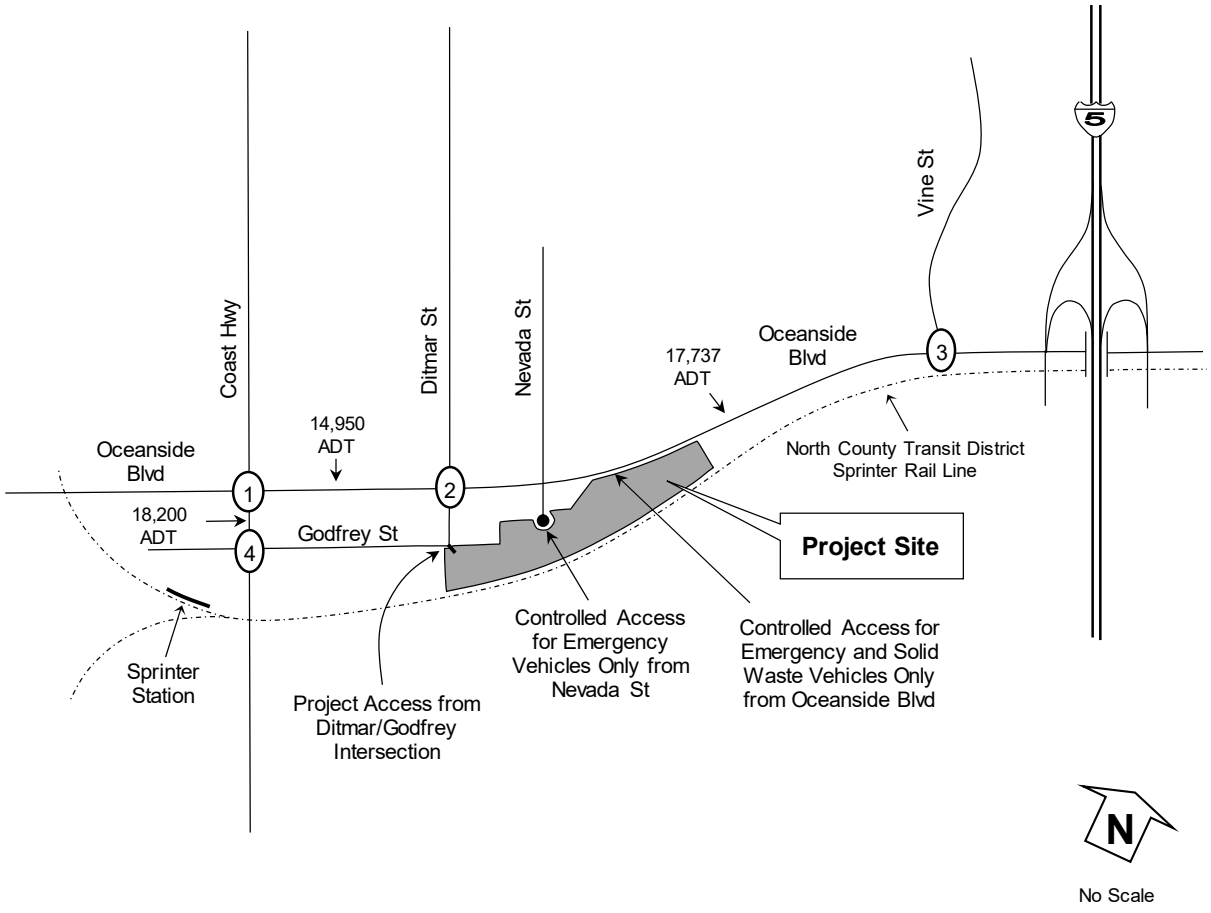
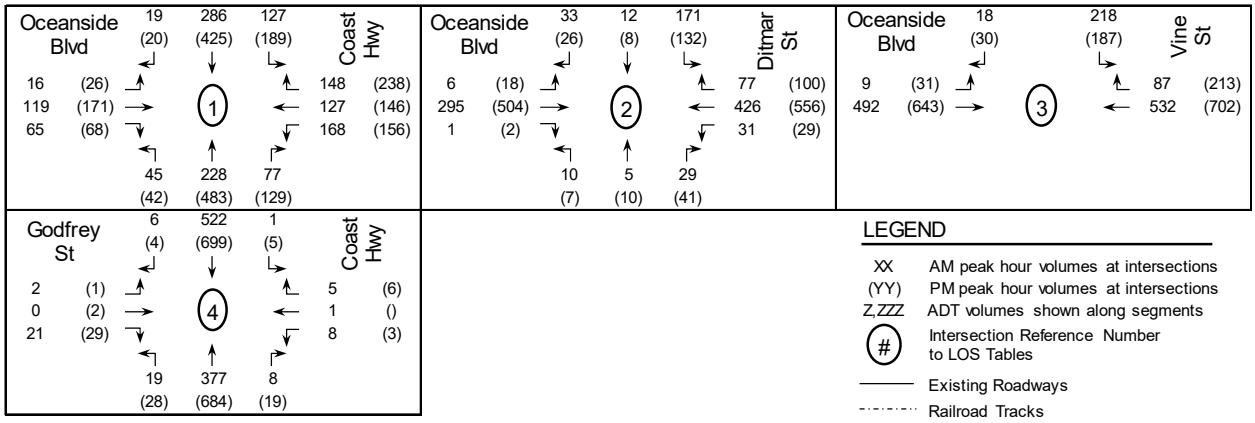


Figure 4: Existing Volumes





The LOS calculated for the intersections and street segments are shown in **Tables 4 and 5**, respectively. Intersection calculations are included in **Appendix D**.

TABLE 4: EXISTING INTERSECTION LEVEL OF SERVICE

Intersection and (Analysis)[1]	Movement	Peak Hour	Existing Delay[2]	Existing LOS[3]
1) Oceanside Blvd at	All	AM	17.9	B
Coast Hwy (S)	All	PM	24.2	C
2) Oceanside Blvd at	All	AM	18.3	B
Ditmar St (S)	All	PM	13.3	B
3) Oceanside Blvd at	All	AM	19.0	B
Vine St (S)	All	PM	19.2	B
4) Coast Hwy at	WB	AM	15.3	C
Godfrey St (U)	WB	PM	18.6	C

Notes: 1) Intersection Analysis - S - signalized, U - Unsignalized; 2) HCM - Highway Capacity Manual delay in seconds
3) Level of Service

TABLE 5: EXISTING ADT VOLUMES AND LEVEL OF SERVICE

Segment	Classification (as built)	Existing # of lanes	Daily Volume	LOS E Capacity	V/C	LOS
Coast Highway						
From Oceanside to Godfrey	Secondary Collector (4U,NP)	4	18,200	25,000	0.728	D
Oceanside Boulevard						
From Coast Hwy to Ditmar	Secondary Collector (4U,NP)	4	14,950	25,000	0.598	C
From Ditmar St to Vine St	Secondary Collector (4U,NP)	4	17,737	25,000	0.709	C

Notes: Classification (as built): 4U NP = 4 lane undivided roadway with no parking. Daily volumes is a 24 hour volume. LOS: Level of Service. V/C: Volume to Capacity ratio.

Under existing conditions, the study intersections and segments are calculated to operate at LOS D or better.

4.0 Project Description

The proposed residential project of 34 townhomes is located on the southeast corner of Ditmar Street at Godfrey Street in Oceanside, California. The project site is elongated with a footprint that starts at Ditmar Street and extends east past Nevada Street and is generally between Oceanside Blvd and the North County Transit District Sprinter rail line. The project site of approximately 2.6 acres is currently vacant.

4.1 Project Traffic Generation

The project traffic generation was calculated using SANDAG trip rates from the *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002. Copies of SANDAG rates are included in **Appendix E**. Using SANDAG traffic generation rates, the project is calculated to generate 272 ADT, 21 AM peak hour trips (4 inbound and 17 outbound), and 27 PM peak hour trips (19 inbound and 8 outbound) as shown in **Table 6**.

TABLE 6: PROJECT TRAFFIC GENERATION

Proposed						AM				PM	
Land Use	Rate	Size & Units	ADT	%	Split	IN	OUT	%	Split	IN	OUT
Residential - Multi Family	8 /DU	34 DU	**272**	8%	0.2 0.8	**4**	**17**	10%	0.7 0.3	**19**	**8**

Source: SANDAG *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region,* April 2002.

ADT-Average Daily Traffic; Split-percent inbound and outbound. DU: Dwelling Unit. Excel round may result in values at ±1

4.2 Project Access

The main project driveway (for all residential access) is proposed at the southeast corner of Ditmar Street and Godfrey Street. There are two additional gated and controlled access points. One gated access point for only emergency service vehicles is from Nevada Street. The other gated access point for emergency service and solid waste vehicles is from Oceanside Boulevard. The solid waste vehicle path of travel is eastbound along Oceanside Blvd followed by a right turn into the site using a remote control for the gate. The solid waste vehicle will leave the site at the corner of Ditmar Street and Godfrey Street. A clear corner easement for the Oceanside Blvd controlled driveway is provided under separate cover to the City. No other vehicular access locations are proposed.

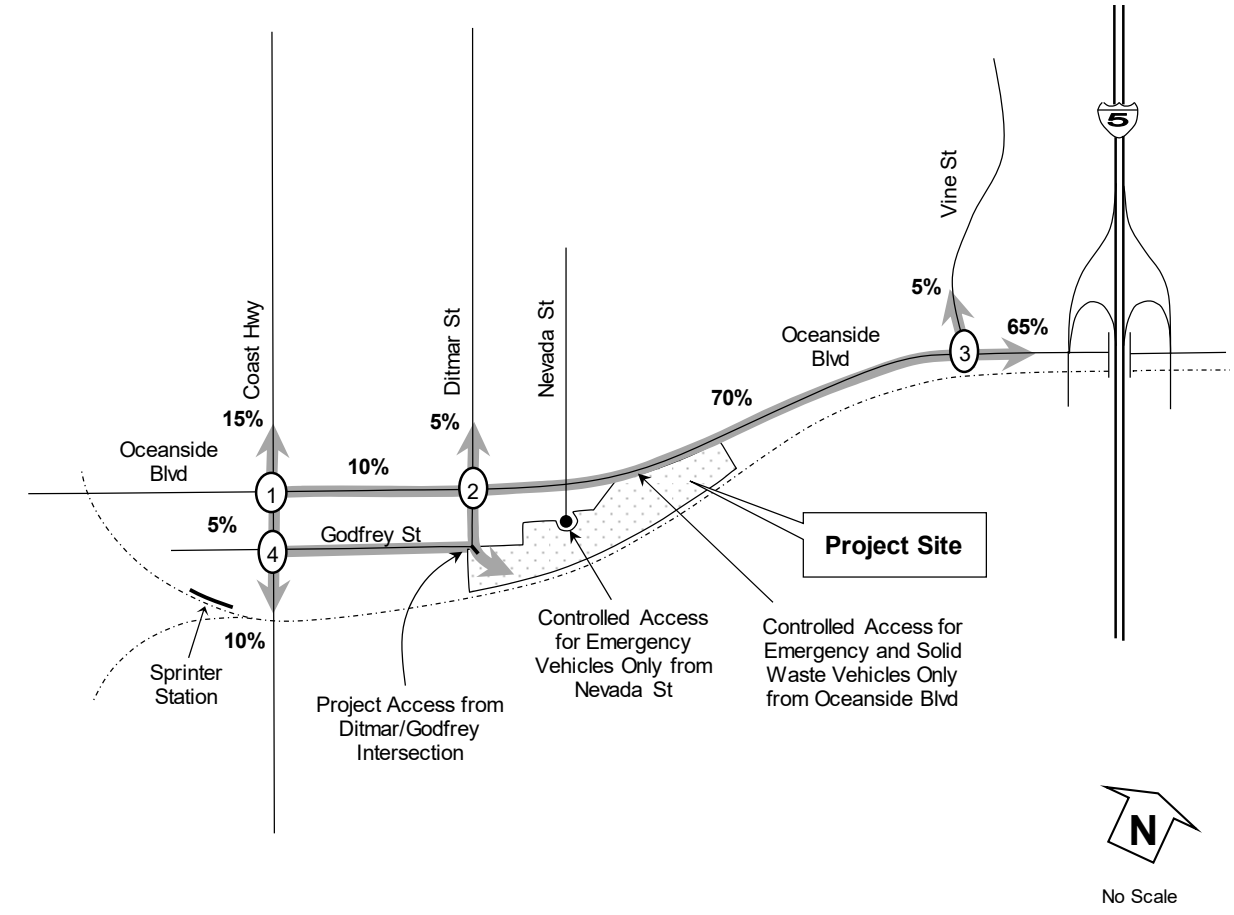
4.3 Project On-Site Parking

On-site parking includes 78 spaces (68 garage and 10 guest).

4.4 Project Distribution and Assignment

The project distribution was based on existing background turn movement patterns at Oceanside/Ditmar and Coast Hwy/Godfrey along with proximity to regional employment centers, local attractions, schools, and shopping areas (calculations area included in **Appendix F**). The project distribution is shown in **Figure 5** with assignment of project traffic shown in **Figure 6.**

Figure 5: Project Distribution



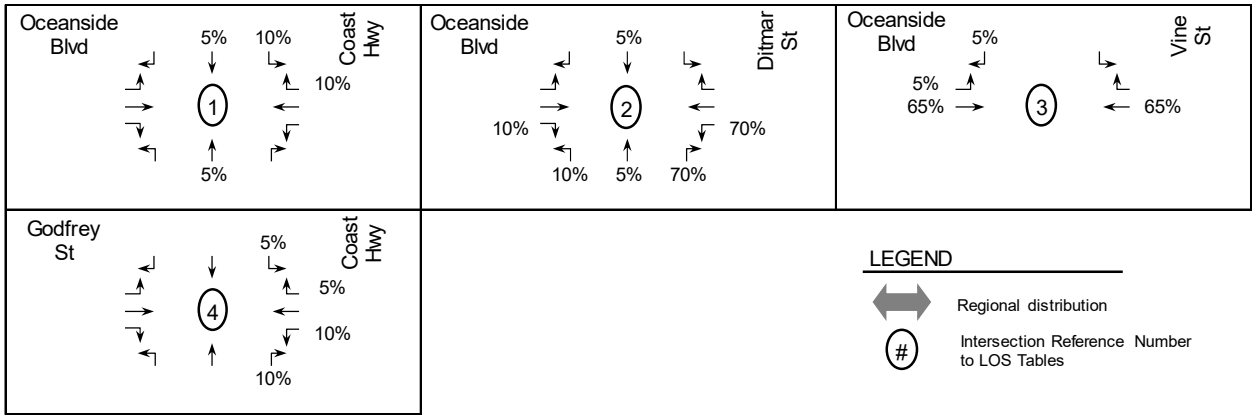
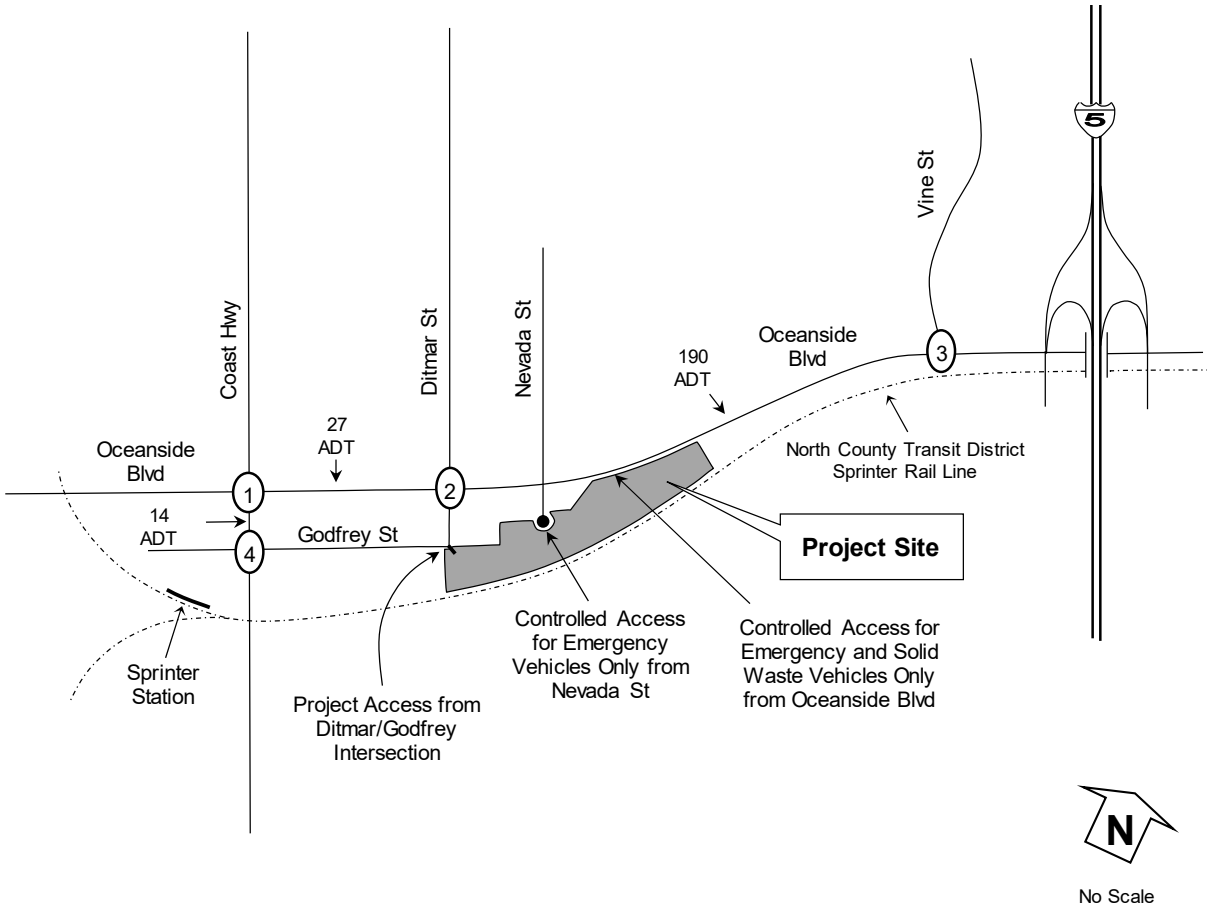
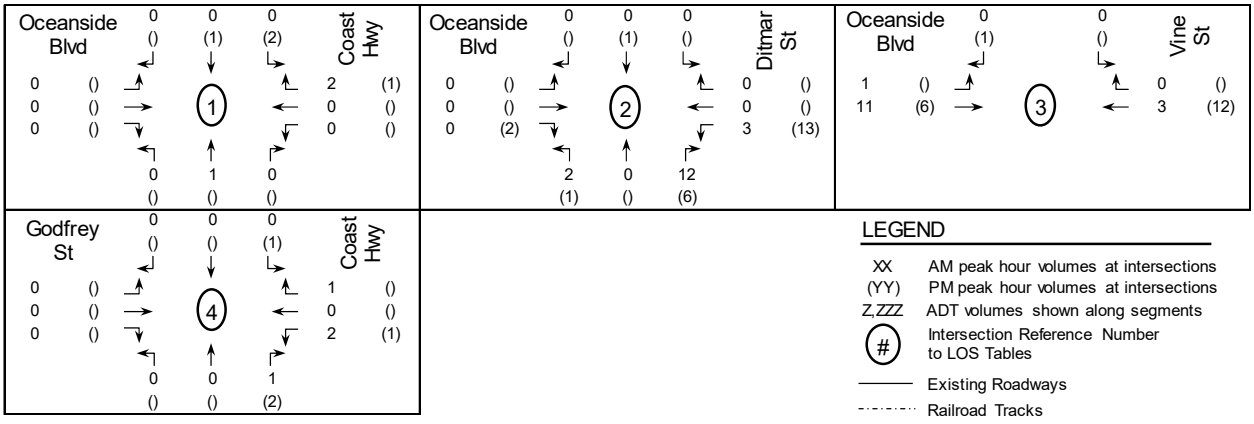


Figure 6: Project Volumes





5.0 Existing + Project Conditions

This scenario analyzes the addition of project traffic onto the existing background traffic for AM, PM, and daily conditions. The peak hour intersection volumes and daily traffic volumes for this scenario of existing + project is shown in **Figure 7**.

The LOS calculated with the addition of project traffic for intersections and street segments are shown in **Tables 7 and 8,** respectively. Intersection calculations are included in **Appendix G**.

TABLE 7: EXISTING + PROJECT INTERSECTION LEVEL OF SERVICE

Intersection and (Analysis)[1]	Movement	Peak Hour	Existing		Existing + Project			
			Delay[2]	LOS[3]	Delay[2]	LOS[3]	Delta[4]	Sig[5]
1) Oceanside Blvd at	All	AM	17.9	B	17.9	B	0.0	No
Coast Hwy (S)	All	PM	24.2	C	24.3	C	0.1	No
2) Oceanside Blvd at	All	AM	18.3	B	18.4	B	0.1	No
Ditmar St (S)	All	PM	13.3	B	13.3	B	0.0	No
3) Oceanside Blvd at	All	AM	19.0	B	19.1	B	0.1	No
Vine St (S)	All	PM	19.2	B	19.3	B	0.1	No
4) Coast Hwy at	WB	AM	15.3	C	15.4	C	0.1	No
Godfrey St (U)	WB	PM	18.6	C	19.5	C	0.9	No

Notes: 1) Intersection Analysis - S - signalized, U - Unsignalized; 2) HCM - Highway Capacity Manual delay in seconds
3) Level of Service; 4) Delta is the increase in delay from project traffic. 5) Significant Impact?

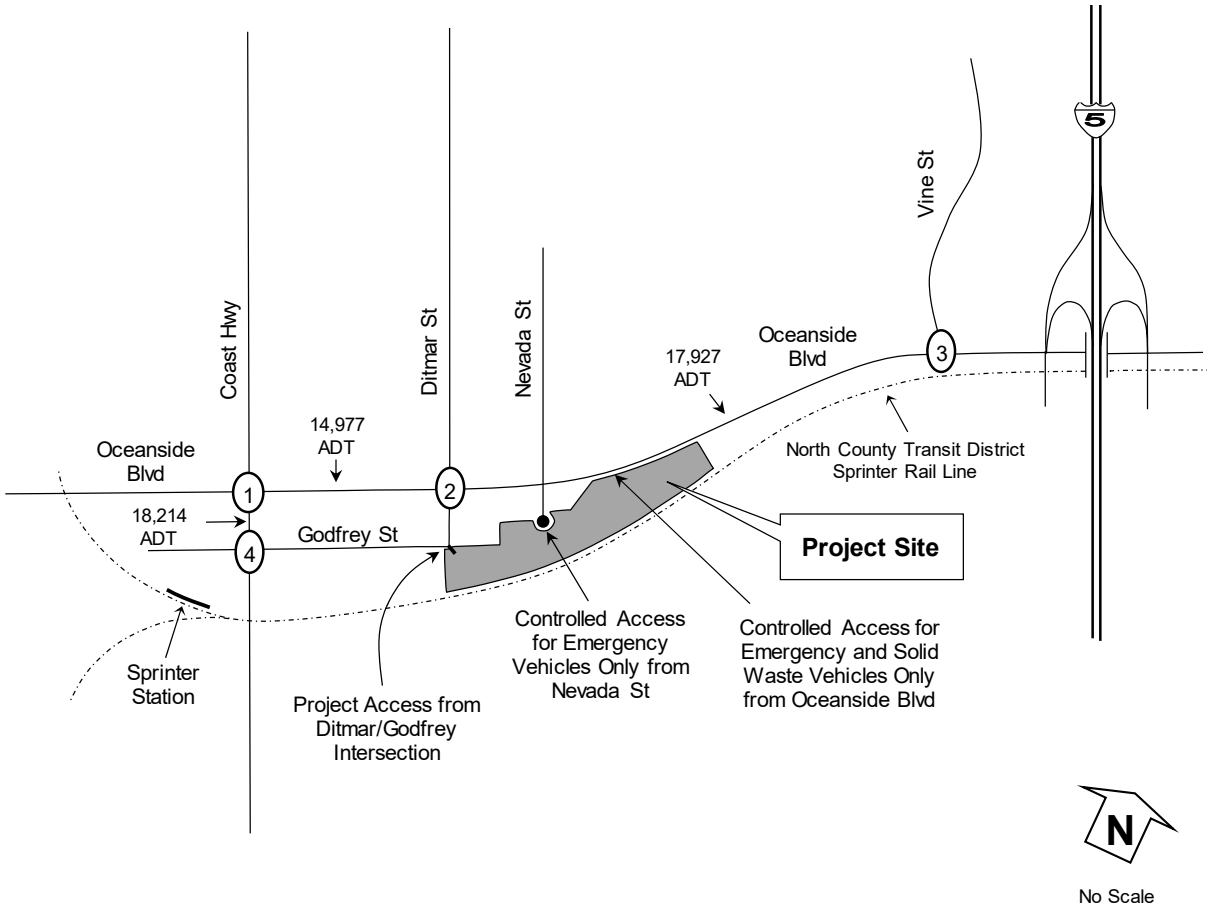
TABLE 8: EXISTING + PROJECT ADT VOLUMES AND LEVEL OF SERVICE

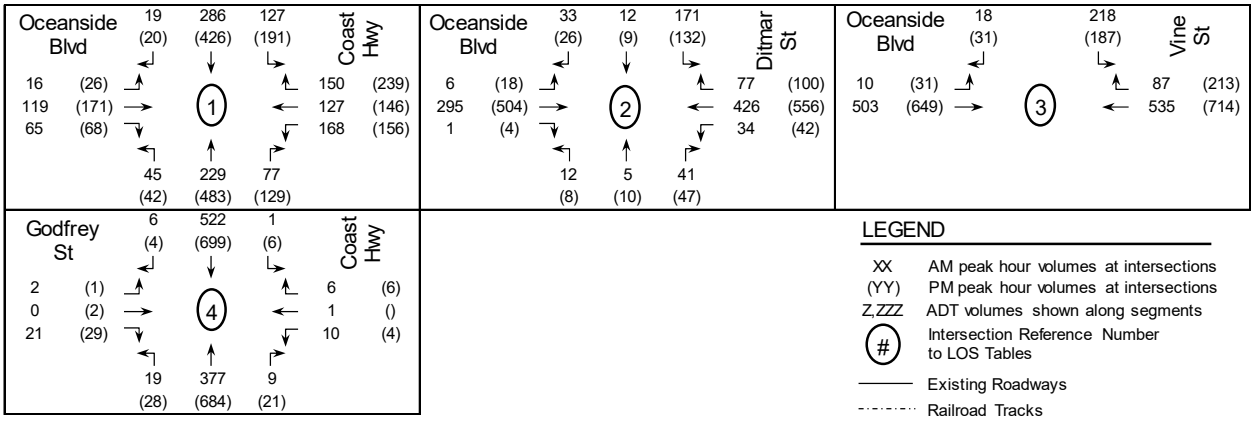
Segment	Classification (as built)	Existing				Project	Existing + Project					
		Daily Volume	LOS E Capacity	V/C	LOS	Daily Volume	Daily Volume	LOS E Capacity	V/C	LOS	Change in V/C	Direct Impact?
Coast Highway												
From Oceanside to Godfrey	Secondary Collector (4U,NP)	18,200	25,000	0.728	D	14	18,214	25,000	0.729	D	0.001	No
Oceanside Boulevard												
From Coast Hwy to Ditmar	Secondary Collector (4U,NP)	14,950	25,000	0.598	C	27	14,977	25,000	0.599	C	0.001	No
From Ditmar St to Vine St	Secondary Collector (4U,NP)	17,737	25,000	0.709	C	190	17,927	25,000	0.717	C	0.008	No

Notes: Classification (as built): 4U NP = 4 lane undivided roadway with no parking. Daily volumes is a 24 hour volume.
LOS: Level of Service. V/C: Volume to Capacity ratio.

Under existing + project conditions, the study intersections and segment were calculated to operate at LOS D or better with no significant project impacts.

Figure 7: Existing + Project Volumes





6.0 Cumulative Projects

The following cumulative projects are anticipated to add traffic to the study intersections and segments:

1) Fairfield Inn & Suites Hotel with up to 105 rooms located on the north side of Oceanside Blvd west of Vine Street.

2) Oceanside 2 multi-family with 58 units located on the west side of Vine Street north of Oceanside Blvd.

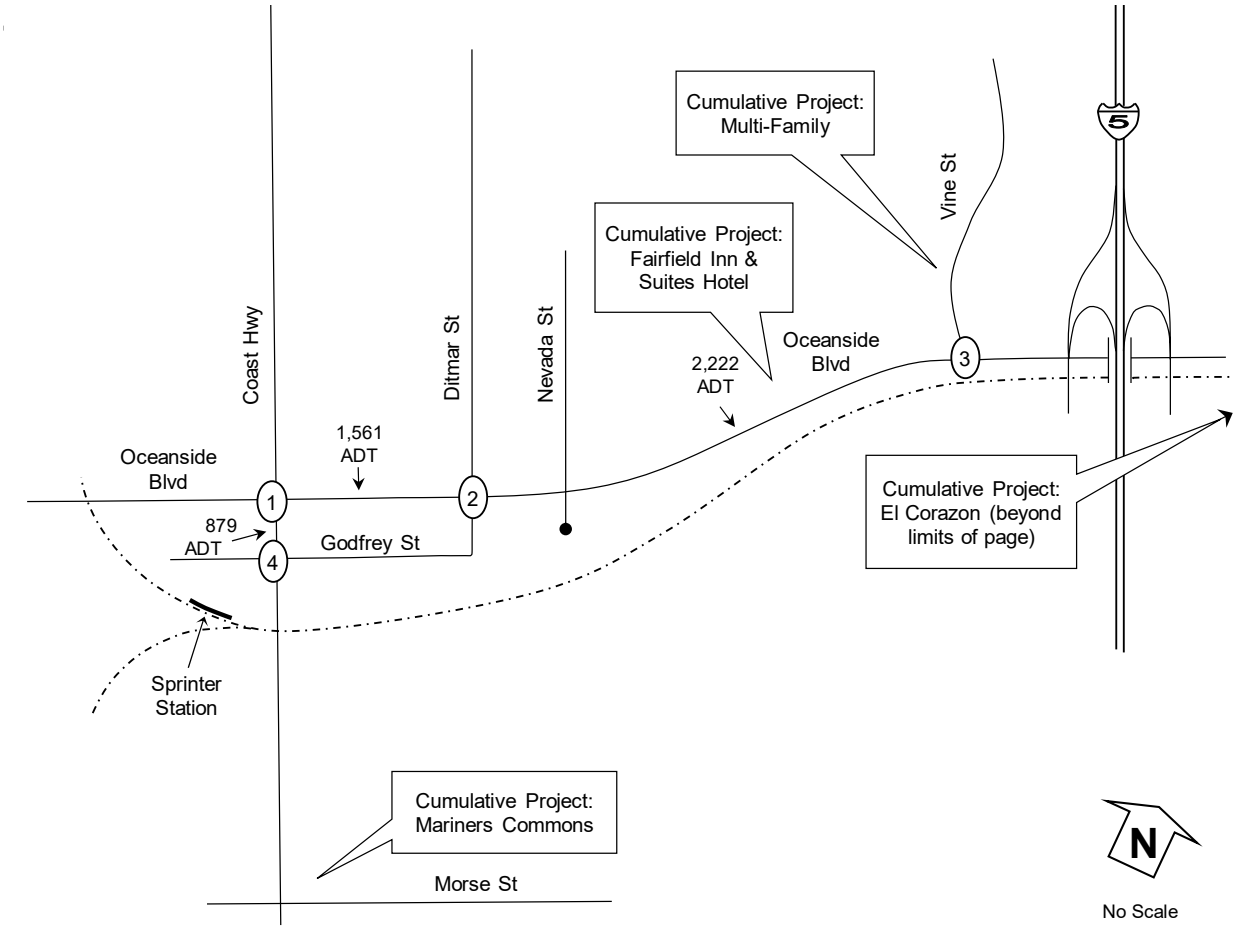
3) El Corazon mixed use project generally located on the northeast corner of Oceanside Blvd and El Camino Real.

4) Mariners Commons with 38 multi-family units located on the northeast corner of Coast Highway and Morse Street.

The Oceanside 2 multi-family project was under construction and the Mariners Commons project was near completion when traffic counts were collected. However, to be conservative, no reduction was applied to the cumulative project traffic.

The cumulative volumes are shown on **Figure 8** with the individual cumulative project details included in **Appendix H**.

Figure 8: Cumulative Project Locations and Volumes



7.0 Existing + Cumulative Conditions

This scenario analyzes the addition of cumulative project traffic onto the existing traffic for AM, PM, and daily conditions. The peak hour intersection volumes and daily traffic volumes for this scenario of existing plus cumulative is shown in **Figure 9**.

The LOS calculated with the addition of cumulative traffic for intersections and street segments are shown in **Table 9** and **10**, respectively. Intersection calculations are included in **Appendix I**.

TABLE 9: EXISTING + CUMULATIVE INTERSECTION LEVEL OF SERVICE

Intersection and (Analysis)[1]	Movement	Peak Hour	Existing Delay[2]	Existing LOS[3]	Existing + Cumulative Delay[2]	Existing + Cumulative LOS[3]
1) Oceanside Blvd at	All	AM	17.9	B	18.5	C
Coast Hwy (S)	All	PM	24.2	C	27.6	C
2) Oceanside Blvd at	All	AM	18.3	B	18.3	B
Ditmar St (S)	All	PM	13.3	B	13.4	B
3) Oceanside Blvd at	All	AM	19.0	B	19.3	B
Vine St (S)	All	PM	19.2	B	20.1	C
4) Coast Hwy at	WB	AM	15.3	C	15.7	C
Godfrey St (U)	WB	PM	18.6	C	19.6	C

Notes: 1) Intersection Analysis - S - signalized, U - Unsignalized; 2) HCM - Highway Capacity Manual delay in seconds
3) Level of Service

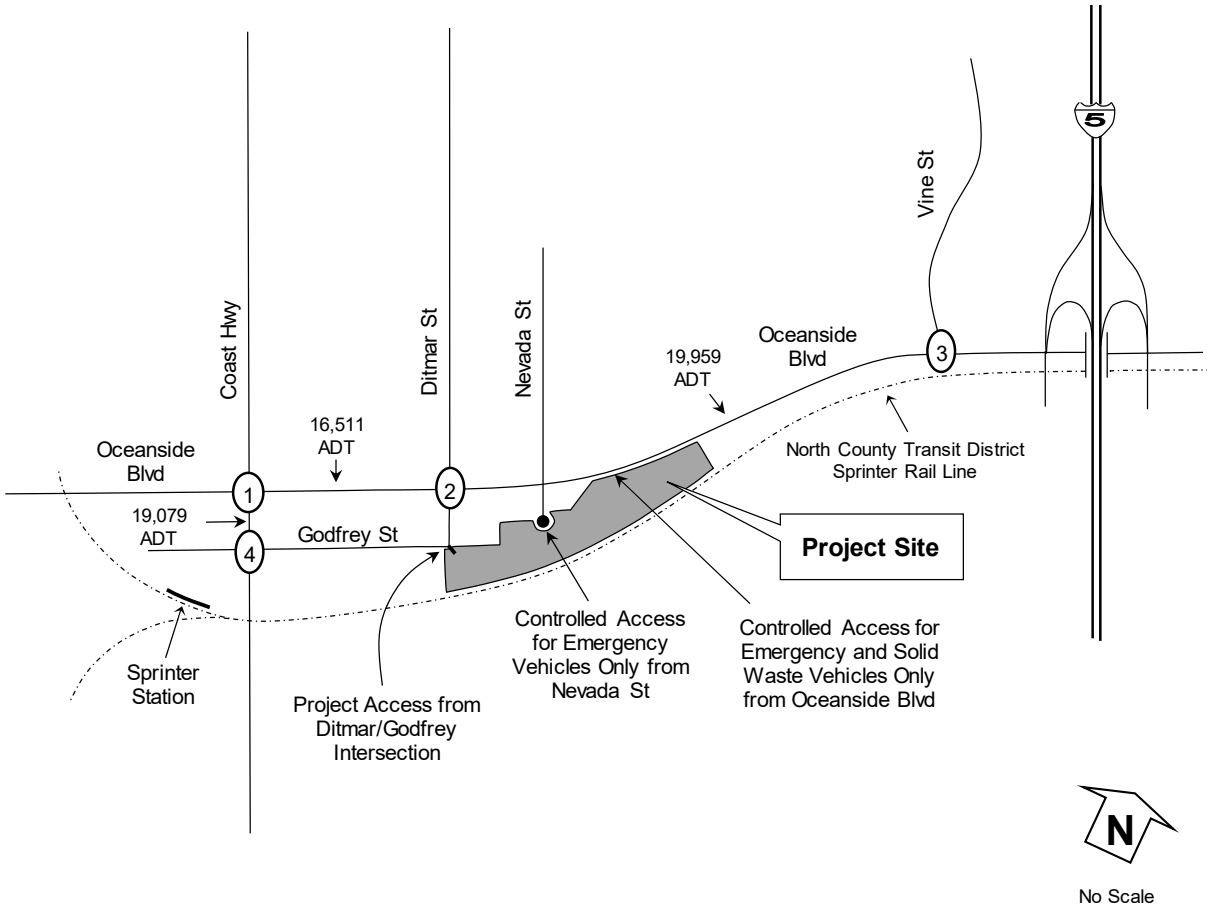
TABLE 10: EXISTING + CUMULATIVE ADT VOLUMES AND LEVEL OF SERVICE

Segment	Classification (as built)	Existing Daily Volume	Existing LOS E Capacity	Existing V/C	Existing LOS	Cumulative Daily Volume	Existing + Cumulative Daily Volume	Existing + Cumulative LOS E Capacity	Existing + Cumulative V/C	Existing + Cumulative LOS
Coast Highway										
From Oceanside to Godfrey	Secondary Collector (4U,NP)	18,200	25,000	0.728	D	879	19,079	25,000	0.763	D
Oceanside Boulevard										
From Coast Hwy to Ditmar	Secondary Collector (4U,NP)	14,950	25,000	0.598	C	1,561	16,511	25,000	0.660	C
From Ditmar St to Vine St	Secondary Collector (4U,NP)	17,737	25,000	0.709	C	2,222	19,959	25,000	0.798	D

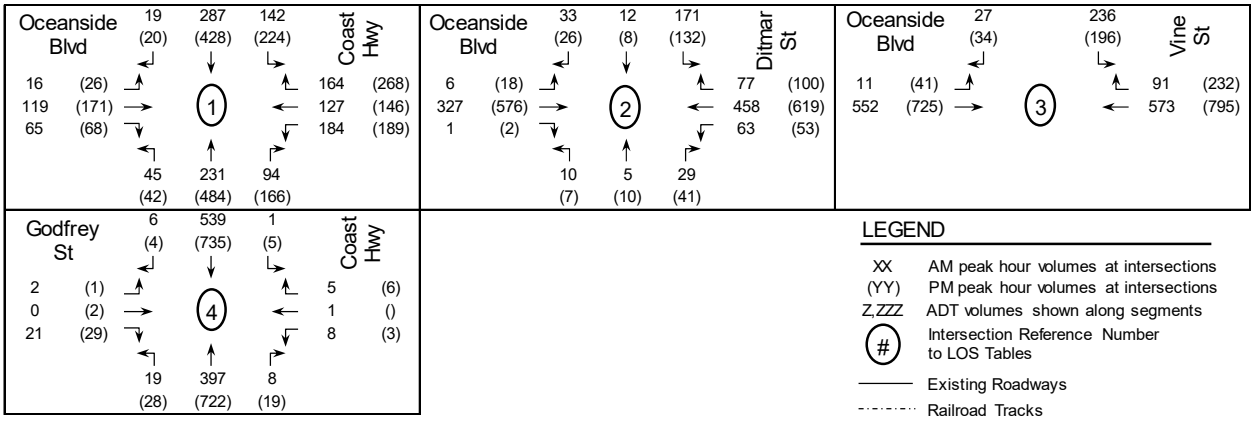
Notes: Classification (as built): 4U NP = 4 lane undivided roadway with no parking. Daily volumes is a 24 hour volume.
LOS: Level of Service. V/C: Volume to Capacity ratio.

Under existing + cumulative conditions, the study intersections and street segments are calculated to operate at LOS D or better.

Figure 9: Existing + Cumulative Volumes



No Scale



8.0 Existing + Cumulative + Project Conditions

This scenario analyzes the addition of project traffic onto the existing plus cumulative traffic for AM, PM, and daily conditions. The peak hour intersection volumes and daily traffic volumes for this scenario is shown in **Figure 10**.

The LOS calculated with the addition of project traffic for the intersections and street segments are shown in **Tables 11 and 12,** respectively. Intersection calculations are included in **Appendix J**.

TABLE 11: EXISTING + CUMULATIVE + PROJECT INTERSECTION LEVEL OF SERVICE

Intersection and (Analysis)[1]	Movement	Peak Hour	Existing + Cumulative Delay[2]	Existing + Cumulative LOS[3]	Existing + Cumulative + Project Delay[2]	Existing + Cumulative + Project LOS[3]	Delta[4]	Cumulative Impact[5]
1) Oceanside Blvd at	All	AM	18.5	C	18.5	C	0.0	No
Coast Hwy (S)	All	PM	27.6	C	27.7	C	0.1	No
2) Oceanside Blvd at	All	AM	18.3	B	18.3	B	0.0	No
Ditmar St (S)	All	PM	13.4	B	13.5	B	0.1	No
3) Oceanside Blvd at	All	AM	19.3	B	19.3	B	0.0	No
Vine St (S)	All	PM	20.1	C	20.3	C	0.2	No
4) Coast Hwy at	WB	AM	15.7	C	15.8	C	0.1	No
Godfrey St (U)	WB	PM	19.6	C	20.6	C	1.0	No

Notes: 1) Intersection Analysis - S - signalized, U - Unsignalized; 2) HCM - Highway Capacity Manual delay in seconds
3) Level of Service; 4) Delta is the increase in delay from project. 5) Cumulative Impact? (yes or no).

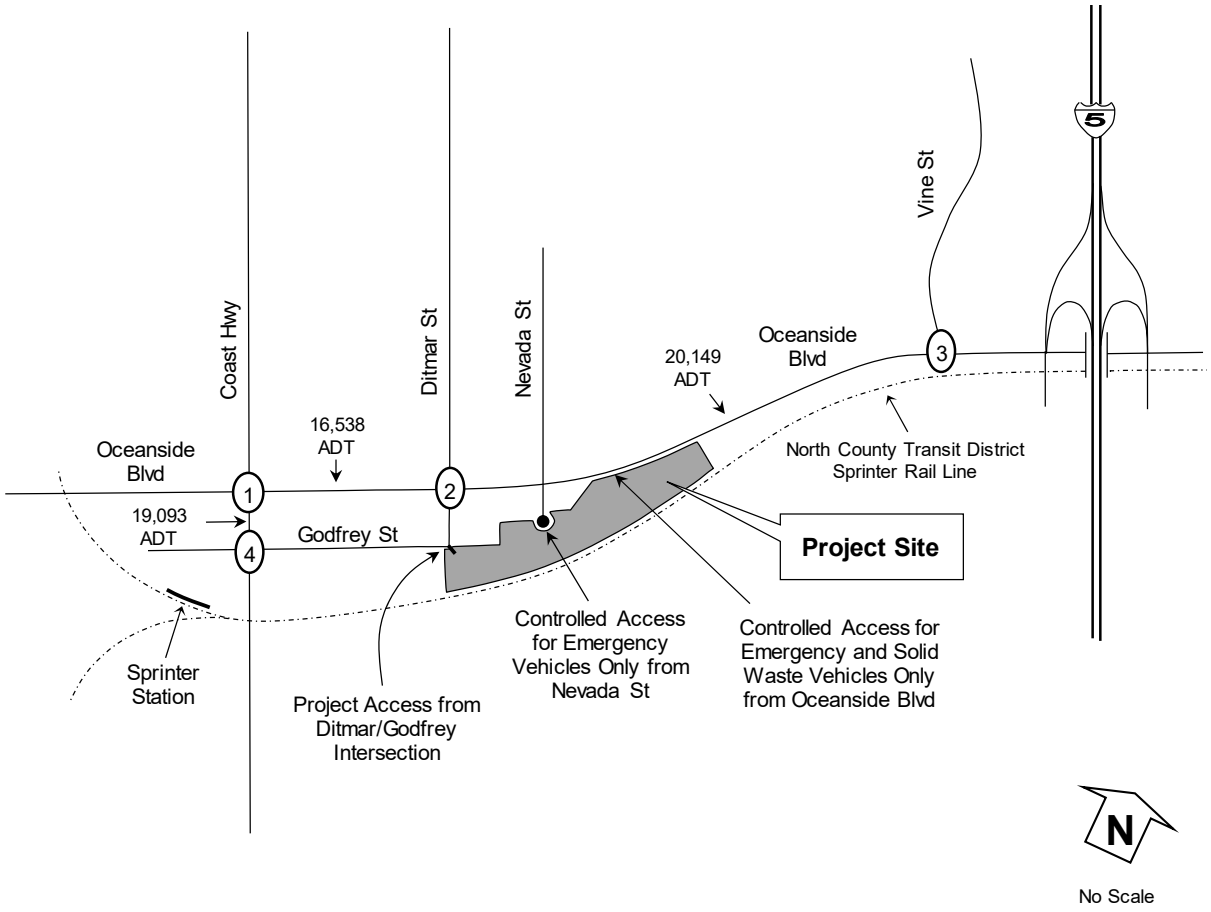
TABLE 12: EXISTING + CUMULATIVE + PROJECT ADT AND LEVEL OF SERVICE

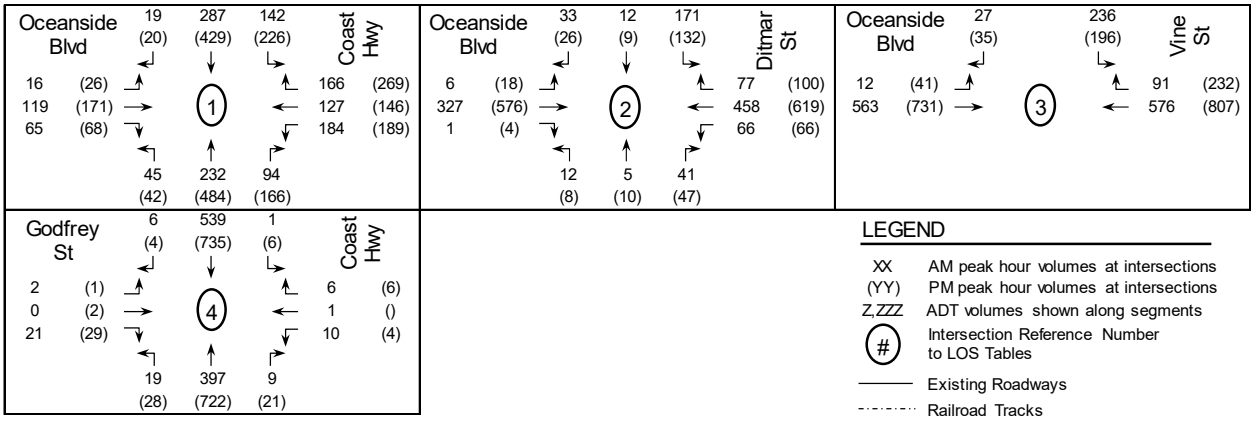
Segment	Classification (as built)	Existing + Cumulative Daily Volume	Existing + Cumulative LOS E Capacity	Existing + Cumulative V/C	Existing + Cumulative LOS	Project Daily Volume	Existing + Cumulative + Project Daily Volume	Existing + Cumulative + Project LOS E Capacity	Existing + Cumulative + Project V/C	Existing + Cumulative + Project LOS	Change in V/C	Cumulative Impact?
Coast Highway												
From Oceanside to Godfrey	Secondary Collector (4U,NP)	19,079	25,000	0.763	D	14	19,093	25,000	0.764	D	0.001	No
Oceanside Boulevard												
From Coast Hwy to Ditmar	Secondary Collector (4U,NP)	16,511	25,000	0.660	C	27	16,538	25,000	0.662	C	0.001	No
From Ditmar St to Vine St	Secondary Collector (4U,NP)	19,959	25,000	0.798	D	190	20,149	25,000	0.806	D	0.008	No

Notes: Classification (as built): 4U NP = 4 lane undivided roadway with no parking. Daily volumes is a 24 hour volume.
LOS: Level of Service. V/C: Volume to Capacity ratio.

Under existing + cumulative + project conditions, the study intersections and street segments are calculated to operate at LOS D or better with no cumulatively considerable impacts.

Figure 10: Existing + Cumulative + Project Volumes





9.0 Mitigation Measures and Project Features

This analysis has documented no traffic impacts from the project traffic; therefore, mitigation measures are not required.

As part of the project, the following physical improvements are proposed by the applicant to be completed to the satisfaction of the City Engineer:

1) Corner of Ditmar Street at Godfrey Street will be improved as a standard knuckle.

2) The southern terminus of Nevada Street (adjacent to the project site) will be improved to full public street standards.

10.0 Conclusion

The proposed residential project of 34 luxury townhomes is generally located on the southeast corner of Ditmar Street at Godfrey Street in Oceanside, California. The project site is elongated with a footprint that starts at Ditmar Street and extends east past Nevada Street and is generally between Oceanside Blvd and the North County Transit District Sprinter rail line. The project site of approximately 2.6 acres is currently vacant.

The project is calculated to generate 272 ADT, 21 AM peak hour trips (4 inbound and 17 outbound), and 27 PM peak hour trips (19 inbound and 8 outbound). The main project driveway (for all residential access) is proposed at the southeast corner of Ditmar Street and Godfrey Street. There are two additional gated and controlled access points. One gated access point for only emergency service vehicles is from Nevada Street. The other gated access point for emergency service and solid waste vehicles is from Oceanside Boulevard. On-site parking includes 78 spaces (68 garage and 10 guest).

Four cumulative projects were identified and included in this analysis. The cumulative projects included: 1) Fairfield Inn & Suites Hotel on Oceanside Blvd, 2) Oceanside multi-family project on Vine St, 3) El Corazon mixed use project on the northeast corner of Oceanside Blvd at El Camino Real, and 4) Mariners Commons multi-family project on the northeast corner of Coast Highway/Morse St.

Four (4) scenarios were analyzed, which included Existing, Existing + Project, Existing + Cumulative, and Existing + Cumulative + Project. Operational findings by scenario are summarized below:

1) Under existing conditions, the study intersections and street segments were calculated to operate at LOS D or better.
2) Under existing + project conditions, the study intersections and street segments were calculated to operate at LOS D or better with no significant project impacts.
3) Under existing + cumulative conditions, the study intersections and street segments were calculated to operate at LOS D or better.
4) Under existing + cumulative + project conditions, the study intersections and street segments were calculated to operate at LOS D or better with no cumulatively considerable impacts.

This analysis has documented no traffic impacts from the project traffic; therefore, mitigation measures are not required.

As part of the project, the following physical improvements are proposed by the applicant to be completed to the satisfaction of the City Engineer:

1) Corner of Ditmar Street at Godfrey Street will be improved as a standard knuckle.
2) The southern terminus of Nevada Street (adjacent to the project site) will be improved to full public street standards cul-de-sac.

Appendix A

SANDAG CMP Exemption Memo

BOARD OF DIRECTORS
OCTOBER 23, 2009

AGENDA ITEM NO. 09-10-6
ACTION REQUESTED – INFORMATION

CONGESTION MANAGEMENT PROGRAM PROCESS

File Number 3100400

Introduction

SANDAG, as the Congestion Management Agency (CMA), is required by state law to prepare and regularly update a Congestion Management Program (CMP) for the San Diego region. The last CMP update was adopted by SANDAG in November 2008. On May 8, 2009, the Board of Directors directed staff to work with local jurisdictions that wished to prepare resolutions electing to opt out of the state CMP. A majority of the jurisdictions representing a majority of the population have adopted resolutions electing to be exempt from the state CMP. This informational report also was presented at the October 16, 2009, Transportation Committee meeting.

Discussion

The purposes of the CMP are to monitor the performance of the transportation system, develop programs to address near-term and long-term congestion, and better integrate transportation and land use planning. SANDAG staff evaluated options for future direction of the CMP and discussed these options at multiple meetings of the Cities/County Transportation Advisory Committee and the Regional Planning Technical Working Group. One option was to streamline the SANDAG CMP process and the other was to opt out of the state CMP process. As previously stated, at its May 8, 2009, meeting, the Board of Directors discussed these options and voted to direct staff to work with local jurisdictions that wished to prepare resolutions electing to opt out of the state CMP.

Assembly Bill (AB) 2419, passed in 1996, allows congestion management agencies to "opt out" of the state CMP process. Section 65088.3 of the California Government Code states *"This chapter does not apply in a county in which a majority of local governments, collectively comprised of the city councils and the county board of supervisors, which in total also represent a majority of the population in the county, each adopt resolutions electing to be exempt from the congestion management program."* Over the past few months 14 out of the 19 local jurisdictions, representing a majority of the population in San Diego County have adopted resolutions electing to be exempt from the state CMP process. The local jurisdictions that adopted resolutions include: Carlsbad, Chula Vista, El Cajon, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Oceanside, Poway, City of San Diego, County of San Diego, San Marcos, and Santee.

SANDAG will continue to meet the federal congestion management provisions through existing SANDAG planning and performance monitoring activities, such as the Regional Transportation Plan (RTP) and other multimodal performance monitoring efforts. Federal congestion management provisions are more flexible and utilize the RTP as the primary tool to provide solutions for congestion. The RTP includes identification and evaluation of anticipated performance and expected benefits of appropriate congestion management strategies (demand management, operational improvements, transit improvements, systems management improvements, etc.).

Additionally, appropriate analysis of multimodal strategies and alternatives for corridors is required when an increase in single occupancy vehicle capacity is proposed.

Next Steps

SANDAG staff will notify the California Transportation Commission and State Controller of the region's decision to elect to be exempt from the state CMP.

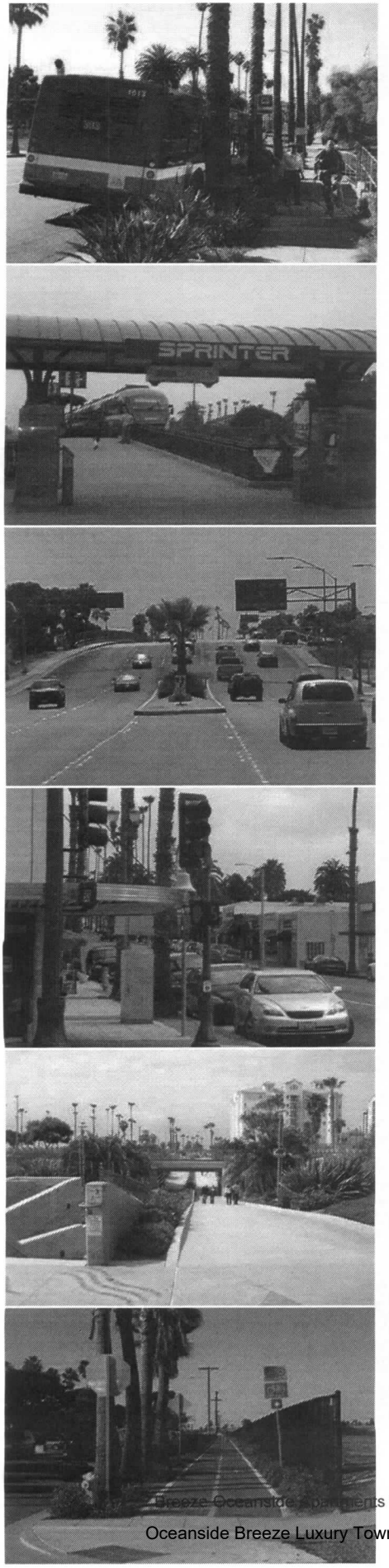
GARY L. GALLEGOS
Executive Director

Key Staff Contact: Heather Werdick, (619) 699-6967, hwe@sandag.org

Funds are budgeted in Work Element #3100400

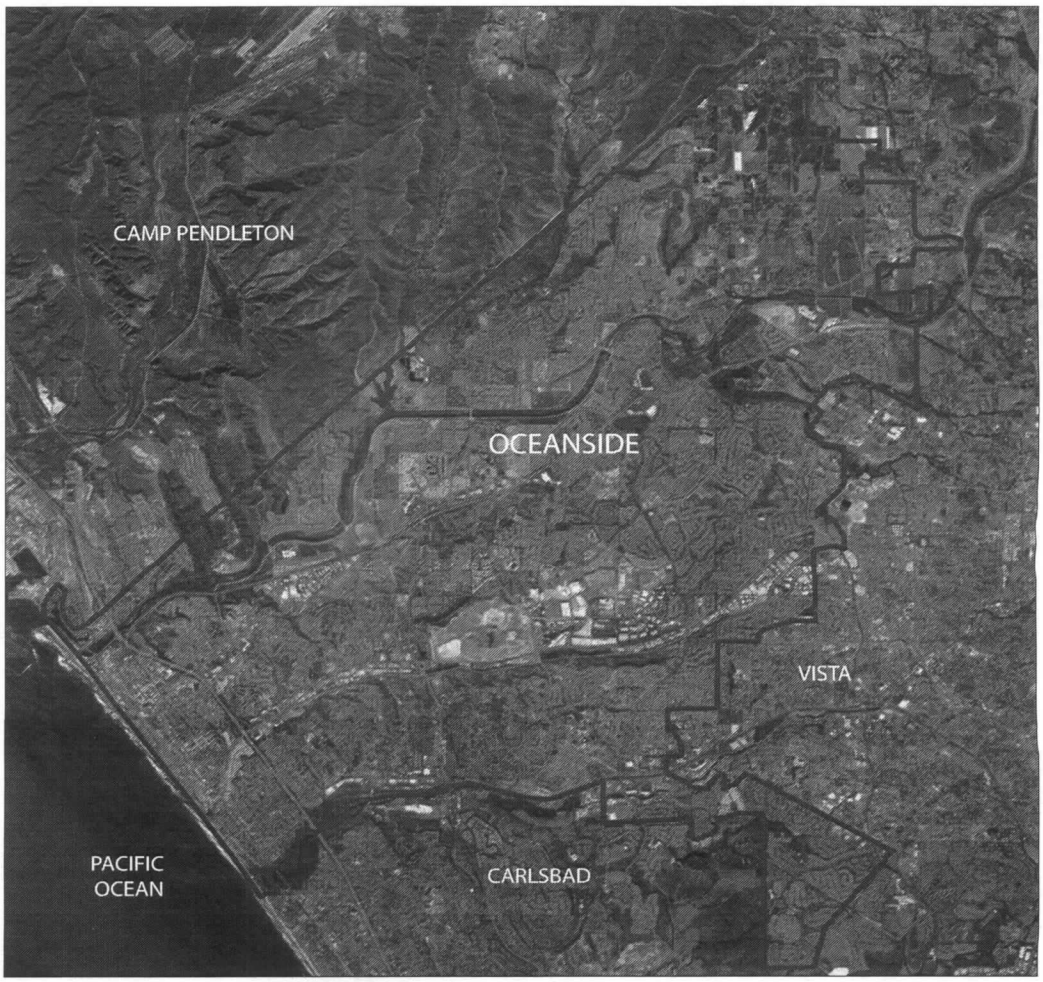
Appendix B

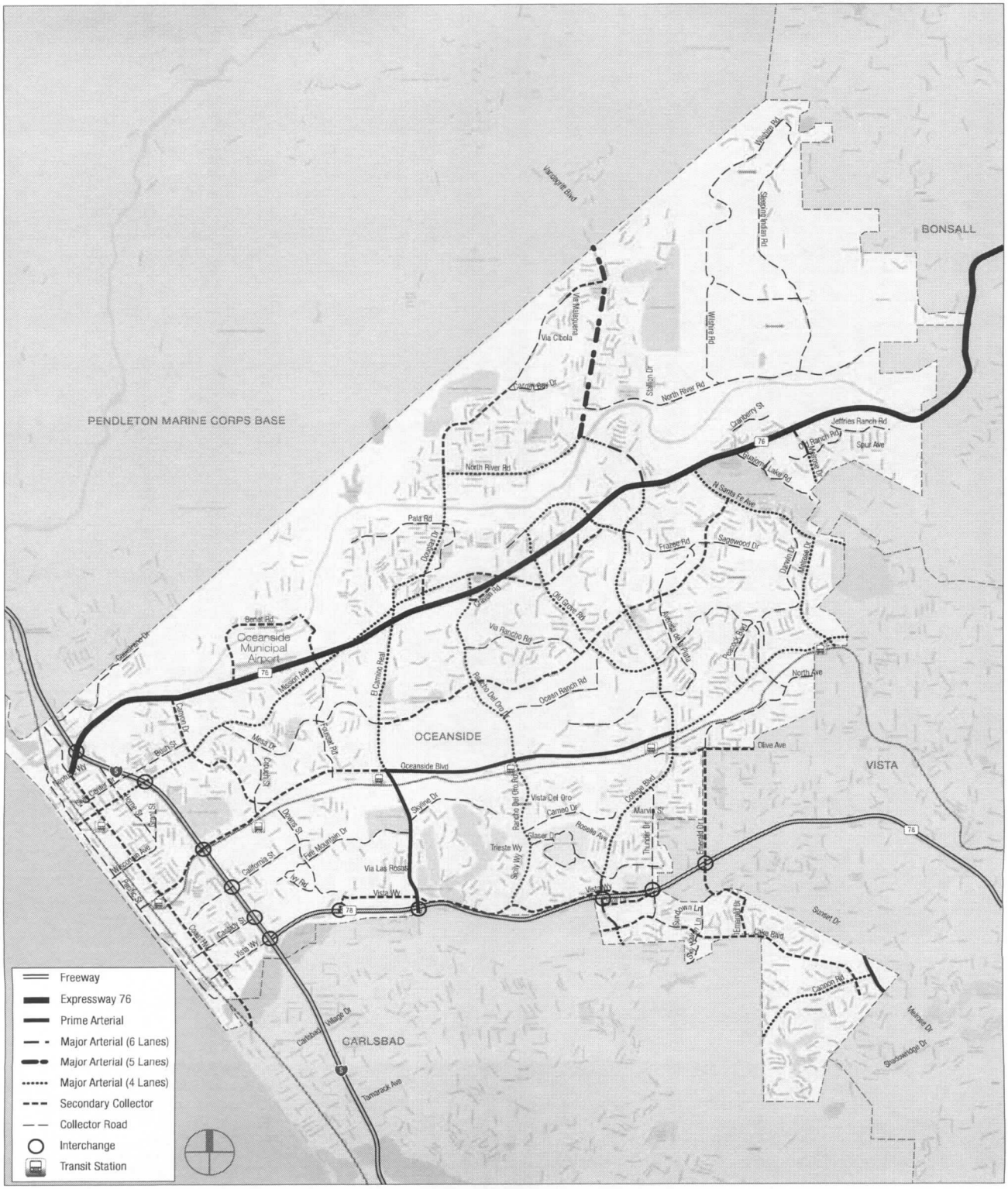
Excerpts from the *Oceanside General Plan Circulation Element*, Sept 2012



Oceanside General Plan
CIRCULATION ELEMENT

September 2012





Not to Scale

Existing Roadway Classifications

Figure 3.1

Appendix C

Count Data

PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: Coast Highway
E/W: Oceanside Boulevard

Date: 9/12/18
Day: WEDNESDAY
Project # 143-18616

TURNING MOVEMENT COUNT

Count Period: **7:00 AM to 9:00 AM**
Peak Hour: **8:00AM to 9:00 AM**

Vehicle Counts

	Coast Highway Northbound			Coast Highway Southbound			Oceanside Boulevard Eastbound			Oceanside Boulevard Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	3	32	8	17	67	1	4	20	6	35	11	25	229
7:15 AM	1	49	7	19	100	3	2	26	20	27	15	30	299
7:30 AM	7	51	12	29	56	3	2	23	15	34	27	38	297
7:45 AM	7	56	13	33	72	2	2	18	18	37	28	40	326
8:00 AM	9	47	18	23	80	4	4	28	14	38	39	23	327
8:15 AM	12	38	18	33	63	7	3	22	16	46	38	37	333
8:30 AM	12	66	21	32	74	5	6	35	20	36	23	38	368
8:45 AM	12	77	20	39	69	3	3	34	15	48	27	50	397
TOTAL VOLUMES:	63	416	117	225	581	28	26	206	124	301	208	281	2576

AM Peak Hr Begins at: 800 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	45	228	77	127	286	19	16	119	65	168	127	148	1425

PEAK HR FACTOR:	0.803	0.973	0.820	0.886	0.897

Bicycle Counts

	Coast Highway Northbound			Coast Highway Southbound			Oceanside Boulevard Eastbound			Oceanside Boulevard Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	1	1	0	0	0	0	0	0	0	0	0	0	2
7:45 AM	1	1	0	0	0	0	0	0	1	2	1	0	6
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	1	0	0	0	1	0	0	0	0	0	0	0	2
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	3	4	0	0	1	0	0	0	1	2	1	0	12

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	1	1	0	0	1	0	0	0	0	0	0	0	3

Pedestrian Counts

	Coast Highway North Leg	Coast Highway South Leg	Oceanside Boulevard East Leg	Oceanside Boulevard West Leg	TOTAL
7:00 AM	0	0	0	1	1
7:15 AM	0	0	0	0	0
7:30 AM	1	1	0	1	3
7:45 AM	1	3	2	2	8
8:00 AM	3	3	3	7	16
8:15 AM	5	2	0	4	11
8:30 AM	1	4	0	2	7
8:45 AM	1	3	0	1	5
TOTAL VOLUMES:	12	16	5	18	51

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	10	12	3	14	39

PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: Coast Highway
E/W: Oceanside Boulevard

Date: 9/12/18
Day: WEDNESDAY
Project # 143-18616

TURNING MOVEMENT COUNT

Count Period: **4:00 PM to 6:00 PM**
Peak Hour: **5:00 PM to 6:00 PM**

Vehicle Counts

	Coast Highway Northbound			Coast Highway Southbound			Oceanside Boulevard Eastbound			Oceanside Boulevard Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	10	92	33	50	119	5	5	27	15	47	34	58	495
4:15 PM	7	132	30	37	124	8	7	29	13	38	52	26	503
4:30 PM	11	106	41	56	107	6	8	19	10	45	47	17	473
4:45 PM	7	129	37	26	94	5	11	33	18	40	41	53	494
5:00 PM	10	132	39	54	121	2	7	36	9	31	30	50	521
5:15 PM	11	109	43	34	100	4	5	37	22	46	46	69	526
5:30 PM	9	117	20	63	96	11	9	52	20	48	40	64	549
5:45 PM	12	125	27	38	108	3	5	46	17	31	30	55	497
TOTAL VOLUMES:	77	942	270	358	869	44	57	279	124	326	320	392	4058

PM Peak Hr Begins at: 500 PM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	42	483	129	189	425	20	26	171	68	156	146	238	2093

PEAK HR FACTOR:	0.903	0.895	0.818	0.839	0.953

Bicycle Counts

	Coast Highway Northbound			Coast Highway Southbound			Oceanside Boulevard Eastbound			Oceanside Boulevard Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	0	0	0	0	1	1	0	0	0	0	2	1	5
4:15 PM	0	1	0	0	1	0	0	1	0	0	0	0	3
4:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
4:45 PM	0	1	0	0	0	0	0	0	0	1	0	0	2
5:00 PM	0	0	1	1	0	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	2	0	0	1	1	1	0	0	5
5:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	2
TOTAL VOLUMES:	0	3	1	1	7	1	0	2	1	2	2	1	21

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	1	1	1	4	0	0	1	1	1	0	0	10

Pedestrian Counts

	Coast Highway North Leg	Coast Highway South Leg	Oceanside Boulevard East Leg	Oceanside Boulevard West Leg	TOTAL
4:00 PM	0	1	1	2	4
4:15 PM	7	6	2	4	19
4:30 PM	4	5	7	2	18
4:45 PM	3	5	0	4	12
5:00 PM	1	5	1	4	11
5:15 PM	0	1	1	0	2
5:30 PM	4	2	0	5	11
5:45 PM	2	3	3	3	11
TOTAL VOLUMES:	21	28	15	24	88

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	7	11	5	12	35

PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: Ditmar Street
E/W: Oceanside Boulevard

Date: 9/12/18
Day: WEDNESDAY
Project # 143-18616

TURNING MOVEMENT COUNT

Count Period: **7:00 AM to 9:00 AM**
Peak Hour: **7:30 AM to 8:30 AM**

Vehicle Counts

	Ditmar Street Northbound			Ditmar Street Southbound			Oceanside Boulevard Eastbound			Oceanside Boulevard Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	1	2	7	35	6	3	0	54	1	4	75	9	197
7:15 AM	2	3	3	37	4	10	1	53	0	4	74	14	205
7:30 AM	2	1	8	36	4	6	2	83	0	9	93	15	259
7:45 AM	3	2	7	57	1	10	1	54	0	8	109	29	281
8:00 AM	2	2	6	44	5	10	2	77	1	8	108	14	279
8:15 AM	3	0	8	34	2	7	1	81	0	6	116	19	277
8:30 AM	0	0	4	26	1	8	2	96	0	5	99	14	255
8:45 AM	1	0	2	33	1	9	5	87	0	6	119	20	283
TOTAL VOLUMES:	14	10	45	302	24	63	14	585	2	50	793	134	2036

AM Peak Hr Begins at: 730 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	10	5	29	171	12	33	6	295	1	31	426	77	1096

PEAK HR FACTOR:	0.917	0.794	0.888	0.914	0.975

Bicycle Counts

	Ditmar Street Northbound			Ditmar Street Southbound			Oceanside Boulevard Eastbound			Oceanside Boulevard Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	2	0	2
7:45 AM	0	1	0	0	0	0	0	0	0	0	1	0	2
8:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	1	0	0	1	1	0	3
8:30 AM	1	0	0	0	0	0	0	0	0	1	0	0	2
8:45 AM	0	0	1	0	0	0	0	1	0	1	0	0	3
TOTAL VOLUMES:	1	1	2	0	0	0	1	2	0	3	4	1	15

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	1	0	0	0	0	1	1	0	1	4	0	8

Pedestrian Counts

	Ditmar Street North Leg	Ditmar Street South Leg	Oceanside Boulevard East Leg	Oceanside Boulevard West Leg	TOTAL
7:00 AM	0	1	0	1	2
7:15 AM	0	1	0	3	4
7:30 AM	0	1	0	4	5
7:45 AM	1	1	0	0	2
8:00 AM	0	3	0	0	3
8:15 AM	0	2	0	2	4
8:30 AM	0	1	0	0	1
8:45 AM	0	1	0	0	1
TOTAL VOLUMES:	1	11	0	10	22

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	1	7	0	6	14

PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: Ditmar Street
E/W: Oceanside Boulevard

Date: 9/12/18
Day: WEDNESDAY
Project # 143-18616

TURNING MOVEMENT COUNT

Count Period: **4:00 PM to 6:00 PM**
Peak Hour: **4:45 PM to 5:45 PM**

Vehicle Counts

	Ditmar Street Northbound			Ditmar Street Southbound			Oceanside Boulevard Eastbound			Oceanside Boulevard Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	1	3	8	37	2	4	3	116	2	4	130	13	323
4:15 PM	2	1	8	30	3	13	7	93	1	7	129	28	322
4:30 PM	1	3	11	34	3	13	2	127	2	8	120	16	340
4:45 PM	1	2	12	43	2	10	8	109	0	6	119	17	329
5:00 PM	2	3	7	35	1	4	7	124	0	9	137	26	355
5:15 PM	3	4	11	24	2	7	1	112	1	6	150	32	353
5:30 PM	1	1	11	30	3	5	2	159	1	8	150	25	396
5:45 PM	1	1	7	20	0	9	5	100	1	5	141	24	314
TOTAL VOLUMES:	12	18	75	253	16	65	35	940	8	53	1076	181	2732

PM Peak Hr Begins at: 445 PM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	7	10	41	132	8	26	18	504	2	29	556	100	1433

PEAK HR FACTOR:	0.806	0.755	0.809	0.911	0.905

Bicycle Counts

	Ditmar Street Northbound			Ditmar Street Southbound			Oceanside Boulevard Eastbound			Oceanside Boulevard Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	1	0	1	2	0	0	1	0	0	0	0	5
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
5:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
5:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	1	0	0	1	0	0	0	0	1	3
TOTAL VOLUMES:	0	1	0	2	3	1	1	2	0	0	1	1	12

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	0	1	1	0	1	0	0	1	0	4

Pedestrian Counts

	Ditmar Street North Leg	Ditmar Street South Leg	Oceanside Boulevard East Leg	Oceanside Boulevard West Leg	TOTAL
4:00 PM	0	1	0	0	1
4:15 PM	0	1	0	1	2
4:30 PM	0	0	1	0	1
4:45 PM	0	0	0	1	1
5:00 PM	1	0	0	1	2
5:15 PM	0	2	0	1	3
5:30 PM	0	2	0	1	3
5:45 PM	0	0	1	0	1
TOTAL VOLUMES:	1	6	2	5	14

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	1	4	0	4	9

PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: Vine Street
E/W: Oceanside Boulevard

Date: 9/12/18
Day: WEDNESDAY
Project # 143-18616

TURNING MOVEMENT COUNT

Count Period: **7:00 AM to 9:00 AM**
Peak Hour: **8:00 AM to 9:00 AM**

Vehicle Counts

	Vine Street Northbound			Vine Street Southbound			Oceanside Boulevard Eastbound			Oceanside Boulevard Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	0	0	0	91	0	4	0	89	0	0	89	42	315
7:15 AM	0	0	0	95	0	3	2	100	0	0	88	46	334
7:30 AM	0	0	0	73	0	3	2	121	0	0	120	14	333
7:45 AM	0	0	0	63	0	6	3	116	0	0	141	16	345
8:00 AM	0	0	0	52	0	2	4	123	0	0	130	21	332
8:15 AM	0	0	0	51	0	6	2	122	0	0	142	23	346
8:30 AM	0	0	0	52	0	7	1	123	0	0	106	22	311
8:45 AM	0	0	0	63	0	3	2	124	0	0	154	21	367
TOTAL VOLUMES:	0	0	0	540	0	34	16	918	0	0	970	205	2683

AM Peak Hr Begins at: 800 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	218	0	18	9	492	0	0	532	87	1356

PEAK HR FACTOR:	0.000	0.894	0.986	0.884	0.924

Bicycle Counts

	Vine Street Northbound			Vine Street Southbound			Oceanside Boulevard Eastbound			Oceanside Boulevard Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	1	0	0	1	0	2
7:30 AM	0	0	0	0	0	1	0	0	0	0	2	1	4
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	2	0	0	0	0	0	0	1	0	3
8:15 AM	0	0	0	0	0	0	0	2	0	0	0	1	3
8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
8:45 AM	0	0	0	0	0	0	0	1	0	0	1	1	3
TOTAL VOLUMES:	0	0	0	2	0	1	0	4	0	0	6	3	16

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	2	0	0	0	3	0	0	3	2	10

Pedestrian Counts

	Vine Street North Leg	Vine Street South Leg	Oceanside Boulevard East Leg	Oceanside Boulevard West Leg	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	2	0	0	2	4
7:45 AM	0	0	0	2	2
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	1	0	0	0	1
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	3	0	0	4	7

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	1	0	0	0	1

PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: Vine Street
E/W: Oceanside Boulevard

Date: 9/12/18
Day: WEDNESDAY
Project # 143-18616

TURNING MOVEMENT COUNT

Count Period: **4:00 PM to 6:00 PM**
Peak Hour: **4:45 PM to 5:45 PM**

Vehicle Counts

	Vine Street Northbound			Vine Street Southbound			Oceanside Boulevard Eastbound			Oceanside Boulevard Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	0	0	0	52	0	4	3	156	0	0	139	47	401
4:15 PM	0	0	0	35	0	8	5	121	0	0	171	49	389
4:30 PM	0	0	0	57	0	8	5	175	0	0	147	44	436
4:45 PM	0	0	0	55	0	6	5	163	0	0	153	54	436
5:00 PM	0	0	0	45	0	7	12	149	0	0	166	60	439
5:15 PM	0	0	0	53	0	7	8	144	0	0	195	57	464
5:30 PM	0	0	0	34	0	10	6	187	0	0	188	42	467
5:45 PM	0	0	0	57	0	3	4	129	0	0	173	42	408
TOTAL VOLUMES:	0	0	0	388	0	53	48	1224	0	0	1332	395	3440

PM Peak Hr Begins at: 445 PM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	187	0	30	31	643	0	0	702	213	1806

PEAK HR FACTOR:	0.000	0.889	0.873	0.908	0.967

Bicycle Counts

	Vine Street Northbound			Vine Street Southbound			Oceanside Boulevard Eastbound			Oceanside Boulevard Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	2	0	0	0	0	2
4:30 PM	0	0	0	1	0	0	0	0	0	0	1	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	2	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	3	0	3
TOTAL VOLUMES:	0	0	0	1	0	0	0	3	0	0	5	2	11

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	0	0	0	0	1	0	0	1	2	4

Pedestrian Counts

	Vine Street North Leg	Vine Street South Leg	Oceanside Boulevard East Leg	Oceanside Boulevard West Leg	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	1	1
TOTAL VOLUMES:	0	0	0	1	1

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	0	0	0	0	0

PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: Coast Highway
E/W: Godfrey Street

Date: 9/12/18
Day: WEDNESDAY
Project # 143-18616

TURNING MOVEMENT COUNT

Count Period: **7:00 AM to 9:00 AM**
Peak Hour: **8:00AM to 9:00 AM**

Vehicle Counts

	Coast Highway Northbound			Coast Highway Southbound			Godfrey Street Eastbound			Godfrey Street Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	3	52	0	0	125	0	0	0	2	2	0	1	185
7:15 AM	1	65	2	0	132	2	1	0	4	2	0	4	213
7:30 AM	5	69	1	0	111	0	0	0	0	2	0	4	192
7:45 AM	5	80	4	0	133	2	0	0	4	2	0	1	231
8:00 AM	5	66	1	1	134	0	2	0	6	2	0	2	219
8:15 AM	3	80	3	0	124	1	0	0	5	1	0	1	218
8:30 AM	6	120	3	0	122	4	0	0	5	1	0	2	263
8:45 AM	5	111	1	0	142	1	0	0	5	4	1	0	270
TOTAL VOLUMES:	33	643	15	1	1023	10	3	0	31	16	1	15	1791

AM Peak Hr Begins at: 800 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	19	377	8	1	522	6	2	0	21	8	1	5	970

PEAK HR FACTOR:	0.783	0.925	0.719	0.700	0.898

Bicycle Counts

	Coast Highway Northbound			Coast Highway Southbound			Godfrey Street Eastbound			Godfrey Street Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	0	1	0	0	1	0	0	0	0	0	0	0	2
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	2	0	0	3	0	0	0	0	0	0	0	5
7:45 AM	0	2	0	0	0	0	0	1	1	0	0	0	4
8:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
8:15 AM	0	2	0	0	1	0	0	0	0	1	0	0	4
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	1	0	0	0	0	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	1	7	0	0	6	0	0	1	1	1	0	0	17

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	1	2	0	0	2	0	0	0	0	1	0	0	6

Pedestrian Counts

	Coast Highway North Leg	Coast Highway South Leg	Godfrey Street East Leg	Godfrey Street West Leg	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	3	3
7:45 AM	0	0	3	2	5
8:00 AM	0	0	0	2	2
8:15 AM	1	0	1	2	4
8:30 AM	1	0	0	2	3
8:45 AM	0	0	1	2	3
TOTAL VOLUMES:	2	0	5	13	20

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	2	0	2	8	12

PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: Coast Highway
E/W: Godfrey Street

Date: 9/12/18
Day: WEDNESDAY
Project # 143-18616

TURNING MOVEMENT COUNT

Count Period: **4:00 PM to 6:00 PM**
Peak Hour: **4:45 PM to 5:45 PM**

Vehicle Counts

	Coast Highway Northbound			Coast Highway Southbound			Godfrey Street Eastbound			Godfrey Street Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	4	147	4	2	153	0	0	0	4	1	0	2	317
4:15 PM	7	169	6	2	165	3	0	0	2	1	0	0	355
4:30 PM	8	181	5	3	153	0	1	0	9	2	0	0	362
4:45 PM	9	173	3	2	170	1	0	2	4	1	0	2	367
5:00 PM	5	186	7	1	173	0	0	0	9	1	0	1	383
5:15 PM	6	167	3	1	169	2	0	0	9	1	0	2	360
5:30 PM	8	158	6	1	187	1	1	0	7	0	0	1	370
5:45 PM	8	160	4	1	146	0	0	0	3	1	0	2	325
TOTAL VOLUMES:	55	1341	38	13	1316	7	2	2	47	8	0	10	2839

PM Peak Hr Begins at: 445 PM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	28	684	19	5	699	4	1	2	29	3	0	6	1480

PEAK HR FACTOR:	0.923	0.937	0.889	0.750	0.966

Bicycle Counts

	Coast Highway Northbound			Coast Highway Southbound			Godfrey Street Eastbound			Godfrey Street Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	0	2	0	0	1	0	0	1	0	0	0	0	4
4:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	2
5:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	2	0	0	0	0	0	1	0	3
5:30 PM	0	1	0	0	3	0	0	0	0	0	0	0	4
5:45 PM	0	1	1	0	0	0	0	0	0	0	0	0	2
TOTAL VOLUMES:	0	6	1	0	9	0	0	1	0	0	1	0	18

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	3	0	0	7	0	0	0	0	0	1	0	11

Pedestrian Counts

	Coast Highway North Leg	Coast Highway South Leg	Godfrey Street East Leg	Godfrey Street West Leg	TOTAL
4:00 PM	1	0	1	5	7
4:15 PM	2	1	0	6	9
4:30 PM	1	0	0	1	2
4:45 PM	0	0	0	3	3
5:00 PM	3	0	0	3	6
5:15 PM	0	0	0	1	1
5:30 PM	0	0	0	2	2
5:45 PM	0	0	0	1	1
TOTAL VOLUMES:	7	1	1	22	31

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	3	0	0	9	12

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878

City of Oceanside
Coast Highway
B/ Oceanside Boulevard - Godfrey Street

File Name 001
Site Code: 143-18647
24 Hour Directional Volume Count

Date:	Northbound				Southbound					
9/13/2018	15 Minute Totals		Hourly Totals		15 Minute Totals		Hourly Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	18	168			9	151				
12:15	6	142			16	165				
12:30	9	138			14	168				
12:45	11	151	44	599	8	173	47	657	91	1256
1:00	6	174			8	167				
1:15	11	139			12	159				
1:30	12	148			9	154				
1:45	12	140	41	601	11	144	40	624	81	1225
2:00	2	149			4	172				
2:15	7	179			4	175				
2:30	4	170			5	163				
2:45	4	152	17	650	0	164	13	674	30	1324
3:00	5	179			3	178				
3:15	5	192			5	145				
3:30	3	192			7	169				
3:45	4	186	17	749	6	138	21	630	38	1379
4:00	8	168			2	148				
4:15	10	181			10	163				
4:30	10	179			13	154				
4:45	12	168	40	696	22	150	47	615	87	1311
5:00	12	161			14	141				
5:15	19	174			19	179				
5:30	19	200			30	166				
5:45	29	184	79	719	51	163	114	649	193	1368
6:00	35	158			69	181				
6:15	39	162			94	134				
6:30	49	170			104	131				
6:45	55	162	178	652	124	139	391	585	569	1237
7:00	71	125			133	162				
7:15	75	138			110	144				
7:30	81	101			134	121				
7:45	69	113	296	477	134	112	511	539	807	1016
8:00	80	114			125	133				
8:15	123	90			125	90				
8:30	110	68			143	103				
8:45	116	93	429	365	120	108	513	434	942	799
9:00	99	62			105	114				
9:15	126	63			124	86				
9:30	124	69			130	73				
9:45	110	57	459	251	122	66	481	339	940	590
10:00	119	61			134	50				
10:15	145	37			135	36				
10:30	137	43			150	28				
10:45	128	38	529	179	171	29	590	143	1119	322
11:00	168	28			150	19				
11:15	160	31			162	36				
11:30	165	21			159	28				
11:45	143	26	636	106	161	19	632	102	1268	208
Totals	2765	6044			3400	5991				
Combined Totals		8809				9391				
ADT										18200
AM Peak Hour	1100	AM			1045	AM				
Volume	636				642					
P.H.F.	0.946				0.939					
PM Peak Hour		300	PM			515	PM			
Volume		749				689				
P.H.F.		0.975				0.952				
Percentage	31.4%	68.6%			36.2%	63.8%				

Phone: 951-268-6268
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Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878

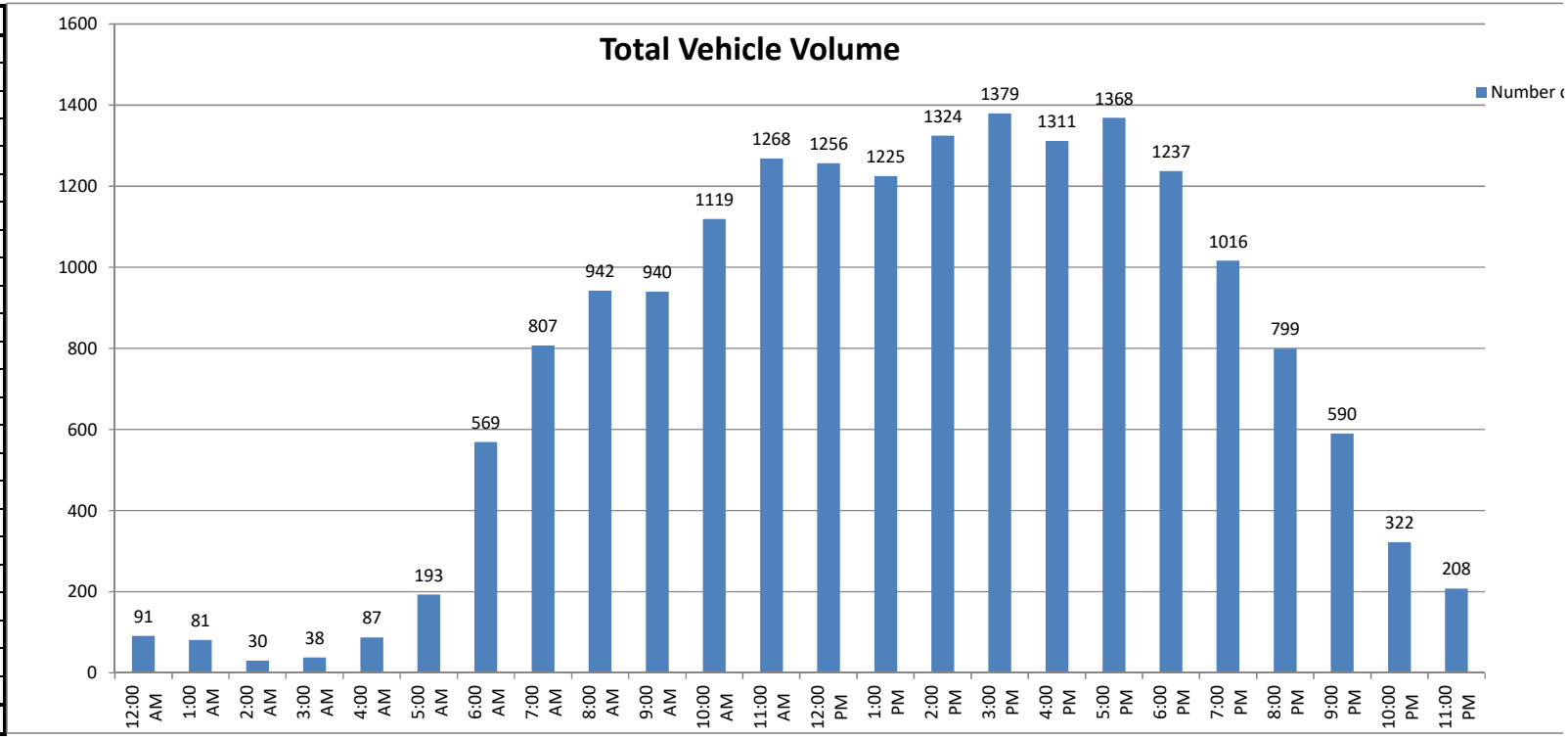
24 Hour Volume Plot

Coast Highway

B/ Oceanside Boulevard - Godfrey Street

9/13/2018

Start Time	9/13/2018
12:00 AM	91
1:00 AM	81
2:00 AM	30
3:00 AM	38
4:00 AM	87
5:00 AM	193
6:00 AM	569
7:00 AM	807
8:00 AM	942
9:00 AM	940
10:00 AM	1119
11:00 AM	1268
12:00 PM	1256
1:00 PM	1225
2:00 PM	1324
3:00 PM	1379
4:00 PM	1311
5:00 PM	1368
6:00 PM	1237
7:00 PM	1016
8:00 PM	799
9:00 PM	590
10:00 PM	322
11:00 PM	208
Total	18200



Volumes represent the combined totals for both directions

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Corona, CA 92878

City of Oceanside
Ditmar Street
B/ Oceanside Boulevard - Godfrey Street

File Name 003
Site Code: 143-18647
24 Hour Directional Volume Count

Date:	Northbound				Southbound					
9/13/2018	15 Minute Totals		Hourly Totals		15 Minute Totals		Hourly Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	1	4			1	1				
12:15	0	1			0	4				
12:30	0	0			0	0				
12:45	0	4	1	9	0	2	1	7	2	16
1:00	0	7			0	1				
1:15	0	7			0	4				
1:30	0	6			1	3				
1:45	0	2	0	22	2	4	3	12	3	34
2:00	0	3			0	0				
2:15	0	8			0	6				
2:30	1	6			0	5				
2:45	0	7	1	24	1	1	1	12	2	36
3:00	1	10			0	7				
3:15	0	11			0	4				
3:30	0	9			0	3				
3:45	0	14	1	44	0	3	0	17	1	61
4:00	0	7			0	4				
4:15	0	4			0	5				
4:30	0	10			0	6				
4:45	0	8	0	29	0	7	0	22	0	51
5:00	0	10			0	1				
5:15	1	8			0	1				
5:30	1	5			0	7				
5:45	0	6	2	29	0	5	0	14	2	43
6:00	0	3			2	6				
6:15	1	7			1	3				
6:30	4	2			1	3				
6:45	3	3	8	15	2	0	6	12	14	27
7:00	2	5			2	2				
7:15	1	3			1	1				
7:30	2	2			0	2				
7:45	2	6	7	16	4	4	7	9	14	25
8:00	1	4			0	3				
8:15	1	3			0	1				
8:30	1	0			1	1				
8:45	2	0	5	7	2	0	3	5	8	12
9:00	4	1			5	0				
9:15	4	1			2	2				
9:30	2	0			3	3				
9:45	2	1	12	3	4	1	14	6	26	9
10:00	1	1			0	0				
10:15	7	1			4	1				
10:30	2	0			1	1				
10:45	5	4	15	6	0	1	5	3	20	9
11:00	2	0			1	1				
11:15	3	0			1	0				
11:30	9	1			3	0				
11:45	6	1	20	2	5	0	10	1	30	3
Totals	72	206			50	120				
Combined Totals		278				170				
ADT										448
AM Peak Hour	1100	AM			900	AM				
Volume	20				14					
P.H.F.	0.556				0.700					
PM Peak Hour		300	PM			400	PM			
Volume		44				22				
P.H.F.		0.786				0.786				
Percentage	25.9%	74.1%			29.4%	70.6%				

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Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878

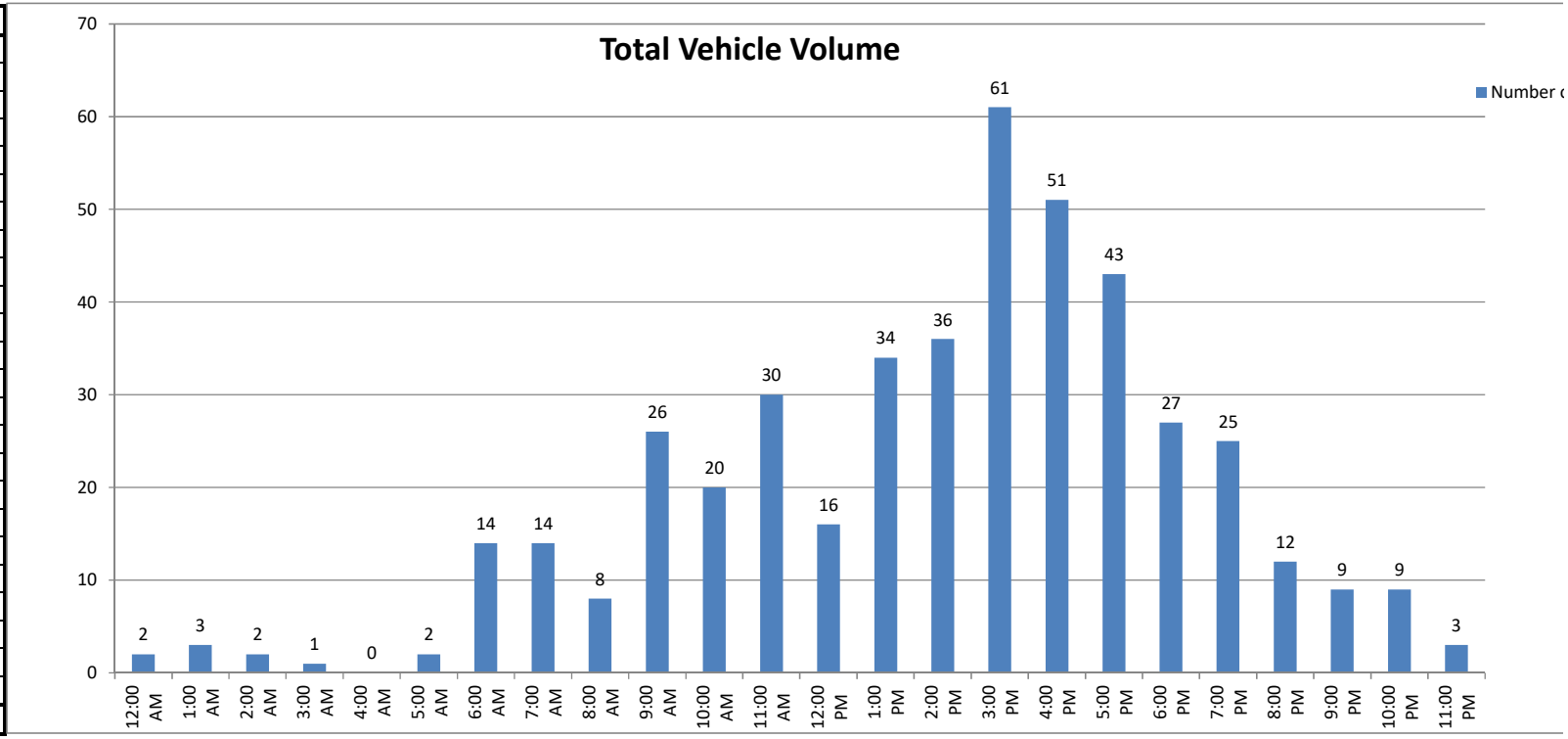
24 Hour Volume Plot

Ditmar Street

B/ Oceanside Boulevard - Godfrey Street

9/13/2018

Start Time	9/13/2018
12:00 AM	2
1:00 AM	3
2:00 AM	2
3:00 AM	1
4:00 AM	0
5:00 AM	2
6:00 AM	14
7:00 AM	14
8:00 AM	8
9:00 AM	26
10:00 AM	20
11:00 AM	30
12:00 PM	16
1:00 PM	34
2:00 PM	36
3:00 PM	61
4:00 PM	51
5:00 PM	43
6:00 PM	27
7:00 PM	25
8:00 PM	12
9:00 PM	9
10:00 PM	9
11:00 PM	3
Total	448



Volumes represent the combined totals for both directions

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City of Oceanside
Godfrey Street
B/ Coast Highway - Ditmar Street

File Name 002
Site Code: 143-18647
24 Hour Directional Volume Count

Date:	Eastbound				Westbound					
9/13/2018	15 Minute Totals		Hourly Totals		15 Minute Totals		Hourly Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	0	5			0	1				
12:15	0	0			0	2				
12:30	0	3			0	0				
12:45	0	7	0	15	0	3	0	6	0	21
1:00	0	5			0	1				
1:15	1	5			0	3				
1:30	0	8			1	0				
1:45	0	2	1	20	0	4	1	8	2	28
2:00	1	7			2	0				
2:15	0	7			0	3				
2:30	0	5			0	2				
2:45	0	7	1	26	1	1	3	6	4	32
3:00	0	8			0	2				
3:15	1	12			0	4				
3:30	0	10			0	2				
3:45	0	14	1	44	0	3	0	11	1	55
4:00	0	5			0	0				
4:15	0	6			0	4				
4:30	0	9			0	4				
4:45	0	8	0	28	0	1	0	9	0	37
5:00	0	7			0	0				
5:15	0	5			0	1				
5:30	0	6			0	3				
5:45	0	5	0	23	0	4	0	8	0	31
6:00	1	4			2	5				
6:15	0	3			0	2				
6:30	1	4			1	2				
6:45	0	3	2	14	1	0	4	9	6	23
7:00	2	2			2	1				
7:15	0	3			1	0				
7:30	4	1			0	2				
7:45	2	4	8	10	2	4	5	7	13	17
8:00	2	3			0	1				
8:15	2	3			0	1				
8:30	0	1			1	1				
8:45	2	0	6	7	2	0	3	3	9	10
9:00	4	2			1	0				
9:15	3	2			2	3				
9:30	3	0			3	0				
9:45	3	2	13	6	1	1	7	4	20	10
10:00	0	2			1	0				
10:15	5	3			1	0				
10:30	1	0			1	0				
10:45	7	0	13	5	0	0	3	0	16	5
11:00	2	0			0	1				
11:15	3	0			0	0				
11:30	3	0			2	0				
11:45	9	0	17	0	4	0	6	1	23	1
Totals	62	198			32	72				
Combined Totals		260				104				
ADT										364
AM Peak Hour	1100	AM			845	AM				
Volume	17				8					
P.H.F.	0.472				0.667					
PM Peak Hour		300	PM			530	PM			
Volume		44				14				
P.H.F.		0.786				0.700				
Percentage	23.8%	76.2%			30.8%	69.2%				

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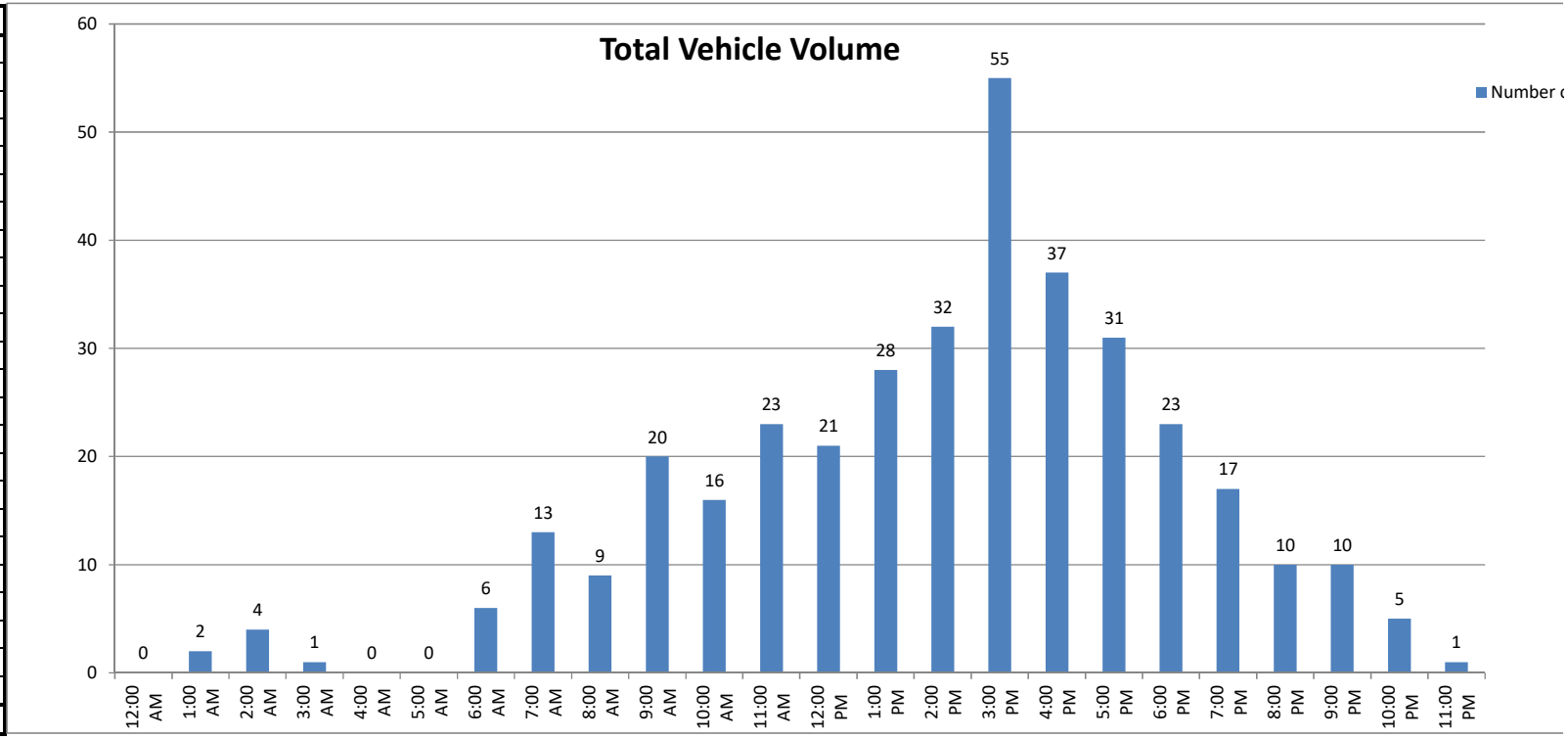
24 Hour Volume Plot

Godfrey Street

B/ Coast Highway - Ditmar Street

9/13/2018

Start Time	9/13/2018
12:00 AM	0
1:00 AM	2
2:00 AM	4
3:00 AM	1
4:00 AM	0
5:00 AM	0
6:00 AM	6
7:00 AM	13
8:00 AM	9
9:00 AM	20
10:00 AM	16
11:00 AM	23
12:00 PM	21
1:00 PM	28
2:00 PM	32
3:00 PM	55
4:00 PM	37
5:00 PM	31
6:00 PM	23
7:00 PM	17
8:00 PM	10
9:00 PM	10
10:00 PM	5
11:00 PM	1
Total	364



Volumes represent the combined totals for both directions

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City of Oceanside
Oceanside Boulevard
B/ Coast Highway - Ditmar Street

File Name 004
Site Code: 143-18647
24 Hour Directional Volume Count

Date:	Eastbound				Westbound					
9/13/2018	15 Minute Totals		Hourly Totals		15 Minute Totals		Hourly Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	14	123			12	116				
12:15	8	123			16	134				
12:30	11	110			9	144				
12:45	11	137	44	493	3	127	40	521	84	1014
1:00	19	113			9	126				
1:15	12	126			5	130				
1:30	11	116			6	129				
1:45	4	111	46	466	8	121	28	506	74	972
2:00	3	89			4	124				
2:15	1	118			4	134				
2:30	4	112			3	150				
2:45	5	129	13	448	3	159	14	567	27	1015
3:00	4	121			2	138				
3:15	3	122			2	123				
3:30	8	115			2	131				
3:45	9	116	24	474	6	143	12	535	36	1009
4:00	8	118			13	155				
4:15	12	115			12	154				
4:30	17	136			15	168				
4:45	31	109	68	478	11	146	51	623	119	1101
5:00	26	107			18	145				
5:15	41	145			22	160				
5:30	26	133			27	152				
5:45	38	112	131	497	41	145	108	602	239	1099
6:00	44	113			57	153				
6:15	55	110			49	136				
6:30	59	101			81	126				
6:45	57	122	215	446	78	118	265	533	480	979
7:00	58	121			86	133				
7:15	75	114			104	105				
7:30	68	96			121	96				
7:45	80	89	281	420	111	74	422	408	703	828
8:00	87	96			119	83				
8:15	98	73			106	84				
8:30	91	75			123	70				
8:45	83	89	359	333	119	64	467	301	826	634
9:00	100	88			103	53				
9:15	92	89			122	50				
9:30	102	58			121	45				
9:45	106	50	400	285	97	48	443	196	843	481
10:00	100	42			111	43				
10:15	89	42			126	27				
10:30	112	33			122	39				
10:45	92	29	393	146	144	30	503	139	896	285
11:00	111	27			132	20				
11:15	109	19			132	24				
11:30	132	22			157	25				
11:45	136	22	488	90	122	16	543	85	1031	175
Totals	2462	4576			2896	5016				
Combined Totals		7038				7912				
ADT										14950
AM Peak Hour	1100	AM			1045	AM				
Volume	488				565					
P.H.F.	0.897				0.900					
PM Peak Hour		515	PM			400	PM			
Volume		503				623				
P.H.F.		0.867				0.927				
Percentage	35.0%	65.0%			36.6%	63.4%				

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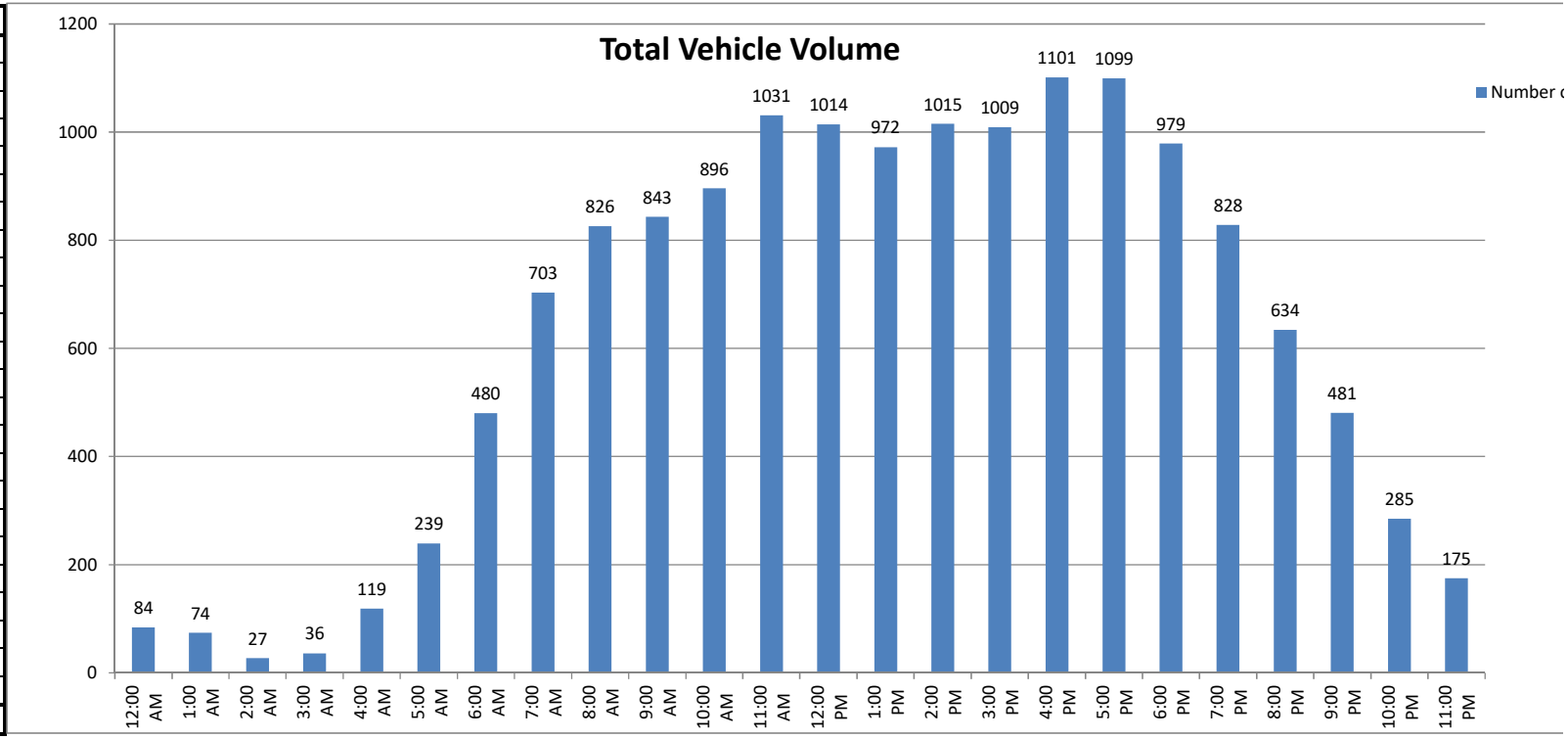
24 Hour Volume Plot

Oceanside Boulevard
B/ Coast Highway - Ditmar Street
9/13/2018

Start Time	9/13/2018
12:00 AM	84
1:00 AM	74
2:00 AM	27
3:00 AM	36
4:00 AM	119
5:00 AM	239
6:00 AM	480
7:00 AM	703
8:00 AM	826
9:00 AM	843
10:00 AM	896
11:00 AM	1031
12:00 PM	1014
1:00 PM	972
2:00 PM	1015
3:00 PM	1009
4:00 PM	1101
5:00 PM	1099
6:00 PM	979
7:00 PM	828
8:00 PM	634
9:00 PM	481
10:00 PM	285
11:00 PM	175
Total	14950



Volumes represent the combined totals for both directions

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City of Oceanside
Oceanside Boulevard
B/ Nevada Street - Vine Street

File Name 005
Site Code: 143-18647
24 Hour Directional Volume Count

Date:	Eastbound				Westbound					
9/13/2018	15 Minute Totals		Hourly Totals		15 Minute Totals		Hourly Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	21	147			11	116				
12:15	4	143			14	147				
12:30	15	133			12	169				
12:45	9	173	49	596	6	137	43	569	92	1165
1:00	15	137			5	147				
1:15	11	152			9	140				
1:30	14	142			6	156				
1:45	11	144	51	575	8	138	28	581	79	1156
2:00	2	129			4	140				
2:15	0	162			5	132				
2:30	6	148			7	182				
2:45	5	167	13	606	3	167	19	621	32	1227
3:00	4	153			2	165				
3:15	6	151			1	138				
3:30	8	170			3	159				
3:45	9	152	27	626	6	155	12	617	39	1243
4:00	11	151			9	202				
4:15	16	137			14	163				
4:30	23	169			12	192				
4:45	34	158	84	615	9	181	44	738	128	1353
5:00	39	147			16	161				
5:15	38	156			16	189				
5:30	43	174			28	174				
5:45	44	143	164	620	37	171	97	695	261	1315
6:00	64	122			57	179				
6:15	77	139			43	161				
6:30	78	124			69	140				
6:45	88	150	307	535	82	150	251	630	558	1165
7:00	100	141			75	142				
7:15	129	124			98	126				
7:30	118	103			120	114				
7:45	128	104	475	472	115	92	408	474	883	946
8:00	123	119			137	105				
8:15	125	99			104	91				
8:30	121	88			147	82				
8:45	121	101	490	407	121	85	509	363	999	770
9:00	128	100			114	64				
9:15	118	86			140	61				
9:30	121	70			138	51				
9:45	140	66	507	322	119	53	511	229	1018	551
10:00	116	48			119	53				
10:15	114	47			129	39				
10:30	137	44			141	42				
10:45	131	39	498	178	150	40	539	174	1037	352
11:00	136	21			131	28				
11:15	136	24			158	26				
11:30	157	26			143	25				
11:45	175	23	604	94	148	11	580	90	1184	184
Totals	3269	5646			3041	5781				
Combined Totals		8915				8822				
ADT										17737
AM Peak Hour	1100	AM			1045	AM				
Volume	604				582					
P.H.F.	0.863				0.921					
PM Peak Hour		245	PM			400	PM			
Volume		641				738				
P.H.F.		0.943				0.913				
Percentage	36.7%	63.3%			34.5%	65.5%				

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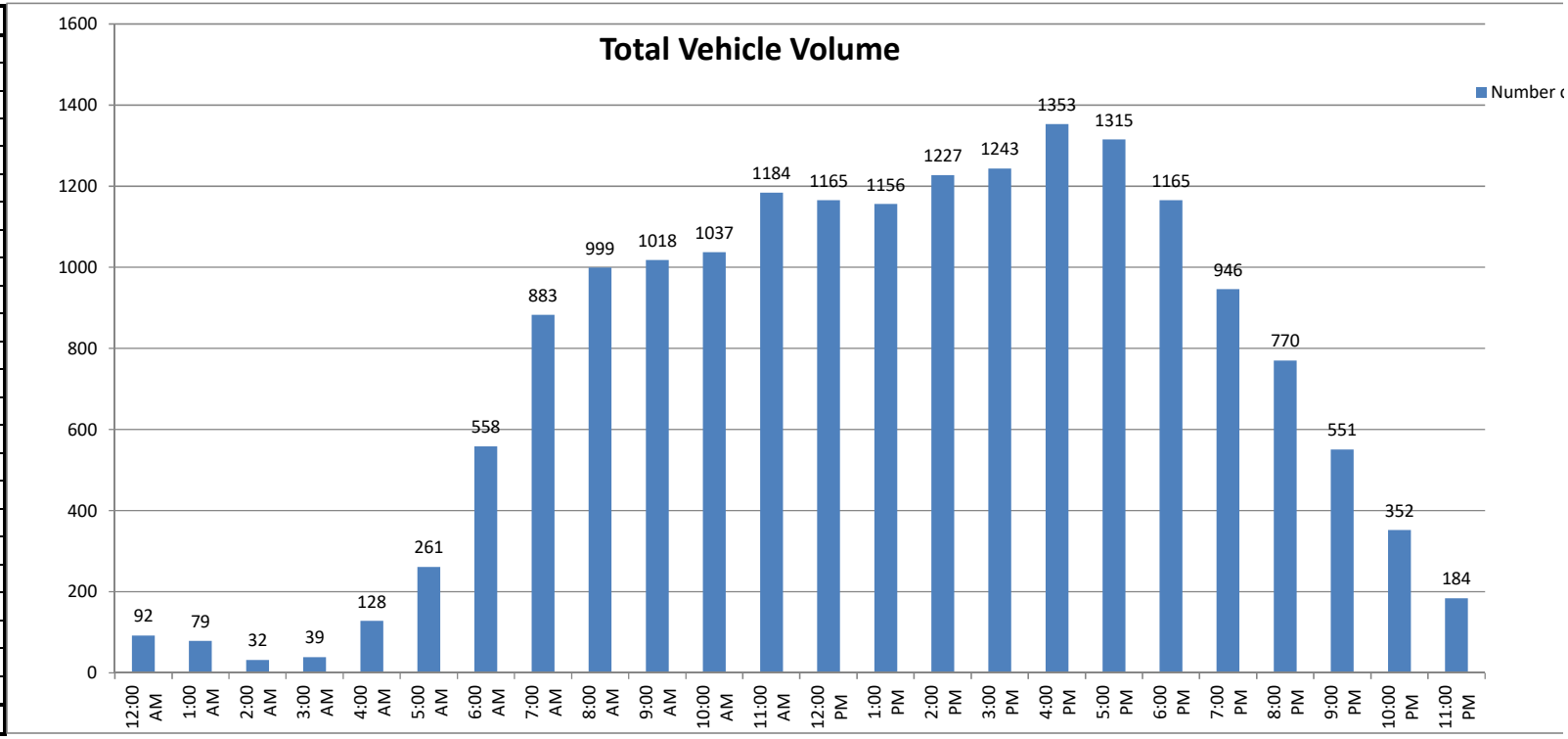
24 Hour Volume Plot

Oceanside Boulevard
B/ Nevada Street - Vine Street

9/13/2018

Start Time	9/13/2018
12:00 AM	92
1:00 AM	79
2:00 AM	32
3:00 AM	39
4:00 AM	128
5:00 AM	261
6:00 AM	558
7:00 AM	883
8:00 AM	999
9:00 AM	1018
10:00 AM	1037
11:00 AM	1184
12:00 PM	1165
1:00 PM	1156
2:00 PM	1227
3:00 PM	1243
4:00 PM	1353
5:00 PM	1315
6:00 PM	1165
7:00 PM	946
8:00 PM	770
9:00 PM	551
10:00 PM	352
11:00 PM	184
Total	17737



Volumes represent the combined totals for both directions

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Appendix D

Existing Intersection LOS Calculations

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	119	65	168	127	148	45	228	77	127	286	19
Future Volume (veh/h)	16	119	65	168	127	148	45	228	77	127	286	19
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93	1.00		0.94	1.00		0.95	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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	17	129	71	160	169	161	49	248	84	138	311	21
Adj No. of Lanes	0	1	1	1	1	1	1	2	0	1	2	0
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	33	254	229	338	355	449	71	538	176	184	910	61
Arrive On Green	0.15	0.15	0.15	0.19	0.19	0.19	0.04	0.21	0.21	0.10	0.27	0.27
Sat Flow, veh/h	216	1636	1479	1774	1863	1495	1774	2582	846	1774	3348	224
Grp Volume(v), veh/h	146	0	71	160	169	161	49	167	165	138	163	169
Grp Sat Flow(s),veh/h/ln	1852	0	1479	1774	1863	1495	1774	1770	1659	1774	1770	1803
Q Serve(g_s), s	3.4	0.0	2.0	3.8	3.8	4.0	1.3	3.9	4.1	3.5	3.5	3.5
Cycle Q Clear(g_c), s	3.4	0.0	2.0	3.8	3.8	4.0	1.3	3.9	4.1	3.5	3.5	3.5
Prop In Lane	0.12		1.00	1.00		1.00	1.00		0.51	1.00		0.12
Lane Grp Cap(c), veh/h	287	0	229	338	355	449	71	368	345	184	481	490
V/C Ratio(X)	0.51	0.00	0.31	0.47	0.48	0.36	0.69	0.45	0.48	0.75	0.34	0.34
Avail Cap(c_a), veh/h	713	0	570	683	717	740	304	871	816	569	1136	1157
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.1	0.0	17.5	16.8	16.8	13.0	22.1	16.2	16.3	20.3	13.7	13.7
Incr Delay (d2), s/veh	1.4	0.0	0.8	1.0	1.0	0.5	11.0	0.9	1.0	6.0	0.4	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	1.8	0.0	0.8	1.9	2.0	1.7	0.8	1.9	2.0	2.0	1.7	1.8
LnGrp Delay(d),s/veh	19.5	0.0	18.3	17.9	17.8	13.5	33.1	17.1	17.3	26.3	14.1	14.1
LnGrp LOS	B		B	B	B	B	C	B	B	C	B	B
Approach Vol, veh/h		217			490			381			470	
Approach Delay, s/veh		19.1			16.4			19.2			17.7	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.9	13.7		11.2	5.9	16.7		12.9
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	15.0	23.0		18.0	8.0	30.0		18.0
Max Q Clear Time (g_c+I1), s	5.5	6.1		5.4	3.3	5.5		6.0
Green Ext Time (p_c), s	0.3	1.2		0.6	0.0	1.3		1.7

Intersection Summary	
HCM 2010 Ctrl Delay	17.9
HCM 2010 LOS	B

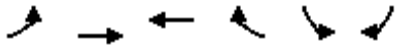
Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	295	1	31	426	77	10	5	29	171	12	33
Future Volume (veh/h)	6	295	1	31	426	77	10	5	29	171	12	33
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	0.99		0.96	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	7	321	1	34	463	57	11	5	32	186	13	36
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	1
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	349	1000	3	432	873	107	183	51	749	210	8	749
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.48	0.48	0.48	0.48	0.48	0.48
Sat Flow, veh/h	872	3619	11	1043	3158	387	0	106	1553	0	16	1553
Grp Volume(v), veh/h	7	157	165	34	258	262	16	0	32	199	0	36
Grp Sat Flow(s),veh/h/ln	872	1770	1860	1043	1770	1775	106	0	1553	16	0	1553
Q Serve(g_s), s	0.2	2.3	2.3	0.9	4.1	4.2	0.0	0.0	0.4	0.0	0.0	0.4
Cycle Q Clear(g_c), s	4.4	2.3	2.3	3.2	4.1	4.2	16.0	0.0	0.4	16.0	0.0	0.4
Prop In Lane	1.00		0.01	1.00		0.22	0.69		1.00	0.93		1.00
Lane Grp Cap(c), veh/h	349	489	514	432	489	491	234	0	749	218	0	749
V/C Ratio(X)	0.02	0.32	0.32	0.08	0.53	0.53	0.07	0.00	0.04	0.91	0.00	0.05
Avail Cap(c_a), veh/h	529	854	897	647	854	856	234	0	749	218	0	749
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	12.0	9.5	9.5	10.8	10.2	10.2	7.9	0.0	4.5	16.0	0.0	4.5
Incr Delay (d2), s/veh	0.0	0.4	0.4	0.1	0.9	0.9	0.6	0.0	0.1	42.0	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	0.1	1.2	1.2	0.3	2.1	2.1	0.1	0.0	0.2	4.3	0.0	0.2
LnGrp Delay(d),s/veh	12.1	9.9	9.9	10.9	11.1	11.1	8.5	0.0	4.6	57.9	0.0	4.7
LnGrp LOS	B	A	A	B	B	B	A		A	E		A
Approach Vol, veh/h		329			554			48			235	
Approach Delay, s/veh		9.9			11.1			5.9			49.8	
Approach LOS		A			B			A			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		20.0		13.2		20.0		13.2
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		16.0		16.0		16.0		16.0
Max Q Clear Time (g_c+I1), s		18.0		6.4		18.0		6.2
Green Ext Time (p_c), s		0.0		1.3		0.0		2.3

Intersection Summary	
HCM 2010 Ctrl Delay	18.3
HCM 2010 LOS	B

Notes



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	9	492	532	87	218	18
Future Volume (veh/h)	9	492	532	87	218	18
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.95	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	10	535	578	95	237	20
Adj No. of Lanes	1	2	2	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	18	1150	748	123	961	858
Arrive On Green	0.01	0.32	0.25	0.25	0.54	0.54
Sat Flow, veh/h	1774	3632	3111	494	1774	1583
Grp Volume(v), veh/h	10	535	338	335	237	20
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1742	1774	1583
Q Serve(g_s), s	0.3	7.2	10.7	10.7	4.2	0.4
Cycle Q Clear(g_c), s	0.3	7.2	10.7	10.7	4.2	0.4
Prop In Lane	1.00			0.28	1.00	1.00
Lane Grp Cap(c), veh/h	18	1150	439	432	961	858
V/C Ratio(X)	0.55	0.47	0.77	0.78	0.25	0.02
Avail Cap(c_a), veh/h	118	1711	619	610	961	858
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.6	16.1	21.0	21.0	7.3	6.4
Incr Delay (d2), s/veh	22.9	0.3	3.8	4.1	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	3.5	5.6	5.6	2.2	0.5
LnGrp Delay(d),s/veh	52.5	16.4	24.8	25.1	7.9	6.4
LnGrp LOS	D	B	C	C	A	A
Approach Vol, veh/h		545	673		257	
Approach Delay, s/veh		17.1	24.9		7.8	
Approach LOS		B	C		A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				23.5		36.5	4.6	18.9
Change Period (Y+Rc), s				4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s				29.0		23.0	4.0	21.0
Max Q Clear Time (g_c+I1), s				9.2		6.2	2.3	12.7
Green Ext Time (p_c), s				2.4		0.9	0.0	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	19.0
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	21	8	1	5	19	377	8	1	522	6
Future Vol, veh/h	2	0	21	8	1	5	19	377	8	1	522	6
Conflicting Peds, #/hr	20	0	20	20	0	20	20	0	20	20	0	20
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	0	23	9	1	5	21	410	9	1	567	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1073	1074	611	1081	1073	455	594	0	0	439	0	0
Stage 1	593	593	-	477	477	-	-	-	-	-	-	-
Stage 2	480	481	-	604	596	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	198	220	494	195	220	605	982	-	-	1121	-	-
Stage 1	492	493	-	569	556	-	-	-	-	-	-	-
Stage 2	567	554	-	485	492	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	186	208	478	176	208	585	966	-	-	1102	-	-
Mov Cap-2 Maneuver	314	326	-	299	320	-	-	-	-	-	-	-
Stage 1	473	484	-	547	534	-	-	-	-	-	-	-
Stage 2	539	532	-	454	483	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.3	15.3	0.4	0
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	966	-	-	457	364	1102	-	-
HCM Lane V/C Ratio	0.021	-	-	0.055	0.042	0.001	-	-
HCM Control Delay (s)	8.8	-	-	13.3	15.3	8.3	-	-
HCM Lane LOS	A	-	-	B	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.1	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	171	68	156	146	238	42	483	129	189	425	20
Future Volume (veh/h)	26	171	68	156	146	238	42	483	129	189	425	20
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.95	1.00		0.95	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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	28	186	74	164	167	259	46	525	140	205	462	22
Adj No. of Lanes	0	1	1	1	1	1	1	2	0	1	2	0
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	41	271	251	352	370	527	61	668	177	258	1216	58
Arrive On Green	0.17	0.17	0.17	0.20	0.20	0.20	0.03	0.24	0.24	0.15	0.35	0.35
Sat Flow, veh/h	242	1608	1486	1774	1863	1497	1774	2737	726	1774	3429	163
Grp Volume(v), veh/h	214	0	74	164	167	259	46	338	327	205	238	246
Grp Sat Flow(s),veh/h/ln	1851	0	1486	1774	1863	1497	1774	1770	1693	1774	1770	1822
Q Serve(g_s), s	7.1	0.0	2.9	5.4	5.2	9.0	1.7	11.7	11.9	7.3	6.6	6.6
Cycle Q Clear(g_c), s	7.1	0.0	2.9	5.4	5.2	9.0	1.7	11.7	11.9	7.3	6.6	6.6
Prop In Lane	0.13		1.00	1.00		1.00	1.00		0.43	1.00		0.09
Lane Grp Cap(c), veh/h	312	0	251	352	370	527	61	432	413	258	628	646
V/C Ratio(X)	0.69	0.00	0.30	0.47	0.45	0.49	0.75	0.78	0.79	0.80	0.38	0.38
Avail Cap(c_a), veh/h	479	0	385	432	454	595	162	647	619	459	943	971
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.7	0.0	23.9	23.2	23.2	17.1	31.4	23.2	23.2	27.1	15.8	15.8
Incr Delay (d2), s/veh	2.7	0.0	0.6	1.0	0.9	0.7	16.5	3.7	4.1	5.5	0.4	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	3.9	0.0	1.2	2.7	2.7	3.8	1.1	6.2	6.0	4.0	3.2	3.3
LnGrp Delay(d),s/veh	28.3	0.0	24.5	24.2	24.0	17.8	48.0	26.9	27.3	32.7	16.2	16.2
LnGrp LOS	C		C	C	C	B	D	C	C	C	B	B
Approach Vol, veh/h		288			590			711			689	
Approach Delay, s/veh		27.4			21.3			28.5			21.1	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.5	20.0		15.1	6.3	27.3		17.0
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	17.0	24.0		17.0	6.0	35.0		16.0
Max Q Clear Time (g_c+I1), s	9.3	13.9		9.1	3.7	8.6		11.0
Green Ext Time (p_c), s	0.4	2.2		0.7	0.0	1.9		1.2

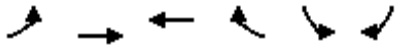
Intersection Summary	
HCM 2010 Ctrl Delay	24.2
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	504	2	29	556	100	7	10	41	132	8	26
Future Volume (veh/h)	18	504	2	29	556	100	7	10	41	132	8	26
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	0.99		0.96	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	20	548	2	32	604	109	8	11	45	143	9	28
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	1
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	313	1170	4	375	963	173	144	143	700	197	7	700
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.45	0.45	0.45	0.45	0.45	0.45
Sat Flow, veh/h	731	3616	13	849	2977	536	0	316	1552	0	15	1552
Grp Volume(v), veh/h	20	268	282	32	358	355	19	0	45	152	0	28
Grp Sat Flow(s),veh/h/ln	731	1770	1860	849	1770	1744	316	0	1552	15	0	1552
Q Serve(g_s), s	0.8	4.3	4.3	1.1	6.1	6.1	0.0	0.0	0.6	0.0	0.0	0.4
Cycle Q Clear(g_c), s	7.0	4.3	4.3	5.4	6.1	6.1	16.0	0.0	0.6	16.0	0.0	0.4
Prop In Lane	1.00		0.01	1.00		0.31	0.42		1.00	0.94		1.00
Lane Grp Cap(c), veh/h	313	573	602	375	573	564	287	0	700	204	0	700
V/C Ratio(X)	0.06	0.47	0.47	0.09	0.63	0.63	0.07	0.00	0.06	0.75	0.00	0.04
Avail Cap(c_a), veh/h	406	798	839	483	798	786	287	0	700	204	0	700
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	13.2	9.6	9.6	11.7	10.2	10.2	7.9	0.0	5.5	17.0	0.0	5.4
Incr Delay (d2), s/veh	0.1	0.6	0.6	0.1	1.1	1.2	0.4	0.0	0.2	21.9	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	2.2	2.3	0.3	3.1	3.0	0.1	0.0	0.3	2.7	0.0	0.2
LnGrp Delay(d),s/veh	13.2	10.2	10.1	11.8	11.3	11.3	8.3	0.0	5.7	38.9	0.0	5.6
LnGrp LOS	B	B	B	B	B	B	A		A	D		A
Approach Vol, veh/h		570			745			64			180	
Approach Delay, s/veh		10.3			11.3			6.5			33.7	
Approach LOS		B			B			A			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		20.0		15.5		20.0		15.5
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		16.0		16.0		16.0		16.0
Max Q Clear Time (g_c+I1), s		18.0		9.0		18.0		8.1
Green Ext Time (p_c), s		0.0		2.0		0.0		2.9

Intersection Summary		
HCM 2010 Ctrl Delay		13.3
HCM 2010 LOS		B



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	31	643	702	213	187	30
Future Volume (veh/h)	31	643	702	213	187	30
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.96	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	34	699	763	232	203	33
Adj No. of Lanes	1	2	2	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	51	1560	912	277	756	675
Arrive On Green	0.03	0.44	0.35	0.35	0.43	0.43
Sat Flow, veh/h	1774	3632	2736	804	1774	1583
Grp Volume(v), veh/h	34	699	511	484	203	33
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1677	1774	1583
Q Serve(g_s), s	1.1	8.3	15.9	15.9	4.4	0.7
Cycle Q Clear(g_c), s	1.1	8.3	15.9	15.9	4.4	0.7
Prop In Lane	1.00			0.48	1.00	1.00
Lane Grp Cap(c), veh/h	51	1560	611	579	756	675
V/C Ratio(X)	0.66	0.45	0.84	0.84	0.27	0.05
Avail Cap(c_a), veh/h	148	2006	737	699	756	675
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.91	0.91	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.8	11.7	18.1	18.1	11.2	10.1
Incr Delay (d2), s/veh	12.7	0.2	7.1	7.5	0.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	4.0	8.9	8.5	2.3	0.9
LnGrp Delay(d),s/veh	41.5	11.9	25.2	25.6	12.0	10.2
LnGrp LOS	D	B	C	C	B	B
Approach Vol, veh/h		733	995		236	
Approach Delay, s/veh		13.3	25.4		11.8	
Approach LOS		B	C		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				30.4		29.6	5.7	24.7
Change Period (Y+Rc), s				4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s				34.0		18.0	5.0	25.0
Max Q Clear Time (g_c+I1), s				10.3		6.4	3.1	17.9
Green Ext Time (p_c), s				3.4		0.7	0.0	2.8

Intersection Summary	
HCM 2010 Ctrl Delay	19.2
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	2	29	3	0	6	28	684	19	5	699	4
Future Vol, veh/h	1	2	29	3	0	6	28	684	19	5	699	4
Conflicting Peds, #/hr	20	0	20	20	0	20	20	0	20	20	0	20
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	2	32	3	0	7	30	743	21	5	760	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1629	1636	802	1643	1628	794	784	0	0	784	0	0
Stage 1	792	792	-	834	834	-	-	-	-	-	-	-
Stage 2	837	844	-	809	794	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	82	101	384	80	102	388	834	-	-	834	-	-
Stage 1	382	401	-	362	383	-	-	-	-	-	-	-
Stage 2	361	379	-	374	400	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	75	93	371	68	94	375	820	-	-	820	-	-
Mov Cap-2 Maneuver	192	212	-	178	208	-	-	-	-	-	-	-
Stage 1	362	392	-	343	363	-	-	-	-	-	-	-
Stage 2	336	359	-	333	391	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.6	18.6	0.4	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	820	-	-	345	274	820	-	-
HCM Lane V/C Ratio	0.037	-	-	0.101	0.036	0.007	-	-
HCM Control Delay (s)	9.6	-	-	16.6	18.6	9.4	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.1	0	-	-

Appendix E

SANDAG Traffic Generation Rates

(NOT SO)

BRIEF GUIDE OF VEHICULAR TRAFFIC GENERATION RATES FOR THE SAN DIEGO REGION

APRIL 2002

401 B Street, Suite 800
San Diego, California 92101
(619) 699-1900 • Fax (619) 699-1950

NOTE: This listing only represents a ***guide*** of average, or estimated, traffic generation "driveway" rates and some very general trip data for land uses (emphasis on acreage and building square footage) in the San Diego region. These rates (both local and national) are subject to change as future documentation becomes available, or as regional sources are updated. For more specific information regarding traffic data and trip rates, please refer to the San Diego Traffic Generators manual. ***Always check with local jurisdictions for their preferred or applicable rates.***

LAND USE	TRIP CATEGORIES [PRIMARY:DIVERTED:PASS-BY][P]	ESTIMATED WEEKDAY VEHICLE TRIP GENERATION RATE (DRIVEWAY)	HIGHEST PEAK HOUR % (plus IN:OUT ratio) Between 6:00-9:30 A.M.		Between 3:00-6:30 P.M.		TRIP LENGTH (Miles)[L]
AGRICULTURE (Open Space)	[80:18:2]	2/acre**					10.8
AIRPORT	[78:20:2]						12.5
Commercial		60/acre, 100/flight, 70/1000 sq. ft.* **	5%	(6:4)	6%	(5:5)	
General Aviation		6/acre, 2/flight, 6/based aircraft* **	9%	(7:3)	15%	(5:5)	
Heliports		100/acre**					
AUTOMOBILE[S]							
Car Wash							
Automatic		900/site, 600/acre**	4%	(5:5)	9%	(5:5)	
Self-serve		100/wash stall**	4%	(5:5)	8%	(5:5)	
Gasoline	[21:51:28]						2.8
with/Food Mart		160/vehicle fueling space**	7%	(5:5)	8%	(5:5)	
with/Food Mart & Car Wash		155/vehicle fueling space**	8%	(5:5)	9%	(5:5)	
Older Service Station Design		150/vehicle fueling space, 900/station**	7%	(5:5)	9%	(5:5)	
Sales (Dealer & Repair)		50/1000 sq. ft., 300/acre, 60/service stall* **	5%	(7:3)	8%	(4:6)	
Auto Repair Center		20/1000 sq. ft., 400/acre, 20/service stall*	8%	(7:3)	11%	(4:6)	
Auto Parts Sales		60/1000 sq. ft. **	4%		10%		
Quick Lube		40/service stall**	7%	(6:4)	10%	(5:5)	
Tire Store		25/1000 sq. ft., 30/service stall**	7%	(6:4)	11%	(5:5)	
CEMETERY		5/acre*					
CHURCH (or Synagogue)	[64:25:11]	9/1000 sq. ft., 30/acre** (quadruple rates for Sunday, or days of assembly)	5%	(6:4)	8%	(5:5)	5.1
COMMERCIAL/RETAIL[S]							
Super Regional Shopping Center (More than 80 acres, more than 800,000 sq. ft., w/usually 3 + major stores)		35/1000 sq. ft.,[C] 400/acre*	4%	(7:3)	10%	(5:5)	
Regional Shopping Center (40-80acres, 400,000-800,000 sq. ft., w/usually 2 + major stores)	[54:35:11]	50/1000 sq. ft.,[C] 500/acre*	4%	(7:3)	9%	(5:5)	5.2
Community Shopping Center (15-40 acres, 125,000-400,000 sq. ft., w/usually 1 major store, detached restaurant(s), grocery and drugstore)	[47:31:22]	80/1000 sq. ft., 700/acre* **	4%	(6:4)	10%	(5:5)	3.6
Neighborhood Shopping Center (Less than 15 acres, less than 125,000 sq. ft., w/usually grocery & drugstore, cleaners, beauty & barber shop, & fast food services)		120/1000 sq. ft., 1200/acre* **	4%	(6:4)	10%	(5:5)	
Commercial Shops	[45:40:15]						
Specialty Retail/Strip Commercial		40/1000 sq. ft., 400/acre*	3%	(6:4)	9%	(5:5)	4.3
Electronics Superstore		50/1000 sq. ft**			10%	(5:5)	
Factory Outlet		40/1000 sq. ft.**	3%	(7:3)	9%	(5:5)	
Supermarket		150/1000 sq. ft., 2000/acre* **	4%	(7:3)	10%	(5:5)	
Drugstore		90/1000 sq. ft.**	4%	(6:4)	10%	(5:5)	
Convenience Market (15-16 hours)		500/1000 sq. ft.**	8%	(5:5)	8%	(5:5)	
Convenience Market (24 hours)		700/1000 sq. ft.**	9%	(5:5)	7%	(5:5)	
Convenience Market (w/gasoline pumps)		850/1000 sq. ft., 550/vehicle fueling space**	6%	(5:5)	7%	(5:5)	
Discount Club		60/1000 sq. ft., 600/acre* **	1%	(7:3)	9%	(5.5)	
Discount Store		60/1000 sq. ft., 600/acre**	3%	(6:4)	8%	(5:5)	
Furniture Store		6/1000 sq. ft., 100/acre**	4%	(7:3)	9%	(5:5)	
Lumber Store		30/1000 sq. ft., 150/acre**	7%	(6:4)	9%	(5:5)	
Home Improvement Superstore		40/1000 sq. ft.**	5%	(6:4)	8%	(5:5)	
Hardware/Paint Store		60/1000 sq. ft., 600/acre**	2%	(6:4)	9%	(5:5)	
Garden Nursery		40/1000 sq. ft., 90/acre**	3%	(6:4)	10%	(5:5)	
Mixed Use: Commercial (w/supermarket)/Residential		110/1000 sq. ft., 2000/acre* (commercial only) 5/dwelling unit, 200/acre* (residential only)	3% 9%	(6:4) (3:7)	9% 13%	(5:5) (6:4)	
EDUCATION							
University (4 years)	[91:9:0]	2.4/student, 100 acre*	10%	(8:2)	9%	(3:7)	8.9
Junior College (2 years)	[92:7:1]	1.2/student, 24/1000 sq. ft., 120/acre* **	12%	(8:2)	9%	(6:4)	9.0
High School	[75:19:6]	1.3/student, 15/1000 sq. ft., 60/acre* **	20%	(7:3)	10%	(4:6)	4.8
Middle/Junior High	[63:25:12]	1.4/student, 12/1000 sq. ft. 50/acre**	30%	(6:4)	9%	(4:6)	5.0
Elementary	[57:25:10]	1.6/student, 14/1000 sq. ft., 90/acre* **	32%	(6:4)	9%	(4:6)	3.4
Day Care	[28:58:14]	5/child, 80/1000 sq. ft.**	17%	(5:5)	18%	(5:5)	3.7
FINANCIAL[S]	[35:42:23]						3.4
Bank (Walk-In only)		150/1000 sq. ft., 1000/acre* **	4%	(7:3)	8%	(4:6)	
with Drive-Through		200/1000 sq. ft., 1500/acre*	5%	(6:4)	10%	(5:5)	
Drive-Through only		250 (125 one-way)/lane*	3%	(5:5)	13%	(5:5)	
Savings & Loan		60/1000 sq. ft., 600/acre**	2%		9%		
Drive-Through only		100 (50 one-way)/lane**	4%		15%		
HOSPITAL	[73:25:2]						8.3
General		20/bed, 25/1000 sq. ft., 250/acre*	8%	(7:3)	10%	(4:6)	
Convalescent/Nursing		3/bed**	7%	(6:4)	7%	(4:6)	
INDUSTRIAL							
Industrial/Business Park (commercial included)	[79:19:2]	16/1000 sq. ft., 200/acre* **	12%	(8:2)	12%	(2:8)	9.0
Industrial Park (no commercial)		8/1000 sq. ft., 90/acre**	11%	(9:1)	12%	(2:8)	
Industrial Plant (multiple shifts)	[92:5:3]	10/1000 sq. ft., 120/acre*	14%	(8:2)	15%	(3:7)	11.7
Manufacturing/Assembly		4/1000 sq. ft., 50/acre**	19%	(9:1)	20%	(2:8)	
Warehousing		5/1000 sq. ft., 60/acre**	13%	(7:3)	15%	(4:6)	
Storage		2/1000 sq. ft., 0.2/vault, 30/acre*	6%	(5:5)	9%	(5:5)	
Science Research & Development		8/1000 sq. ft., 80/acre*	16%	(9:1)	14%	(1:9)	
Landfill & Recycling Center		6/acre	11%	(5:5)	10%	(4:6)	

(OVER)

MEMBER AGENCIES: Cities of Carlsbad, Chula Vista, Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Oceanside, Poway, San Diego, San Marcos, Santee, Solana Beach, Vista and County of San Diego.
ADVISORY/LIAISON MEMBERS: California Department of Transportation, County Water Authority, U.S. Department of Defense, S.D. Unified Port District and Tijuana/Baja California.

LAND USE	TRIP CATEGORIES [PRIMARY:DIVERTED:PASS-BY][P]	ESTIMATED WEEKDAY VEHICLE TRIP GENERATION RATE (DRIVEWAY)	HIGHEST PEAK HOUR % (plus IN:OUT ratio) Between 6:00-9:30 A.M.		Between 3:00-6:30 P.M.		TRIP LENGTH (Miles)[L]
LIBRARY	[44:44:12]	50/1000 sq. ft., 400/acre**	2%	(7:3)	10%	(5:5)	3.9
LODGING	[58:38:4]						7.6
Hotel (w/convention facilities/restaurant)		10/occupied room, 300/acre	6%	(6:4)	8%	(6:4)	
Motel		9/occupied room, 200/acre*	8%	(4:6)	9%	(6:4)	
Resort Hotel		8/occupied room, 100/acre*	5%	(6:4)	7%	(4:6)	
Business Hotel		7/occupied room**	8%	(4:6)	9%	(6:4)	
MILITARY	[82:16:2]	2.5/military & civilian personnel*	9%	(9:1)	10%	(2:8)	11.2
OFFICE							
Standard Commercial Office (less than 100,000 sq. ft.)	[77:19:4]	20/1000 sq. ft.,[O] 300/acre*	14%	(9:1)	13%	(2:8)	8.8
Large (High-Rise) Commercial Office (more than 100,000 sq. ft., 6 + stories)	[82:15:3]	17/1000 sq. ft.,[O] 600/acre*	13%	(9:1)	14%	(2:8)	10.0
Office Park (400,000 + sq. ft.)		12/1000 sq.ft., 200/acre* **	13%	(9:1)	13%	(2:8)	
Single Tenant Office		14/1000 sq. ft., 180/acre*	15%	(9:1)	15%	(2:8)	8.8
Corporate Headquarters		7/1000 sq. ft., 110/acre*	17%	(9:1)	16%	(1:9)	
Government (Civic Center)	[50:34:16]	30/1000 sq. ft.**	9%	(9:1)	12%	(3:7)	6.0
Post Office							
Central/Walk-In Only		90/1000 sq. ft.**	5%		7%		
Community (not including mail drop lane)		200/1000 sq. ft., 1300/acre*	6%	(6:4)	9%	(5:5)	
Community (w/mail drop lane)		300/1000 sq. ft., 2000/acre*	7%	(5:5)	10%	(5:5)	
Mail Drop Lane only		1500 (750 one-way)/lane*	7%	(5:5)	12%	(5:5)	
Department of Motor Vehicles		180/1000 sq. ft., 900/acre**	6%	(6:4)	10%	(4:6)	
Medical-Dental	[60:30:10]	50/1000 sq. ft., 500/acre*	6%	(8:2)	11%	(3:7)	6.4
PARKS	[66:28:6]		4%		8%		5.4
City (developed w/meeting rooms and sports facilities)		50/acre*	13%	(5:5)	9%	(5:5)	
Regional (developed)		20/acre*					
Neighborhood/County (undeveloped)		5/acre (add for specific sport uses), 6/picnic site* **					
State (average 1000 acres)		1/acre, 10/picnic site**					
Amusement (Theme)		80/acre, 130/acre (summer only)**			6%	(6:4)	
San Diego Zoo		115/acre*					
Sea World		80/acre*					
RECREATION							
Beach, Ocean or Bay	[52:39:9]	600/1000 ft. shoreline, 60/acre*					6.3
Beach, Lake (fresh water)		50/1000 ft. shoreline, 5/acre*					
Bowling Center		30/1000 sq. ft., 300/acre, 30/lane **	7%	(7:3)	11%	(4:6)	
Campground		4/campsite**	4%		8%		
Golf Course		7/acre, 40/hole, 700/course* **	7%	(8:2)	9%	(3:7)	
Driving Range only		70/acre, 14/tee box*	3%	(7:3)	9%	(5:5)	
Marinas		4/berth, 20/acre* **	3%	(3:7)	7%	(6:4)	
Multi-purpose (miniature golf, video arcade, batting cage, etc.)		90/acre	2%		6%		
Racquetball/Health Club		30/1000 sq. ft., 300/acre, 40/court*	4%	(6:4)	9%	(6:4)	
Tennis Courts		16/acre, 30/court**	5%		11%	(5:5)	
Sports Facilities							
Outdoor Stadium		50/acre, 0.2/seat*					
Indoor Arena		30/acre, 0.1/seat*					
Racetrack		40/acre, 0.6 seat*					
Theaters (multiplex w/matinee)	[66:17:17]	80/1000 sq. ft., 1.8/seat, 360/screen*	1/3%		8%	(6:4)	6.1
RESIDENTIAL	[86:11:3]						7.9
Estate, Urban or Rural (average 1-2 DU/acre)		12/dwelling unit *[R]	8%	(3:7)	10%	(7:3)	
Single Family Detached (average 3-6 DU/acre)		10/dwelling unit *[R]	8%	(3:7)	10%	(7:3)	
Condominium (or any multi-family 6-20 DU/acre)		8/dwelling unit *[R]	8%	(2:8)	10%	(7:3)	
Apartment (or any multi-family units more than 20 DU/acre)		6/dwelling unit *[R]	8%	(2:8)	9%	(7:3)	
Military Housing (off-base, multi-family)							
(less than 6 DU/acre)		8/dwelling unit	7%	(3:7)	9%	(6:4)	
(6-20 DU/acre)		6/dwelling unit	7%	(3:7)	9%	(6:4)	
Mobile Home							
Family		5/dwelling unit, 40/acre*	8%	(3:7)	11%	(6:4)	
Adults Only		3/dwelling unit, 20/acre*	9%	(3:7)	10%	(6:4)	
Retirement Community		4/dwelling unit**	5%	(4:6)	7%	(6:4)	
Congregate Care Facility		2.5/dwelling unit**	4%	(6:4)	8%	(5:5)	
RESTAURANT[S]	[51:37:12]						4.7
Quality		100/1000 sq. ft., 3/seat, 500/acre* **	1%	(6:4)	8%	(7:3)	
Sit-down, high turnover		160/1000 sq. ft., 6/seat, 1000/acre* **	8%	(5:5)	8%	(6:4)	
Fast Food (w/drive-through)		650/1000 sq. ft., 20/seat, 3000/acre* **	7%	(5:5)	7%	(5:5)	
Fast Food (without drive-through)		700/1000 sq. ft.**	5%	(6:4)	7%	(5:5)	
Delicatessen (7am-4pm)		150/1000 sq. ft., 11/seat*	9%	(6:4)	3%	(3:7)	
TRANSPORTATION							
Bus Depot		25/1000 sq. ft.**					
Truck Terminal		10/1000 sq. ft., 7/bay, 80/acre**	9%	(4:6)	8%	(5:5)	
Waterport/Marine Terminal		170/berth, 12/acre**					
Transit Station (Light Rail w/parking)		300/acre, $2^{1/2}$/parking space (4/occupied)**	14%	(7:3)	15%	(3:7)	
Park & Ride Lots		400/acre (600/paved acre), 5/parking space (8/occupied)* **	14%	(7:3)	15%	(3:7)	

* Primary source: *San Diego Traffic Generators.*

* Other sources: *ITE Trip Generation Report [6th Edition]*, Trip Generation Rates (other agencies and publications), various SANDAG & CALTRANS studies, reports and estimates.

[P] Trip category percentage ratios are daily from local household surveys, often cannot be applied to very specific land uses, and do not include non-resident drivers (draft SANDAG *Analysis of Trip Diversion*, revised November, 1990):
PRIMARY - one trip directly between origin and primary destination.
DIVERTED - linked trip (having one or more stops along the way to a primary destination) whose distance compared to direct distance ≥ 1 mile.
PASS-BY - undiverted or diverted < 1 mile.

[L] Trip lengths are average weighted for all trips to and from general land use site. (All trips system-wide average length = 6.9 miles)

[C] Fitted curve equation: Ln(T) = 0.502 Ln(x) + 6.945
[O] Fitted curve equation: Ln(T) = 0.756 Ln(x) + 3.950
} T = total trips, x = 1,000 sq. ft.

[R] Fitted curve equation: t = -2.169 Ln(d) + 12.85 t = trips/DU, d = density (DU/acre), DU = dwelling unit

[S] Suggested PASS-BY [undiverted or diverted < 1 mile] percentages for trip rate reductions only during P.M. peak period (based on combination of local data/review and Other sources**):

COMMERCIAL/RETAIL	
Regional Shopping Center	20%
Community " "	30%
Neighborhood " "	40%
Specialty Retail/Strip Commercial (other)	10%
Supermarket	40%
Convenience Market	50%
Discount Club/Store	30%
FINANCIAL	
Bank	25%
AUTOMOBILE	
Gasoline Station	50%
RESTAURANT	
Quality	10%
Sit-down high turnover	20%
Fast Food	40%

[T] Trip Reductions - In order to help promote regional "smart growth" policies, and acknowledge San Diego's expanding mass transit system, consider vehicle trip rate reductions (with proper documentation and necessary adjustments for peak periods). The following are some examples:

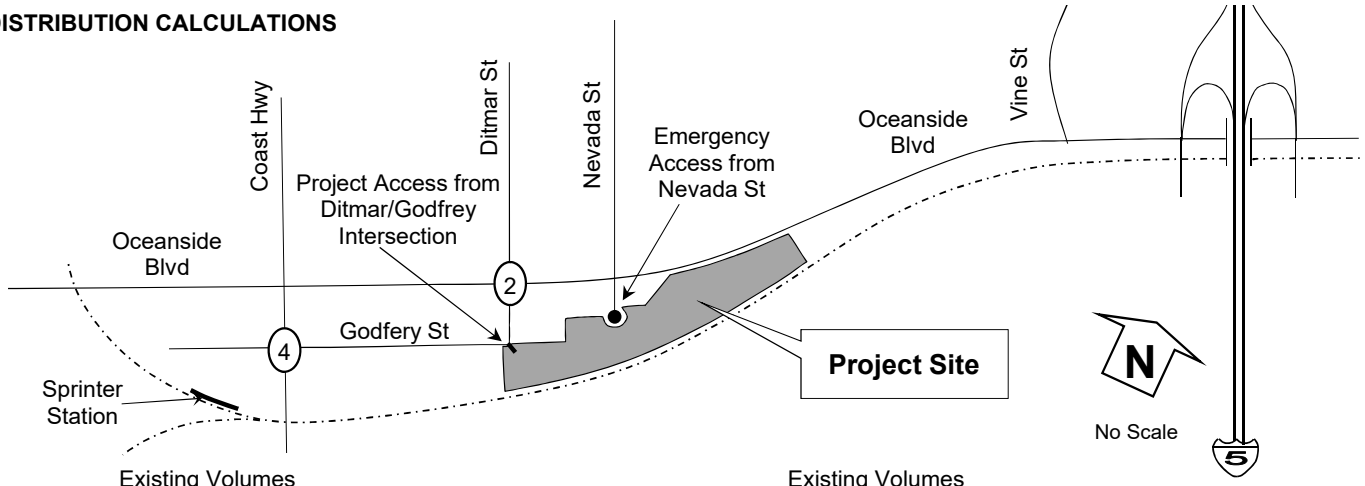
[1] A 5% daily trip reduction for land uses with transit access or near transit stations accessible within 1/4 mile.

[2] Up to 10% daily trip reduction for mixed-use developments where residential and commercial retail are combined (demonstrate mode split of walking trips to replace vehicular trips).

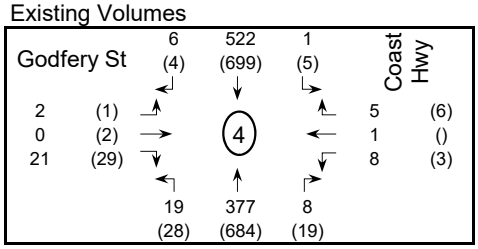
Appendix F

Project Distribution Calculations

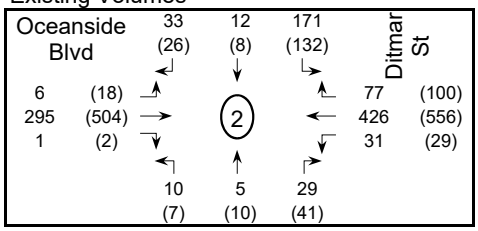
DISTRIBUTION CALCULATIONS



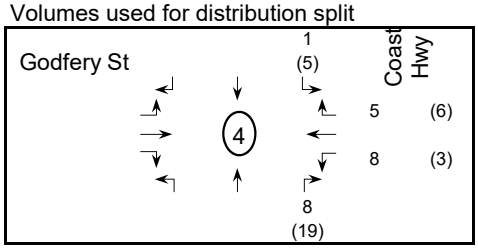
Existing Volumes



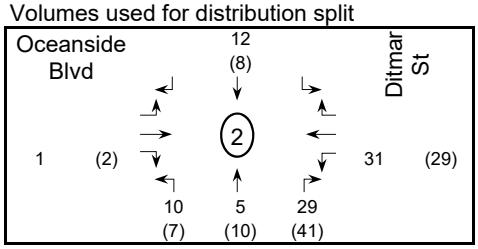
Existing Volumes



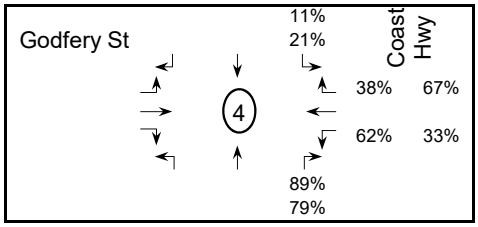
Volumes used for distribution split



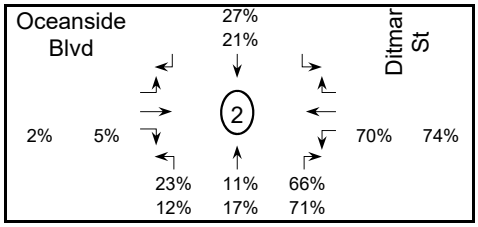
Volumes used for distribution split



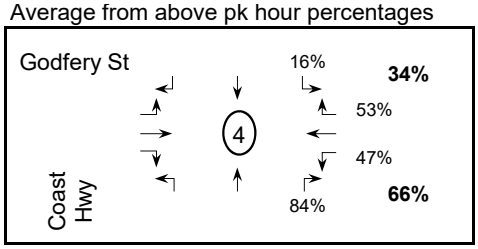
Distribution from above volumes



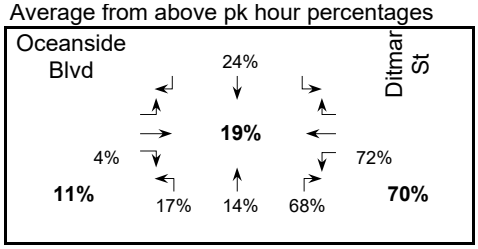
Distribution from above volumes



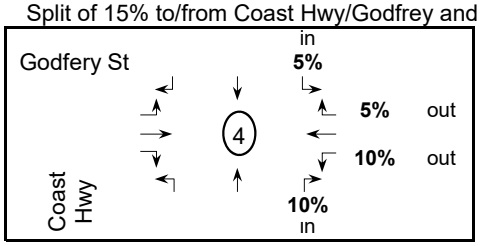
Average from above pk hour percentages

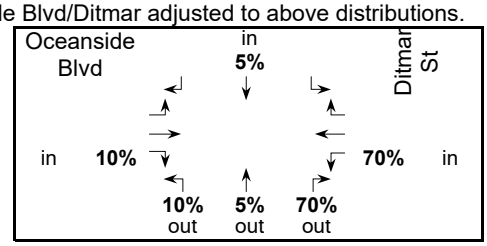


Average from above pk hour percentages



Split of 15% to/from Coast Hwy/Godfrey and 85% to/from Oside Blvd/Ditmar adjusted to above distributions.





Appendix G

Existing + Project Intersection LOS Calculations

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	119	65	168	127	150	45	229	77	127	286	19
Future Volume (veh/h)	16	119	65	168	127	150	45	229	77	127	286	19
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93	1.00		0.94	1.00		0.95	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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	17	129	71	160	169	163	49	249	84	138	311	21
Adj No. of Lanes	0	1	1	1	1	1	1	2	0	1	2	0
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	33	253	229	340	357	451	71	538	176	184	910	61
Arrive On Green	0.15	0.15	0.15	0.19	0.19	0.19	0.04	0.21	0.21	0.10	0.27	0.27
Sat Flow, veh/h	216	1636	1479	1774	1863	1495	1774	2585	844	1774	3348	224
Grp Volume(v), veh/h	146	0	71	160	169	163	49	168	165	138	163	169
Grp Sat Flow(s),veh/h/ln	1852	0	1479	1774	1863	1495	1774	1770	1659	1774	1770	1803
Q Serve(g_s), s	3.4	0.0	2.0	3.8	3.8	4.0	1.3	3.9	4.1	3.5	3.5	3.5
Cycle Q Clear(g_c), s	3.4	0.0	2.0	3.8	3.8	4.0	1.3	3.9	4.1	3.5	3.5	3.5
Prop In Lane	0.12		1.00	1.00		1.00	1.00		0.51	1.00		0.12
Lane Grp Cap(c), veh/h	287	0	229	340	357	451	71	369	346	184	481	490
V/C Ratio(X)	0.51	0.00	0.31	0.47	0.47	0.36	0.69	0.46	0.48	0.75	0.34	0.34
Avail Cap(c_a), veh/h	712	0	568	682	716	739	303	869	815	568	1133	1155
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.2	0.0	17.6	16.8	16.8	13.1	22.2	16.2	16.3	20.4	13.7	13.7
Incr Delay (d2), s/veh	1.4	0.0	0.8	1.0	1.0	0.5	11.0	0.9	1.0	6.0	0.4	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	1.8	0.0	0.8	1.9	2.0	1.7	0.8	2.0	2.0	2.0	1.7	1.8
LnGrp Delay(d),s/veh	19.6	0.0	18.3	17.8	17.8	13.5	33.2	17.1	17.3	26.4	14.1	14.1
LnGrp LOS	B		B	B	B	B	C	B	B	C	B	B
Approach Vol, veh/h		217			492			382			470	
Approach Delay, s/veh		19.2			16.4			19.3			17.7	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.9	13.8		11.3	5.9	16.7		13.0
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	15.0	23.0		18.0	8.0	30.0		18.0
Max Q Clear Time (g_c+I1), s	5.5	6.1		5.4	3.3	5.5		6.0
Green Ext Time (p_c), s	0.3	1.2		0.6	0.0	1.3		1.7

Intersection Summary	
HCM 2010 Ctrl Delay	17.9
HCM 2010 LOS	B

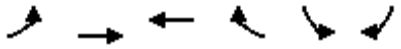
Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	295	1	34	426	77	12	5	41	171	12	33
Future Volume (veh/h)	6	295	1	34	426	77	12	5	41	171	12	33
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	0.99		0.96	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	7	321	1	37	463	84	13	5	45	186	13	36
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	1
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	344	1031	3	439	847	153	185	43	741	208	8	741
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.48	0.48	0.48	0.48	0.48	0.48
Sat Flow, veh/h	851	3619	11	1043	2976	536	0	90	1553	0	16	1553
Grp Volume(v), veh/h	7	157	165	37	274	273	18	0	45	199	0	36
Grp Sat Flow(s),veh/h/ln	851	1770	1860	1043	1770	1742	90	0	1553	16	0	1553
Q Serve(g_s), s	0.2	2.3	2.3	1.0	4.4	4.5	0.0	0.0	0.5	0.0	0.0	0.4
Cycle Q Clear(g_c), s	4.7	2.3	2.3	3.3	4.4	4.5	16.0	0.0	0.5	16.0	0.0	0.4
Prop In Lane	1.00		0.01	1.00		0.31	0.72		1.00	0.93		1.00
Lane Grp Cap(c), veh/h	344	504	530	439	504	496	227	0	741	215	0	741
V/C Ratio(X)	0.02	0.31	0.31	0.08	0.54	0.55	0.08	0.00	0.06	0.92	0.00	0.05
Avail Cap(c_a), veh/h	507	844	887	639	844	831	227	0	741	215	0	741
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	12.2	9.4	9.4	10.7	10.2	10.2	8.1	0.0	4.7	16.2	0.0	4.7
Incr Delay (d2), s/veh	0.0	0.3	0.3	0.1	0.9	1.0	0.7	0.0	0.2	44.3	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	0.1	1.2	1.2	0.3	2.3	2.3	0.1	0.0	0.3	4.4	0.0	0.2
LnGrp Delay(d),s/veh	12.2	9.8	9.8	10.8	11.1	11.1	8.8	0.0	4.9	60.5	0.0	4.8
LnGrp LOS	B	A	A	B	B	B	A		A	E		A
Approach Vol, veh/h		329			584			63			235	
Approach Delay, s/veh		9.8			11.1			6.0			52.0	
Approach LOS		A			B			A			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		20.0		13.6		20.0		13.6
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		16.0		16.0		16.0		16.0
Max Q Clear Time (g_c+I1), s		18.0		6.7		18.0		6.5
Green Ext Time (p_c), s		0.0		1.2		0.0		2.5

Intersection Summary		
HCM 2010 Ctrl Delay		18.4
HCM 2010 LOS		B

Notes



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	503	535	87	218	18
Future Volume (veh/h)	10	503	535	87	218	18
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.95	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	11	547	582	95	237	20
Adj No. of Lanes	1	2	2	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	20	1156	752	122	958	855
Arrive On Green	0.01	0.33	0.25	0.25	0.54	0.54
Sat Flow, veh/h	1774	3632	3114	491	1774	1583
Grp Volume(v), veh/h	11	547	340	337	237	20
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1743	1774	1583
Q Serve(g_s), s	0.4	7.4	10.7	10.8	4.3	0.4
Cycle Q Clear(g_c), s	0.4	7.4	10.7	10.8	4.3	0.4
Prop In Lane	1.00			0.28	1.00	1.00
Lane Grp Cap(c), veh/h	20	1156	440	434	958	855
V/C Ratio(X)	0.56	0.47	0.77	0.78	0.25	0.02
Avail Cap(c_a), veh/h	118	1711	619	610	958	855
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.5	16.1	21.0	21.0	7.3	6.4
Incr Delay (d2), s/veh	21.6	0.3	3.9	4.1	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	3.6	5.7	5.6	2.2	0.5
LnGrp Delay(d),s/veh	51.1	16.4	24.9	25.1	7.9	6.5
LnGrp LOS	D	B	C	C	A	A
Approach Vol, veh/h		558	677		257	
Approach Delay, s/veh		17.1	25.0		7.8	
Approach LOS		B	C		A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				23.6		36.4	4.7	18.9
Change Period (Y+Rc), s				4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s				29.0		23.0	4.0	21.0
Max Q Clear Time (g_c+I1), s				9.4		6.3	2.4	12.8
Green Ext Time (p_c), s				2.5		0.9	0.0	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	19.1
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	21	10	1	6	19	377	9	1	522	6
Future Vol, veh/h	2	0	21	10	1	6	19	377	9	1	522	6
Conflicting Peds, #/hr	20	0	20	20	0	20	20	0	20	20	0	20
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	0	23	11	1	7	21	410	10	1	567	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1074	1075	611	1081	1073	455	594	0	0	440	0	0
Stage 1	593	593	-	477	477	-	-	-	-	-	-	-
Stage 2	481	482	-	604	596	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	198	220	494	195	220	605	982	-	-	1120	-	-
Stage 1	492	493	-	569	556	-	-	-	-	-	-	-
Stage 2	566	553	-	485	492	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	186	208	478	176	208	585	966	-	-	1101	-	-
Mov Cap-2 Maneuver	314	326	-	299	320	-	-	-	-	-	-	-
Stage 1	473	484	-	547	534	-	-	-	-	-	-	-
Stage 2	537	531	-	454	483	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.3	15.4	0.4	0
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	966	-	-	457	363	1101	-	-
HCM Lane V/C Ratio	0.021	-	-	0.055	0.051	0.001	-	-
HCM Control Delay (s)	8.8	-	-	13.3	15.4	8.3	-	-
HCM Lane LOS	A	-	-	B	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.2	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	171	68	156	146	239	42	483	129	191	426	20
Future Volume (veh/h)	26	171	68	156	146	239	42	483	129	191	426	20
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.95	1.00		0.95	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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	28	186	74	164	167	260	46	525	140	208	463	22
Adj No. of Lanes	0	1	1	1	1	1	1	2	0	1	2	0
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	41	271	250	352	369	530	61	667	177	261	1221	58
Arrive On Green	0.17	0.17	0.17	0.20	0.20	0.20	0.03	0.24	0.24	0.15	0.36	0.36
Sat Flow, veh/h	242	1608	1486	1774	1863	1497	1774	2737	726	1774	3429	162
Grp Volume(v), veh/h	214	0	74	164	167	260	46	338	327	208	238	247
Grp Sat Flow(s),veh/h/ln	1851	0	1486	1774	1863	1497	1774	1770	1693	1774	1770	1822
Q Serve(g_s), s	7.2	0.0	2.9	5.4	5.2	9.1	1.7	11.8	11.9	7.5	6.6	6.6
Cycle Q Clear(g_c), s	7.2	0.0	2.9	5.4	5.2	9.1	1.7	11.8	11.9	7.5	6.6	6.6
Prop In Lane	0.13		1.00	1.00		1.00	1.00		0.43	1.00		0.09
Lane Grp Cap(c), veh/h	312	0	250	352	369	530	61	431	413	261	630	649
V/C Ratio(X)	0.69	0.00	0.30	0.47	0.45	0.49	0.75	0.78	0.79	0.80	0.38	0.38
Avail Cap(c_a), veh/h	477	0	383	430	452	596	161	644	616	457	939	967
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.8	0.0	24.0	23.4	23.3	17.1	31.5	23.3	23.4	27.2	15.8	15.8
Incr Delay (d2), s/veh	2.7	0.0	0.7	1.0	0.9	0.7	16.6	3.7	4.2	5.5	0.4	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	3.9	0.0	1.2	2.7	2.8	3.8	1.1	6.2	6.0	4.0	3.2	3.4
LnGrp Delay(d),s/veh	28.5	0.0	24.6	24.3	24.1	17.8	48.2	27.1	27.5	32.7	16.2	16.2
LnGrp LOS	C		C	C	C	B	D	C	C	C	B	B
Approach Vol, veh/h		288			591			711			693	
Approach Delay, s/veh		27.5			21.4			28.6			21.1	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.7	20.1		15.1	6.3	27.5		17.1
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	17.0	24.0		17.0	6.0	35.0		16.0
Max Q Clear Time (g_c+I1), s	9.5	13.9		9.2	3.7	8.6		11.1
Green Ext Time (p_c), s	0.4	2.1		0.7	0.0	1.9		1.2

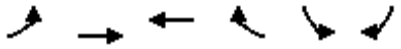
Intersection Summary	
HCM 2010 Ctrl Delay	24.3
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	504	4	42	556	100	8	10	47	132	9	26
Future Volume (veh/h)	18	504	4	42	556	100	8	10	47	132	9	26
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	0.99		0.96	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	20	548	4	46	604	109	9	11	51	143	10	28
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	1
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	314	1168	9	375	966	174	147	127	699	196	7	699
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.45	0.45	0.45	0.45	0.45	0.45
Sat Flow, veh/h	731	3600	26	848	2977	536	0	282	1552	0	16	1552
Grp Volume(v), veh/h	20	269	283	46	358	355	20	0	51	153	0	28
Grp Sat Flow(s),veh/h/ln	731	1770	1857	848	1770	1744	282	0	1552	16	0	1552
Q Serve(g_s), s	0.8	4.3	4.3	1.6	6.1	6.1	0.0	0.0	0.7	0.0	0.0	0.4
Cycle Q Clear(g_c), s	7.0	4.3	4.3	5.9	6.1	6.1	16.0	0.0	0.7	16.0	0.0	0.4
Prop In Lane	1.00		0.01	1.00		0.31	0.45		1.00	0.93		1.00
Lane Grp Cap(c), veh/h	314	574	603	375	574	566	274	0	699	203	0	699
V/C Ratio(X)	0.06	0.47	0.47	0.12	0.62	0.63	0.07	0.00	0.07	0.75	0.00	0.04
Avail Cap(c_a), veh/h	406	797	836	482	797	785	274	0	699	203	0	699
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	13.1	9.6	9.6	11.9	10.2	10.2	8.0	0.0	5.5	17.0	0.0	5.5
Incr Delay (d2), s/veh	0.1	0.6	0.6	0.1	1.1	1.1	0.5	0.0	0.2	22.4	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	2.2	2.3	0.4	3.1	3.0	0.1	0.0	0.3	2.7	0.0	0.2
LnGrp Delay(d),s/veh	13.2	10.2	10.1	12.1	11.3	11.3	8.5	0.0	5.8	39.4	0.0	5.6
LnGrp LOS	B	B	B	B	B	B	A		A	D		A
Approach Vol, veh/h		572			759			71			181	
Approach Delay, s/veh		10.3			11.3			6.5			34.2	
Approach LOS		B			B			A			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		20.0		15.5		20.0		15.5
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		16.0		16.0		16.0		16.0
Max Q Clear Time (g_c+I1), s		18.0		9.0		18.0		8.1
Green Ext Time (p_c), s		0.0		2.0		0.0		2.9

Intersection Summary		
HCM 2010 Ctrl Delay		13.3
HCM 2010 LOS		B



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	31	649	714	213	187	31
Future Volume (veh/h)	31	649	714	213	187	31
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.96	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	34	705	776	232	203	34
Adj No. of Lanes	1	2	2	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	51	1570	925	276	750	670
Arrive On Green	0.03	0.44	0.35	0.35	0.42	0.42
Sat Flow, veh/h	1774	3632	2748	794	1774	1583
Grp Volume(v), veh/h	34	705	517	491	203	34
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1679	1774	1583
Q Serve(g_s), s	1.1	8.3	16.1	16.2	4.5	0.8
Cycle Q Clear(g_c), s	1.1	8.3	16.1	16.2	4.5	0.8
Prop In Lane	1.00			0.47	1.00	1.00
Lane Grp Cap(c), veh/h	51	1570	616	585	750	670
V/C Ratio(X)	0.66	0.45	0.84	0.84	0.27	0.05
Avail Cap(c_a), veh/h	148	2006	737	700	750	670
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.91	0.91	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.8	11.6	18.0	18.0	11.3	10.2
Incr Delay (d2), s/veh	12.7	0.2	7.4	7.7	0.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	4.1	9.0	8.6	2.4	0.9
LnGrp Delay(d),s/veh	41.5	11.8	25.4	25.7	12.2	10.4
LnGrp LOS	D	B	C	C	B	B
Approach Vol, veh/h		739	1008		237	
Approach Delay, s/veh		13.1	25.6		11.9	
Approach LOS		B	C		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				30.6		29.4	5.7	24.9
Change Period (Y+Rc), s				4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s				34.0		18.0	5.0	25.0
Max Q Clear Time (g_c+I1), s				10.3		6.5	3.1	18.2
Green Ext Time (p_c), s				3.5		0.7	0.0	2.7

Intersection Summary	
HCM 2010 Ctrl Delay	19.3
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	2	29	4	0	6	28	684	21	6	699	4
Future Vol, veh/h	1	2	29	4	0	6	28	684	21	6	699	4
Conflicting Peds, #/hr	20	0	20	20	0	20	20	0	20	20	0	20
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	2	32	4	0	7	30	743	23	7	760	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1634	1642	802	1648	1633	795	784	0	0	786	0	0
Stage 1	796	796	-	835	835	-	-	-	-	-	-	-
Stage 2	838	846	-	813	798	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	81	100	384	79	101	388	834	-	-	833	-	-
Stage 1	380	399	-	362	383	-	-	-	-	-	-	-
Stage 2	361	378	-	372	398	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	74	92	371	67	93	375	820	-	-	819	-	-
Mov Cap-2 Maneuver	191	210	-	177	207	-	-	-	-	-	-	-
Stage 1	360	389	-	343	363	-	-	-	-	-	-	-
Stage 2	336	358	-	330	388	-	-	-	-	-	-	-

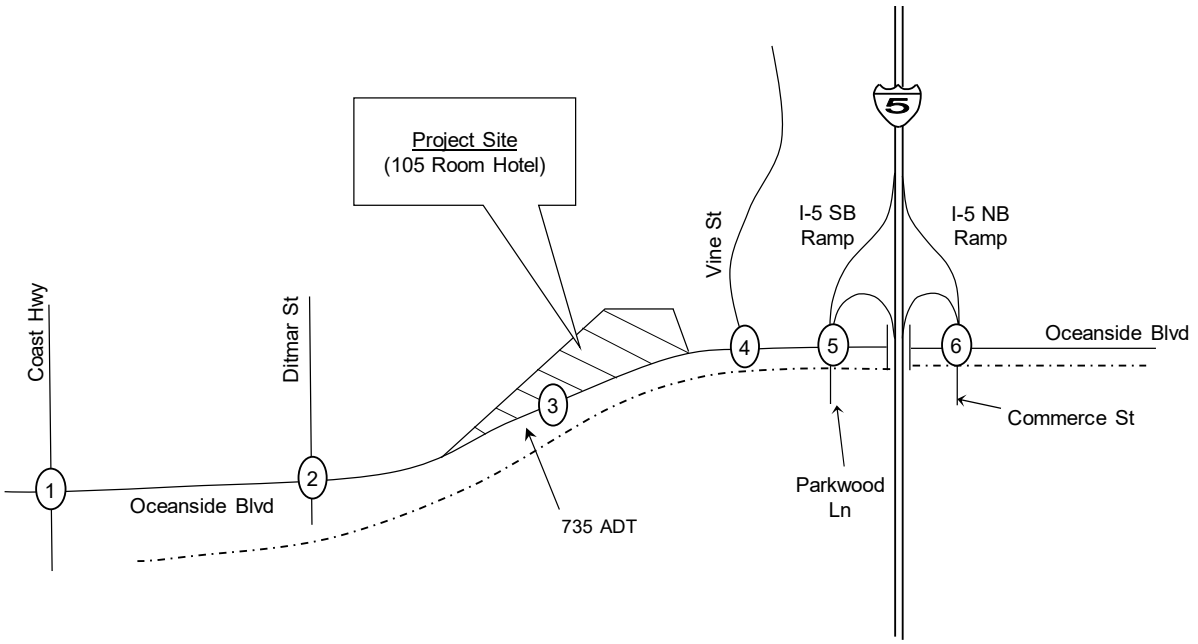
Approach	EB	WB	NB	SB
HCM Control Delay, s	16.6	19.5	0.4	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	820	-	-	344	259	819	-	-
HCM Lane V/C Ratio	0.037	-	-	0.101	0.042	0.008	-	-
HCM Control Delay (s)	9.6	-	-	16.6	19.5	9.4	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.1	0	-	-

Appendix H

Cumulative Project Traffic Volumes and Assignments

Figure 6: Project Volumes



LEGEND

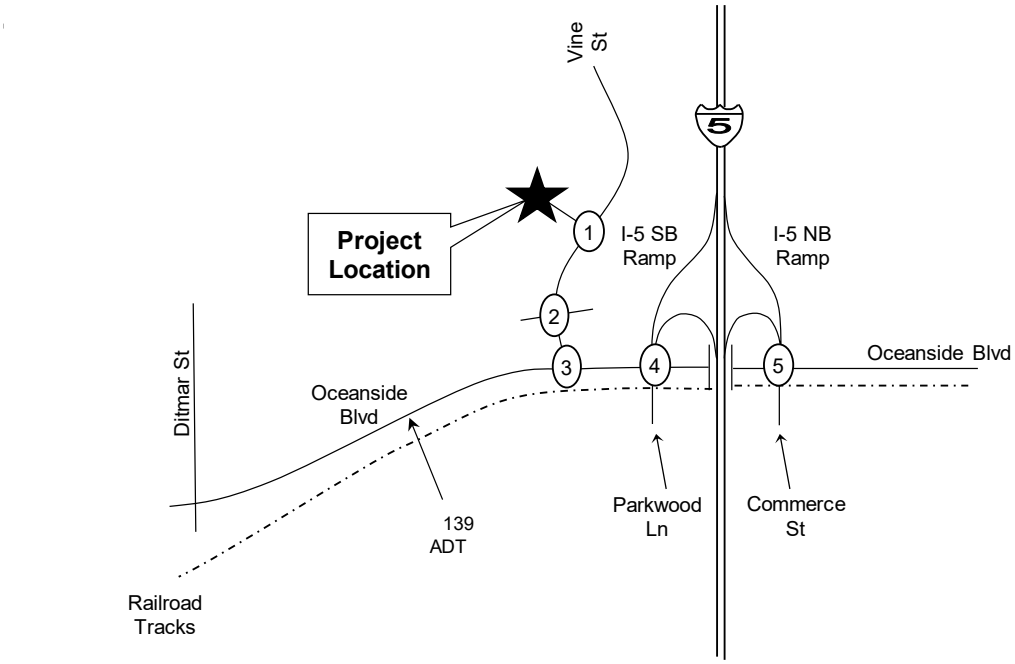
XX	AM peak hour volumes at intersections
(YY)	PM peak hour volumes at intersections
Z,ZZZ	ADT volumes shown along segments
(#)	Intersection Reference Number to LOS Tables
———	Existing Roadways
-·-·-·-	Railroad Tracks

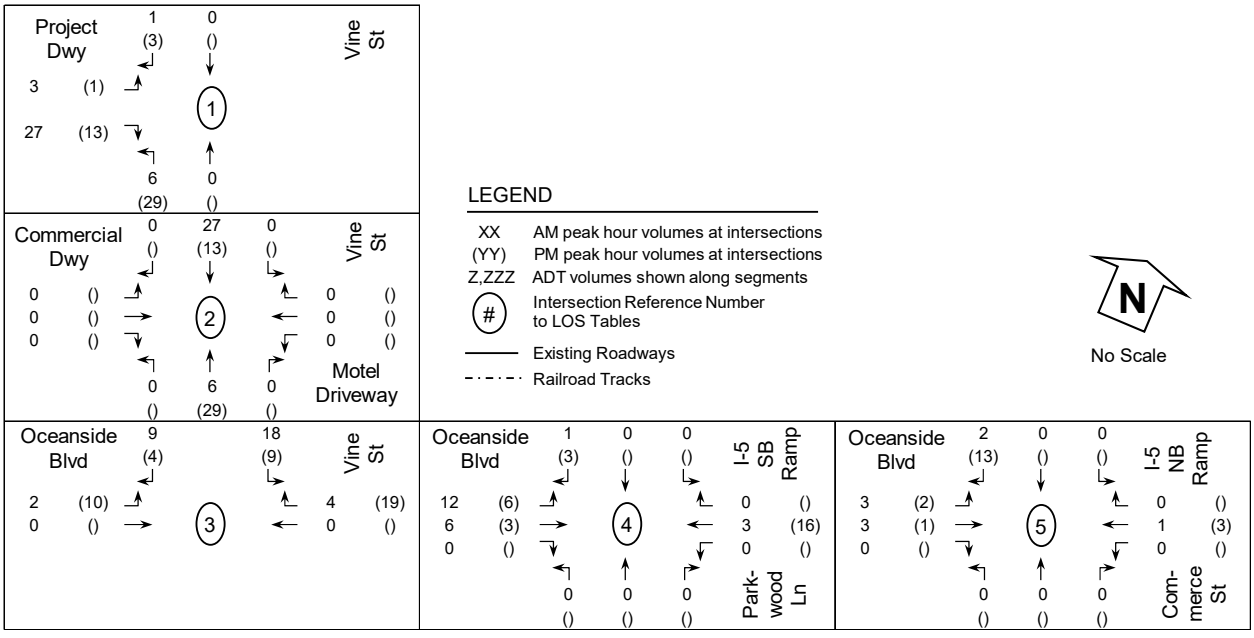
N

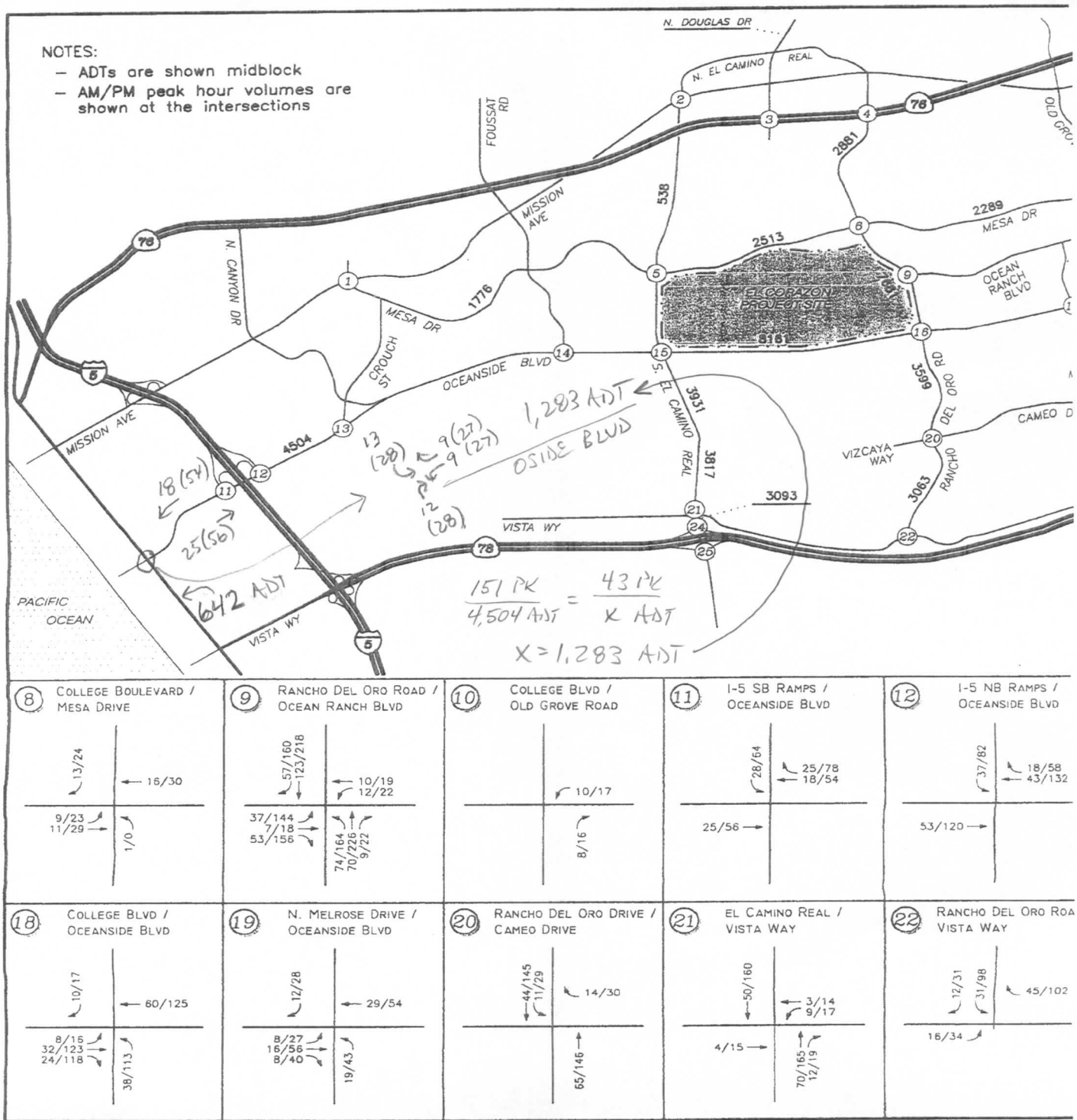
No Scale

Oceanside Blvd 0 () 0 () 1 (2) Coast Hwy 0 () → (1) ← 2 (1) 0 () → 0 () ← 0 () 0 () 0 () 1 (2)	Oceanside Blvd 0 () 0 () 0 () Ditmar St 0 () → (2) ← 0 () 2 (4) → 4 (2) 0 () 0 () 32 (24)	Oceanside Blvd 36 (26) 2 (4) → (3) ← 22 (36) Project Access 32 (24) → 0 () 0 () 0 ()
Oceanside Blvd 0 () 0 () Vine St 0 () → 0 () 32 (24) → (4) ← 0 () 0 () 22 (36)	Oceanside Blvd 9 (14) 0 () 0 () I-5 SB Ramp 16 (12) → (5) ← 0 () 16 (12) → 13 (22) 0 () 0 () 0 ()	Oceanside Blvd 11 (18) 0 () 0 () I-5 NB Ramp 12 (9) → (6) ← 0 () 4 (3) → 2 (4) 0 () 0 () 0 ()

Figure 6: Project Assignment







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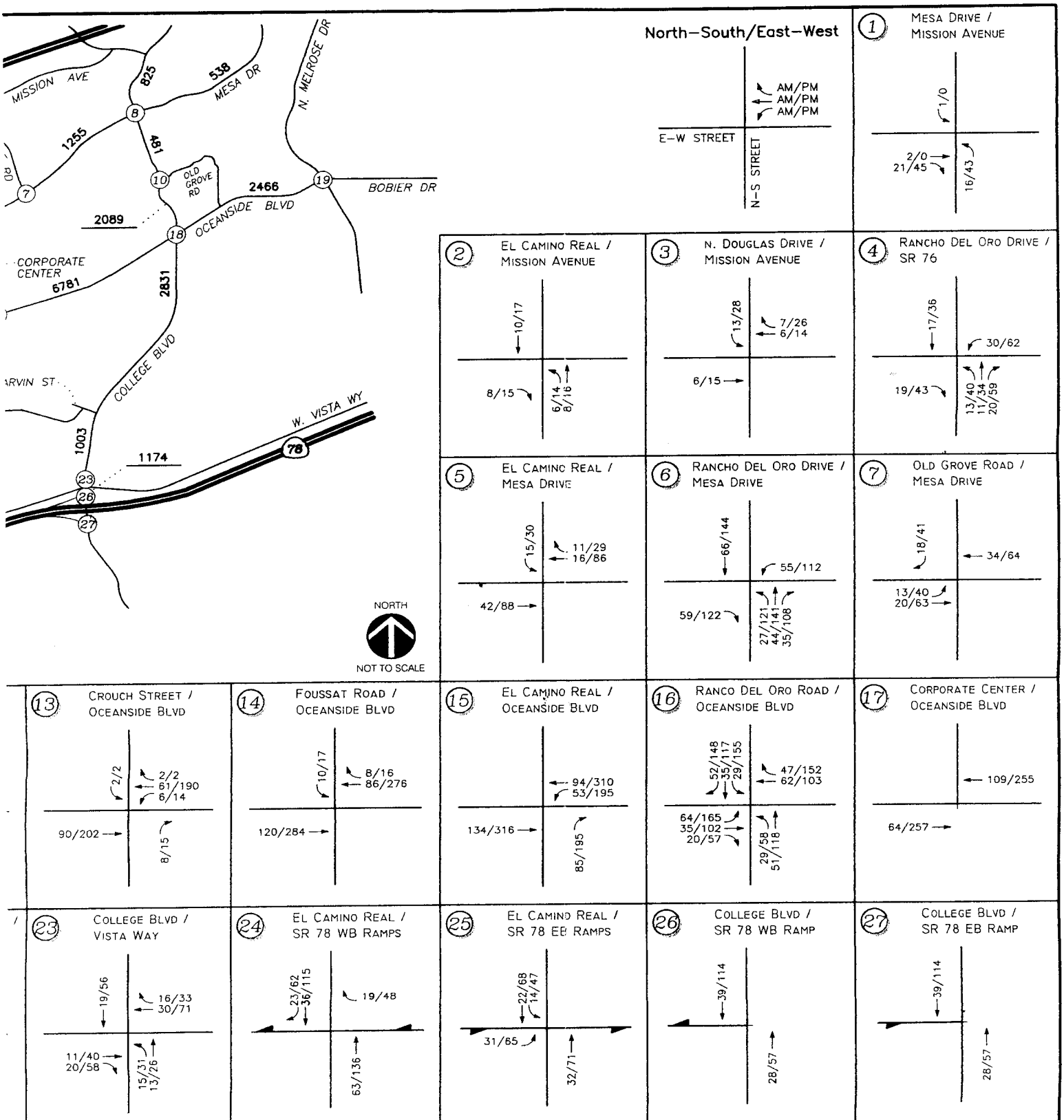
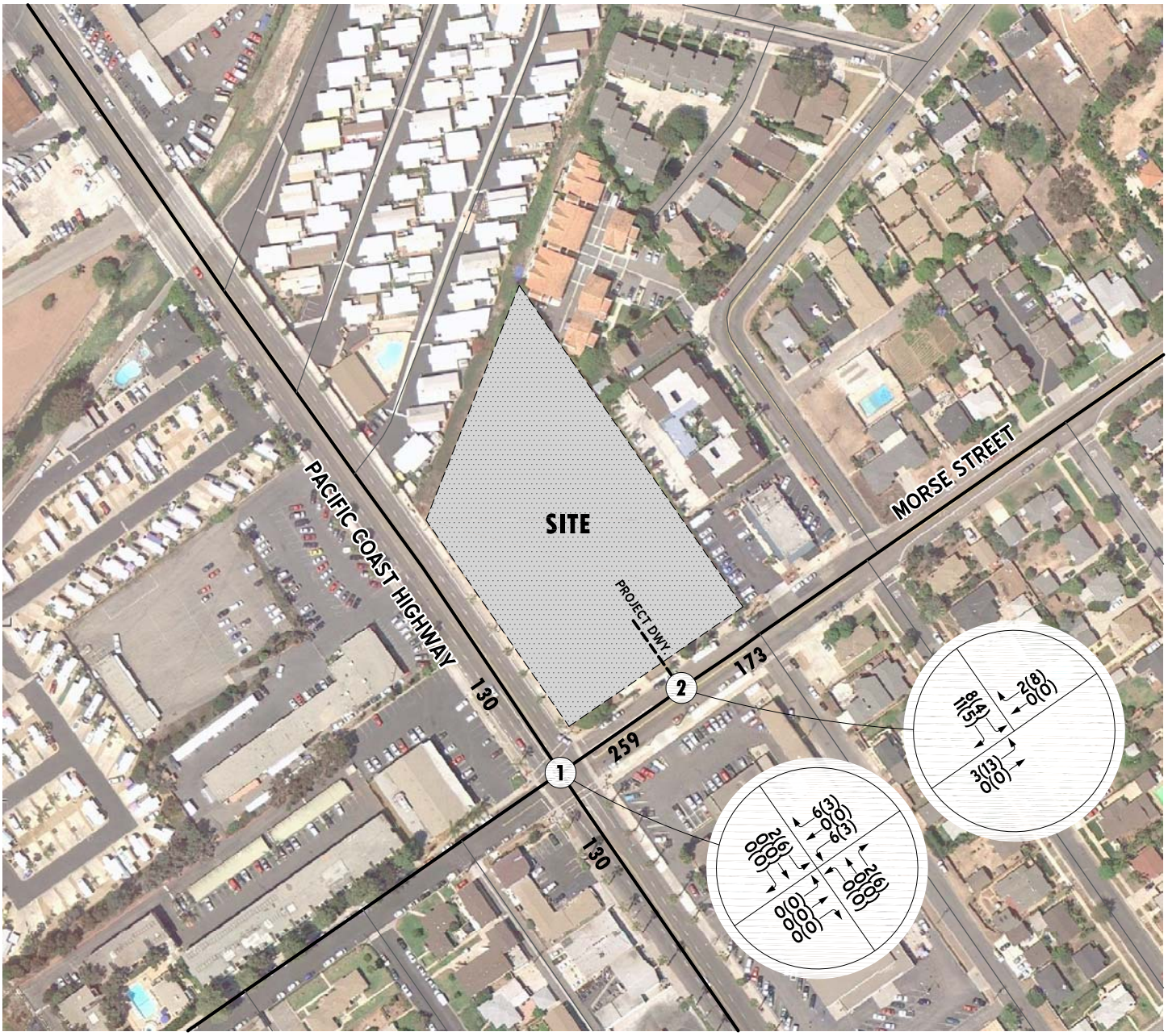


Figure 9-2b

Year 2015 - Project Phase 1 to 4 Traffic Volumes AM/PM Peak Hours & ADT

PROJECT ONLY VOLUMES



LEGEND:

26(31) = AM(PM) PEAK HOUR VOLUMES

15,827 = DAILY VOLUMES

Exhibit "C" (presented previously) illustrates the study area and identifies the number of traffic lanes for existing roadways and intersections, as well as the intersection traffic control. As shown on Exhibit "C", South Coast Highway is a 4 lane roadway in the study area. North of Morse Street, South Coast Highway is striped to provide a continuous two way left turn lane (divided configuration). South of Morse Street, South Coast Highway is striped to provide a left turn lane at major intersections and is otherwise undivided.

Morse Street is a 2-lane undivided Collector road without a two way left turn lane (undivided). The intersection of South Coast Highway (NS) at Morse Street (EW) is controlled by a traffic signal.

PROJECT TRAFFIC

Trip generation represents the amount of traffic which is both attracted to and produced by a development. Determining traffic generation for a specific project is therefore based upon forecasting the amount of traffic that is expected to be both attracted to and produced by the specific land uses being proposed for a given development.

Trip generation rates used to estimate Project traffic are shown in Table 1. In order to develop the traffic characteristics of the proposed Project, trip generation statistics published in the San Diego Association of Governments (SANDAG) *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region* (April 2002) for condominiums have been utilized.

Project daily and peak hour trip generation are also shown in Table 1. Trip generation represents the amount of traffic which is attracted to and produced by a development. The proposed development (38 townhomes) is anticipated to generate a net total of approximately 304 trip-ends per day, with 24 vehicles per hour (VPH) during the AM peak hour and 30 VPH during the PM peak hour.

The project trip distribution was developed based on a review of existing traffic patterns, the available roadway system, and was reviewed by City of Oceanside staff during the scoping process. The project trip distribution pattern is graphically depicted on Exhibit "E". The majority of the project traffic (60%) is anticipated to utilize South Coast Highway to travel to and from the project. The remaining 40% of the project traffic is anticipated to utilize Morse Street to travel east (towards the I-5 Freeway).

Project average daily traffic (ADT) and peak hour volumes are shown on Exhibit "F". The highest daily project traffic contribution of 182 vehicles per day (VPD) will occur on Morse Street east of South Coast Highway. The project traffic contribution on South Coast Highway itself will be 91 VPD. There will be 13 inbound (eastbound) left turns from Morse Street to the project under PM peak hour conditions.

TABLE 1

TRIP GENERATION RATES[1]

LAND USE	QUANTITY	UNITS[2]	PEAK HOUR						DAILY
			AM			PM			
			IN	OUT	TOTAL	IN	OUT	TOTAL	
Condominium	38	DU	0.13	0.51	0.64	0.56	0.24	0.80	8.00

TRIP GENERATION SUMMARY

LAND USE	QUANTITY	UNITS	PEAK HOUR						DAILY
			AM			PM			
			IN	OUT	TOTAL	IN	OUT	TOTAL	
Condominium	38	DU	5	19	24	21	9	30	304

[1] Source: SANDAG (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region (April, 2002).

[2] DU = Dwelling Units

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Appendix I

Existing + Cumulative Intersection LOS Calculations

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	119	65	184	127	164	45	231	94	142	287	19
Future Volume (veh/h)	16	119	65	184	127	164	45	231	94	142	287	19
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93	1.00		0.94	1.00		0.95	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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	17	129	71	169	181	178	49	251	102	154	312	21
Adj No. of Lanes	0	1	1	1	1	1	1	2	0	1	2	0
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	33	250	226	346	363	475	71	513	201	205	956	64
Arrive On Green	0.15	0.15	0.15	0.20	0.20	0.20	0.04	0.21	0.21	0.12	0.29	0.29
Sat Flow, veh/h	216	1636	1478	1774	1863	1496	1774	2444	957	1774	3349	224
Grp Volume(v), veh/h	146	0	71	169	181	178	49	179	174	154	164	169
Grp Sat Flow(s),veh/h/ln	1852	0	1478	1774	1863	1496	1774	1770	1632	1774	1770	1804
Q Serve(g_s), s	3.5	0.0	2.1	4.1	4.2	4.6	1.3	4.4	4.6	4.1	3.6	3.6
Cycle Q Clear(g_c), s	3.5	0.0	2.1	4.1	4.2	4.6	1.3	4.4	4.6	4.1	3.6	3.6
Prop In Lane	0.12		1.00	1.00		1.00	1.00		0.59	1.00		0.12
Lane Grp Cap(c), veh/h	283	0	226	346	363	475	71	371	342	205	505	515
V/C Ratio(X)	0.52	0.00	0.31	0.49	0.50	0.38	0.69	0.48	0.51	0.75	0.32	0.33
Avail Cap(c_a), veh/h	681	0	543	652	685	733	290	832	767	544	1085	1106
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.1	0.0	18.4	17.5	17.6	13.2	23.2	17.0	17.1	21.0	13.8	13.8
Incr Delay (d2), s/veh	1.5	0.0	0.8	1.1	1.1	0.5	11.6	1.0	1.2	5.5	0.4	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	1.9	0.0	0.9	2.1	2.3	1.9	0.9	2.2	2.2	2.3	1.8	1.8
LnGrp Delay(d),s/veh	20.5	0.0	19.2	18.6	18.6	13.7	34.8	18.0	18.3	26.5	14.1	14.2
LnGrp LOS	C		B	B	B	B	C	B	B	C	B	B
Approach Vol, veh/h		217			528			402			487	
Approach Delay, s/veh		20.1			17.0			20.2			18.0	
Approach LOS		C			B			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.6	14.3		11.5	5.9	18.0		13.5
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	15.0	23.0		18.0	8.0	30.0		18.0
Max Q Clear Time (g_c+I1), s	6.1	6.6		5.5	3.3	5.6		6.6
Green Ext Time (p_c), s	0.3	1.3		0.6	0.0	1.3		1.8

Intersection Summary	
HCM 2010 Ctrl Delay	18.5
HCM 2010 LOS	B

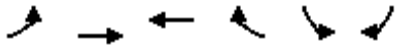
Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	327	1	63	458	77	10	5	29	171	12	33
Future Volume (veh/h)	6	327	1	63	458	77	10	5	29	171	12	33
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	0.99		0.96	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	7	355	1	68	498	57	11	5	32	186	13	36
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	1
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	345	1045	3	427	920	105	180	50	737	206	8	737
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.47	0.47	0.47	0.47	0.47	0.47
Sat Flow, veh/h	845	3620	10	1012	3187	363	0	106	1553	0	16	1553
Grp Volume(v), veh/h	7	174	182	68	275	280	16	0	32	199	0	36
Grp Sat Flow(s),veh/h/ln	845	1770	1860	1012	1770	1781	106	0	1553	16	0	1553
Q Serve(g_s), s	0.2	2.6	2.6	1.9	4.4	4.5	0.0	0.0	0.4	0.0	0.0	0.4
Cycle Q Clear(g_c), s	4.7	2.6	2.6	4.5	4.4	4.5	16.0	0.0	0.4	16.0	0.0	0.4
Prop In Lane	1.00		0.01	1.00		0.20	0.69		1.00	0.93		1.00
Lane Grp Cap(c), veh/h	345	511	537	427	511	514	230	0	737	214	0	737
V/C Ratio(X)	0.02	0.34	0.34	0.16	0.54	0.54	0.07	0.00	0.04	0.93	0.00	0.05
Avail Cap(c_a), veh/h	502	839	882	615	839	845	230	0	737	214	0	737
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	12.1	9.5	9.5	11.3	10.1	10.1	8.1	0.0	4.8	16.3	0.0	4.8
Incr Delay (d2), s/veh	0.0	0.4	0.4	0.2	0.9	0.9	0.6	0.0	0.1	45.5	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	0.1	1.3	1.4	0.5	2.3	2.3	0.1	0.0	0.2	4.5	0.0	0.2
LnGrp Delay(d),s/veh	12.1	9.9	9.8	11.4	11.0	11.0	8.7	0.0	4.9	61.7	0.0	4.9
LnGrp LOS	B	A	A	B	B	B	A		A	E		A
Approach Vol, veh/h		363			623			48			235	
Approach Delay, s/veh		9.9			11.1			6.1			53.0	
Approach LOS		A			B			A			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		20.0		13.7		20.0		13.7
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		16.0		16.0		16.0		16.0
Max Q Clear Time (g_c+I1), s		18.0		6.7		18.0		6.5
Green Ext Time (p_c), s		0.0		1.4		0.0		2.6

Intersection Summary	
HCM 2010 Ctrl Delay	18.3
HCM 2010 LOS	B

Notes



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	552	573	91	236	27
Future Volume (veh/h)	11	552	573	91	236	27
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.95	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	12	600	623	99	257	29
Adj No. of Lanes	1	2	2	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	21	1197	787	125	938	837
Arrive On Green	0.01	0.34	0.26	0.26	0.53	0.53
Sat Flow, veh/h	1774	3632	3128	481	1774	1583
Grp Volume(v), veh/h	12	600	363	359	257	29
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1746	1774	1583
Q Serve(g_s), s	0.4	8.1	11.5	11.5	4.8	0.5
Cycle Q Clear(g_c), s	0.4	8.1	11.5	11.5	4.8	0.5
Prop In Lane	1.00			0.28	1.00	1.00
Lane Grp Cap(c), veh/h	21	1197	459	453	938	837
V/C Ratio(X)	0.56	0.50	0.79	0.79	0.27	0.03
Avail Cap(c_a), veh/h	118	1711	619	611	938	837
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.5	15.8	20.7	20.7	7.8	6.8
Incr Delay (d2), s/veh	20.3	0.3	4.9	5.1	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	4.0	6.2	6.1	2.5	0.7
LnGrp Delay(d),s/veh	49.8	16.1	25.6	25.8	8.5	6.9
LnGrp LOS	D	B	C	C	A	A
Approach Vol, veh/h		612	722		286	
Approach Delay, s/veh		16.8	25.7		8.4	
Approach LOS		B	C		A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				24.3		35.7	4.7	19.6
Change Period (Y+Rc), s				4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s				29.0		23.0	4.0	21.0
Max Q Clear Time (g_c+I1), s				10.1		6.8	2.4	13.5
Green Ext Time (p_c), s				2.7		1.0	0.0	2.0

Intersection Summary	
HCM 2010 Ctrl Delay	19.3
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	21	8	1	5	19	397	8	1	539	6
Future Vol, veh/h	2	0	21	8	1	5	19	397	8	1	539	6
Conflicting Peds, #/hr	20	0	20	20	0	20	20	0	20	20	0	20
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	0	23	9	1	5	21	432	9	1	586	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1114	1115	630	1122	1114	477	613	0	0	461	0	0
Stage 1	612	612	-	499	499	-	-	-	-	-	-	-
Stage 2	502	503	-	623	615	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	185	208	482	183	208	588	966	-	-	1100	-	-
Stage 1	480	484	-	554	544	-	-	-	-	-	-	-
Stage 2	552	541	-	474	482	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	174	196	466	165	196	569	950	-	-	1082	-	-
Mov Cap-2 Maneuver	303	316	-	289	310	-	-	-	-	-	-	-
Stage 1	462	475	-	533	523	-	-	-	-	-	-	-
Stage 2	525	520	-	443	473	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.6	15.7	0.4	0
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	950	-	-	445	353	1082	-	-
HCM Lane V/C Ratio	0.022	-	-	0.056	0.043	0.001	-	-
HCM Control Delay (s)	8.9	-	-	13.6	15.7	8.3	-	-
HCM Lane LOS	A	-	-	B	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.1	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	171	68	189	146	268	42	484	166	224	428	20
Future Volume (veh/h)	26	171	68	189	146	268	42	484	166	224	428	20
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.95	1.00		0.95	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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	28	186	74	182	191	291	46	526	180	243	465	22
Adj No. of Lanes	0	1	1	1	1	1	1	2	0	1	2	0
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	39	262	241	355	372	561	59	642	218	293	1312	62
Arrive On Green	0.16	0.16	0.16	0.20	0.20	0.20	0.03	0.25	0.25	0.16	0.38	0.38
Sat Flow, veh/h	242	1608	1483	1774	1863	1498	1774	2559	871	1774	3430	162
Grp Volume(v), veh/h	214	0	74	182	191	291	46	363	343	243	239	248
Grp Sat Flow(s),veh/h/ln	1851	0	1483	1774	1863	1498	1774	1770	1660	1774	1770	1823
Q Serve(g_s), s	7.9	0.0	3.2	6.6	6.6	11.1	1.9	14.0	14.1	9.6	7.0	7.0
Cycle Q Clear(g_c), s	7.9	0.0	3.2	6.6	6.6	11.1	1.9	14.0	14.1	9.6	7.0	7.0
Prop In Lane	0.13		1.00	1.00		1.00	1.00		0.52	1.00		0.09
Lane Grp Cap(c), veh/h	301	0	241	355	372	561	59	444	417	293	677	697
V/C Ratio(X)	0.71	0.00	0.31	0.51	0.51	0.52	0.78	0.82	0.82	0.83	0.35	0.36
Avail Cap(c_a), veh/h	435	0	349	393	412	593	147	588	551	417	857	883
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.6	0.0	26.7	25.8	25.8	18.1	34.7	25.5	25.6	29.2	15.9	15.9
Incr Delay (d2), s/veh	3.1	0.0	0.7	1.1	1.1	0.7	19.2	6.7	7.5	9.3	0.3	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	4.3	0.0	1.4	3.3	3.5	4.6	1.2	7.6	7.4	5.4	3.4	3.6
LnGrp Delay(d),s/veh	31.7	0.0	27.4	26.9	26.9	18.8	53.9	32.2	33.1	38.5	16.2	16.3
LnGrp LOS	C		C	C	C	B	D	C	C	D	B	B
Approach Vol, veh/h		288			664			752			730	
Approach Delay, s/veh		30.6			23.4			33.9			23.6	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.9	22.1		15.8	6.4	31.6		18.4
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	17.0	24.0		17.0	6.0	35.0		16.0
Max Q Clear Time (g_c+I1), s	11.6	16.1		9.9	3.9	9.0		13.1
Green Ext Time (p_c), s	0.4	2.0		0.6	0.0	2.0		0.9

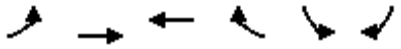
Intersection Summary	
HCM 2010 Ctrl Delay	27.6
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	576	2	53	619	100	7	10	41	132	8	26
Future Volume (veh/h)	18	576	2	53	619	100	7	10	41	132	8	26
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	20	626	2	58	673	109	8	11	45	143	9	28
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	1
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	304	1245	4	360	1044	169	140	138	679	191	6	679
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.44	0.44	0.44	0.44	0.44	0.44
Sat Flow, veh/h	686	3618	12	791	3033	491	0	316	1552	0	15	1552
Grp Volume(v), veh/h	20	306	322	58	392	390	19	0	45	152	0	28
Grp Sat Flow(s),veh/h/ln	686	1770	1860	791	1770	1754	316	0	1552	15	0	1552
Q Serve(g_s), s	0.9	5.0	5.0	2.3	6.8	6.9	0.0	0.0	0.6	0.0	0.0	0.4
Cycle Q Clear(g_c), s	7.8	5.0	5.0	7.3	6.8	6.9	16.0	0.0	0.6	16.0	0.0	0.4
Prop In Lane	1.00		0.01	1.00		0.28	0.42		1.00	0.94		1.00
Lane Grp Cap(c), veh/h	304	609	640	360	609	604	278	0	679	197	0	679
V/C Ratio(X)	0.07	0.50	0.50	0.16	0.64	0.65	0.07	0.00	0.07	0.77	0.00	0.04
Avail Cap(c_a), veh/h	368	774	813	434	774	767	278	0	679	197	0	679
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	13.4	9.5	9.5	12.4	10.1	10.1	8.3	0.0	6.0	17.6	0.0	5.9
Incr Delay (d2), s/veh	0.1	0.6	0.6	0.2	1.2	1.2	0.5	0.0	0.2	24.7	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	2.5	2.6	0.5	3.5	3.5	0.1	0.0	0.3	2.8	0.0	0.2
LnGrp Delay(d),s/veh	13.5	10.2	10.1	12.6	11.3	11.4	8.7	0.0	6.2	42.3	0.0	6.0
LnGrp LOS	B	B	B	B	B	B	A		A	D		A
Approach Vol, veh/h		648			840			64			180	
Approach Delay, s/veh		10.2			11.4			6.9			36.7	
Approach LOS		B			B			A			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		20.0		16.6		20.0		16.6
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		16.0		16.0		16.0		16.0
Max Q Clear Time (g_c+I1), s		18.0		9.8		18.0		9.3
Green Ext Time (p_c), s		0.0		2.1		0.0		2.9

Intersection Summary	
HCM 2010 Ctrl Delay	13.4
HCM 2010 LOS	B



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	41	725	795	232	196	34
Future Volume (veh/h)	41	725	795	232	196	34
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.96	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	45	788	864	252	213	37
Adj No. of Lanes	1	2	2	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	62	1682	999	291	694	620
Arrive On Green	0.04	0.48	0.37	0.37	0.39	0.39
Sat Flow, veh/h	1774	3632	2768	779	1774	1583
Grp Volume(v), veh/h	45	788	571	545	213	37
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1684	1774	1583
Q Serve(g_s), s	1.5	9.0	17.9	18.0	5.0	0.9
Cycle Q Clear(g_c), s	1.5	9.0	17.9	18.0	5.0	0.9
Prop In Lane	1.00			0.46	1.00	1.00
Lane Grp Cap(c), veh/h	62	1682	661	629	694	620
V/C Ratio(X)	0.72	0.47	0.86	0.87	0.31	0.06
Avail Cap(c_a), veh/h	148	2006	737	702	694	620
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.89	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.7	10.6	17.4	17.4	12.6	11.4
Incr Delay (d2), s/veh	13.0	0.2	9.7	10.3	1.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	4.4	10.5	10.1	2.6	1.0
LnGrp Delay(d),s/veh	41.6	10.8	27.1	27.7	13.8	11.6
LnGrp LOS	D	B	C	C	B	B
Approach Vol, veh/h		833	1116		250	
Approach Delay, s/veh		12.5	27.4		13.4	
Approach LOS		B	C		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				32.5		27.5	6.1	26.4
Change Period (Y+Rc), s				4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s				34.0		18.0	5.0	25.0
Max Q Clear Time (g_c+I1), s				11.0		7.0	3.5	20.0
Green Ext Time (p_c), s				3.9		0.7	0.0	2.4

Intersection Summary	
HCM 2010 Ctrl Delay	20.1
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	2	29	3	0	6	28	722	19	5	735	4
Future Vol, veh/h	1	2	29	3	0	6	28	722	19	5	735	4
Conflicting Peds, #/hr	20	0	20	20	0	20	20	0	20	20	0	20
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	2	32	3	0	7	30	785	21	5	799	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1710	1717	841	1724	1709	836	823	0	0	826	0	0
Stage 1	831	831	-	876	876	-	-	-	-	-	-	-
Stage 2	879	886	-	848	833	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	72	90	365	70	91	367	807	-	-	805	-	-
Stage 1	364	384	-	344	367	-	-	-	-	-	-	-
Stage 2	342	363	-	356	384	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	66	83	353	59	84	355	794	-	-	792	-	-
Mov Cap-2 Maneuver	180	200	-	165	196	-	-	-	-	-	-	-
Stage 1	344	375	-	325	347	-	-	-	-	-	-	-
Stage 2	318	343	-	315	375	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.3	19.6	0.4	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	794	-	-	328	257	792	-	-
HCM Lane V/C Ratio	0.038	-	-	0.106	0.038	0.007	-	-
HCM Control Delay (s)	9.7	-	-	17.3	19.6	9.6	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0.1	0	-	-

Appendix J

Existing + Cumulative + Project Intersection LOS Calculations

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	119	65	184	127	166	45	232	94	142	287	19
Future Volume (veh/h)	16	119	65	184	127	166	45	232	94	142	287	19
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93	1.00		0.95	1.00		0.95	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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	17	129	71	169	181	180	49	252	102	154	312	21
Adj No. of Lanes	0	1	1	1	1	1	1	2	0	1	2	0
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	33	250	226	347	365	476	70	513	200	205	956	64
Arrive On Green	0.15	0.15	0.15	0.20	0.20	0.20	0.04	0.21	0.21	0.12	0.29	0.29
Sat Flow, veh/h	216	1636	1478	1774	1863	1497	1774	2447	955	1774	3349	224
Grp Volume(v), veh/h	146	0	71	169	181	180	49	180	174	154	164	169
Grp Sat Flow(s),veh/h/ln	1852	0	1478	1774	1863	1497	1774	1770	1633	1774	1770	1804
Q Serve(g_s), s	3.6	0.0	2.1	4.2	4.2	4.6	1.3	4.4	4.6	4.1	3.6	3.6
Cycle Q Clear(g_c), s	3.6	0.0	2.1	4.2	4.2	4.6	1.3	4.4	4.6	4.1	3.6	3.6
Prop In Lane	0.12		1.00	1.00		1.00	1.00		0.58	1.00		0.12
Lane Grp Cap(c), veh/h	283	0	226	347	365	476	70	371	343	205	505	515
V/C Ratio(X)	0.52	0.00	0.31	0.49	0.50	0.38	0.70	0.48	0.51	0.75	0.32	0.33
Avail Cap(c_a), veh/h	680	0	542	651	684	732	289	830	766	543	1083	1103
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.1	0.0	18.5	17.5	17.6	13.2	23.3	17.0	17.1	21.0	13.8	13.8
Incr Delay (d2), s/veh	1.5	0.0	0.8	1.1	1.0	0.5	11.6	1.0	1.2	5.5	0.4	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	1.9	0.0	0.9	2.1	2.3	2.0	0.9	2.2	2.2	2.3	1.8	1.8
LnGrp Delay(d),s/veh	20.6	0.0	19.3	18.6	18.6	13.7	34.9	18.0	18.3	26.5	14.2	14.2
LnGrp LOS	C		B	B	B	B	C	B	B	C	B	B
Approach Vol, veh/h		217			530			403			487	
Approach Delay, s/veh		20.1			16.9			20.2			18.1	
Approach LOS		C			B			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.7	14.3		11.5	5.9	18.0		13.6
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	15.0	23.0		18.0	8.0	30.0		18.0
Max Q Clear Time (g_c+I1), s	6.1	6.6		5.6	3.3	5.6		6.6
Green Ext Time (p_c), s	0.3	1.3		0.6	0.0	1.3		1.8

Intersection Summary	
HCM 2010 Ctrl Delay	18.5
HCM 2010 LOS	B

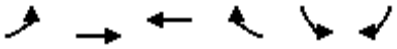
Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	327	1	66	458	77	12	5	41	171	12	33
Future Volume (veh/h)	6	327	1	66	458	77	12	5	41	171	12	33
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	0.99		0.96	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	7	355	1	72	498	79	13	5	45	186	13	36
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	1
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	340	1065	3	432	896	141	182	42	731	205	8	731
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.47	0.47	0.47	0.47	0.47	0.47
Sat Flow, veh/h	828	3620	10	1012	3044	480	0	90	1553	0	16	1553
Grp Volume(v), veh/h	7	174	182	72	288	289	18	0	45	199	0	36
Grp Sat Flow(s),veh/h/ln	828	1770	1860	1012	1770	1755	90	0	1553	16	0	1553
Q Serve(g_s), s	0.2	2.6	2.6	2.0	4.7	4.7	0.0	0.0	0.5	0.0	0.0	0.4
Cycle Q Clear(g_c), s	5.0	2.6	2.6	4.6	4.7	4.7	16.0	0.0	0.5	16.0	0.0	0.4
Prop In Lane	1.00		0.01	1.00		0.27	0.72		1.00	0.93		1.00
Lane Grp Cap(c), veh/h	340	521	547	432	521	516	224	0	731	212	0	731
V/C Ratio(X)	0.02	0.33	0.33	0.17	0.55	0.56	0.08	0.00	0.06	0.94	0.00	0.05
Avail Cap(c_a), veh/h	486	833	875	610	833	826	224	0	731	212	0	731
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	12.2	9.4	9.4	11.2	10.1	10.1	8.2	0.0	4.9	16.4	0.0	4.9
Incr Delay (d2), s/veh	0.0	0.4	0.4	0.2	0.9	0.9	0.7	0.0	0.2	47.2	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	0.1	1.3	1.4	0.6	2.4	2.4	0.1	0.0	0.3	4.6	0.0	0.2
LnGrp Delay(d),s/veh	12.3	9.8	9.7	11.4	11.0	11.1	8.9	0.0	5.1	63.6	0.0	5.0
LnGrp LOS	B	A	A	B	B	B	A		A	E		A
Approach Vol, veh/h		363			649			63			235	
Approach Delay, s/veh		9.8			11.1			6.2			54.6	
Approach LOS		A			B			A			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		20.0		14.0		20.0		14.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		16.0		16.0		16.0		16.0
Max Q Clear Time (g_c+I1), s		18.0		7.0		18.0		6.7
Green Ext Time (p_c), s		0.0		1.4		0.0		2.7

Intersection Summary		
HCM 2010 Ctrl Delay		18.3
HCM 2010 LOS		B

Notes



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	563	576	91	236	27
Future Volume (veh/h)	12	563	576	91	236	27
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.95	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	13	612	626	99	257	29
Adj No. of Lanes	1	2	2	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	23	1203	790	125	935	834
Arrive On Green	0.01	0.34	0.26	0.26	0.53	0.53
Sat Flow, veh/h	1774	3632	3130	479	1774	1583
Grp Volume(v), veh/h	13	612	364	361	257	29
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1747	1774	1583
Q Serve(g_s), s	0.4	8.3	11.5	11.6	4.8	0.5
Cycle Q Clear(g_c), s	0.4	8.3	11.5	11.6	4.8	0.5
Prop In Lane	1.00			0.27	1.00	1.00
Lane Grp Cap(c), veh/h	23	1203	460	454	935	834
V/C Ratio(X)	0.56	0.51	0.79	0.79	0.27	0.03
Avail Cap(c_a), veh/h	118	1711	619	611	935	834
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.4	15.8	20.7	20.7	7.9	6.8
Incr Delay (d2), s/veh	19.3	0.3	5.0	5.2	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	4.0	6.2	6.2	2.5	0.7
LnGrp Delay(d),s/veh	48.8	16.1	25.7	25.9	8.6	6.9
LnGrp LOS	D	B	C	C	A	A
Approach Vol, veh/h		625	725		286	
Approach Delay, s/veh		16.8	25.8		8.4	
Approach LOS		B	C		A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				24.4		35.6	4.8	19.6
Change Period (Y+Rc), s				4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s				29.0		23.0	4.0	21.0
Max Q Clear Time (g_c+I1), s				10.3		6.8	2.4	13.6
Green Ext Time (p_c), s				2.8		1.0	0.0	2.0

Intersection Summary	
HCM 2010 Ctrl Delay	19.3
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	21	10	1	6	19	397	9	1	539	6
Future Vol, veh/h	2	0	21	10	1	6	19	397	9	1	539	6
Conflicting Peds, #/hr	20	0	20	20	0	20	20	0	20	20	0	20
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	0	23	11	1	7	21	432	10	1	586	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1115	1116	630	1122	1114	477	613	0	0	462	0	0
Stage 1	612	612	-	499	499	-	-	-	-	-	-	-
Stage 2	503	504	-	623	615	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	185	208	482	183	208	588	966	-	-	1099	-	-
Stage 1	480	484	-	554	544	-	-	-	-	-	-	-
Stage 2	551	541	-	474	482	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	173	196	466	165	196	569	950	-	-	1081	-	-
Mov Cap-2 Maneuver	302	316	-	289	310	-	-	-	-	-	-	-
Stage 1	462	475	-	533	523	-	-	-	-	-	-	-
Stage 2	523	520	-	443	473	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.6	15.8	0.4	0
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	950	-	-	445	351	1081	-	-
HCM Lane V/C Ratio	0.022	-	-	0.056	0.053	0.001	-	-
HCM Control Delay (s)	8.9	-	-	13.6	15.8	8.3	-	-
HCM Lane LOS	A	-	-	B	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.2	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	171	68	189	146	269	42	484	166	226	429	20
Future Volume (veh/h)	26	171	68	189	146	269	42	484	166	226	429	20
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.95	1.00		0.95	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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	28	186	74	182	191	292	46	526	180	246	466	22
Adj No. of Lanes	0	1	1	1	1	1	1	2	0	1	2	0
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	39	261	241	354	372	563	59	641	218	295	1317	62
Arrive On Green	0.16	0.16	0.16	0.20	0.20	0.20	0.03	0.25	0.25	0.17	0.38	0.38
Sat Flow, veh/h	242	1608	1483	1774	1863	1498	1774	2559	871	1774	3431	162
Grp Volume(v), veh/h	214	0	74	182	191	292	46	363	343	246	240	248
Grp Sat Flow(s),veh/h/ln	1851	0	1483	1774	1863	1498	1774	1770	1660	1774	1770	1823
Q Serve(g_s), s	7.9	0.0	3.2	6.6	6.6	11.1	1.9	14.0	14.2	9.7	7.0	7.0
Cycle Q Clear(g_c), s	7.9	0.0	3.2	6.6	6.6	11.1	1.9	14.0	14.2	9.7	7.0	7.0
Prop In Lane	0.13		1.00	1.00		1.00	1.00		0.52	1.00		0.09
Lane Grp Cap(c), veh/h	301	0	241	354	372	563	59	444	416	295	679	700
V/C Ratio(X)	0.71	0.00	0.31	0.51	0.51	0.52	0.78	0.82	0.82	0.83	0.35	0.35
Avail Cap(c_a), veh/h	434	0	347	391	411	594	147	585	549	416	854	880
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.8	0.0	26.8	25.9	25.9	18.1	34.8	25.6	25.7	29.3	15.9	15.9
Incr Delay (d2), s/veh	3.1	0.0	0.7	1.2	1.1	0.7	19.3	6.8	7.6	9.7	0.3	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	4.3	0.0	1.4	3.3	3.5	4.7	1.2	7.7	7.4	5.6	3.5	3.6
LnGrp Delay(d),s/veh	31.9	0.0	27.5	27.0	27.0	18.8	54.1	32.4	33.3	38.9	16.2	16.2
LnGrp LOS	C		C	C	C	B	D	C	C	D	B	B
Approach Vol, veh/h		288			665			752			734	
Approach Delay, s/veh		30.7			23.4			34.2			23.8	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.1	22.2		15.8	6.4	31.8		18.5
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	17.0	24.0		17.0	6.0	35.0		16.0
Max Q Clear Time (g_c+I1), s	11.7	16.2		9.9	3.9	9.0		13.1
Green Ext Time (p_c), s	0.4	2.0		0.6	0.0	2.0		0.9

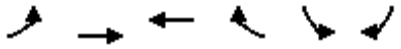
Intersection Summary	
HCM 2010 Ctrl Delay	27.7
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	576	4	66	619	100	8	10	47	132	9	26
Future Volume (veh/h)	18	576	4	66	619	100	8	10	47	132	9	26
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	20	626	4	72	673	109	9	11	51	143	10	28
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	1
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	309	1268	8	364	1067	173	141	122	671	188	7	671
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.43	0.43	0.43	0.43	0.43	0.43
Sat Flow, veh/h	686	3604	23	789	3034	491	0	282	1552	0	16	1552
Grp Volume(v), veh/h	20	307	323	72	392	390	20	0	51	153	0	28
Grp Sat Flow(s),veh/h/ln	686	1770	1858	789	1770	1755	282	0	1552	16	0	1552
Q Serve(g_s), s	0.9	5.0	5.0	2.9	6.8	6.9	0.0	0.0	0.7	0.0	0.0	0.4
Cycle Q Clear(g_c), s	7.8	5.0	5.0	8.0	6.8	6.9	16.0	0.0	0.7	16.0	0.0	0.4
Prop In Lane	1.00		0.01	1.00		0.28	0.45		1.00	0.93		1.00
Lane Grp Cap(c), veh/h	309	622	653	364	622	617	263	0	671	195	0	671
V/C Ratio(X)	0.06	0.49	0.49	0.20	0.63	0.63	0.08	0.00	0.08	0.78	0.00	0.04
Avail Cap(c_a), veh/h	364	765	803	428	765	758	263	0	671	195	0	671
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	13.2	9.4	9.4	12.5	10.0	10.0	8.5	0.0	6.2	17.8	0.0	6.1
Incr Delay (d2), s/veh	0.1	0.6	0.6	0.3	1.2	1.2	0.6	0.0	0.2	26.3	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	2.5	2.6	0.6	3.5	3.5	0.2	0.0	0.3	3.0	0.0	0.2
LnGrp Delay(d),s/veh	13.3	10.0	10.0	12.8	11.2	11.2	9.1	0.0	6.4	44.1	0.0	6.2
LnGrp LOS	B	B	A	B	B	B	A		A	D		A
Approach Vol, veh/h		650			854			71			181	
Approach Delay, s/veh		10.1			11.3			7.1			38.2	
Approach LOS		B			B			A			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		20.0		17.0		20.0		17.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		16.0		16.0		16.0		16.0
Max Q Clear Time (g_c+I1), s		18.0		9.8		18.0		10.0
Green Ext Time (p_c), s		0.0		2.1		0.0		2.7

Intersection Summary		
HCM 2010 Ctrl Delay		13.5
HCM 2010 LOS		B



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	41	731	807	232	196	35
Future Volume (veh/h)	41	731	807	232	196	35
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.96	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	45	795	877	252	213	38
Adj No. of Lanes	1	2	2	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	62	1692	1010	290	689	615
Arrive On Green	0.04	0.48	0.38	0.38	0.39	0.39
Sat Flow, veh/h	1774	3632	2779	770	1774	1583
Grp Volume(v), veh/h	45	795	577	552	213	38
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1686	1774	1583
Q Serve(g_s), s	1.5	9.1	18.1	18.2	5.0	0.9
Cycle Q Clear(g_c), s	1.5	9.1	18.1	18.2	5.0	0.9
Prop In Lane	1.00			0.46	1.00	1.00
Lane Grp Cap(c), veh/h	62	1692	666	634	689	615
V/C Ratio(X)	0.72	0.47	0.87	0.87	0.31	0.06
Avail Cap(c_a), veh/h	148	2006	737	703	689	615
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.89	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.7	10.5	17.3	17.3	12.7	11.5
Incr Delay (d2), s/veh	13.0	0.2	10.0	10.6	1.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	4.5	10.7	10.3	2.6	1.0
LnGrp Delay(d),s/veh	41.6	10.7	27.3	28.0	13.9	11.7
LnGrp LOS	D	B	C	C	B	B
Approach Vol, veh/h		840	1129		251	
Approach Delay, s/veh		12.4	27.6		13.6	
Approach LOS		B	C		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				32.7		27.3	6.1	26.6
Change Period (Y+Rc), s				4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s				34.0		18.0	5.0	25.0
Max Q Clear Time (g_c+I1), s				11.1		7.0	3.5	20.2
Green Ext Time (p_c), s				4.0		0.7	0.0	2.4

Intersection Summary	
HCM 2010 Ctrl Delay	20.3
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↑		↰	↑	
Traffic Vol, veh/h	1	2	29	4	0	6	28	722	21	6	735	4
Future Vol, veh/h	1	2	29	4	0	6	28	722	21	6	735	4
Conflicting Peds, #/hr	20	0	20	20	0	20	20	0	20	20	0	20
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	2	32	4	0	7	30	785	23	7	799	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1715	1723	841	1729	1714	837	823	0	0	828	0	0
Stage 1	835	835	-	877	877	-	-	-	-	-	-	-
Stage 2	880	888	-	852	837	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	71	89	365	69	90	367	807	-	-	803	-	-
Stage 1	362	383	-	343	366	-	-	-	-	-	-	-
Stage 2	342	362	-	354	382	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	65	82	353	58	83	355	794	-	-	790	-	-
Mov Cap-2 Maneuver	178	198	-	164	195	-	-	-	-	-	-	-
Stage 1	342	373	-	324	346	-	-	-	-	-	-	-
Stage 2	318	342	-	312	372	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.3	20.6	0.4	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	794	-	-	327	242	790	-	-
HCM Lane V/C Ratio	0.038	-	-	0.106	0.045	0.008	-	-
HCM Control Delay (s)	9.7	-	-	17.3	20.6	9.6	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0.1	0	-	-