Ocean Beach Buildout Conditions

Traffic Impact Study

Final Report

Prepared for:

City of San Diego

1222 First Avenue, MS 401

San Diego, CA 92101

Prepared by:

WILSON & COMPANY

5694 Mission Center Road, Suite 602-147

San Diego, CA 92108

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Executive Summary

The following traffic study summarizes the results of the traffic analysis performed for Buildout of the proposed Community Plan ("Proposed Plan") for the Ocean Beach community within the City of San Diego. The traffic analysis in this report primarily focuses on the operations of the intersections and roadway segments within the community; however, selected roadway and freeway segments outside of the Ocean Beach community were also included in this analysis since they were found to carry a substantial amount of Ocean Beach traffic, and they are the major gateways to the Ocean Beach community.

Implementation of the Proposed Plan would be expected to have a significant traffic impact at the following intersections:

1 Sunset Cliffs Boulevard/I-8 WB off-ramp
2 Sunset Cliffs Boulevard/I-8 EB on-ramp
3 Sunset Cliffs Boulevard/Nimitz Boulevard
4 Sunset Cliffs Boulevard/West Point Loma Boulevard
5 Nimitz Boulevard/West Point Loma Boulevard
6 Bacon Street/West Point Loma Boulevard
7 Sunset Cliffs Boulevard/Brighton Avenue
8 Sunset Cliffs Boulevard/Orchard Avenue

Improvements have been identified in this report at three intersections shown in italics above to fully or partially mitigate the Proposed Plan's significant traffic impacts at these locations. Impacts at intersections No. 1, 2 and 3 are expected to be significant mainly due to the increase in traffic associated with regional growth in the San Diego area. Sunset Cliffs Boulevard (including the bridge) would have to be widened to a six-lane major in order to adequately accommodate expected future traffic demand in the area. Widening of Sunset Cliffs Boulevard is not currently included in any Public Facilities Financing Plan or funded Capital Improvement Program. Development project review would address significance of impacts on a project-level basis. Therefore, transportation impacts at Sunset Cliffs Boulevard Interstate 8 (I-8) ramps will remain significant and unmitigated. Additionally, San Diego Association of Governments (SANDAG) in coordination with Caltrans is currently administering the proposed I-8 Corridor project which will assess a set of identified operational improvements between Sunset Cliffs/Nimitz area to the west and College Avenue/SDSU area to the east including, but not limited to, interchange and ramp modifications that are key components of the future improvement strategy of I-8 Corridor. As part of this analysis, access alternatives at I-8 and Sunset Cliffs/Nimitz corridor should be evaluated for potential improvement that will enhance overall travel efficiencies at that location. It should be noted that potential improvements at these intersections may be further defined once SANDAG completes its I-8 corridor study. As a result, the Proposed Plan's significant traffic impacts to these intersections would remain significant and unmitigated. At intersections No. 7 and 8, the installation of a traffic signal would mitigate the Proposed Plan's impacts. However, the installation of traffic signals at these locations are not recommended since neither location would meet standard warrants for a traffic signal based on the Buildout forecast turning volumes. However, it is recommended that these two intersections be regularly re-evaluated in the future.

Implementation of the Proposed Plan would be expected to have a significant traffic impact on the following roadway segments:

1 Abbott Street (Newport Avenue to Santa Monica Avenue)
2 Cable Street (Narragansett Avenue to West Point Loma Boulevard)
3 Sunset Cliffs Boulevard (Adair Street to Sea World Drive)
4 Ebers Street (Narraganestt Avenue to West Point Loma Boulevard)
5 Nimitz Boulevard (Sunset Cliffs Boulevard to West Point Loma Boulevard)
6 West Point Loma Boulevard (Abbott Street to Nimitz Boulevard)
7 Voltaire Street (Bacon Street to Sunset Cliffs Boulevard)
8 Voltaire Street (Sunset Cliffs Boulevard to Froude Street)

Improvements have been identified in this report for the roadway segment shown in italics above to fully or partially mitigate the Proposed Plan's significant traffic impact to these locations. It is recommended that Nimitz Boulevard from Sunset Cliffs Boulevard to West Point Loma Boulevard be reclassified and improved as a six lane primary arterial to partially mitigate the Proposed Plan's significant traffic impact. All other significant traffic impacts to roadway segments are recommended to remain unmitigated since mitigations would likely require either removal of on-street parking or roadway widening.

Implementation of the Proposed Plan would have no significant impact to the segment of Interstate 8 between Sunset Cliffs Boulevard and West Mission Bay Drive. Therefore, no mitigation is required.

1 Introduction

The following traffic study presents the results of the traffic analysis performed for Buildout of the proposed Community Plan ("Proposed Plan") for the Ocean Beach community within the City of San Diego. Baseline data for this analysis was taken from the *Ocean Beach Existing Conditions Report Mobility Element,* dated January 2010. A copy of this report is contained as **Appendix A**. The traffic analysis in this report primarily focuses on the operations of the intersections and roadway segments within the community; however, selected roadway and freeway segments outside of the Ocean Beach community were also included in this analysis.

1.1 Project Description

The Proposed Plan is an update to the Ocean Beach Community Plan. The Plan is designed to be regularly revised with respect to organization and content for consistency with the General Plan, to amend the Plan Land Use Map with related zone changes to reflect amendments and correct inconsistencies between land uses and the Community Plan land use designation, and to amend the Ocean Beach Public Facilities Financing Plan. The Proposed Plan would rezone 99 parcels (approximately 21 acres) from RS-1-7 to RM-1-1. The existing zone allows for single dwelling unit density of 9 dwelling units (du's) per acre for a maximum build out of approximately 189 units. The proposed Community Plan Update would change the zoning to allow up to 15 du's per acre and could result in the maximum buildout of approximately 315 units, or a theoretical net increase of 126 dwelling units as indicated in the Notice of Preparation (NOP). Based on further analysis of the proposed plan update, the proposed plan buildout could result in a net increase of 62 dwelling units over what the current plan anticipate. In total, the Proposed Plan could accommodate an additional 1,399 dwelling units over existing conditions of the entire Ocean Beach community.

Appendix B contains a figure depicting the areas in the Ocean Beach community where the proposed rezoning will occur in this Community Plan Update.

1.2 Trip Generation

Table 1-1 presents a summary of the traffic estimated to be generated by the Ocean Beach community in 2003 (which is the base year used for the traffic forecasting for this project) as well as under the Adopted Community Plan and Proposed Plan. As shown in the table, at buildout, the rezone of the 99 parcels under the Proposed Plan is estimated to generate an additional 620 ADT compared to the Adopted Community Plan projected buildout. In addition, the Proposed Plan is estimated to generate approximately 9,440 ADT more than what the community was estimated to generate in 2003. **Appendix C** contains additional trip generation information related to each traffic analysis zone (TAZ) within the Ocean Beach community.

TABLE 1-1
TRIP GENERATION SUMMARY

Code	Name	ADT			Δ in ADT	
		Year 2003	Adopted Community Plan (Current Zoning)	Proposed Community Plan (Proposed Zoning)	Proposed – Adopted	Proposed - 2003
1409	OTHER GROUP QUARTERS	1	1	1	0	0
4112	RIGHT-OF-WAY	0	0	0	0	0
4113	COMMUNICATION OR UTILITY	1	1	1	0	0
4114	PARKING	0	0	0	0	0
6105	FIRE OR POLICE STATION	229	229	229	0	0
6109	OTHER PUBLIC SERVICE	261	550	550	0	289
6510	OTHER HEALTH CARE(ksf)	1,200	1,200	1,200	0	0
7210	OTHER RECREATION	62	63	63	0	1
7601	ACTIVE PARK	84	84	84	0	0
7604	ACTIVE BEACH	14,548	20,793	20,793	0	6,245
9101	INACTIVE USE	0	0	0	0	0
9708	SINGLE FAMILY(RESIDENTIAL)	16,208	20,527	21,147	620	4,939
9709	MULTI-FAMILY(OVER 20DU/AC)	33,940	38,896	38,896	0	4,956
9710	MULTI-FAMILY(UNDER 20DU/AC)	4,847	4,887	4,887	0	40
9711	CHURCH(w/o SCH/Day-ksf)	111	202	202	0	91
9712	CHURCH (GENERAL-ksf)	687	428	428	0	-259
9715	STREETFRONT COMM (ksf)	17,132	21,241	21,241	0	4,109
9717	RESTAURANT (FAST FOOD-ksf)	2,258	2,239	2,239	0	-19
9718	RESTAURANT (SIT DOWN-ksf)	7,540	5,680	5,680	0	-1,860
9719	LOW RISE OFFICE	2,049	2,049	2,049	0	0
9722	AUTO REPAIR(ksf)	546	295	295	0	-251
9723	TIRE STORE (ksf)	47	0	0	0	-47
9724	CAR WASH(SELF/S-wash stall)	498	0	0	0	-498
9725	FINANCIAL INST(DR/THR-ksf)	139	0	0	0	-139
9731	LOW-RISE HOTEL-MOTEL-room	1,360	1,360	1,360	0	0
9732	OTHER RETAIL AND COMM (ksf)	1,488	959	959	0	-529
9733	POST OFFICE (ksf)	1,280	1,280	1,280	0	0
9734	ELEMENTARY SCHOOL-student	1,745	1,745	1,745	0	0
9736	LIBRARY (ksf)	214	214	214	0	0
9738	GAS STATION W FOODMART-pump	3,125	3,125	3,125	0	0
9744	MARKET OPEN 16HR/DAY(ksf)	1,503	1,503	1,503	0	0
9745	MARKET OPEN 24HR/DAY(ksf)	2,379	0	0	0	-2,379
9746	SPECIALTY COMMERCIAL(ksf)	561	493	493	0	-68
9747	MEDICAL OFFICE(KSF)	88	88	88	0	0
9748	OTHER SCHOOL(ksf)	543	485	485	0	-58
9749	SUPERMARKET(ksf)	4,530	2,352	2,352	0	-2,178
9750	AUTO PART SALE(ksf)	610	249	249	0	-361
9751	FINANCIAL INST(ksf)	2,205	1,530	1,530	0	-675
9752	NURSERY (ksf)	67	0	0	0	-67
9753	SPORT FACILITY-INDOOR	24	24	24	0	0
9754	FURNITURE STORE (ksf)	325	286	286	0	-39
9755	DRUG STORE (ksf)	1,803	0	0	0	-1,803
9765	ACTIVE BEACH (3264)	1,939	1,939	1,939	0	0
	TOTAL	128,177	136,997	137,617	620	9,440

Source: City of San Diego

2 Methodology

The following section describes the methodology used to evaluate the study intersections, roadway segments, and freeway segments and determine the significant traffic impacts of the proposed Community Plan Update.

2.1 Intersections

The analysis process for intersections includes determining the levels of service (LOS) at the study intersections for the AM and PM peak hours. The AM intersection analysis evaluates the LOS of the study intersections during the hour with the highest vehicular traffic between 7:00 AM and 9:00 AM. The PM intersection analysis evaluates the LOS of the study intersections during the hour with the highest vehicular traffic between 4:00 PM and 6:00 PM.

To analyze the operations of both signalized and unsignalized intersection, Synchro 7 (Trafficware) software was used. Synchro 7 uses the methodologies outlined in the *2000 Highway Capacity Manual (HCM)*.

All signal timing data and parameters such as cycle lengths, splits, clearance intervals, etc. from the analyses contained in *Ocean Beach Existing Conditions Report Mobility Element* were assumed to be the same for the future year analyses with the exception of intersection cycle lengths and splits, which were optimized to account for the forecasted changes in demand along each respective approach.

The analysis of intersections utilized the operational analysis procedure as outlined in the *2000 Highway Capacity Manual (HCM), Transportation Research Board Special Report 209*. This method defines Level of Service (LOS) in terms of delay, or more specifically, average control delay per vehicle. Delay is a measure of driver and/or passenger discomfort, frustration, fuel consumption and lost travel time.

The average control delay includes initial deceleration delay, queue move-up time, and final acceleration time in addition to the stop delay.

The LOS for unsignalized intersections is determined by the computed or measured control delay and is defined for each minor movement. At a one-way or two-way stop control intersection, the delay reported represents the worst movement, which are typically the left-turns from the minor street approach. At an all-way stop control intersection, the delay reported is the average control delay of the intersection. The criteria for the various LOS designations are provided in **Table 2-1**.

TABLE 2-1
LOS CRITERIA FOR INTERSECTIONS

LOS	Control Delay (sec/veh)		Description
	Signalized Intersections (a)	Unsignalized Intersections (b)	
A	≤10	≤10	Operations with very low delay and most vehicles do not stop.
B	>10 and ≤20	>10 and ≤15	Operations with good progression but with some restricted movements.
C	>20 and ≤35	>15 and ≤25	Operations where a significant number of vehicles are stopping with some backup and light congestion.
D	>35 and ≤55	>25 and ≤35	Operations where congestion is noticeable, longer delays occur, and many vehicles stop. The proportion of vehicles not stopping declines.
E	>55 and ≤80	>35 and ≤50	Operations where there is significant delay, extensive queuing, and poor progression.
F	>80	>50	Operations that are unacceptable to most drivers, when the arrival rates exceed the capacity of the intersection.

Notes:
(a) Highway Capacity Manual 2000 (HCM 2000), Chapter 16, Page 2, Exhibit 16-2
(b) Highway Capacity Manual 2000 (HCM 2000), Chapter 17, Page 2, Exhibit 17-2

The City of San Diego considers LOS D or better during the AM and PM peak hours to be the threshold of acceptable LOS at intersections.

2.2 Roadway Segments

Roadway segment LOS standards and thresholds provide the basis for analysis of roadway segment performance. The analysis of roadway segment LOS is based on the functional classification of the roadway, its maximum capacity, its roadway geometrics, and existing or forecast Average Daily Traffic (ADT) volumes. **Table 2-2** presents the roadway segment capacity and LOS standards utilized by the City of San Diego.

TABLE 2-2
LOS CRITERIA FOR ROADWAY SEGMENTS

Street Classification	Level of Service				
	A	B	C	D	E
Expressway (6-lane)	< 30,000	< 42,000	< 60,000	< 70,000	< 80,000
Primary Arterial (6-lane)	< 25,000	< 35,000	< 50,000	< 55,000	< 60,000
Major Street (6-lane, divided)	< 20,000	< 28,000	< 40,000	< 45,000	< 50,000
Major Street (4-lane, divided)	< 15,000	< 21,000	< 30,000	< 35,000	< 40,000
Collector (4-lane w/center lane)	< 10,000	< 14,000	< 20,000	< 25,000	< 30,000
Collector (4-lane w/o center lane)	< 5,000	< 7,000	< 10,000	< 13,000	< 15,000
Collector (2-lane w/ continuous left-turn lane)					
Collector (2-lane no fronting property)	< 4,000	< 5,500	< 7,500	< 9,000	< 10,000
Collector (2-lane w/ commercial fronting)	< 2,500	< 3,500	< 5,000	< 6,500	< 8,000
Collector (2-lane multi-family)					
Sub-Collector (2-lane single-family)	-	-	< 2,200	-	-

Source: Traffic Impact Study Manual, City of San Diego, July 1998

2.3 Freeway Segments

Freeway segments were analyzed during the AM and PM peak hours based on the methodologies developed by Caltrans District 11. Freeway segment LOS is based on the volume to capacity ratio (v/c ratio) on the freeway during the peak hours. The procedure involves comparing the peak hour volume of the mainline freeway segment to the theoretical capacity of the segment, resulting in the corresponding v/c ratio. The resulting v/c ratio is then compared to the accepted v/c ratio values. The procedure for calculating the freeway LOS involves the estimation of the v/c ratio using the following equation:

v/c ratio = ([ADT * K Factor * D Factor] / Truck Factor) / Capacity

ADT = average daily traffic volumes
K Factor = percentage of ADT occurring in the peak hour
D Factor = percentage of peak hour traffic occurring in the peak direction
Truck Factor = based on truck percentage and terrain
Capacity = 2,350 vehicles/hour/lane for the mainline

Table 2-3 summarizes the freeway segment LOS thresholds.

TABLE 2-3
LOS CRITERIA FOR FREEWAY SEGMENTS

LOS	v/c Ratio
A	< 0.41
B	0.42 – 0.62
C	0.63 – 0.80
D	0.81 – 0.92
E	0.93 – 1.00
F(0)	1.01 – 1.25
F(1)	1.26 – 1.35
F(2)	1.36 – 1.45
F(3)	> 1.46

2.4 Determination of Significant Impacts

To determine if a project would have a significant impact on an intersection, roadway segment, and/or freeway segment, the City of San Diego has developed thresholds based on allowable increases in delay at intersections and volume to capacity (v/c) ratios for roadway and freeway segments. At intersections, the measure of effectiveness (MOE) is based on allowable increases in delay. For roadway and freeway segments, the MOE is based on allowable increases in the v/c ratio. For intersections that are expected to operate at LOS E with the project, the allowable increase in delay is two seconds, while for intersections that are expected to operate at LOS F, the allowable increase in delay is one second. If vehicle trips from a proposed project would cause the delay at an intersection to increase by more than the City's threshold, this would be a significant project impact that would require mitigation.

For roadway segments that are forecast to operate at LOS E, the allowable increase in v/c ratio is 0.02, while for roadway segments that are forecast to operate at LOS F, the allowable increase in v/c ratio is 0.01. An increase in v/c ratio higher than the City's threshold would be a significant impact that requires mitigation.

For freeway segments that are forecast to operate at LOS E, the allowable increase in v/c ratio is 0.010, while for freeway segments that are forecast to operate at LOS F, the allowable increase in v/c ratio is 0.005. An increase in v/c ratio higher than the City's threshold would be a significant impact that requires mitigation.

Additionally, if a roadway facility would operate at acceptable LOS in baseline conditions, but at unacceptable LOS with the project, then the project would have a significant traffic impact on the roadway facility.

Table 2-4 summarizes the criteria for determining levels of significance at intersections, roadway segments, and freeway segments.

TABLE 2-4
SIGNIFICANCE CRITERIA FOR INTERSECTIONS AND ROADWAY SEGMENTS

Facility	Measurement of Effectiveness (MOE)	Significance Threshold (a)
Intersections	Seconds of delay	> 2.0 seconds at LOS E or > 1.0 seconds at LOS F
Roadway Segments	v/c Ratio	> 0.02 at LOS E or > 0.01 at LOS F, and adjacent intersections operating at an unacceptable LOS
Freeway Segments	v/c Ratio	> 0.01 at LOS E or > 0.005 at LOS F

Source: City of San Diego, Significance Determination Thresholds, January 2011

Notes:
(a) Significance threshold applies only when the facility operates at LOS E or F.

3 Future Buildout Analysis

This section summarizes the study area, roadway network and intersections, peak hour and daily traffic volumes, and operations at the study roadway facilities in Buildout scenario.

3.1 Study Area

3.1.1 Roadway Segments

This study analyzed all roadway segments evaluated in the *Ocean Beach Existing Conditions Report Mobility Element*. Additionally, the following three segments of Sunset Cliffs Boulevard were studied as this roadway is a major gateway to the Ocean Beach Community and was found (through select link analysis) to carry substantial amounts of Ocean Beach traffic:

1. Sunset Cliffs Boulevard between West Point Loma Boulevard and Nimitz Boulevard
2. Sunset Cliffs Boulevard between Nimitz Boulevard and I-8 WB off-ramp
3. Sunset Cliffs Boulevard between I-8 WB off-ramp and Sea World Drive

Appendix D contains a copy of the select link analysis for the segments of Sunset Cliffs Boulevard, West Point Loma Boulevard, and Nimitz Boulevard.

The functional classification assumed for the roadway segments in the Buildout scenario is the same as currently exists.

Table 3-1 summarizes the functional classifications for the various roadway segments within the OB community as well as the roadway segments studied that lie outside the community limits. **Figure 3-1** provides a graphical representation of these roadways' classifications.

TABLE 3-1
FUNCTIONAL CLASSIFICATIONS FOR ROADWAY SEGMENTS

Roadway Segment	Functional Classification
Abbott St	
Newport St to W Point Loma Blvd	2 Lane Collector Street
Bacon St	
Santa Cruz Ave to W Point Loma Blvd	2 Lane Collector Street
Cable St	
Orchard Ave to W Point Loma Blvd	2 Lane Collector Street
Sunset Cliffs Blvd	
Adair St to W Point Loma Blvd	2 Lane Major Street
W Point Loma Blvd to Nimitz Blvd (a)	4 Lane Major Street
Nimitz Blvd to I-8 WB off-ramp (a)	4 Lane Primary Arterial
I-8 WB off-ramp to Sea World Dr (a)	4 Lane Primary Arterial
Ebers St	
Narragansett Ave to Voltaire St	2 Lane Collector Street
Nimitz Blvd	
Sunset Cliffs Blvd to W Point Loma Blvd	4 Lane Primary Arterial

Roadway Segment	Functional Classification
W Point Loma Blvd	
Abbott St to Sunset Cliffs Blvd	2 Lane Collector Street
Sunset Cliffs Blvd to Nimitz Blvd	2 Lane Major Street
Nimitz Blvd to Famosa Blvd	4 Lane Major Street
Voltaire St	
Abbott St to Sunset Cliffs Blvd	2 Lane Collector Street
Sunset Cliffs Blvd to Froude St	2 Lane Major Street
Santa Monica Ave	
Abbott St to Sunset Cliffs Blvd	2 Lane Collector Street
Newport Ave	
Abbott St to Froude St	2 Lane Collector Street
Narragansett Ave	
Bacon St to Froude St	2 Lane Collector Street
Orchard Ave	
Cable St to Sunset Cliffs Blvd	2 Lane Collector Street
Point Loma Ave	
Sunset Cliffs Blvd to Froude St	2 Lane Collector Street

Notes:
(a) These roadway segments are located within the Mission Bay Park community.

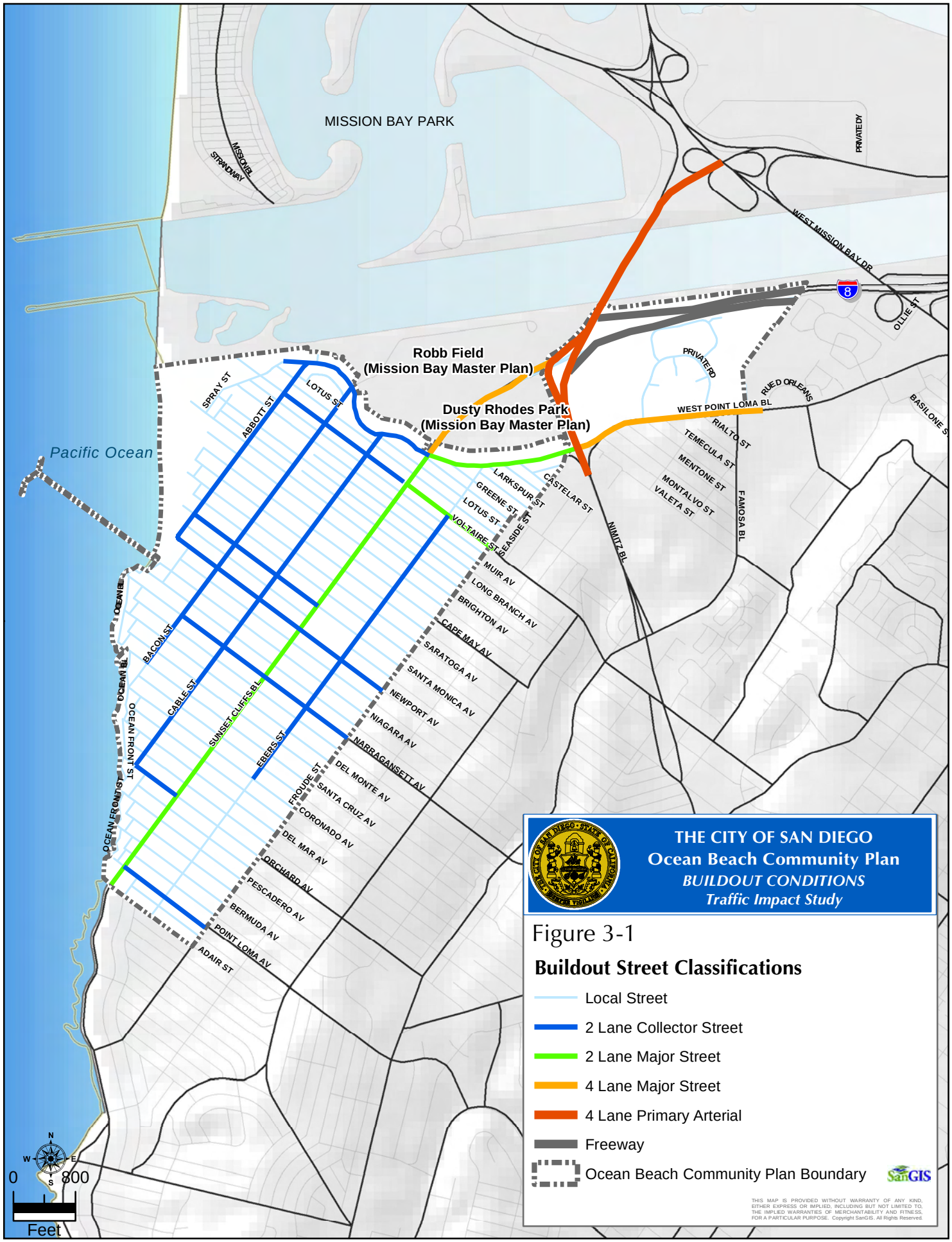

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Figure 3-1

Buildout Street Classifications

- Local Street
- 2 Lane Collector Street
- 2 Lane Major Street
- 4 Lane Major Street
- 4 Lane Primary Arterial
- Freeway
- Ocean Beach Community Plan Boundary

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3.1.2 Freeways

Based on the Select Link analysis, the freeway segment of I-8 between Sunset Cliffs Boulevard and W Mission Bay Drive was included in the geographic study area. This freeway segment is considered to be a main gateway into the Ocean Beach community and contains two travel lanes (main lines) in each direction.

3.1.3 Intersections

All intersections evaluated in the *Ocean Beach Existing Conditions Report Mobility Element* were analyzed in this study. In addition, the following four stop controlled intersections were analyzed in this report:

1. Ebers Street/West Point Loma Boulevard (1-way stop)
2. Sunset Cliffs Boulevard/Brighton Avenue (2-way stop)
3. Sunset Cliffs Boulevard/Orchard Avenue (2-way stop)
4. Bacon Street/West Point Loma Boulevard (all-way stop)

Figure 3-2 presents the study area intersections evaluated under Buildout conditions.

Because Ocean Beach community members have expressed the desire to have these locations signalized, they have been evaluated to see if they warrant signalization under Buildout conditions. The California Manual of Uniform Traffic Control Devices (CA MUTCD 2012) Figure 4C-103 was referenced to determine if any of the intersections would be expected to meet traffic signal warrants. Based on the analysis, signalization would be warranted only at the West Point Loma Boulevard/Ebers Street and West Point Loma Boulevard/Bacon Street intersections using forecasted Buildout traffic volumes. The other two intersections would not meet signal warrants. Signal warrant worksheets are provided in **Appendix E** as well as existing count data for these intersections.

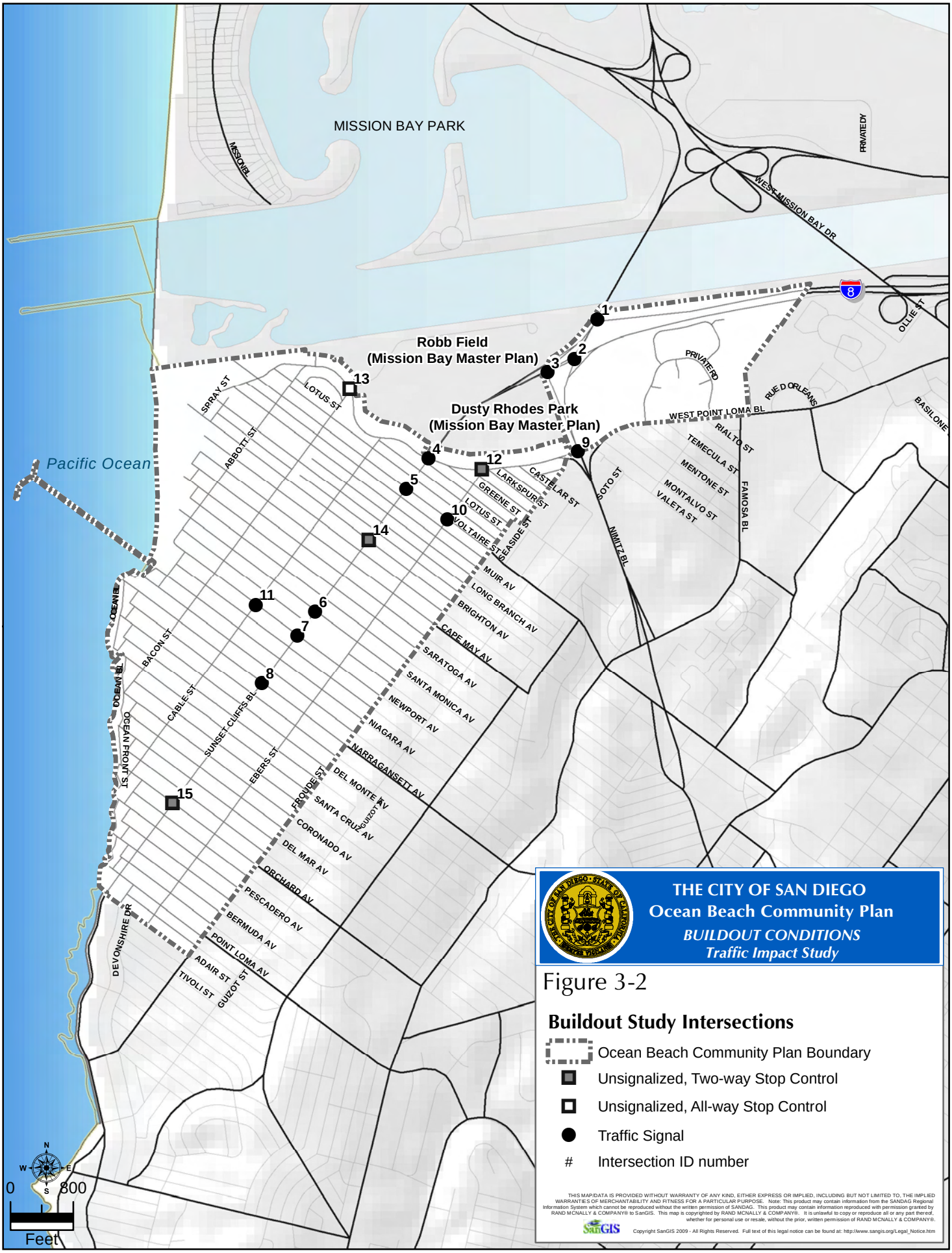

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Figure 3-2

Buildout Study Intersections

- Ocean Beach Community Plan Boundary
- Unsignalized, Two-way Stop Control
- Unsignalized, All-way Stop Control
- Traffic Signal
- # Intersection ID number

Table 3-2 summarizes the traffic controls at each study intersection. As shown in the table, Intersections 1 through 11 are signalized while Intersections 12 through 15 are unsignalized with either stop controls on the minor approaches or on all approaches.

TABLE 3-2
TRAFFIC CONTROL AT STUDY INTERSECTIONS

#	Intersection	Traffic Control
1	Sunset Cliffs Blvd @ I-8 WB off-ramp	Signal
2	Sunset Cliffs Blvd @ I-8 EB on-ramp	Signal
3	Sunset Cliffs Blvd @ Nimitz Blvd	Signal
4	Sunset Cliffs Blvd @ W Point Loma Blvd	Signal
5	Sunset Cliffs Blvd @ Voltaire St	Signal
6	Sunset Cliffs Blvd @ Santa Monica Ave	Signal
7	Sunset Cliffs Blvd @ Newport Ave	Signal
8	Sunset Cliffs Blvd @ Narragansett Ave	Signal
9	Nimitz Blvd @ W Point Loma Blvd	Signal
10	Ebers St @ Voltaire St	Signal
11	Cable St @ Newport Ave	Signal
12	Ebers St @ W Point Loma Blvd	OWSC
13	Bacon St @ W Point Loma Blvd	AWSC
14	Sunset Cliffs Blvd @ Brighton Ave	OWSC
15	Sunset Cliffs Blvd @ Orchard Ave	OWSC

Note:
Signal: Traffic signal, OWSC: One-way stop control, AWSC: All-way stop control

Figure 3-3 illustrates the intersection geometrics assumed at the study intersections in the Buildout scenario.

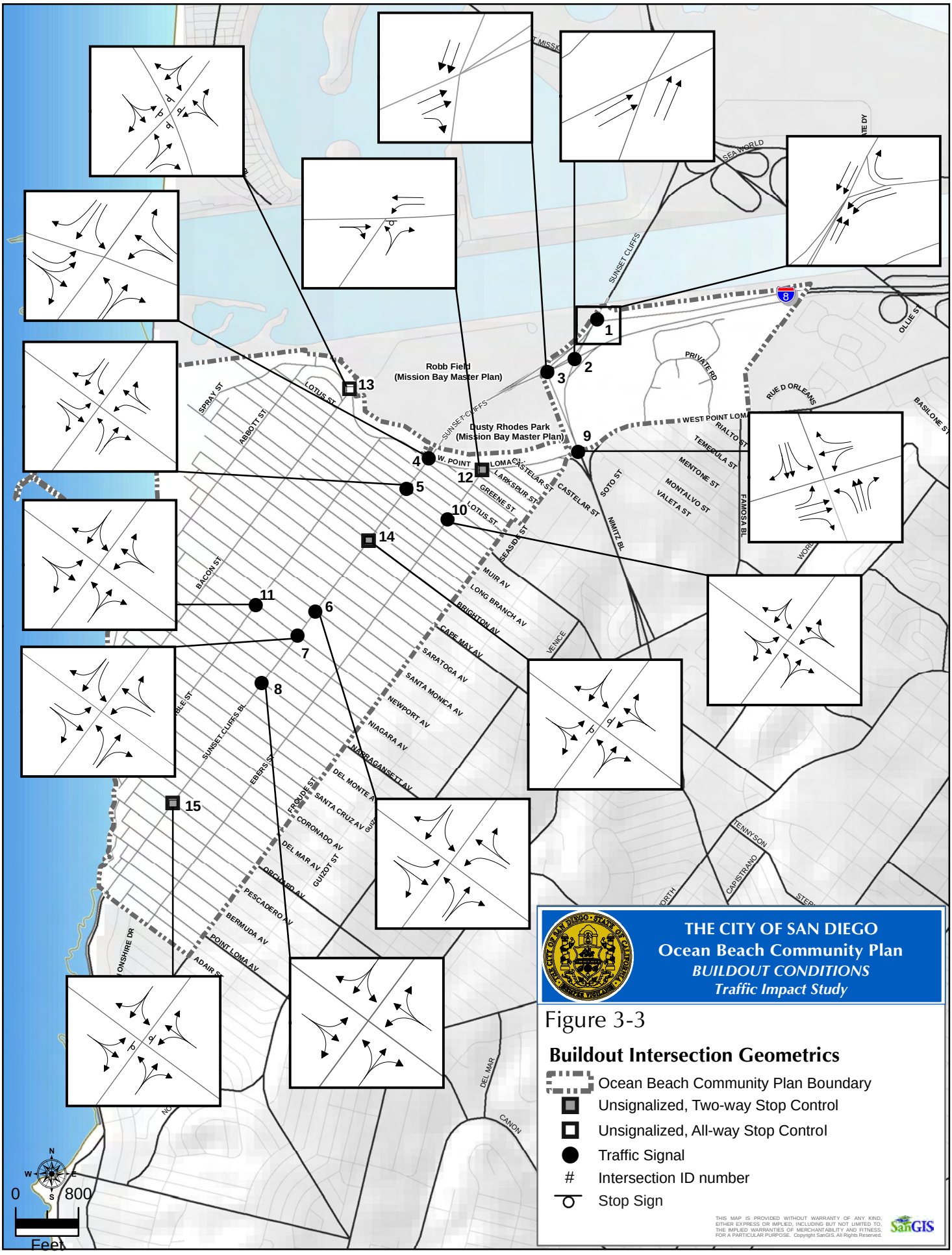
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Figure 3-3
Buildout Intersection Geometrics
Ocean Beach Community Plan Boundary
Unsignalized, Two-way Stop Control
Unsignalized, All-way Stop Control
Traffic Signal
Intersection ID number
Stop Sign
Robb Field
(Mission Bay Master Plan)
Dusty Rhodes Park
(Mission Bay Master Plan)
SUNSET CLIFFS
SEA WORLD
W. POINT LOMA
LOMA CASTELAR ST
CASTELAR ST
LARKSPUR ST
GREENE ST
LOTUS ST
SPRAY ST
ABBOTT ST
BACON ST
SOTO ST
NIMITZ BL
MUIR AV
LONG BRANCH AV
BRIGHTON AV
CAPE MAY AV
SARATOGA AV
SANTA MONICA AV
NEWPORT AV
NIAGARA AV
NARRAGANSETT AV
DEL MONTE AV
SANTA CRUZ AV
CORONADO AV
DEL MAR AV
ORCHID DR
GUIJOT ST
PESCADERO AV
BERMUDA AV
POINT LOMA AV
ADAIR ST
SUNSET CLIFFS BL
EBERS ST
FROUDE ST
VENICE
DEL MAR
CANON
TENNYSON
CAPISTRANO
RIALTO ST
TEMECULA ST
MENTONE ST
MONTALVO ST
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3.2 Buildout Traffic Volumes

3.2.1 Roadway and Freeway Volumes

The average daily traffic (ADT) volumes for the Buildout scenario along the roadway and freeway segments studied were determined from the City of San Diego's future year travel forecast, dated January 26, 2011. This forecast is a SANDAG Series 11 forecast that includes buildout land uses of the proposed Ocean Beach Community Plan Update and incorporates land use, population, and employment data in the San Diego region in Year 2030. The land uses for the adjacent communities were forecast for the Year 2030. It should be noted that due to the uncertainty of estimates and forecasts, traffic volumes were rounded according to the following American Association of State Highway and Transportation Officials (AASHTO's) rounding standards, which are the following:

Forecast Volume	Round to Nearest
<100	10
100 to 999	50
1,000 to 9,999	100
10,000 to 99,999	500
>99,999	1,000

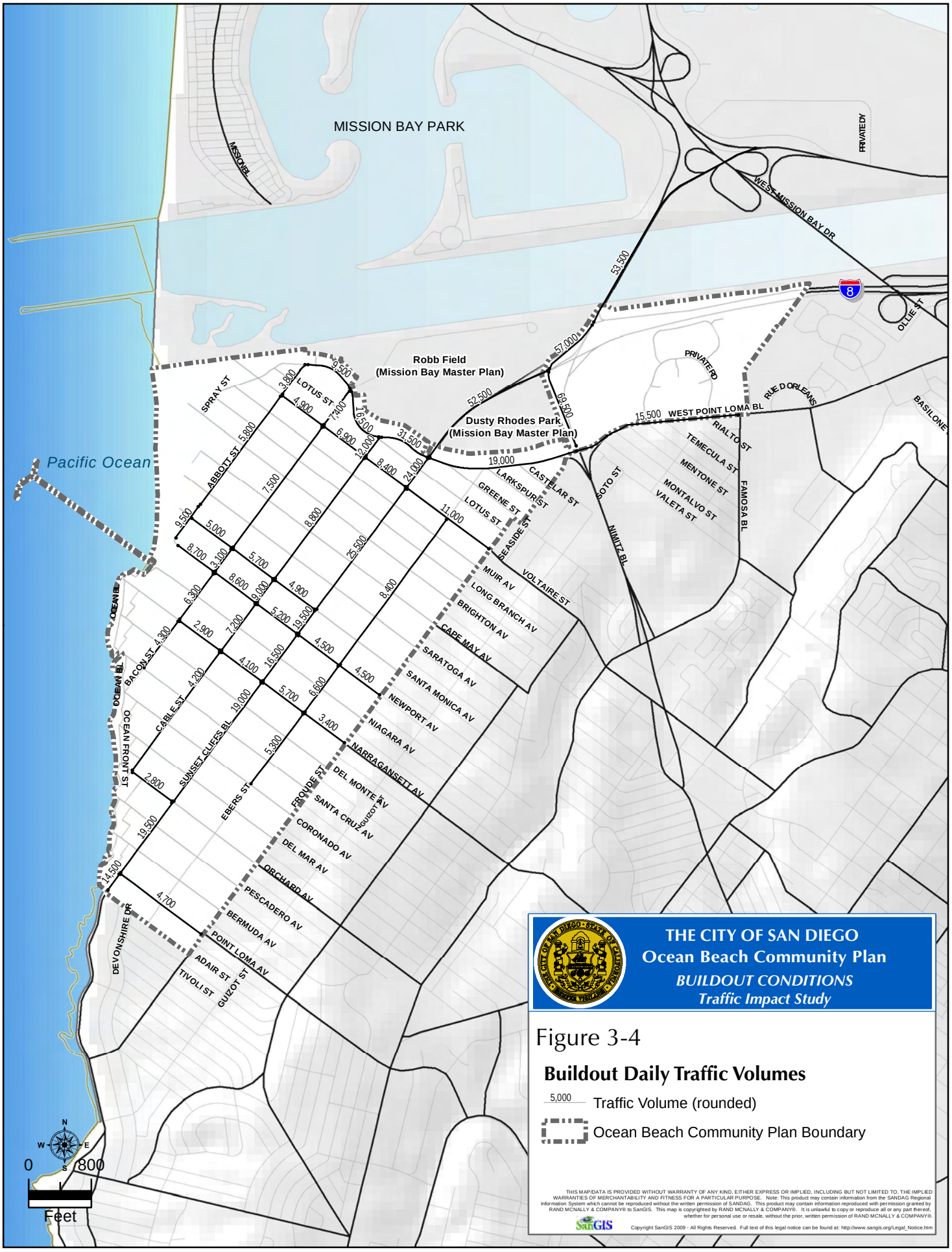
Figure 3-4 displays the Buildout daily traffic volumes along the various roadway segments within the OB community. **Appendix F** contains a copy of the travel forecast.

3.2.2 Intersection Peak-Hour Turning Volumes

To estimate the Buildout scenario turning movement volumes at the study intersections, the existing turning movements at each respective study intersection were factored up based on the projected Average Daily Traffic (ADT) volumes along each segment. Each respective movement was derived using an iterative approach that balances the inflows and outflows for each approach. The input values include the existing turning movement volumes and future year peak hour approach and departure volumes along each leg of the intersection. The future peak hour approach volumes were estimated by applying the existing peak hour factor (K-factor) and directional distributional percentage (D-factor) to the future ADT volumes along each approach. A more detailed description of the methodology used to forecast turning movement volumes is contained in the National Cooperative Highway Research Program (NCHRP) 255 Highway Traffic Data for Urbanized Area Project Planning and Design, Chapter 8.

An Excel model was developed to compute the forecasted turning movement volumes from existing turning movement volumes and forecasted approach and departure volumes by the techniques described in NCHRP 255. As a conservative approach, if a turning movement volume produced by this model was less than the existing count for that movement, manual adjustments were made to assure that all forecast horizon year volumes would be equal or greater than the existing turning movement counts. It should be noted that due to the uncertainty of estimates and forecasts, all turning movement volumes were rounded up to the nearest five vehicles. **Appendix G** contains the worksheets summarizing how the future year turning movement volumes were derived.

Figures 3-5 and **3-6** illustrate the Buildout peak hour turning movement volumes during the AM and PM peak, respectively.



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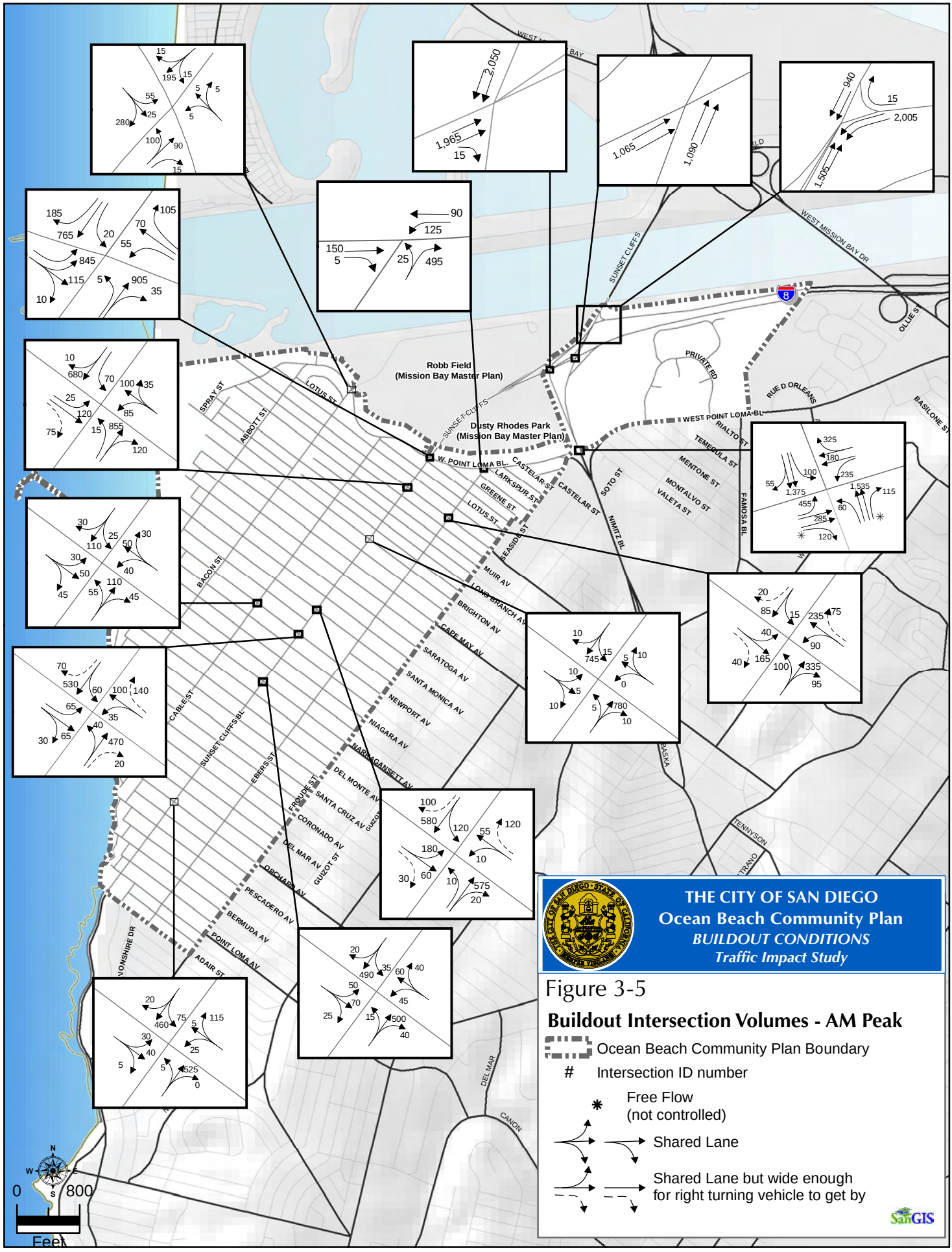
Ocean Beach Community Plan
BUILDOUT CONDITIONS
Traffic Impact Study

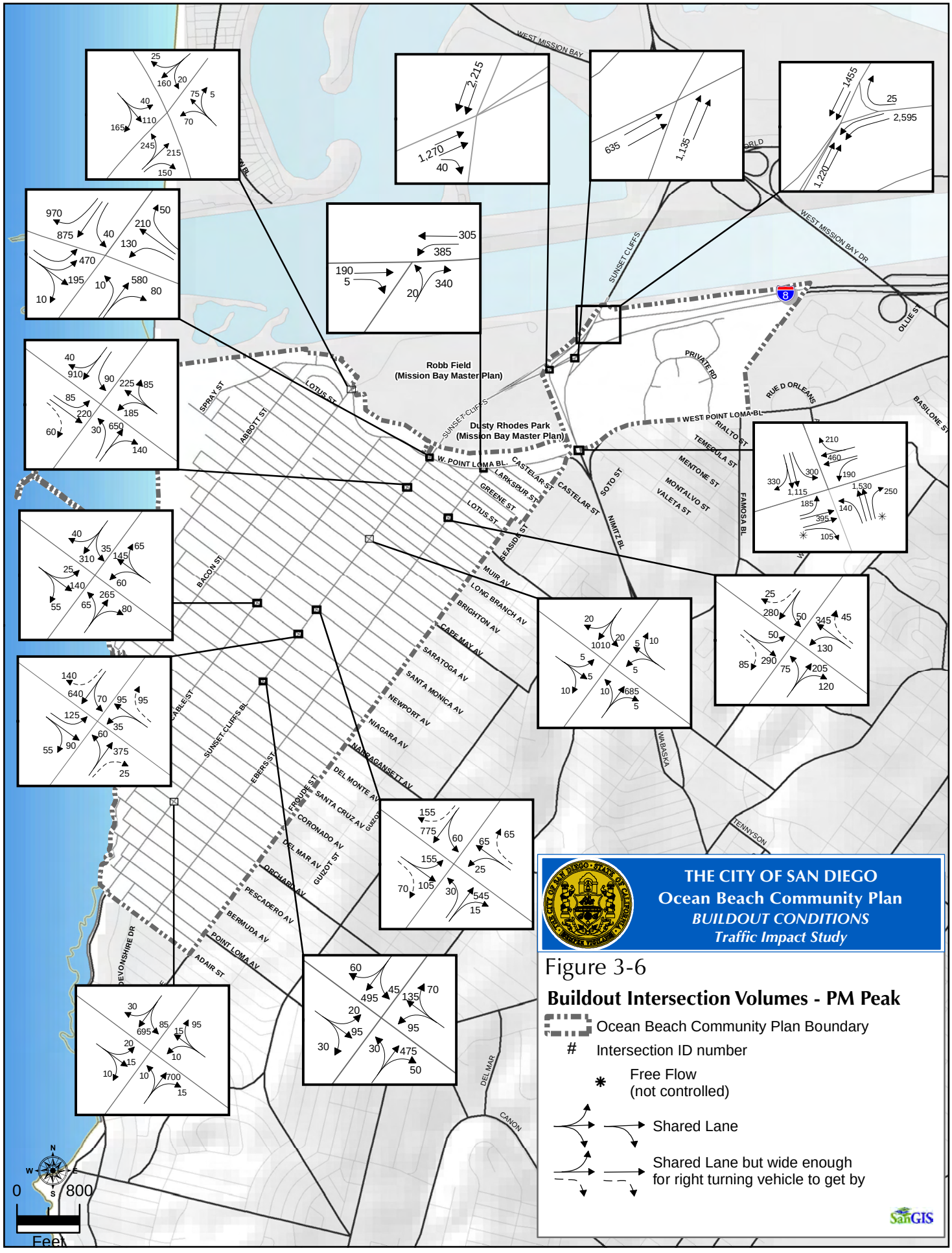
Figure 3-4

Buildout Daily Traffic Volumes

5,000 Traffic Volume (rounded)

Ocean Beach Community Plan Boundary





3.2.3 Validation of Traffic Counts

In accordance with the City of San Diego Traffic Impact Study Manual (1998), traffic counts should be no greater than two years old. Therefore, since the counts from the *Ocean Beach Existing Conditions Report Mobility Element* were gathered in 2008, validation was required to determine if these counts still represent current traffic conditions. Consequently, roadway segment ADT and intersection turning volume counts from the *Ocean Beach Existing Conditions Report Mobility Element* were compared to current (i.e., Year 2010 and later) counts to determine if the 2008 counts were still valid. Details of the validation of the existing traffic counts was prepared and summarized in a technical memorandum, dated November 8, 2011 (see **Appendix H**).

Table 3-3 summarizes the validation of the ADT volumes along several of the study area roadway segments. Cells containing counts from the same season (winter or summer) are shown in gray highlights. Also, bolded values in the table indicate traffic counts that are within 10 percent of each other. As shown in the table, it does not appear that there is a pattern with the recent ADT volumes as they are both higher and lower than the counts obtained in 2008. However, the ADT volumes shown for one of the primary gateways into the Ocean Beach community, Sunset Cliffs Boulevard, indicate that traffic volumes have not experienced significant change over the last few years, which supports the validity of the 2008 traffic counts used by the City in developing the Existing Conditions Report. Traffic volumes along Sunset Cliffs Boulevard between Lotus Street and West Point Loma Boulevard remained fairly constant between 2008 and 2010.

TABLE 3-3
VALIDATION OF ADT VOLUMES

Segment	Date of Count	ADT	Δ in ADT*	Δ in %
Bacon St (Narragansett Ave and Niagara Ave)	Thu, 01/17/08	3,700	1,115	30%
	Tue, 06/15/10	4,815		
Cable St (Brighton Ave to Long Branch Ave)	Thu, 01/17/08	6,500	-1,835	-28%
	Tue, 11/16/10	4,665		
Narragansett Ave (Cable St to Sunset Cliffs Blvd)	Thu, 07/24/08	2,800	145	5%
	Tue, 06/15/10	2,945		
Newport Ave (Cable St to Sunset Cliffs Blvd)	Thu, 07/24/08	6,200	1,970	32%
	Tue, 06/15/10	8,170		
Point Loma Ave (Ebers St to Froude St)	Thu, 07/24/08	3,000	670	22%
	Tue, 07/27/10	3,670		
Sunset Cliffs Blvd (Lotus St to W Point Loma Blvd)	Thu, 07/24/08	22,800	-150	-1%
	Tue, 06/15/10	22,650		
Sunset Cliffs Blvd (W Point Loma Blvd to Nimitz Blvd)	Thu, 07/24/08	36,200	945	3%
	Sat, 01/29/11	37,145		
Voltaire St (Sunset Cliffs Blvd to Ebers St)	Thu, 01/17/08	5,400	2,670	49%
	Tue, 06/15/10	8,070		
W Point Loma Blvd (Bacon St to Cable St)	Thu, 07/24/08	12,900	-25	0%
	Tue, 06/15/10	12,875		

Δ refers to increase (+) or decrease (-) in volumes between 2008 and 2010 counts. (2010 minus 2008)
Cells highlighted in gray indicate counts that were obtained during the same season (winter or summer)
Values shown in bold indicate traffic counts that are within 10% of each other.

Regarding the validation of intersection traffic counts, several recent intersection traffic counts (August 2010) were provided by the City of San Diego and summarized in **Table 3-4**. As shown in the table, the average entering traffic volumes at all intersections are generally the same during the peak hours. Traffic counts that are within 10 percent are considered to be valid; therefore, it can be concluded that the turning volume counts from the *Ocean Beach Existing Conditions Report* are still valid and may be used in this analysis. **Appendix I** contains a copy of the traffic volumes used for the validation.

TABLE 3-4
VALIDATION OF PEAK HOUR TRAFFIC VOLUMES

Intersection	Peak Hour	Date of Count	Total Entering Volume	Date of Count	Total Entering Volume	Δ in %
Sunset Cliffs Blvd/W Point Loma Blvd	AM	Wed 7/16/2008	2,326	Thu 8/5/2010	2,297	-1%
	PM		3,245		3,290	1%
Sunset Cliffs Blvd/Voltaire St	AM	Wed 7/16/2008	1,438	Thu 8/5/2010	1,503	5%
	PM		1,966		1,942	-1%
Sunset Cliffs Blvd/Narragansett Ave	AM	Wed 7/16/2008	909	Thu 8/5/2010	767	-16%
	PM		1,104		1,140	3%
Cable St/Newport Ave	AM	Wed 7/16/2008	543	Thu 8/5/2010	555	2%
	PM		923		880	-5%
Average	AM		5,216		5,122	-2%
	PM		7,238		7,252	0%

Notes:
Δ refers to & increase (+) or decrease (-) in volumes between 2008 and 2010 counts (2010 minus 2008).
Values that are shown in **bold** indicate traffic counts that are within 10% of each other.

3.2.4 Seasonal Traffic Volumes

The *Ocean Beach Existing Conditions Report Mobility Element* provides two sets of counts for each roadway facility studied; one set taken in January 2008 ("winter counts") and another taken during the summer of 2008. Since the development of Buildout turning volumes is contingent on the baseline volumes, it was necessary to determine which set of counts (winter or summer) were higher so the higher counts could be used to develop the Buildout volumes. This would provide a more conservative analysis since using higher counts for the baseline would result in higher intersection counts for the Buildout scenario.

Table 3-5 summarizes the traffic data obtained for the winter and summer months at selected intersections along Sunset Cliffs Boulevard. It should be noted that the traffic volumes represent the total traffic volumes entering an intersection during the peak one-hour time period.

As shown in the table, traffic counts obtained in the winter months at all of the intersections along Sunset Cliffs Boulevard during both peak hours demonstrate higher traffic volumes compared to the counts obtained during the summer months. The winter counts at all locations along Sunset Cliffs Boulevard were generally 19 percent and 9 percent higher during the AM and PM peak hour, respectively. Typically summer counts are higher than winter counts in beach areas; however, the decline in traffic volumes in the summer of 2008 may be attributed to the higher fuel prices as well as the economic downturn beginning in March 2008. Since winter counts were found to be higher than the summer counts, the winter counts at the study area intersections were used as a baseline to estimate the future year turning movement volumes.

TABLE 3-5
COMPARISON OF WINTER AND SUMMER TRAFFIC VOLUMES

Intersection	Peak Hour	Winter 2008	Summer 2008	Δ in %
Sunset Cliffs Blvd/W Point Loma Blvd	AM	2,837	2,326	-18%
	PM	3,270	3,240	-1%
Sunset Cliffs Blvd/Voltaire St	AM	1,734	1,426	-18%
	PM	2,156	1,950	-10%
Sunset Cliffs Blvd/Santa Monica Ave	AM	1,404	1,072	-24%
	PM	1,579	1,361	-14%
Sunset Cliffs Blvd/Newport Ave	AM	1,289	1,037	-20%
	PM	1,441	1,219	-15%
Sunset Cliffs Blvd/Narragansett Ave	AM	1,109	902	-19%
	PM	1,289	1,087	-16%
All Signalized Intersections along Sunset Cliffs Blvd	AM	8,373	6,763	-19%
	PM	9,735	8,857	-9%

Notes:
The percentage shown in the table compares the summer 2008 counts to winter 2008 counts, with negative values indicating higher winter volumes and positive values indicating the reverse.

3.3 Intersection Analysis

Table 3-6 displays the LOS analysis results for the study intersections at Buildout. As shown in the table, seven study intersections would operate at an acceptable LOS D or better and the following eight intersections would not:

- Sunset Cliffs Boulevard/I-8 WB off-ramp (LOS F, AM and PM Peak)
- Sunset Cliffs Boulevard/I-8 EB on-ramp (LOS F, AM Peak)
- Sunset Cliffs Boulevard/Nimitz Boulevard (LOS F, AM and PM Peak)
- Sunset Cliffs Boulevard/West Point Loma Boulevard (LOS F, AM and PM Peak)
- Nimitz Boulevard/West Point Loma Boulevard (LOS F, AM and PM Peak)
- Bacon Street/West Point Loma Boulevard (LOS F, PM Peak)
- Sunset Cliffs Boulevard/Brighton Street (LOS F, AM and PM Peak)
- Sunset Cliffs Boulevard/Orchard Street (LOS F, AM and PM Peak)

It should be noted that due to the close spacing of the West Point Loma Boulevard and Voltaire Street intersections along Sunset Cliffs Boulevard and the LOS F operations at the West Point Loma Boulevard/Sunset Cliffs Boulevard intersection, northbound queuing could degrade operations at the Voltaire Street/Sunset Cliffs Boulevard intersection. A queuing analysis was performed and summarized in Section 3.3.1 below.

Figure 3-7 graphically depicts the LOS at the study intersections.

Appendix J contains the LOS worksheets for the Buildout scenario.

TABLE 3-6
PEAK HOUR INTERSECTION LOS SUMMARY
BUILDOUT CONDITIONS

#	Intersection	Traffic Control	Peak Hour	Buildout Conditions	
				Delay (a)	LOS (b)
1	Sunset Cliffs Blvd @ I-8 WB off-ramp	Signal	AM	128.7	F
			PM	ECL	F
2	Sunset Cliffs Blvd @ I-8 EB on-ramp	Signal	AM	88.5	F
			PM	37.9	D
3	Sunset Cliffs Blvd @ Nimitz Blvd	Signal	AM	ECL	F
			PM	124.3	F
4	Sunset Cliffs Blvd @ W Point Loma Blvd	Signal	AM	144.2	F
			PM	87.4	F
5	Sunset Cliffs Blvd @ Voltaire St (c)	Signal	AM	17.7	B
			PM	29.8	C
6	Sunset Cliffs Blvd @ Santa Monica Ave	Signal	AM	15.3	B
			PM	25.9	C
7	Sunset Cliffs Blvd @ Newport Ave	Signal	AM	10.4	B
			PM	11.3	B
8	Sunset Cliffs Blvd @ Narragansett Ave	Signal	AM	10.5	B
			PM	17.7	B
9	Nimitz Blvd @ W Point Loma Blvd	Signal	AM	117.1	F
			PM	112.4	F
10	Ebers St @ Voltaire St	Signal	AM	24.6	C
			PM	26.7	C
11	Cable St @ Newport Ave	Signal	AM	15.6	B
			PM	20.8	C
12	Ebers St @ W Point Loma Blvd	OWSC	AM	11.0	B
			PM	12.8	B
13	Bacon St @ W Point Loma Blvd	AWSC	AM	13.0	B
			PM	50.5	F
14	Sunset Cliffs Blvd @ Brighton Ave	OWSC	AM	62.2	F
			PM	89.7	F
15	Sunset Cliffs Blvd @ Orchard Ave	OWSC	AM	ECL	F
			PM	ECL	F

Source: Wilson & Company, Inc., April 2013

Notes:

Bold values indicate unacceptable LOS E or F

Signal: Traffic signal, OWSC: One-way stop control, AWSC: All-way stop control

ECL: Exceeds Calculable Limits. Typically reported when the delay exceeds 180 seconds per vehicle.

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle.

(b) LOS calculations are based on the methodology outlined in the *2000 Highway Capacity Manual* and performed using Synchro 7

(c) Northbound queues along Sunset Cliffs Blvd may degrade operations to less than acceptable conditions.

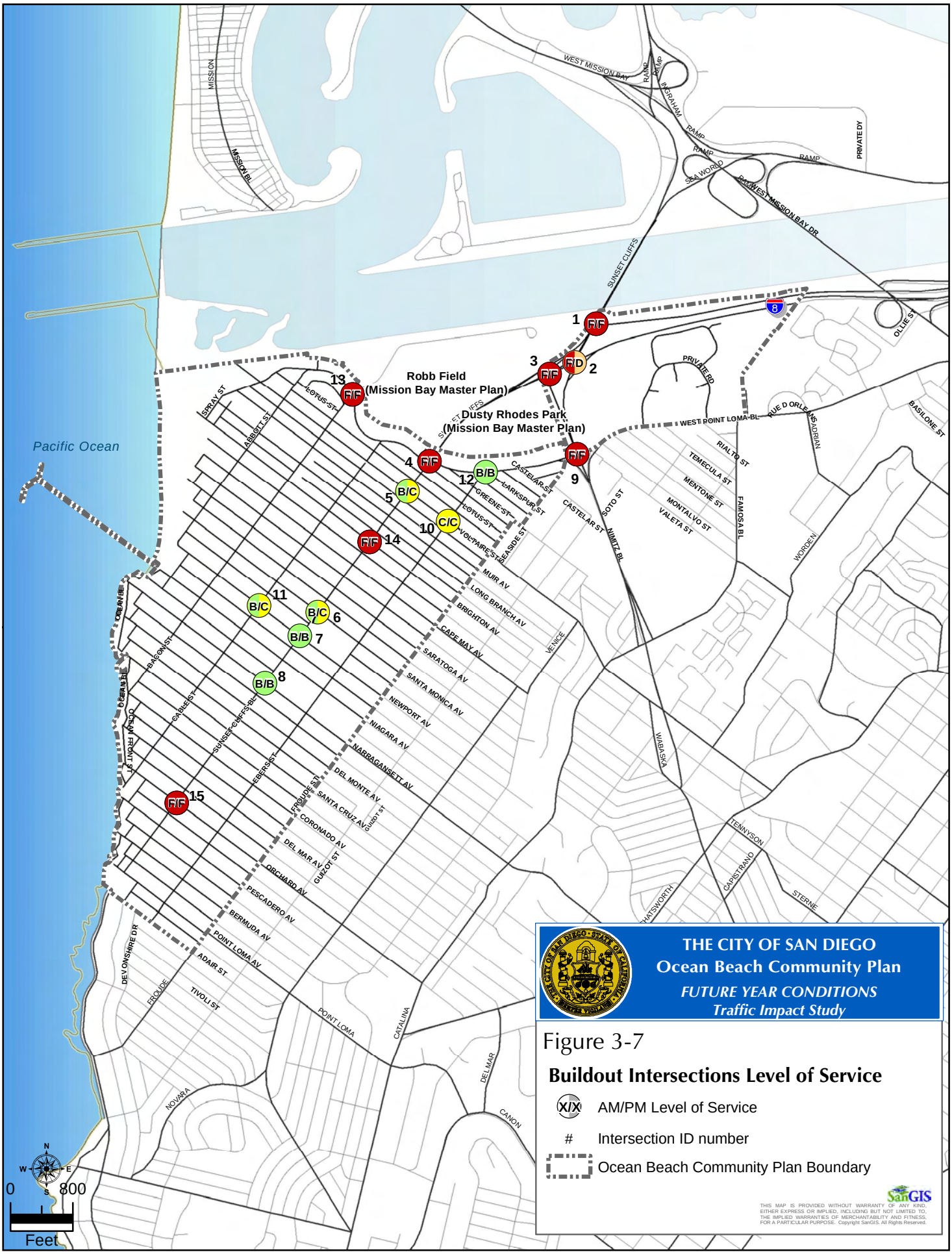


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Figure 3-7

Buildout Intersections Level of Service

X/X AM/PM Level of Service

\# Intersection ID number

Ocean Beach Community Plan Boundary

3.3.1 Queuing Analysis

A queuing analysis in the Buildout scenario was performed in the northbound direction at the West Point Loma Boulevard/Sunset Cliffs Boulevard intersection, since the Synchro analysis for this intersection was LOS F and this intersection is very close to the intersection of Voltaire Street/Sunset Cliffs Boulevard. As such, queues from West Point Loma Boulevard/Sunset Cliffs Boulevard could cause significant delays for vehicles at the intersection of Voltaire Street/Sunset Cliffs Boulevard that would not be accounted for in the LOS for Voltaire Street/Sunset Cliffs Boulevard reported in Table 3-6. **Table 3-7** summarizes the queuing analysis in the northbound direction at the West Point Loma Boulevard/Sunset Cliffs Boulevard intersection. As shown in the table, both the 50th and 95th percentile queue lengths for the northbound through movement along Sunset Cliffs Boulevard would exceed the available storage and extend back into the Voltaire Street/Sunset Cliffs Boulevard intersection. Therefore, queues from Voltaire/Sunset Cliffs Boulevard may degrade the LOS at Voltaire Street/Sunset Cliffs Boulevard to less than acceptable levels of service.

Appendix K contains the queuing worksheets.

TABLE 3-7
QUEUING SUMMARY
BUILDOUT CONDITIONS

		Buildout Conditions					
			Available	50th % Queue		95th % Queue	
	Intersection	Direction	Storage	AM Peak	PM Peak	AM Peak	PM Peak
4	W Point Loma Blvd @ Sunset Cliffs Blvd	NBL	120 ft	5 ft	5 ft	5 ft	5 ft
		NBT	400 ft	**760 ft**	**460 ft**	**1080 ft**	**790 ft**

Source: Wilson & Company, Inc., April 2013

Notes:
Bold values indicate movements where queues exceed the available storage length.
NBL = northbound left, NBT = northbound through

3.4 Roadway Segment Analysis

Table 3-8 displays the LOS analysis results for the roadway segments under the Buildout condition. As shown in the table, 14 of the roadway segments would function at LOS D or better, and the following segments would not:

- Abott Street
  - Newport Street to Santa Monica Avenue (LOS F)
- Bacon Street
  - Santa Monica Avenue to West Point Loma Boulevard (LOS E)
- Cable Street
  - Narragansett Ave to Newport Avenue (LOS E)
  - Newport Avenue to West Point Loma Boulevard (LOS F)
- Sunset Cliffs Boulevard
  - Adair Street to Narragansett Avenue (LOS F)
  - Narragansett Avenue to Voltaire Street (LOS F)
  - Voltaire Street to West Point Loma Boulevard (LOS F)
  - West Point Loma Boulevard to Nimitz Boulevard (LOS F)
  - Nimitz Boulevard to I-8 WB off-ramp (LOS F)
  - I-8 WB off-ramp to Sea World Drive (LOS F)

- Ebers Street
    - Narragansett Avenue to Newport Avenue (LOS E)
    - Newport Avenue to Voltaire Street (LOS F)
    - Voltaire Street to West Point Loma Boulevard (LOS F)
- Nimitz Boulevard
    - Sunset Cliffs Boulevard to West Point Loma Boulevard (LOS F)
- West Point Loma Boulevard
    - Abbott Street to Sunset Cliffs Boulevard (LOS F)
    - Sunset Cliffs Boulevard to Nimitz Boulevard (LOS F)
- Voltaire Street
    - Bacon Street to Cable Street (LOS E)
    - Cable Street to Sunset Cliffs Boulevard (LOS F)
    - Sunset Cliffs Boulevard to Froude Street (LOS F)
- Newport Avenue
    - Abbott Street to Cable Street (LOS F)

Figure 3-8 graphically depicts the LOS along the study roadway segments.

TABLE 3-8
ROADWAY SEGMENT LOS SUMMARY
BUILDOUT CONDITIONS

Roadway Segment	Classification (a) (d)	LOS E Capacity	ADT (b)	v/c Ratio (c)	LOS
Abbott St					
Newport St to Santa Monica Ave	2 Lane Collector Street	8,000	9,500	1.19	F
Santa Monica Ave to W Point Loma Blvd	2 Lane Collector Street	8,000	5,800	0.73	D
Bacon St					
Santa Cruz Ave to Narragansett Ave	2 Lane Collector Street	8,000	4,300	0.54	C
Narragansett Ave to Santa Monica Ave	2 Lane Collector Street	8,000	6,300	0.79	D
Santa Monica Ave to W Point Loma Blvd	2 Lane Collector Street	8,000	7,500	0.94	E
Cable St					
Orchard Ave to Narragansett Ave	2 Lane Collector Street	8,000	4,200	0.53	C
Narragansett Ave to Newport Ave	2 Lane Collector Street	8,000	7,200	0.90	E
Newport Ave to W Point Loma Blvd	2 Lane Collector Street	8,000	12,000	1.50	F
Sunset Cliffs Blvd					
Adair St to Narragansett Ave	2 Lane Major Street	8,000	19,500	2.44	F
Narragansett Ave to Voltaire St	2 Lane Major Street	8,000	25,500	3.19	F
Voltaire St to W Point Loma Blvd	2 Lane Major Street	8,000	24,000	3.00	F
W Point Loma Blvd to Nimitz Blvd	4 Lane Major Street	40,000	52,500	1.31	F
Nimitz Blvd to I-8 WB off-ramp	4 Lane Primary Arterial	45,000	57,000	1.27	F
I-8 WB off-ramp to Sea World Dr	4 Lane Primary Arterial	45,000	53,500	1.19	F
Ebers St					
Coronado Ave to Narragansett Ave	2 Lane Collector Street	8,000	5,300	0.66	D
Narragansett Ave to Newport Ave	2 Lane Collector Street	8,000	6,600	0.83	E
Newport Ave to Voltaire St	2 Lane Collector Street	8,000	8,400	1.05	F
Voltaire St to W Point Loma Blvd	2 Lane Collector Street	8,000	15,000	1.88	F
Nimitz Blvd					
Sunset Cliffs Blvd to W Point Loma Blvd	4 Lane Primary Arterial	45,000	69,500	1.54	F
W Point Loma Blvd					
Abbott St to Sunset Cliffs Blvd	2 Lane Collector Street	8,000	31,500	3.94	F

Roadway Segment	Classification (a) (d)	LOS E Capacity	ADT (b)	v/c Ratio (c)	LOS
Sunset Cliffs Blvd to Nimitz Blvd	2 Lane Major Street	8,000	19,000	2.38	F
Nimitz Blvd to Famosa Blvd	4 Lane Major Street	30,000	15,500	0.52	C
Voltaire St					
Abbott St to Bacon St	2 Lane Collector Street	8,000	4,900	0.61	C
Bacon St to Cable St	2 Lane Major Street	8,000	6,900	0.86	E
Cable St to Sunset Cliffs Blvd	2 Lane Major Street	8,000	8,400	1.05	F
Sunset Cliffs Blvd to Froude St	2 Lane Major Street	8,000	11,000	1.38	F
Santa Monica Ave					
Abbott St to Sunset Cliffs Blvd	2 Lane Collector Street	8,000	5,700	0.71	D
Newport Ave					
Abbott St to Cable St	2 Lane Collector Street	8,000	8,700	1.09	F
Cable St to Sunset Cliffs Blvd	2 Lane Collector Street	8,000	5,200	0.65	D
Sunset Cliffs Blvd to Froude St	2 Lane Collector Street	8,000	4,500	0.56	C
Narragansett Ave					
Bacon St to Sunset Cliffs Blvd	2 Lane Collector Street	8,000	4,100	0.51	C
Sunset Cliffs Blvd to Froude St	2 Lane Collector Street	8,000	5,700	0.71	D
Orchard Ave					
Cable St to Sunset Cliffs Blvd	2 Lane Collector Street	8,000	2,800	0.35	B
Point Loma Ave					
Sunset Cliffs Blvd to Froude St	2 Lane Collector Street	8,000	4,700	0.59	C

Source: Wilson & Company, Inc., April 2013

Notes:

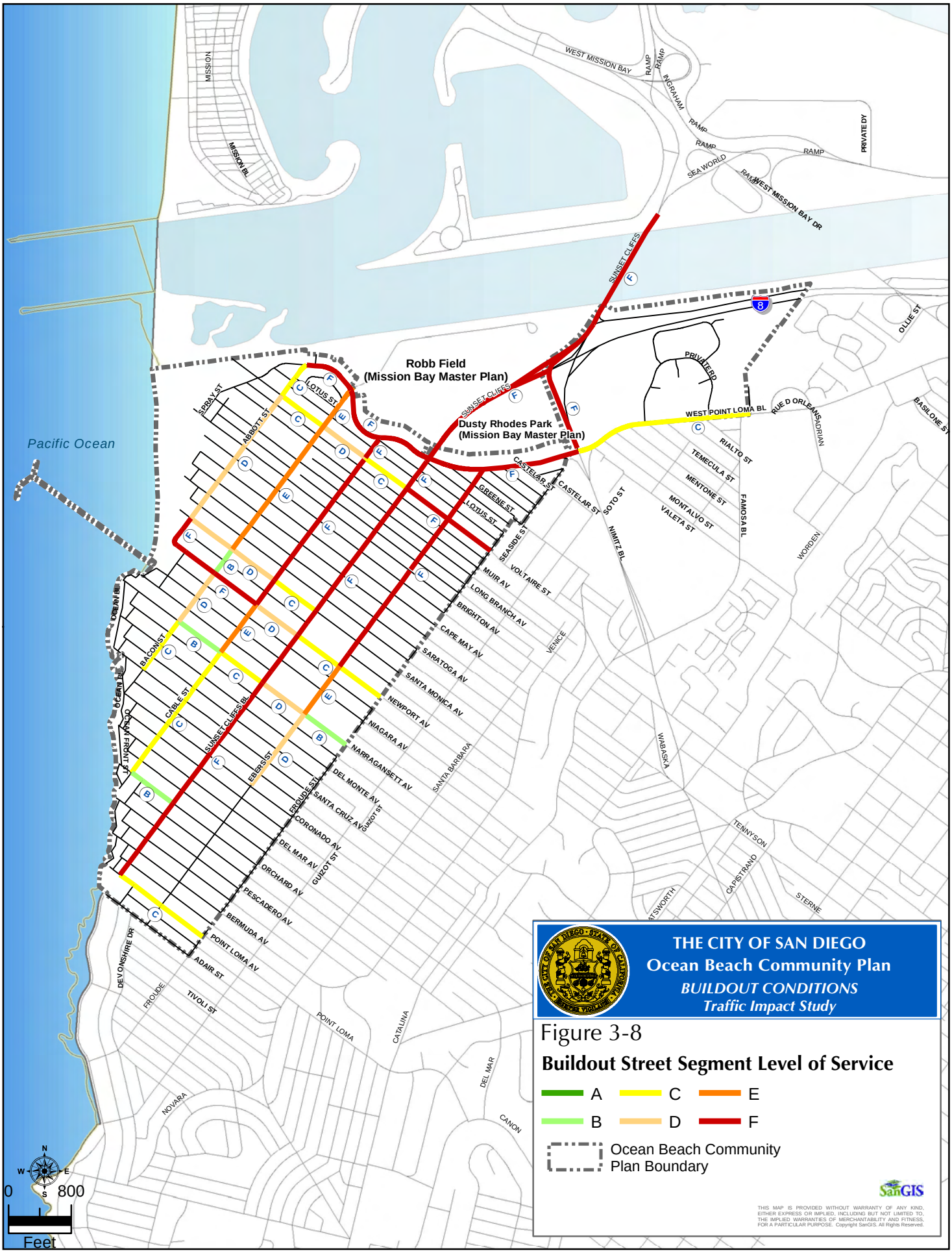
Bold values indicate roadway segments operating at LOS E or F.

(a) The roadway classifications are consistent with the Existing Conditions functional street classifications and with the Buildout Street Network plot provided by the City of San Diego.

(b) Average Daily Traffic (ADT) volumes for the roadway segments were obtained from the City of San Diego's future year travel forecast, dated January 26, 2011

(c) The v/c Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.

(d) The capacity for the 2-lane major classification has been revised to 8,000 ADT (which is the capacity of a 2-lane collector) since these segments have no raised median or center turn lane.



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Ocean Beach Community Plan
BUILDOUT CONDITIONS
Traffic Impact Study

Figure 3-8

Buildout Street Segment Level of Service

A C E
B D F

Ocean Beach Community Plan Boundary

SanGIS

3.5 Freeway Segment Analysis

Table 3-9 displays the LOS analysis results for the I-8 freeway segment under the Buildout scenario. As shown in the table, the I-8 freeway segment would operate at an acceptable LOS in both directions during the AM and PM peak hours. **Appendix L** contains the Caltrans data used to compute the freeway LOS.

TABLE 3-9
FREEWAY SEGMENT LOS SUMMARY
BUILDOUT CONDITIONS

Freeway Segment	Direction & Number of Lanes (a)		Peak-Hour Volume (b)		Capacity	v/c Ratio		LOS	
			AM	PM		AM	PM	AM	PM
I-8: Sunset Cliffs Blvd to W Mission Bay Dr	EB Mainline	2M	3,400	2,900	4,700	0.723	0.617	C	B
	WB Mainline	2M	2,000	3,300		0.426	0.702	B	C

Source: Wilson & Company, Inc., April 2013

Notes:
(a) "M" = Mainline
(b) Peak-hour volumes were estimated based on the City of San Diego's traffic forecast and on existing K, D, and truck factors provided by Caltrans
(c) Capacity = 2,350 vehicles per hour per lane (mainline) p er Caltrans Guide for the Preparation of Traffic Impact Studies (December 2002)

4 Significant Traffic Impacts and Potential Mitigation Measures

This section summarizes the proposed Community Plan Update's significant impacts at the study intersections, roadway segments, and freeway segment. Results for the Existing Conditions analyses were referenced from the *Ocean Beach Existing Conditions Report Mobility Element.*

4.1 Intersections

Table 4-1 provides a summary of the Plan Update's significant traffic impacts at the study area intersections. As shown in the table, the proposed Community Plan Update would have a significant traffic impact at the following study intersections:

- Sunset Cliffs Boulevard/I-8 WB off-ramp (AM and PM peak)
- Sunset Cliffs Boulevard/I-8 EB on-ramp (AM peak)
- Sunset Cliffs Boulevard/Nimitz Boulevard (AM and PM Peak)
- Sunset Cliffs Boulevard/West Point Loma Boulevard (AM and PM Peak)
- Nimitz Boulevard/West Point Loma Boulevard (AM and PM Peak)
- Bacon Street/West Point Loma Boulevard (PM Peak)
- Sunset Cliffs Boulevard/Brighton Avenue (AM and PM Peak)
- Sunset Cliffs Boulevard/Orchard Avenue (AM and PM Peak)

TABLE 4-1
SIGNIFICANCE AT STUDY AREA INTERSECTIONS

#	Intersection	Traffic Control	Peak Hour	Existing (2008) Conditions		Buildout		Δ in Delay	Sig?
				Delay (a)	LOS (b)	Delay (a)	LOS (b)		
1	Sunset Cliffs Blvd @ I-8 WB off-ramp	Signal	AM	40.5	D	128.7	F	88.2	YES
			PM	93.1	F	ECL	F	>1	YES
2	Sunset Cliffs Blvd @ I-8 EB on-ramp	Signal	AM	40.5	D	88.5	F	48.0	YES
			PM	16.7	B	37.9	D	21.2	NO
3	Sunset Cliffs Blvd @ Nimitz Blvd	Signal	AM	101.8	F	ECL	F	>1	YES
			PM	36.0	D	124.3	F	88.3	YES
4	Sunset Cliffs Blvd @ W Point Loma Blvd	Signal	AM	105.7	F	144.2	F	38.5	YES
			PM	36.7	D	87.4	F	50.7	YES
5	Sunset Cliffs Blvd @ Voltaire St (d)	Signal	AM	12.2	B	17.7	B	5.5	NO
			PM	22.7	C	29.8	C	7.1	NO
6	Sunset Cliffs Blvd @ Santa Monica Ave	Signal	AM	19.1	B	15.3	B	-3.8	NO
			PM	25.6	C	25.9	C	0.3	NO
7	Sunset Cliffs Blvd @ Newport Ave	Signal	AM	9.8	A	10.4	B	0.6	NO
			PM	8.5	A	11.3	B	2.8	NO
8	Sunset Cliffs Blvd @ Narragansett Ave	Signal	AM	11.3	B	10.5	B	-0.8	NO
			PM	13.8	B	17.7	B	3.9	NO

#	Intersection	Traffic Control	Peak Hour	Existing (2008) Conditions		Buildout		Δ in Delay	Sig?
				Delay (a)	LOS (b)	Delay (a)	LOS (b)		
9	Nimitz Blvd @ W Point Loma Blvd	Signal	AM	100.1	F	117.1	F	17.0	YES
			PM	86.6	F	112.4	F	25.8	YES
10	Ebers St @ Voltaire St	Signal	AM	9.8	A	24.6	C	14.8	NO
			PM	8.5	A	26.7	C	18.2	NO
11	Cable St @ Newport Ave	Signal	AM	11.3	B	15.6	B	4.3	NO
			PM	13.5	B	20.8	C	7.3	NO
12	Ebers St @ W Point Loma Blvd	OWSC	AM	22.4	C	11.0	B	-11.4	NO
			PM	28.7	C	12.8	B	-15.9	NO
13	Bacon St @ W Point Loma Blvd	AWSC	AM	10.1	B	13.0	B	2.9	NO
			PM	20.4	C	50.5	F	30.1	YES
14	Sunset Cliffs Blvd @ Brighton Ave	OWSC	AM	24.5	C	62.2	F	37.7	YES
			PM	33.2	C	89.7	F	56.5	YES
15	Sunset Cliffs Blvd @ Orchard Ave	OWSC	AM	17.3	B	ECL	F	>1	YES
			PM	22.5	C	ECL	F	>1	YES

Source: Wilson & Company, Inc., April 2013

Notes:

Bold values indicate unacceptable LOS E or F. Bold and shaded values indicate significant project impacts.

Signal: Traffic signal, OWSC: One-way stop control, AWSC: All-way stop control

ECL: Exceeds Calculable Limits. Typically reported when the delay exceeds 180 seconds per vehicle.

(a) Results were obtained from the Winter 2008 counts

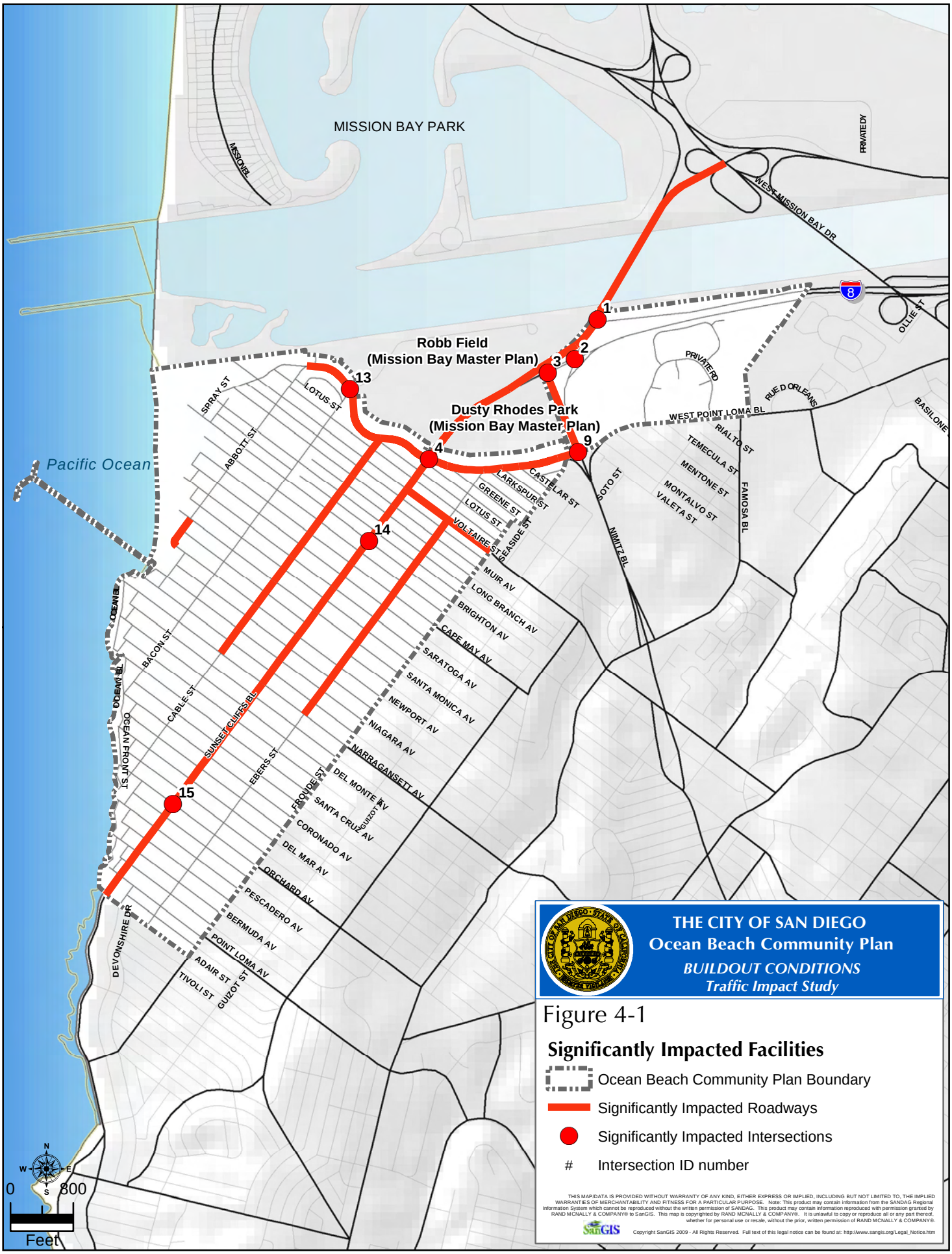
(b) At signalized intersections, delay refers to the average control delay for the entire intersection (in seconds/vehicle). At unsignalized intersections, delay refers to the movement with the highest delay (in seconds/vehicle).

(c) LOS calculations are based on the methodology outlined in the *2000 Highway Capacity Manual* and performed using Synchro 7.

(d) Queues from the downstream intersection of Sunset Cliffs Blvd @ W Point Loma Blvd could add more delay to this intersection.

The first five signalized intersections shown in the list above are located in the northeastern portion of the community, are the gateways to the community, and forecasts predict a large growth in traffic when compared to Existing Conditions. Much of this growth in traffic is attributed to regional growth rather than growth in the Ocean Beach Community. All but one of the unsignalized intersections would result in LOS F conditions and would be considered to be significantly impacted by the Proposed Plan. It should be noted that a few study intersections would actually experience a slight decrease in overall delay, which results from signal timing optimization based on future traffic demands. **Figure 4-1** illustrates the locations of the significantly impacted intersections.

Various improvement measures were evaluated and considered at each identified intersection with a significant impact. The goal was to identify improvements to reduce the delays to less than significant levels at the significantly impacted intersections. **Table 4-2** provides a summary of the LOS after implementing the various identified mitigation measures. The following section describes the improvements evaluated at each impacted intersection.



THE CITY OF SAN DIEGO
Ocean Beach Community Plan
BUILDOUT CONDITIONS
Traffic Impact Study

Figure 4-1

Significantly Impacted Facilities

- Ocean Beach Community Plan Boundary
- Significantly Impacted Roadways
- Significantly Impacted Intersections
- # Intersection ID number

TABLE 4-2
PEAK HOUR INTERSECTION LOS SUMMARY (WITH MITIGATION)
BUILDOUT CONDITIONS

#	Intersection	Peak Hour	Existing (2008) Conditions		Buildout		Buildout w/Mitigation		Proposed Improvement
			Delay[a]	LOS[b]	Delay[a]	LOS[b]	Delay[a]	LOS[b]	
1	Sunset Cliffs Blvd @ I-8 WB off-ramp	AM	40.5	D	128.7	F	--	--	No mitigation measures identified
		PM	93.1	F	208.8	F	--	--	
2	Sunset Cliffs Blvd @ I-8 EB on-ramp	AM	40.5	D	88.5	F	--	--	No mitigation measures identified
		PM	16.7	B	37.9	D	--	--	
3	Sunset Cliffs Blvd @ Nimitz Blvd	AM	101.8	F	210.3	F	--	--	No mitigation measures identified
		PM	36.0	D	124.3	F	--	--	
4	Sunset Cliffs Blvd @ W Point Loma Blvd	AM	105.7	F	144.2	F	99.3	F	Add a 2nd SB RT lane by widening and removing approximately 5 parking spaces along the north side of W Point Loma Blvd
		PM	36.7	D	87.4	F	54.6	D	
9	Nimitz Blvd @ W Point Loma Blvd	AM	100.1	F	117.1	F	67.5	E	Install a 2nd EB and WB left turn lane by widening the south side of W Point Loma Blvd
		PM	86.6	F	112.4	F	92.2	F	
13	Bacon St @ W Point Loma Blvd	AM	10.1	B	13.0	B	7.0	A	Signalize intersection
		PM	20.4	C	50.5	F	13.9	B	
14	Sunset Cliffs Blvd @ Brighton Ave	AM	24.5	C	62.2	F	--	--	No improvement recommended, but place intersection on the signal watch list for regular re-evaluation
		PM	33.2	C	89.7	F	--	--	
15	Sunset Cliffs Blvd @ Orchard Ave	AM	17.3	B	ECL	F	--	--	No improvement recommended, but place intersection on the signal watch list for regular re-evaluation
		PM	22.5	C	ECL	F	--	--	

Source: Wilson & Company, Inc., April 2013

Notes:

Bold values indicate unacceptable LOS E or F.

ECL: Exceeds Calculable Limits. Typically reported when the delay exceeds 180 seconds per vehicle.

(a) At signalized intersections, delay refers to the average control delay for the entire intersection (in seconds/vehicle). At unsignalized intersections, delay refers to the movement with the highest delay (in seconds/vehicle).

(b) LOS calculations are based on the methodology outlined in the *2000 Highway Capacity Manual* and performed using Synchro 7

4.1.1 Sunset Cliffs Boulevard/I-8 WB Off-Ramp

With the large percentage increase in volumes at this intersection mainly due to the increase in traffic associated with regional growth in the San Diego area, additional through lanes and left-turn pockets would be required to improve the operations of the intersection to pre-project conditions or better. Additional through lanes on Sunset Cliffs Boulevard would require widening the bridge over the San Diego River. Widening of Sunset Cliffs Boulevard is not currently included in any Public Facilities Financing Plan or funded Capital Improvement Program. Development project review would address significance of impacts on a project-level basis. As a result, the Plan Update's significant traffic impact to this intersection would remain unmitigated.

4.1.2 Sunset Cliffs Boulevard/I-8 EB On-Ramp

With the large percentage increase in volumes at this intersection mainly due to the increase in traffic associated with regional growth in the San Diego area, additional through lanes would be required to improve the operations of the intersection to pre-project conditions or better. Widening of Sunset Cliffs Boulevard is not currently included in any Public Facilities Financing

Plan or funded Capital Improvement Program. Development project review would address significance of impacts on a project-level basis. As a result, the Plan Update's significant traffic impact to this intersection would remain unmitigated.

4.1.3 Sunset Cliffs Boulevard/Nimitz Boulevard

With the large increase in traffic volumes at this intersection mainly due to the increase in traffic associated with regional growth in the San Diego area, additional through lanes would be required to improve the operations of the intersection to existing conditions or better. Widening of Sunset Cliffs Boulevard is not currently included in any Public Facilities Financing Plan or funded Capital Improvement Program. Development project review would address significance of impacts on a project-level basis. As a result, the Plan Update's significant traffic impact to this intersection would remain unmitigated.

4.1.4 Sunset Cliffs Boulevard/West Point Loma Boulevard

In order to mitigate the Plan Update's significant traffic impacts at the intersection of Sunset Cliffs Boulevard and West Point Loma Boulevard, a second southbound right-turn lane from Sunset Cliffs Boulevard to West Point Loma Boulevard would be required. This improvement would require widening as well as approximately 5 feet of additional right-of-way along the north side of West Point Loma Boulevard and approximately 10 feet of additional right-of-way along the west side of Sunset Cliffs Boulevard as depicted in **Appendix N**. The length of the second right-turn lane would be approximately 200 feet. Additionally, this improvement would require the removal of approximately five on-street parking spaces along the north side of West Point Loma Boulevard to accommodate the second receiving lane, and the existing signal pole and utilities would need to be relocated. These improvements would restore the intersection to an acceptable LOS (LOS D) during the PM Peak. Although the LOS would remain at LOS F during the AM Peak with this improvement in place, the delay at this intersection would be less than existing conditions; therefore, the proposed mitigation would fully mitigate the Plan Update's significant traffic impact to this intersection.

4.1.5 Nimitz Boulevard/West Point Loma Boulevard

With the large increase in traffic volumes at this intersection under Buildout conditions, an additional through lane in the northbound direction along Nimitz Boulevard would be required to improve the operations of the intersection. Based on current design requirements outlined in the 2012 CA MUTCD, a minimum length of approximately 600 feet would be required to transition to two lanes north of the intersection. As a result, the lane drop would occur in the curve of the roadway for eastbound I-8. Having a lane drop on a curve is not recommended for safety reasons; therefore, this improvement is not recommended. However, a second eastbound and westbound left turn lane could be installed by widening the south side of West Point Loma Boulevard by approximately 10 feet as depicted in **Appendix N**. Acquisition of right-of-way would not be required as the City of San Diego currently owns this right-of-way. With the second eastbound and westbound left-turn lanes in place, the delay at the intersection would be less than existing conditions in the AM peak, but not less than existing conditions in the PM peak, as shown in Table 4-2. Therefore, this improvement would partially, rather than fully, mitigate the Plan Update's significant impact at this intersection.

4.1.6 Bacon Street/West Point Loma Boulevard

This location would meet MUTCD signal warrants for the installation of a traffic signal at Buildout of the proposed Plan Update. The installation of a traffic signal would improve the operations at this intersection to LOS B or better conditions during both the AM and PM peak hours. As a result, this improvement would fully mitigate the Plan Update's significant traffic impact to this intersection.

4.1.7 Sunset Cliffs Boulevard/Brighton Avenue

Under buildout conditions, the eastbound and westbound left-turn movements from the minor approach on Brighton Avenue would experience long delays and cause the intersection LOS to degrade to LOS F. Turn pockets on both the eastbound and westbound approaches could be installed along Brighton Avenue to help reduce the delays from the minor street approach, but this would require roadway widening or restriping which would impact existing on-street parking which is heavily utilized in this area. Widening of Brighton Avenue would impact surrounding residential property and community character. Since the projected left turn volumes are very low, 10 in the AM peak hour and 5 in the PM peak hour, these improvements are not recommended. Therefore, the Plan Update's significant traffic impact to this intersection would remain unmitigated. However, it is recommended that this location be periodically evaluated to see if it meets the minimum criteria for the installation of a traffic signal by placing the signal on the City's traffic signal watch list.

4.1.8 Sunset Cliffs Boulevard/Orchard Avenue

Under buildout conditions, the eastbound and westbound left turn movements from the minor approach on Orchard Avenue would experience long delays and cause the intersection LOS to degrade to LOS F. Turn pockets on both the eastbound and westbound approaches could be installed along Orchard Avenue to help reduce the delays from the minor street approach, but this would require roadway widening or restriping which would impact existing on-street parking which is heavily utilized in this area. Widening of Orchard Avenue would impact surrounding residential property and community character. Since the projected left turn volumes are very low, 30 in the AM peak hour and 20 in the PM peak hour, these improvements are not recommended. The Plan Update's significant traffic impact at this intersection would remain unmitigated. However, it is recommended that this location be periodically evaluated to see if this intersection meets the minimum criteria for the installation of a traffic signal by placing the signal on the City's traffic signal watch list.

Appendix M contains the mitigated LOS worksheets and **Appendix N** contains schematic illustrations of the proposed mitigation measures.

4.2 Roadway Segments

Table 4-3 provides a summary of the Plan Update's significant traffic impacts for the study area roadway segments. It should be noted that in some cases there may be a slight reduction in buildout ADT compared to existing ADT. This may be attributed to diversion of traffic. As shown in the table, the Plan would have a significant impact on the following roadway segments:

- Abbott Street

    - Newport Street to Santa Monica Avenue
- Cable Street
    - Narragansett Avenue to Newport Avenue
    - Newport Avenue to West Point Loma Boulevard
- Sunset Cliffs Boulevard
    - Adair Street to Narragansett Avenue
    - Narragansett Avenue to Voltaire Street
    - Voltaire Street to West Point Loma Boulevard
    - West Point Loma Boulevard to Nimitz Boulevard
    - Nimitz Boulevard to I-8 off-ramp
    - I-8 WB off-ramp to Sea World Drive
- Ebers Street
    - Narragansett Avenue to Newport Avenue
    - Newport Avenue to Voltaire Street
    - Voltaire Street to West Point Loma Boulevard
- Nimitz Boulevard
    - Sunset Cliffs Boulevard to West Point Loma Boulevard
- West Point Loma Boulevard
    - Abbott Street to Sunset Cliffs Boulevard
    - Sunset Cliffs Boulevard to Nimitz Boulevard
- Voltaire Street
    - Bacon Street to Cable Street
    - Cable Street to Sunset Cliffs Boulevard
    - Sunset Cliffs Boulevard to Froude Street

Figure 4-1 illustrates the locations of the significantly impacted roadway segments.

TABLE 4-3
SIGNIFICANCE AT STUDY AREA ROADWAY SEGMENTS

	Existing (2008) Conditions			Buildout				
Roadway Segment	ADT	v/c Ratio	LOS	ADT	v/c Ratio	LOS	Δ in v/c	Sig
Abbott St								
Newport St to Santa Monica Ave	3,400	0.43	B	9,500	1.19	F	0.76	YES
Santa Monica Ave to W Point Loma Blvd	3,400	0.43	B	5,800	0.73	D	0.30	NO
Bacon St								
Santa Cruz Ave to Narragansett Ave	3,700	0.46	C	4,300	0.54	C	0.08	NO
Narragansett Ave to Santa Monica Ave	3,700	0.46	C	6,300	0.79	D	0.33	NO
Santa Monica Ave to W Point Loma Blvd	7,800	0.98	E	7,500	0.94	E	-0.04	NO
Cable St								
Orchard Ave to Narragansett Ave	4,300	0.54	C	4,200	0.53	C	-0.01	NO
Narragansett Ave to Newport Ave	4,300	0.54	C	7,200	0.90	E	0.36	YES
Newport Ave to W Point Loma Blvd	6,300	0.79	D	12,000	1.50	F	0.71	YES

Roadway Segment	Existing (2008) Conditions			Buildout			Δ in v/c	Sig
	ADT	v/c Ratio	LOS	ADT	v/c Ratio	LOS		
Sunset Cliffs Blvd								
Adair St to Narragansett Ave	9,900	1.24	F	19,500	2.44	F	1.20	YES
Narragansett Ave to Voltaire St	17,800	2.23	F	25,500	3.19	F	0.96	YES
Voltaire St to W Point Loma Blvd	22,800	2.85	F	24,000	3.00	F	0.15	YES
W Point Loma Blvd to Nimitz Blvd	36,200	0.91	E	52,500	1.31	F	0.41	YES
Nimitz Blvd to I-8 WB off-ramp	36,200	0.91	E	57,000	1.27	F	0.36	YES
I-8 WB off-ramp to Sea World Dr	36,200	0.91	E	53,500	1.19	F	0.28	YES
Ebers St								
Coronado Ave to Narragansett Ave	4,000	0.50	C	5,300	0.66	D	0.16	NO
Narragansett Ave to Newport Ave	4,000	0.50	C	6,600	0.83	E	0.33	YES
Newport Ave to Voltaire St	6,900	0.86	E	8,400	1.05	F	0.19	YES
Voltaire St to W Point Loma Blvd	9,900	1.24	F	15,000	1.88	F	0.64	YES
Nimitz Blvd								
Sunset Cliffs Blvd to W Point Loma Blvd	41,700	0.93	E	69,500	1.54	F	0.62	YES
W Point Loma Blvd								
Abbott St to Sunset Cliffs Blvd	18,500	2.31	F	31,500	3.94	F	1.63	YES
Sunset Cliffs Blvd to Nimitz Blvd	13,400	1.68	F	19,000	2.38	F	0.70	YES
Nimitz Blvd to Famosa Blvd	15,500	0.39	B	15,500	0.52	C	0.13	NO
Voltaire St								
Abbott St to Bacon St	3,500	0.44	C	4,900	0.61	C	0.18	NO
Bacon St to Cable St	5,400	0.68	D	6,900	0.86	E	0.19	YES
Cable St to Sunset Cliffs Blvd	5,400	0.68	D	8,400	1.05	F	0.38	YES
Sunset Cliffs Blvd to Froude St	8,400	1.05	F	11,000	1.38	F	0.33	YES
Santa Monica Ave								
Abbott St to Sunset Cliffs Blvd	4,400	0.55	C	5,700	0.71	D	0.16	NO
Newport Ave								
Abbott St to Cable St	8,700	1.09	F	8,700	1.09	F	0.00	NO
Cable St to Sunset Cliffs Blvd	6,200	0.78	D	5,200	0.65	D	-0.13	NO
Sunset Cliffs Blvd to Froude St	6,200	0.78	D	4,500	0.56	C	-0.21	NO
Narragansett Ave								
Bacon St to Sunset Cliffs Blvd	2,800	0.35	B	4,100	0.51	C	0.16	NO
Sunset Cliffs Blvd to Froude St	2,600	0.33	B	5,700	0.71	D	0.39	NO
Orchard Ave								
Cable St to Sunset Cliffs Blvd	1,600	0.20	A	2,800	0.35	B	0.15	NO
Point Loma Ave								
Sunset Cliffs Blvd to Froude St	3,400	0.43	B	4,700	0.59	C	0.16	NO

Source: Wilson & Company, Inc., April 2013

Notes:
Bold values indicate roadway segments operating at LOS E or F. Bold and shaded values indicate significant impacts.

In order to mitigate the Plan Update's significant impact at the identified roadway segments shown above, various mitigation measures were investigated. Mitigation measures for each impacted roadway segment are summarized in **Table 4-4**. The following section describes the improvements considered at each significantly impacted roadway segment.

4.2.1 Abbott Street

The installation of a two-way left-turn lane (TWLTL) would mitigate the Plan Update's significant impact to Abbot Street. This could be achieved by either re-striping to remove on-street parking or roadway widening. Since Abbott Street between Newport Street and Santa Monica Avenue is 40 feet curb-to-curb, restriping would require the removal of approximately 16 on-street parking spaces. Given that parking is heavily utilized in this area and the Ocean Beach Community lies within the Parking Impact Overlay Zone, removal of on-street parking is not recommended at this time. Alternatively, this portion of Abbott Street could be widened to accommodate a TWLTL. However, street widening would impact approximately two building structures. If neither the removal of on-street parking nor roadway widening is recommended, the Proposed Plan's significant impact to Abbot Street between Newport Street and Santa Monica Avenue would remain significant and unmitigated.

4.2.2 Cable Street

The installation of a TWLTL would mitigate the Plan Update's significant impact to Cable Street. This could be achieved by either re-striping to remove on street parking or roadway widening. Since Cable Street between Narragansett Avenue and West Point Loma Blvd is 36 feet wide curb-to-curb south of Brighton Avenue and 40 feet wide curb-to-curb north of Brighton Avenue, restriping would require the removal of approximately 124 on-street parking spaces. Given that parking is heavily utilized in this area and the Ocean Beach Community lies within the Parking Impact Overlay Zone, removal of on-street parking is not recommended. Alternatively, this portion of Cable Street could be widened to accommodate a TWLTL. However, street widening would impact approximately 60 building structures; therefore, widening is not recommended. If neither the removal of on-street parking nor roadway widening is recommended, the Proposed Plan's significant impact to Cable Street between Narragansett Avenue and West Point Loma Blvd would remain significant and unmitigated.

4.2.3 Sunset Cliffs Boulevard

A one-way couplet was evaluated for Sunset Cliffs Boulevard between Adair Street and West Point Loma Boulevard with the other portion of the couplet system as either Cable Street or Ebers Street. For analysis purposes, each segment along the one-way couplet assumed half of the traffic volumes for both roadways of the couplet. Although the one-way couplet concept would improve operations along Sunset Cliffs Boulevard, the operations along Cable Street or Ebers Street would degrade since these streets would now carry more traffic from Sunset Cliffs Boulevard. Because a one-way couplet would be anticipated to introduce out of direction travel, potentially facilitate higher motorized vehicular speeds, and create a less pedestrian friendly environment, a one-way couplet does not seem desirable as mitigation in this location.

The reclassification and construction of Sunset Cliffs Boulevard between Adair Street and West Point Loma Boulevard as a four lane major street could also mitigate the Plan Update's significant impact to Sunset Cliffs Boulevard. This would require widening and the construction of a raised center median. Given that street widening would impact approximately 140 building structures, widening of Sunset Cliffs Boulevard between Adair Street and West Point Loma Boulevard is not recommended. Therefore, since neither the installation of a one-way couplet nor roadway widening are recommended, the Proposed Plan's significant impact to Sunset Cliffs

Boulevard between Adair Street and West Point Loma Boulevard would remain significant and unmitigated.

The reclassification and construction of Sunset Cliffs Boulevard between West Point Loma Boulevard and Nimitz Boulevard as a six lane primary arterial would fully mitigate the Proposed Plan's significant impact to this portion of Sunset Cliffs Boulevard, and the reclassification and construction of Sunset Cliffs Boulevard between West Point Loma Blvd and Nimitz Blvd as a six lane major street would partially mitigate Plan Update's significant impact to this portion of Sunset Cliffs Boulevard. However, this roadway segment lies outside Ocean Beach Community Plan and lies inside the Mission Bay Master Plan. Therefore, it is recommended that any reclassification of this portion of Sunset Cliffs Boulevard to a six lane primary arterial or six lane major street be evaluated and considered when the Mission Bay Master Plan is updated. The Proposed Plan's significant impact to Sunset Cliffs Boulevard between West Point Loma Boulevard and Nimitz Boulevard would remain significant and unmitigated at this time.

The reclassification and construction of Sunset Cliffs Boulevard between Nimitz Boulevard and Sea World Drive as a six lane primary arterial would fully mitigate the Proposed Plan's significant impact to this portion of Sunset Cliffs Boulevard. However, widening Sunset Cliffs Boulevard to six lanes in this area would require the widening of the bridge over the San Diego River which is not included in any Public Facilities Financing Plan or funded Capital Improvement Program. Development project review would address significance of impacts on a project-level basis. Therefore, the Plan Update's significant impacts to Sunset Cliffs Boulevard between Nimitz Boulevard and Sea World Drive would remain unmitigated.

4.2.4 Ebers Street

The installation of a TWLTL would mitigate the Plan Update's significant impact to Ebers Street between Narragansett Avenue and Voltaire Street. This could be achieved by either re-striping to remove on-street parking or roadway widening. However, since Ebers Street between Narragansett Avenue and Voltaire Street is 36 feet wide curb-to-curb south of Brighton Avenue and 40 feet wide curb-to-curb north of Brighton Avenue, restriping would require the removal of approximately 141 on-street parking spaces. Given that parking is heavily utilized in this area and the Ocean Beach Community lies within the Parking Impact Overlay Zone, removal of on-street parking is not recommended. Alternatively, this portion of Ebers Street could be widened to accommodate a TWLTL. However, street widening would impact approximately 80 building structures; therefore, widening is not recommended. Since both the removal of on-street parking and roadway widening are not recommended, the Proposed Plan's significant impact to Ebers Street between Narragansett Avenue and Voltaire Street would remain significant and unmitigated.

Widening to a 4 lane collector would be required to mitigate the Plan Update's significant impact to Ebers Street between Voltaire Street and West Point Loma Blvd. However, for the reasons specified above (with the exception that widening this segment would impact approximately 20 rather than 80 existing building structures), roadway widening is not recommended and the Proposed Plan's significant impact to Ebers Street between Voltaire Street and West Point Loma Boulevard would remain significant and unmitigated.

4.2.5 Nimitz Boulevard

The reclassification and construction of Nimitz Boulevard between Sunset Cliffs Boulevard and West Point Loma Boulevard as a six lane expressway would fully mitigate the Plan Update's significant traffic impact to this roadway segment. This mitigation would require grade separation. However, the reclassification and construction of Nimitz Boulevard between Sunset Cliffs Boulevard and West Point Loma Boulevard as a six lane primary arterial would improve this segment's LOS and is recommended to partially mitigate the Plan Update's significant traffic impacts. **Appendix O** contains an illustration demonstrating the feasibility of widening this portion of Nimitz Boulevard to a six-lane primary arterial.

4.2.6 West Point Loma Boulevard

The installation of a TWLTL would mitigate the Plan Update's significant traffic impact to West Point Loma Boulevard between Abbott Street and Nimitz Boulevard. This could be achieved by re-striping without the removal of on-street parking since this portion of West Point Loma Boulevard is currently 52 feet wide curb-to-curb. However the installation of a TWLTL is not recommended in this case since the modification to the roadway cross-section would include 8 feet wide parking lanes, 10 feet wide center TWLTL and 13 feet wide travel lanes in both directions which are not desirable to support vehicular and bike traffic on West Point Loma Boulevard. In order to accommodate vehicular traffic and address the goals of the City of San Diego Bicycle Master Plan, it is recommended that the roadway cross-section be modified to include 8 feet wide parking lanes, 6 feet wide Class II bike lanes, and 12 feet wide travel lanes along West Point Loma Boulevard between Cable Street and Nimitz Boulevard to achieve a viable and comprehensive bike network within the Ocean Beach Community. A Class III bike route is currently supported within the existing roadway cross-section of West Point Loma Boulevard between Abbott Street and Cable Street as recommended by the Plan Update. Therefore, there are no mitigation measures identified, and the Plan Update's significant traffic impact to West Point Loma Boulevard between Abbott Street and Nimitz Boulevard would remain significant and unmitigated. **Appendix O** contains an illustration depicting the addition of Class II bike lanes along West Point Loma Boulevard between Cable Street and Nimitz Boulevard.

4.2.7 Voltaire Street

The installation of a TWLTL would mitigate the Plan Update's significant traffic impacts to Voltaire Street along the segments between Bacon Street and Sunset Cliffs Boulevard. Since Voltaire Street is currently 52 feet wide curb-to-curb, the installation of a TWLTL could be achieved by re-striping, but the existing diagonal on-street parking would have to be removed and replaced with parallel parking. This would result in the loss of approximately 40 on-street parking spaces. Given that parking is heavily utilized in this area and the Ocean Beach Community lies within the Parking Impact Overlay Zone, loss of on-street parking is not recommended. Alternatively, this portion of Voltaire Street could be widened to accommodate a TWLTL. However, street widening would impact approximately 35 building structures; therefore, roadway widening is not recommended. Since neither the removal of on-street parking nor roadway widening are recommended, the Proposed Plan's significant impact to Voltaire Street between Bacon Street Sunset Cliffs Boulevard would remain significant and unmitigated.

The installation of a TWLTL would mitigate the Plan Update's significant traffic impact to Voltaire Street between Sunset Cliffs Boulevard and Froude Street. This could be achieved by re-striping without the removal of on-street parking since this portion of Voltaire Street is currently 52 feet wide curb-to-curb. However the installation of a TWLTL is not recommended in this case since the modification to the roadway cross-section would include 8 feet wide parking lanes, 10 feet wide center TWLTL and 13 feet wide travel lanes in both directions which are not desirable to support vehicular and bike traffic on Voltaire Street. In order to accommodate vehicular traffic and address the goals of the City of San Diego Bicycle Master Plan, it is recommended that the roadway cross-section be modified to include 8 feet wide parking lanes, 6 feet wide Class II bike lanes, and 12 feet wide travel lanes along Voltaire Street between Sunset Cliffs Boulevard and Froude Street to achieve a viable and comprehensive bike network within the Ocean Beach Community. Therefore, there are no mitigation measures identified, and the Plan Update's significant traffic impact to Voltaire Street between Sunset Cliffs Boulevard and Froude Street would remain significant and unmitigated. **Appendix O** contains an illustration depicting the addition of the Class II bike lane along Voltaire Street.

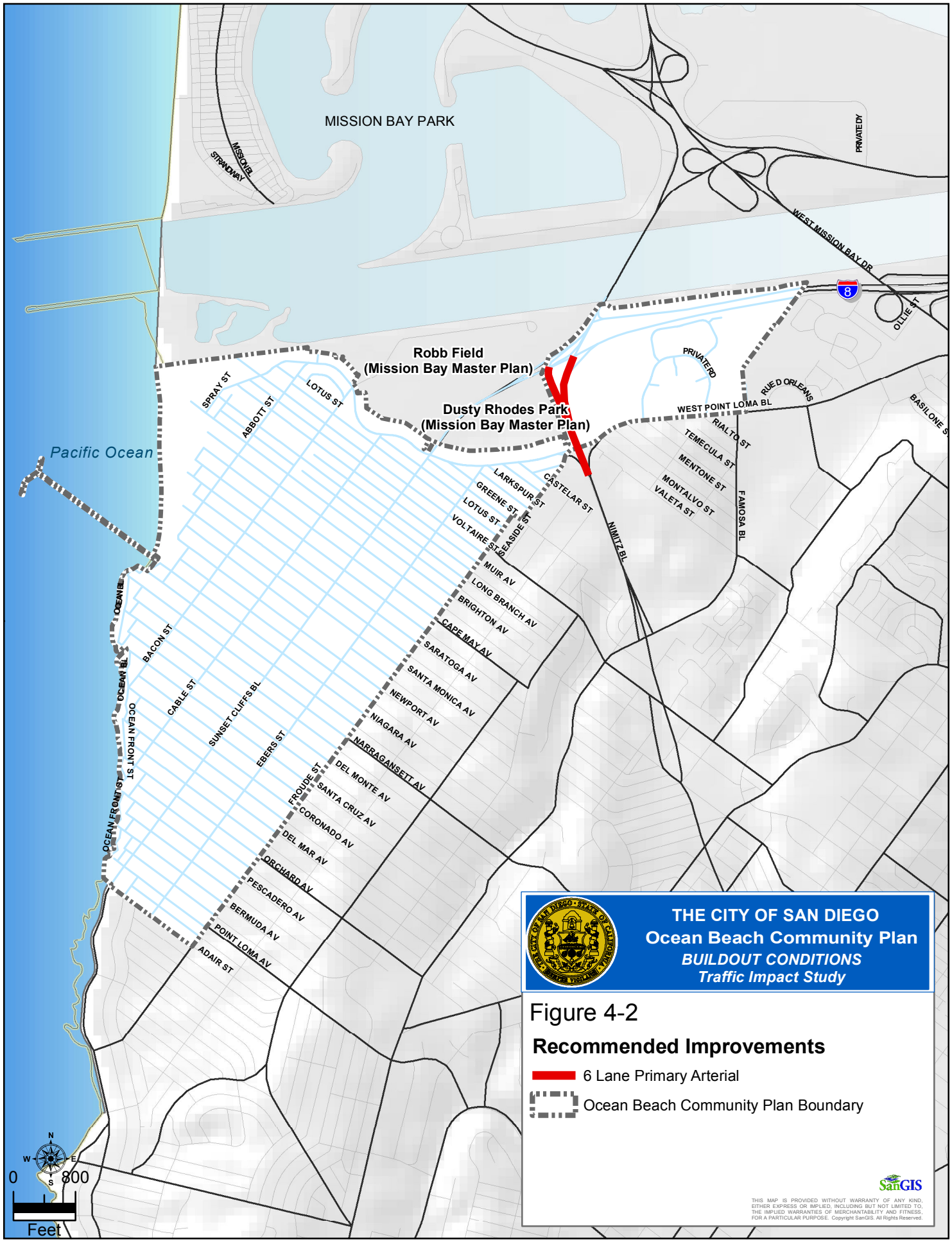
TABLE 4-4
ROADWAY SEGMENT LOS SUMMARY (WITH MITIGATION)
BUILDOUT CONDITIONS

Roadway Segment	Existing Conditions v/c Ratio	Existing Conditions LOS	Buildout w/Mitigation v/c Ratio	Buildout w/Mitigation LOS	Δ in v/c	Proposed Improvement
Nimitz Blvd						
Sunset Cliffs Blvd to W Point Loma Blvd	0.93	E	1.16	F	0.23	Reclassify and widen to a 6-lane primary arterial. This improvement partially mitigates the Proposed Plan's impact.

Source: Wilson & Company, Inc., April 2013

Notes:
Bold values indicate roadway segments operating at LOS E or F.

Figure 4-2 illustrates the recommended improvements along Nimitz Boulevard between Sunset Cliffs Boulevard and West Point Loma Boulevard.



THE CITY OF SAN DIEGO
Ocean Beach Community Plan
BUILDOUT CONDITIONS
Traffic Impact Study

Figure 4-2

Recommended Improvements

6 Lane Primary Arterial

Ocean Beach Community Plan Boundary

SanGIS

4.3 Freeway Segment

Table 4-5 provides a summary of the Plan Update's traffic impacts at the study area freeway segment. As shown in the table, the Plan Update would not have a significant impact to I-8 between Sunset Cliffs Boulevard and West Mission Bay Drive in either direction. As a result, no mitigation would be required.

TABLE 4-5
SIGNIFICANCE AT STUDY AREA FREEWAY SEGMENT

Freeway Segment	Direction	Peak-Hour	Existing			Buildout Conditions			Δ in v/c	Sig
			Peak-Hour Volume	v/c Ratio	LOS	Peak-Hour Volume	v/c Ratio	LOS		
I-8: Sunset Cliffs Blvd to W Mission Bay Dr	EB	AM	2,260	0.481	B	3,400	0.723	C	0.243	NO
		PM	1,327	0.282	A	2,900	0.617	B	0.335	NO
I-8: Sunset Cliffs Blvd to W Mission Bay Dr	WB	AM	1,911	0.407	A	2,000	0.426	B	0.019	NO
		PM	2,155	0.459	B	3,300	0.702	C	0.244	NO

Source: Wilson & Company, Inc., April 2013

5 Conclusions

Implementation of the Proposed Plan would be expected to have a significant traffic impact to the following intersections:

1 Sunset Cliffs Boulevard/I-8 WB off-ramp
2 Sunset Cliffs Boulevard/I-8 EB on-ramp
3 Sunset Cliffs Boulevard/Nimitz Boulevard
4 Sunset Cliffs Boulevard/West Point Loma Boulevard
5 Nimitz Boulevard/West Point Loma Boulevard
6 Bacon Street/West Point Loma Boulevard
7 Sunset Cliffs Boulevard/Brighton Avenue
8 Sunset Cliffs Boulevard/Orchard Avenue

Improvements as shown in Table 4-2 were identified at three intersections shown in italics above to fully or partially mitigate the Proposed Plan's significant traffic impacts at these locations. At intersections No. 1, 2, and 3, there are no feasible mitigation options identified, and as a result, the Proposed Plan's significant traffic impacts to these intersections would remain significant and unmitigated. At intersections No. 7 and 8, the installation of a traffic signal would mitigate the Proposed Plan's impacts. However, the installation of traffic signals at these locations are not recommended since neither location would meet the standard warrants for a traffic signal based on the Buildout forecast turning volumes. However, it is recommended that these two intersections be periodically re-evaluated in the future.

Implementation of the Proposed Plan would be expected to have a significant traffic impact on the following roadway segments:

1 Abbott Street (Newport Avenue to Santa Monica Avenue)
2 Cable Street (Narragansett Avenue to West Point Loma Boulevard)
3 Sunset Cliffs Boulevard (Adair Street to Sea World Drive)
4 Ebers Street (Narraganestt Avenue to West Point Loma Boulevard)
5 Nimitz Boulevard (Sunset Cliffs Boulevard to West Point Loma Boulevard)
6 West Point Loma Boulevard (Abbott Street to Nimitz Boulevard)
7 Voltaire Street (Bacon Street to Sunset Cliffs Boulevard)
8 Voltaire Street (Sunset Cliffs Boulevard to Froude Street)

Improvements have been identified in this report for the roadway segment shown in italics above to fully or partially mitigate the Proposed Plan's significant traffic impact to these locations. It is recommended that Nimitz Boulevard from Sunset Cliffs Boulevard to West Point Loma Boulevard be reclassified and improved as a six lane primary arterial to partially mitigate the Proposed Plan's significant traffic impact. All other significant traffic impacts to roadway segments are recommended to remain unmitigated since mitigations would likely require either removal of on-street parking or roadway widening.

Implementation of the Proposed Plan would have no significant impact to the segment of Interstate 8 between Sunset Cliffs Boulevard and West Mission Bay Drive. Therefore, no mitigation is required.

Appendix A
Existing Conditions Report

OCEAN BEACH

EXISTING CONDITIONS REPORT

MOBILITY ELEMENT

Prepared by the

Mobility Planning Section
City Planning & Community Investment

City of San Diego

January 2010

OCEAN BEACH

EXISTING CONDITIONS REPORT
MOBILITY ELEMENT

TABLES **PAGE**

APPENDICES * **PAGE**

* Under a separate cover

OCEAN BEACH

EXISTING CONDITIONS REPORT
MOBILITY ELEMENT

This report addresses the current main motorized and non-motorized modes of travel in Ocean Beach that provide mobility opportunities for residents and visitors. Modes of travel include vehicles, public transit, bicycles, and walking. It is important that transportation be considered in conjunction with land use patterns so that proper access and circulation can be provided. Also, a balanced transportation system is required to provide equal opportunities to all modes of travel.

STREET SYSTEM

The Ocean Beach community has a grid network with streets aligned in northeast-southwest and northwest-southeast directions. The Interstate 8 (I-8), which terminates at the northern gateway to Ocean Beach, provides regional access to the community. Connections to eastbound and westbound I-8 are provided via Sunset Cliffs Boulevard. This roadway has a northeast-southwest alignment and it is practically situated in the middle of the community. West Point Loma Boulevard is another street that provides a major access to the community.

Intercommunity access between Ocean Beach and Peninsula is provided by all the northwest-southeast streets. The community is served by two transit lines of the Metropolitan Transit System, described in the Public Transit section of this report. Community streets that are designated for bicycle routes are identified by signage (see Bikeway System section).

The following sections will briefly describe some of the aspects of the mobility system.

PEDESTRIAN CIRCULATION

Ocean Beach's grid network of two-lane streets with sidewalks allows its residents to walk to local commercial districts, community facilities, and recreational attractions such as beaches and parks.

The City's Pedestrian Master Plan defines pedestrian route classifications based on the functionality of pedestrian facilities. Pedestrian routes in Ocean Beach were classified based on these definitions and are shown on Figure 1, along with planned land uses and community facilities. Figure 2 shows available data on the number of pedestrians crossing at various intersections in Ocean Beach. The intersection of Cable Street and Newport Avenue shows the greatest numbers of pedestrians crossing all legs of the intersection streets with over 200 in the morning peak hour and almost 600 in the evening peak hour.

Pedestrian Facility Assessment

The City is developing a Pedestrian Master Plan to identify pedestrian improvements where needed in a smart, cost effective, orderly, and consistent manner throughout the City. As part of that effort, an inventory of pedestrian facilities in high pedestrian priority areas of Ocean Beach

will be undertaken in order to identify deficiencies. The following discussion is a general community-wide assessment of pedestrian conditions that will provide direction for the more detailed Pedestrian Master Plan effort to follow.

Safety
Pedestrian-involved crash data for Ocean Beach is compared with city-wide collisions. The comparison is summarized in Table 1. As illustrated in this table, the overall pedestrian-involved crashes per 1,000 residents is 2.0 for the city, while in Ocean Beach it is 2.7. The higher rate of 0.7 per 1,000 pedestrian-involved crashes in Ocean Beach is due to the fact that the area's beach attracts a large number of non-residents, and high level of pedestrian activity in the community which is much more than the city-wide average. While the number of monthly visitors to the area varies during the year, in July of 2007, there were about 494,800 people who were counted by the Life Guard Services to have visited Ocean Beach.

The following locations experienced three or more pedestrian crashes from 2003 through 2007 but detailed review of the collision data did not reveal a pattern.

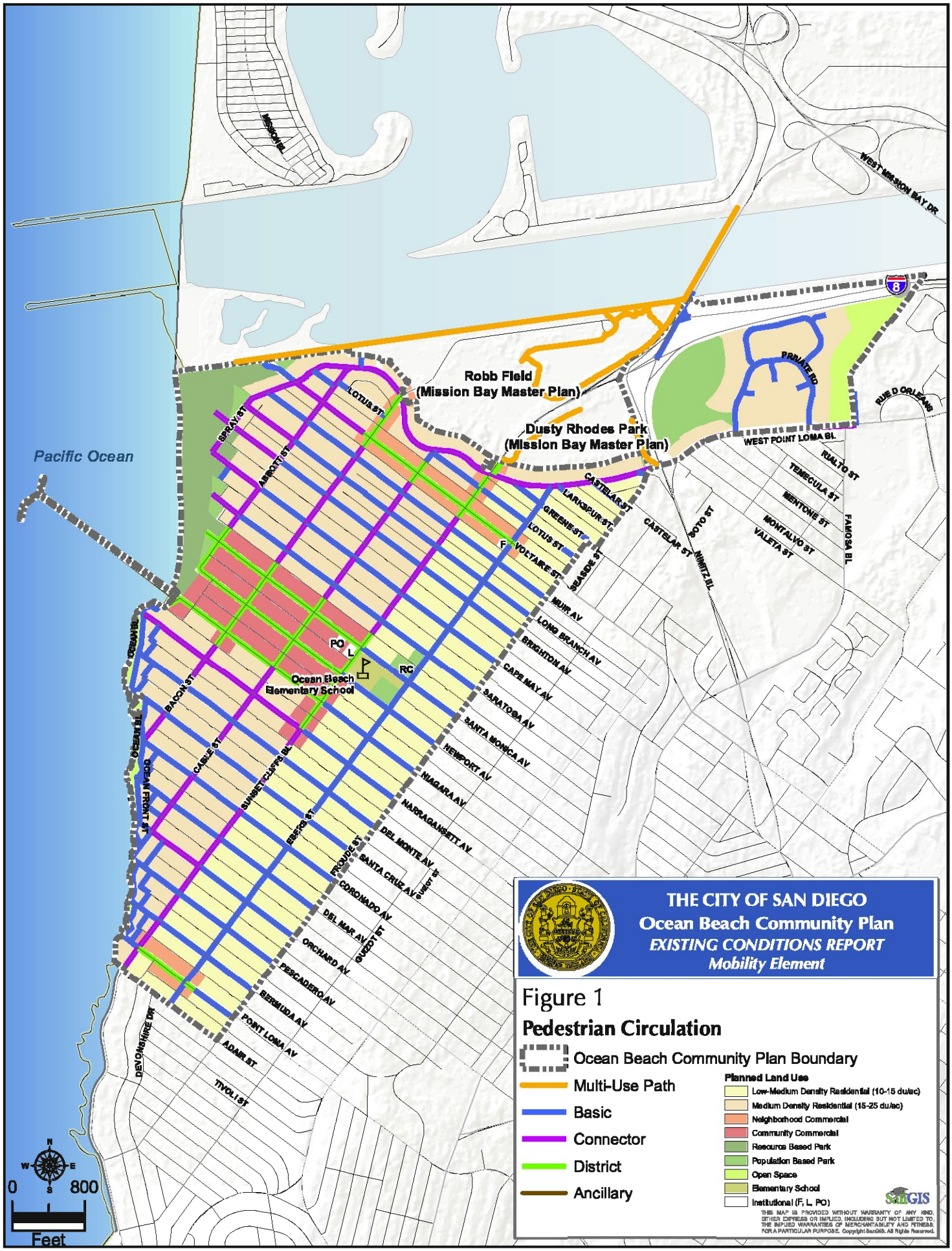
- Cable Street and Newport Avenue
- Cable Street and Santa Monica Avenue
- Newport Avenue and Sunset Cliffs Boulevard
- Nimitz Boulevard and West Point Loma Boulevard

Based on field observations, the following intersection locations pose difficulty for pedestrians attempting to cross the street due to intersection alignments, crossing distances, and vehicle speeds.

- West Point Loma Boulevard at Ebers Street/Larkspur Street
- West Point Loma Boulevard at Castelar Street
- West Point Loma Boulevard at Cable Street
- West Point Loma Boulevard at Bacon Street

Accessibility
As a community, Ocean Beach's pedestrian facilities are generally accessible to persons with disabilities due to its network of mostly barrier-free sidewalks and presence of curb ramps at most intersections and alleys. Exceptions to this will be inventoried and specific recommendations for access-related pedestrian improvements will be identified as part of the City's Pedestrian Master Plan effort.

Connectivity
Generally, pedestrian connectivity within Ocean Beach is excellent due to its complete grid network of streets. There are pedestrian facilities within the parks that could be better connected to adjacent sidewalks, and pedestrian connections along the beach could be improved. Pedestrian connections to other communities are provided as below:


Pacific Ocean
Robb Field
(Mission Bay Master Plan)
Dusty Rhodes Park
(Mission Bay Master Plan)
Ocean Beach
Elementary School
PO
L
RC
WEST MISSION BAY DR
MISSION BL
PRIVATE RD
RUE D ORLEANS
WEST POINT LOMA BL
RIALTO ST
TEMECULA ST
MENTONE ST
MONTALVO ST
VALETA ST
FAMOSA BL
SOTO ST
NIMITZ BL
CASTELAR ST
LARKSPUR ST
GREENE ST
LOTUS ST
VOLTAIRE ST
SEASIDE ST
MUIR AV
LONG BRANCH AV
BRIGHTON AV
CAPE MAY AV
SARATOGA AV
SANTA MONICA AV
NEWPORT AV
NIAGARA AV
NARRAGANSETT AV
DEL MONTE AV
SANTA CRUZ AV
CORONADO AV
DEL MAR AV
ORCHARD AV
PESCADERO AV
BERMUDA AV
POINT LOMA AV
ADAIR ST
TIVOLI ST
DEVONSHIRE DR
OCEAN FRONT ST
SUNSET CLIFFS BL
CABLE ST
BACON ST
BAYSIDE WALK
ABBOTT ST
SPRAY ST
FROUDE ST
GUIZOT ST
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THE CITY OF SAN DIEGO
Ocean Beach Community Plan
EXISTING CONDITIONS REPORT
Mobility Element
Figure 1
Pedestrian Circulation
Ocean Beach Community Plan Boundary
Multi-Use Path
Basic
Connector
District
Ancillary
Planned Land Use
Low-Medium Density Residential (10-15 du/ac)
Medium Density Residential (15-25 du/ac)
Neighborhood Commercial
Community Commercial
Resource Based Park
Population Based Park
Open Space
Elementary School
Institutional (F, L, PO)
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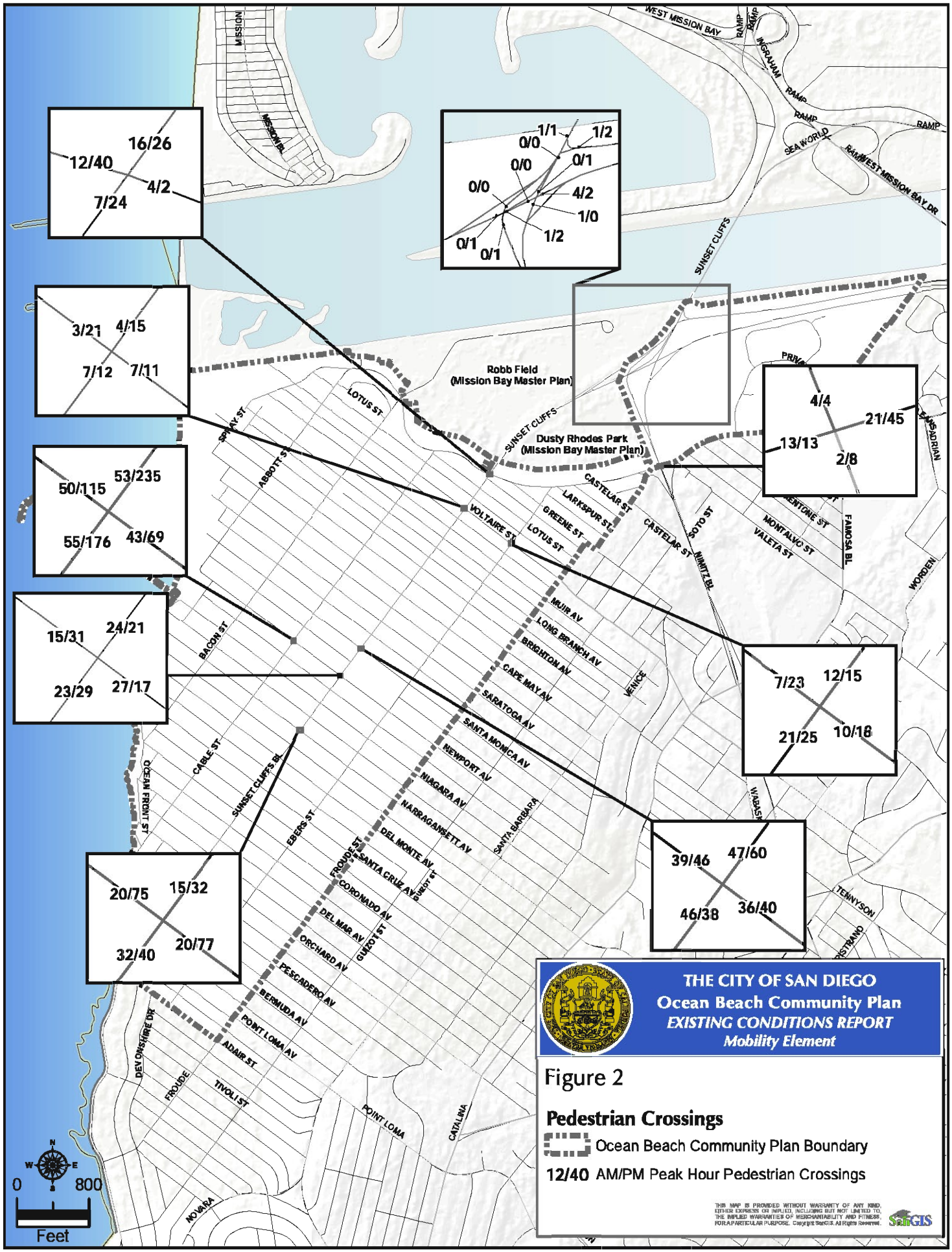
16/26
12/40
4/2
7/24
1/1
1/2
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7/11
4/4
21/45
13/13
2/8
50/115
53/235
55/176
43/69
15/31
24/21
23/29
27/17
7/23
12/15
21/25
10/18
20/75
15/32
32/40
20/77
39/46
47/60
46/38
36/40
Robb Field
(Mission Bay Master Plan)
Dusty Rhodes Park
(Mission Bay Master Plan)
WEST MISSION BAY
INGRAHAM RAMP
SEA WORLD
W MISSION BAY DR
SUNSET CLIFFS
LOTUS ST
SPRAY ST
ABBOTT ST
VOLTAIRE ST
GREENE ST
LARKSPUR ST
CASTELAR ST
SOTO ST
NIMITZ BL
MONTALVO ST
VALETA ST
FAMOSA BL
ADRIAN
WORDEN
MUIR AV
LONG BRANCH AV
BRIGHTON AV
CAPE MAY AV
SARATOGA AV
SANTA MONICA AV
VENICE
NEWPORT AV
NIAGARA AV
NARRAGANSETT AV
SANTA BARBARA
DEL MONTE AV
SANTA CRUZ AV
CORONADO AV
DEL MAR AV
ORCHARD AV
PESCADERO AV
BERMUDA AV
POINT LOMA AV
ADAIR ST
TIVOLI ST
FROUDE ST
GUIJOT ST
EBERS ST
BACON ST
CABLE ST
SUNSET CLIFFS BL
OCEAN FRONT ST
DEVONSHIRE DR
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THE CITY OF SAN DIEGO
Ocean Beach Community Plan
EXISTING CONDITIONS REPORT
Mobility Element
Figure 2
Pedestrian Crossings
Ocean Beach Community Plan Boundary
12/40 AM/PM Peak Hour Pedestrian Crossings
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- Sunset Cliffs Boulevard sidewalk along the bridge that leads to paths to Mission Bay Park, Linda Vista and Mission Valley
- West Point Loma Boulevard across Nimitz Boulevard – sidewalk exists on the north side but is missing on the south side of West Point Loma Boulevard leading to the inbound (eastbound) transit stop on West Point Loma at Nimitz.
- Voltaire Street, Point Loma Avenue, and other local streets that connect over the hill to the Peninsula community.

Table 1: Pedestrian-Involved Crash Data (2003-2007)

	Ocean Beach		**Citywide**	
	Crashes	%	Crashes	%
Pedestrian Crashes	45	100	2,703	100
Pedestrian Crashes Normalized by 1,000 Population*	0.54		0.40	
Location Type				
Alley	1	1.7	35	1.3
Intersection	26	61	1,344	50
Midblock	14	30	1,198	44
Other	4	7.3	126	4.7
Top Primary Cause Type				
Pedestrian at Fault	15	43	946	53
Violated Pedestrian's Right of Way	5	14	308	17
Improper Start	5	14	284	16
Ran Stop Sign	5	14	35	0.02
Unsafe Movement – Left	5	14	222	0.13
Age Group				
Under 16	10	20	589	21
16 – 65	34	70	1,950	69
65 and Over	4	10	269	9
Unknown	0	0	26	0.1
Street Class Type				
Local	30	66	1,062	39
Collector	9	20	571	21
Major	5	11	954	35
Ramp	0	0	15	0.6
Other	1	2	95	4
Lighting Type				
Dark/Dusk/Dawn	22	48	1,018	38
Daylight	23	52	1,682	62
Foggy/Darkness	0	0	2	0.07
Unknown	0	0	1	0.04

* Year 2007 population estimates were used for this calculation.

Pedestrian Level of Service
A new methodology is being developed to determine the level of service for pedestrian facilities. This information will be included in the Phase 4 of the City of San Diego Pedestrian Master Plan.

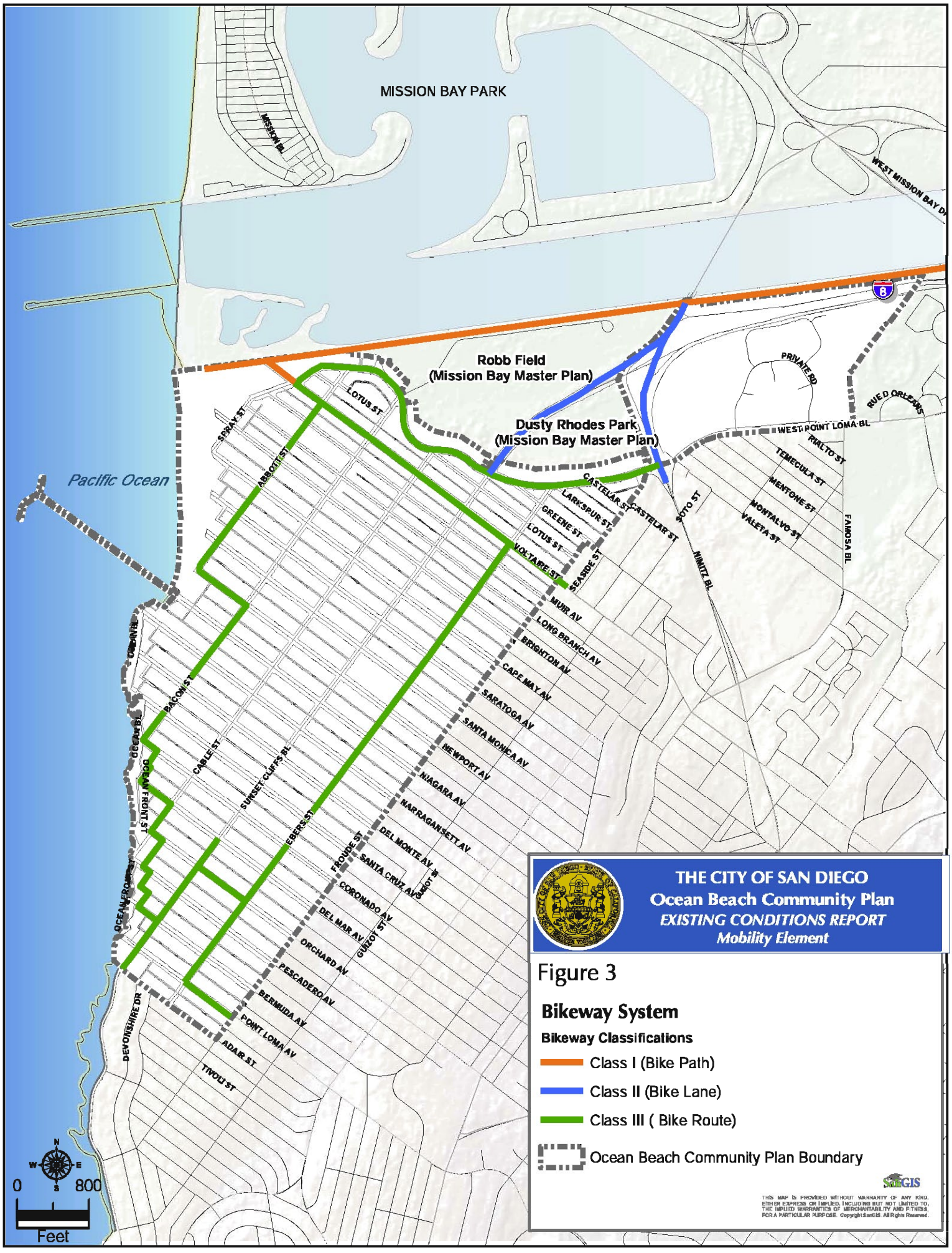
BIKEWAY SYSTEM

Ocean Beach is a community where bicycles are used extensively. The flat terrain near the beach areas, the grid type street pattern, the high demand for the limited automobile parking, the short distances between destinations within Ocean Beach, and the connection of Ocean Beach bikeways to the citywide system of bikeways are all factors in bicycle usage in this community. Ocean Beach's bikeway system is composed of Class I, II and III bikeways and is shown on Figure 3. All the buses that serve Ocean Beach are equipped with bicycle racks. This accommodates bikers' regional access. The number of bicyclists who crossed at signalized intersections during AM and PM peak hours is shown on Figure 4. The following is description of each classification of bicycle facility.

Class I Bicycle Path
A Class I Bicycle Path is a completely separated right-of-way for the exclusive use of non-motorized vehicles and pedestrians. A Bike Path is provided along the south side of the San Diego River Flood Control Channel, from near the ocean and extending to connect onto the Bicycle Path of Sunset Cliffs Boulevard. Another Class I facility goes along the south side of the San Diego River Channel from Sunset Cliffs Boulevard eastward for 1.9 miles to Pacific Coast Highway.

Class II Bicycle Lane
A Class II Bicycle Lane is a painted lane for bicycles, marked between the traffic lane and the curb (if parking is prohibited), or between the traffic lane and parking (if parking is allowed). Special signing is installed to identify this category. Sunset Cliffs Boulevard and Nimitz Boulevard have Bicycle Lanes between Interstate 8 and West Point Loma Boulevard.

Class III Bicycle Route
A Class III Bicycle Route is a non-exclusive street route, shared with vehicles which is designated as a preferred bicycle route and identified with special signing. In the north-south directions, Ebers Street, from Point Loma Avenue to West Point Loma Avenue is the main uninterrupted route. Connectivity to Peninsula is provided via West Point Loma Avenue, which connects to the Bike Lane on Nimitz Boulevard. On the west side of the community, the Bicycle Route zigzags through short segments of many streets to connect Sunset Cliffs Boulevard to Bacon Street. The main uninterrupted east-west Bicycle Route in the community is on Voltaire Street, between Ebers Street and Spray Street, connecting to the Bike Path south of San Diego River. Portions of Abbot Street, Bacon Street, Cable Street, Ebers Street, Sunset Cliffs Boulevard, and Voltaire Street are examples of roadways which have Bike Routes. Figure 5 illustrates each of these classes.



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Ocean Beach Community Plan
EXISTING CONDITIONS REPORT
Mobility Element

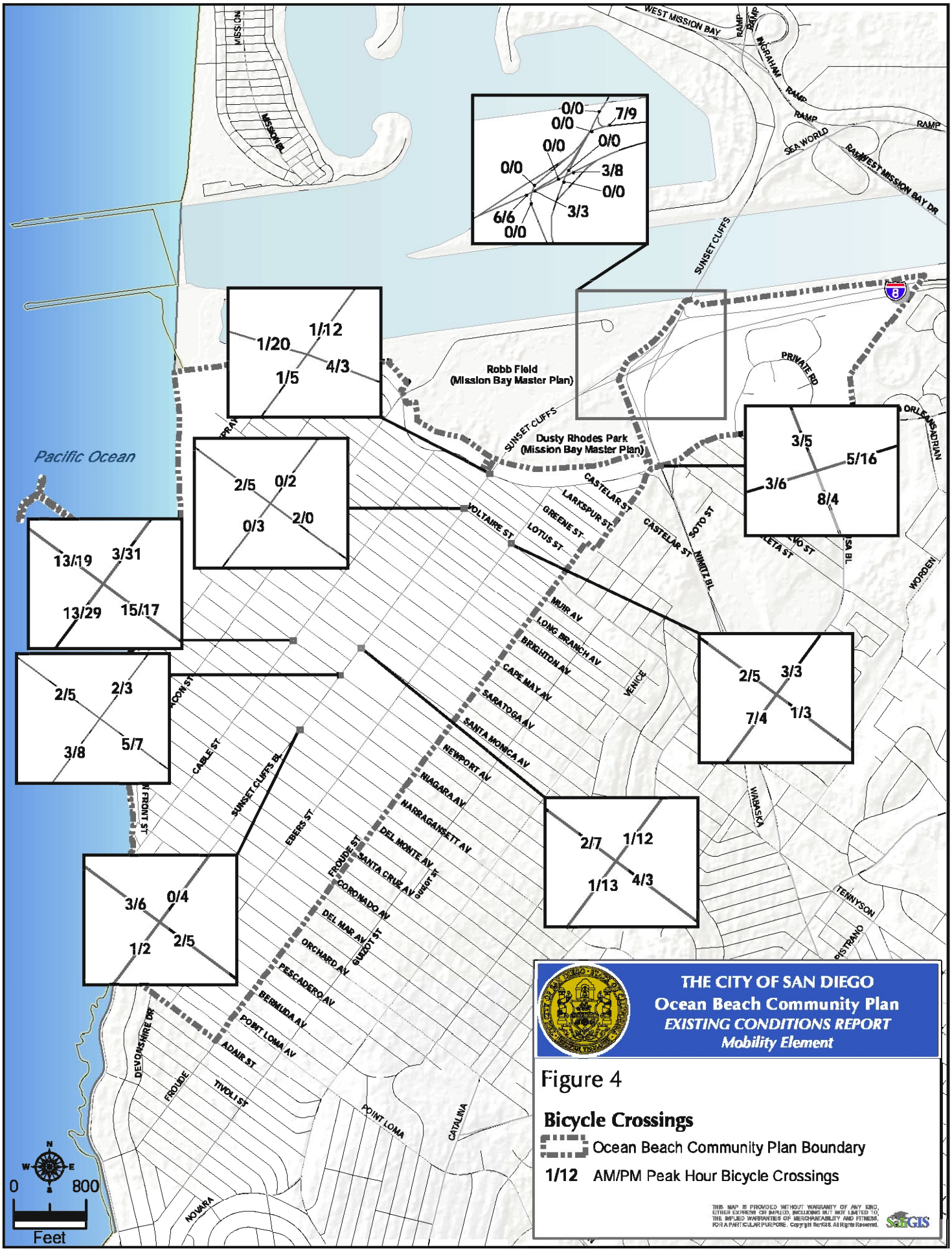
Figure 3

Bikeway System

Bikeway Classifications

- Class I (Bike Path)
- Class II (Bike Lane)
- Class III (Bike Route)
- Ocean Beach Community Plan Boundary

SanGIS



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Ocean Beach Community Plan
EXISTING CONDITIONS REPORT
Mobility Element

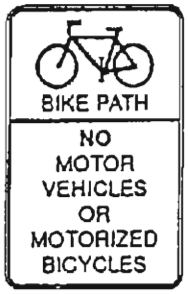
Figure 4

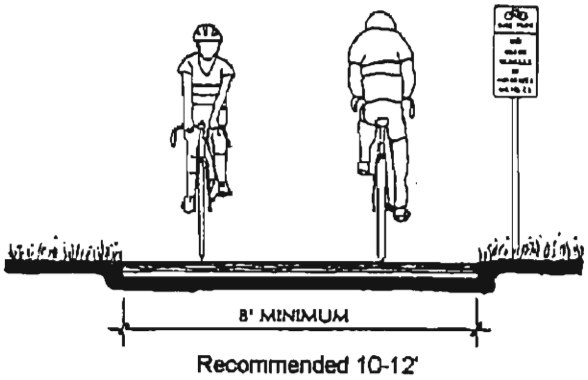
Bicycle Crossings

Ocean Beach Community Plan Boundary

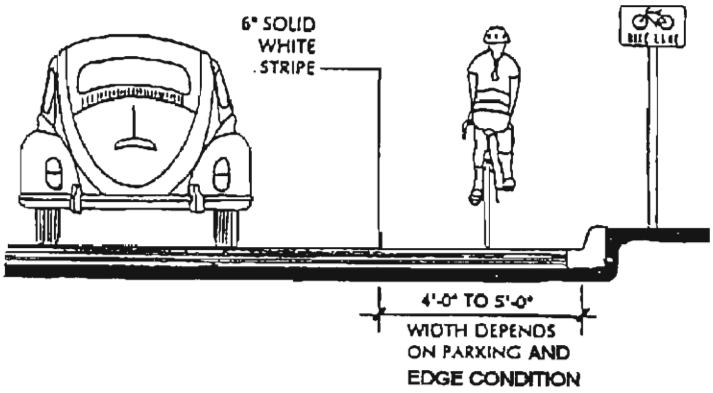
1/12 AM/PM Peak Hour Bicycle Crossings

Class I Bike Path

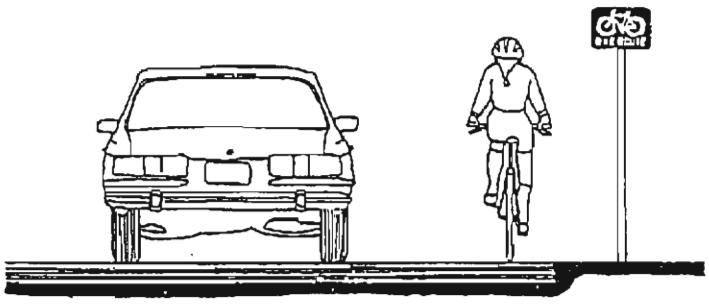




Class II Bike Lane



Class III Bike Route



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Ocean Beach Community Plan
EXISTING CONDITIONS REPORT
Mobility Element

Figure 5
Bikeway Classifications

Collisions

The bicycle-related collisions in the community are analyzed based on various factors. A comparison is made for each of the factors between the community and the city-wide average. Table 2 includes the comparison summary.

Table 2: Bicycle-Involved Crash Data (2003-2007)

	Ocean Beach		Citywide	
	Crashes	%	Crashes	%
Total Crashes	64	3	2,163	100
Crashes Normalized by 1,000 Population *	0.92		0.32	
Location Type				
Alley	0	0	15	0
Intersection	33	50	973	45
Midblock	26	42	1,065	49
Other	5	8	107	4
Top Primary Causes				
Bike at Fault	11	17	433	20
Left-turn Didn't Yield	7	11	0	0
Improper Start	8	12	172	8
Unsafe Movement – Right-turn	0	0	272	12
Age Group				
Under 16	10	15	454	21
16 – 65	51	79	1,593	75
65 and Over + Other	2	3	57	2
Other	1	1	27	1
Lighting Type				
Dark/Dusk/Dawn	16	25	477	22
Daylight	48	75	1,680	77
Foggy/Smoky/Unknown	0	0	3	1

* Year 2007 population estimates were used for this calculation.

The community-wide 64 bicycle collisions between 2003 and 2007, is about 2.9 times city-wide rate when normalized for 1,000 residents. This higher rate can be attributed to the popularity of bicycle use in the area that is more than city-wide average. Also, especially in summer time, the area beaches are enjoyed by a high number of visitors. As indicated in the section on pedestrians, there were about 494,800 Ocean Beach visitors in July of 2007.

PUBLIC TRANSIT

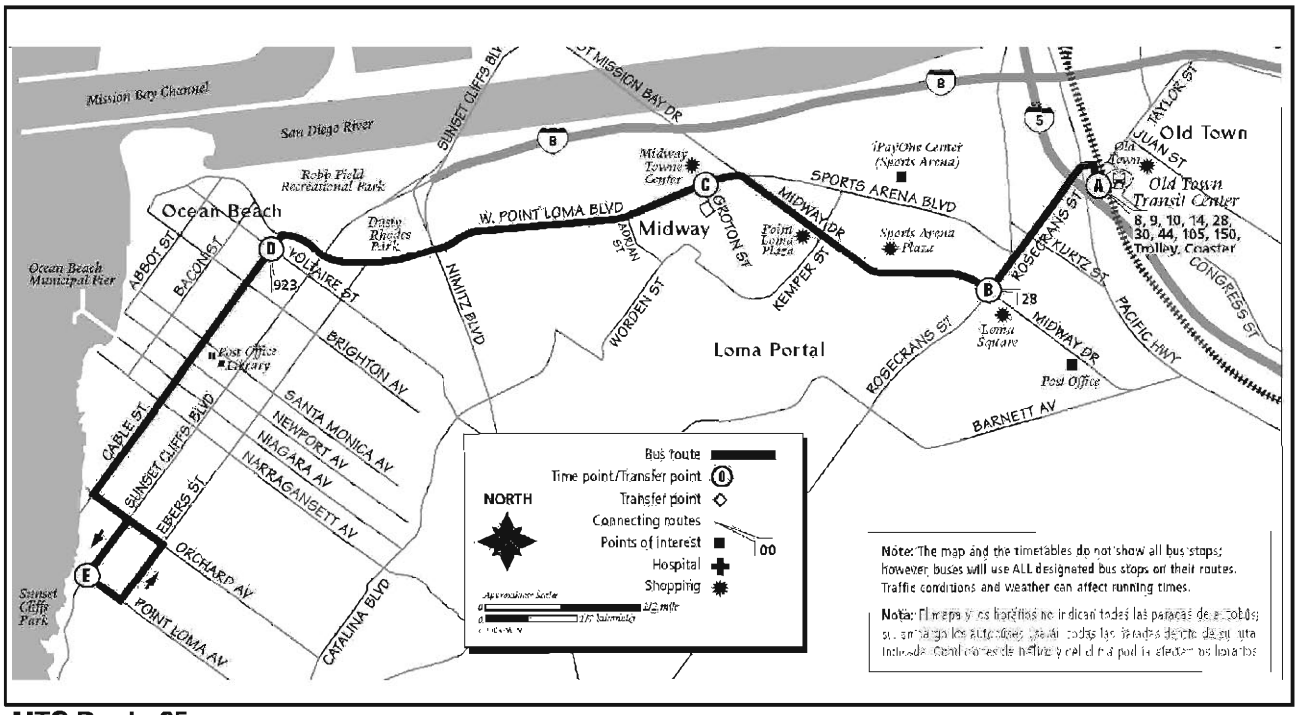
Ocean Beach is currently served by Metropolitan Transit System (MTS) Bus Routes 35 and 923. A detailed description of these services is presented in this section.

Route 35
MTS Route 35, depicted on Figure 6, extends from the Old Town Transit Center to the intersection of Point Loma Avenue and Sunset Cliffs Boulevard in Ocean Beach. The Old Town Transit Center provides regional access to the COASTER, San Diego Trolley Blue and Green Lines, and MTS Routes 8, 9, 10, 14, 28, 30, 44, 105, and 150. From Old Town, the outbound Route 35 goes through the Midway community via Rosecrans Street, Midway Drive and West Point Loma Boulevard, where it enters Ocean Beach. From West Point Loma Boulevard, Route 35 follows Cable Street to Orchard Avenue to Sunset Cliffs Boulevard to Point Loma Avenue. The return trip continues from Point Loma Avenue to Ebers Street to Orchard Avenue to Cable Street where it then follows the outbound route back to Old Town. The Ocean Beach post office and library are served by this line.

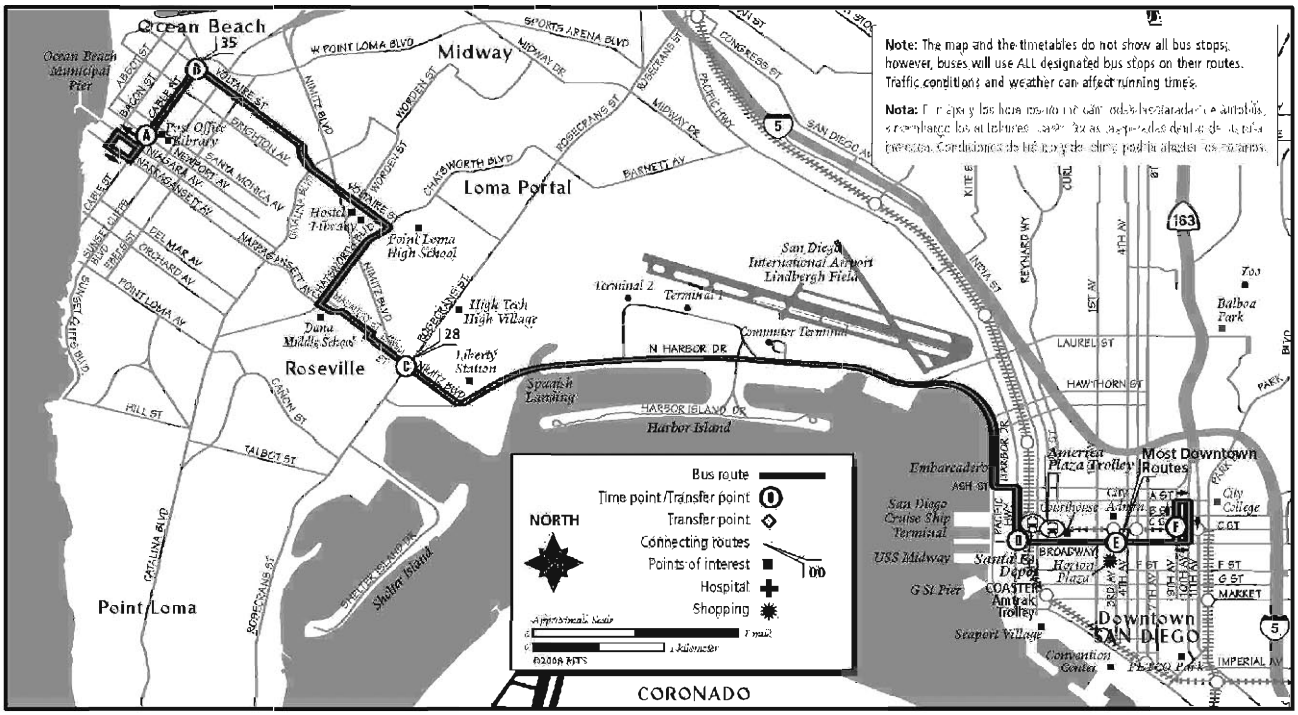
Route 35 weekday service spans from approximately 5:00 AM to 11:00 PM with 35 trips in each direction at approximately 30-minute headways and 23-33 minute travel times. Weekend and holiday service spans from approximately 7:00 AM to 11:00 PM with 33 inbound trips (from Ocean Beach to Old Town) and 32 outbound trips (from Old Town to Ocean Beach) at 30-minute headways and 22-30 minute travel times. Schedule timetables for Route 35 are included in Appendix A. All buses that serve this route are equipped with wheelchair lift or ramp service and bicycle racks.

Route 923
MTS Route 923, also depicted on Figure 6, extends from downtown San Diego to the intersection of Cable Street and Newport Avenue in Ocean Beach providing access to San Diego International Airport, Santa Fe Depot with connections to Amtrak, the COASTER, San Diego Trolley Blue and Orange Lines; and other MTS routes that connect in downtown. From downtown, Route 923 goes through the Peninsula community via Broadway, Pacific Highway, Harbor Drive, North Harbor Drive, Nimitz Boulevard, McCaulay Street, Chatsworth Boulevard and Voltaire Street where it enters Ocean Beach. From Voltaire Street, Route 923 follows Cable Street to Niagara Avenue where it makes a loop via Bacon Street and Narragansett Avenue back onto Cable Street for the return trip to downtown. The Ocean Beach Post Office and Library are served by this route.

Route 923 weekday service spans from approximately 5:15 AM to 11:00 PM with 32 trips in each direction at 30-minute headways until 8:00 PM when headways become hourly, and 34-48 minute travel times. Weekend and holiday service spans from approximately 6:15 AM to 11:00 PM with 17 trips in each direction at 60-minute headways and 33-45 minute travel times. Schedule timetables for Route 923 are included in Appendix B. All buses that serve this route are equipped with wheelchair lift or ramp service and bicycle racks.



MTS Route 35



MTS Route 923

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Ocean Beach Community Plan
EXISTING CONDITIONS REPORT
Mobility Element

Figure 6

Bus Routes 35 and 923 Service

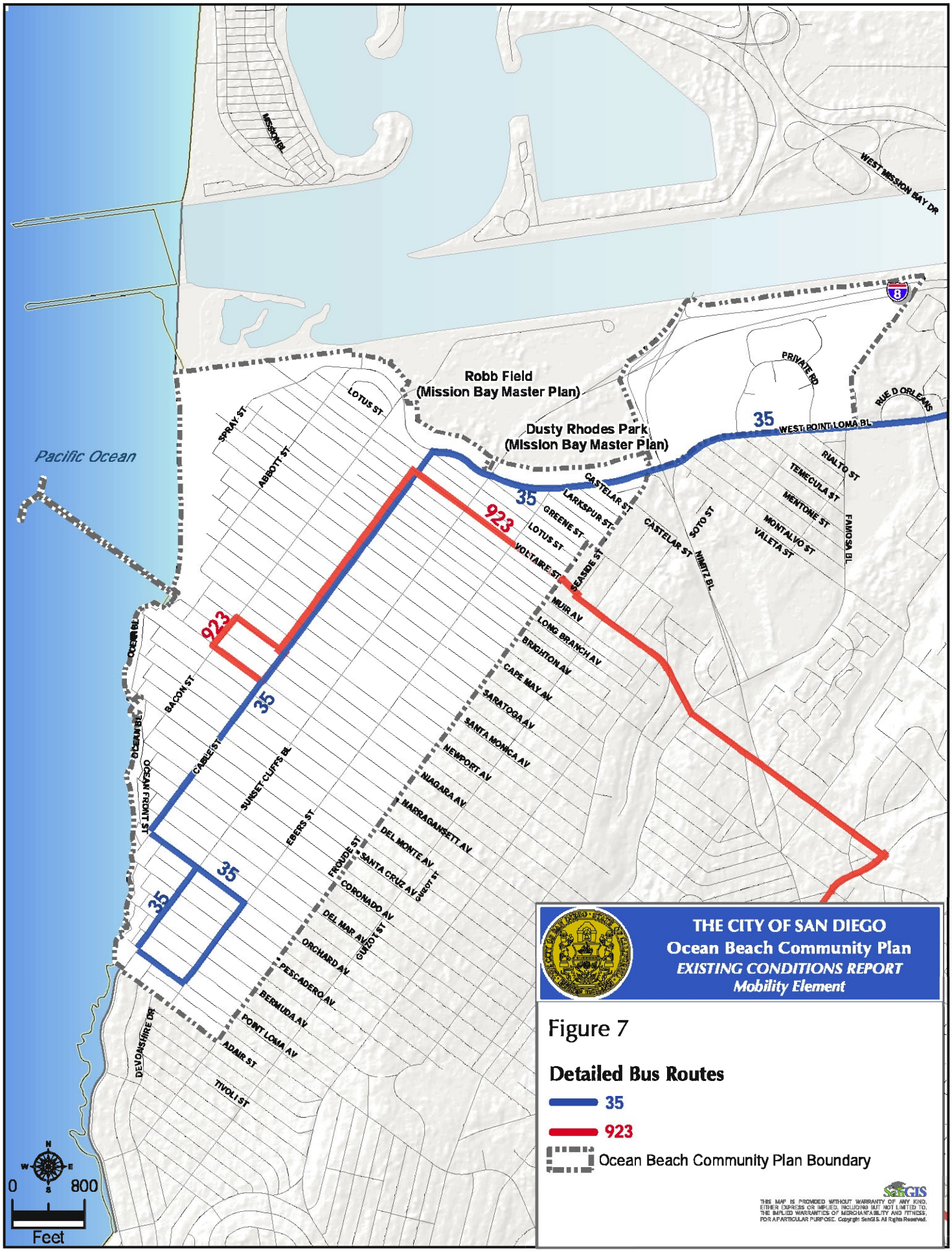
Transit Ridership Counts
Transit ridership data was provided by SANDAG and MTS. At the time of data collection, Route 35 had approximately 840 and Route 923 had approximately 550 daily weekday riders whose trips originated or ended in Ocean Beach. Detailed route alignment for MTS service in Ocean Beach is illustrated on Figure 7. A summary of transit stop use within Ocean Beach based on information collected in Fiscal Year 2006 for Route 35 and Fiscal Year 2007 for Route 923 is presented on Figure 8. Since the time of data collection, Routes 35 and 923 were changed as part of an MTS system-wide transit service restructuring; therefore data is not available for all existing transit stops and doesn't fully reflect the current service. However, these counts still provide a good indication of the level of passenger activity along the routes. Locations with the most passenger activity were:

- Cable Street and Newport Avenue with 364 boardings (ons) and alightings (offs)
- Cable Street and Voltaire Street with 223 boardings and alightings
- Cable Street and Santa Monica Avenue with 176 boardings and alightings
- Point Loma Avenue and Sunset Cliffs Blvd with152 boardings and alightings

Tables from the SANDAG Transit Passenger Counting Program showing passenger activities for each of the routes in their entirety and in more detail, including utilization of the services by time of day, are included in Appendix C for Route 35 and in Appendix D for Route 923.

Bus Stops
There are a total of 29 bus stops in Ocean Beach with a spacing of approximately every two blocks. Route 35 serves 23 stops and Route 923 serves 14 stops, with both routes serving 9 stops on Cable Street. An inventory of bus stops including a photograph and information on the routes served, number of daily boardings and alightings, and presence of shelter, seating, lighting, trash receptacles, and concrete pad is provided in Appendix E. Fifteen of the 29 stops that serve Ocean Beach have one or two benches; twenty-two have lighting (nearby street lighting); seven have permanent trash receptacles; and two have a concrete pad or concrete street. Concrete pads prolong the life of the street by protecting it from the wear and tear of repeated bus decelerations and accelerations, which can cause asphalt heaving over time.

Stop and Operations Assessment
The primary deficiency for bus stops in the community is the inconsistency of amenities. The bus stop inventory found that no bus stops currently have shelters/kiosks and several stops do not have benches, lighting, and/or trash receptacles. The stops with the highest number of boardings, such as Cable Street and Newport Avenue, and Cable Street and Voltaire Street have the highest number of amenities. Based on providing a strong profile for public transit in the community and considering the passenger activity at individual bus stops, a list of deficiencies was developed in consultation with MTS staff. Table 2 presents the deficiencies identified for bus stops in Ocean Beach.



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Ocean Beach Community Plan
EXISTING CONDITIONS REPORT
Mobility Element

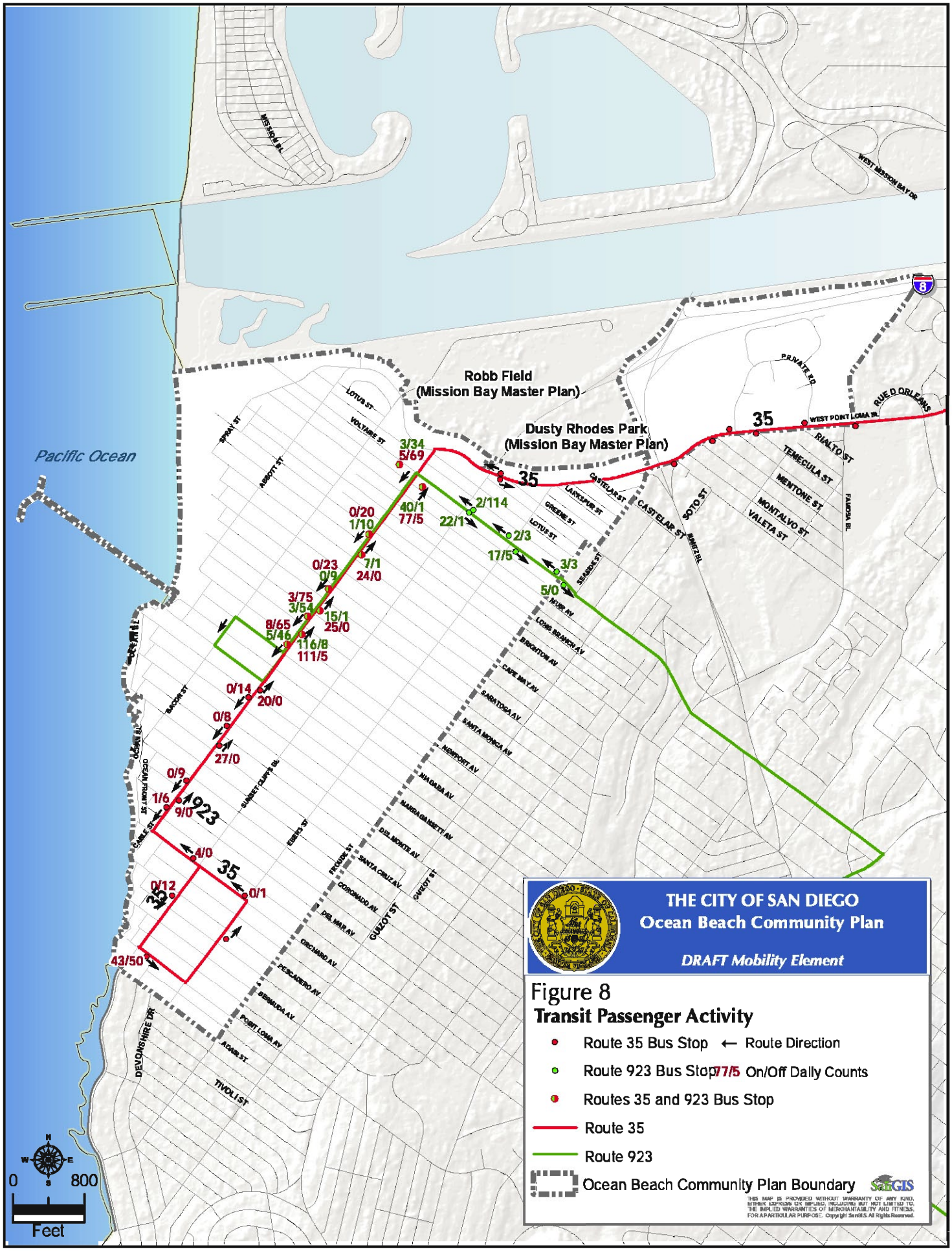
Figure 7

Detailed Bus Routes

35

923

Ocean Beach Community Plan Boundary


Pacific Ocean
Robb Field
(Mission Bay Master Plan)
Dusty Rhodes Park
(Mission Bay Master Plan)
35
923
3/34
5/69
40/1
77/5
0/20
1/10
7/1
24/0
0/23
0/9
3/75
3/54
15/1
25/0
8/65
5/46
116/8
111/5
0/14
20/0
0/8
27/0
0/9
1/6
9/0
4/0
0/12
0/1
43/50
2/114
22/1
2/3
17/5
3/3
5/0
WEST POINT LOMA BL
RIALTO ST
TEMECULA ST
MENTONE ST
MONTALVO ST
VALETA ST
CASTELAR ST
SOTO ST
LARKSPAR ST
GREENE ST
LOTUS ST
VOLTAIRE ST
ABBOTT ST
SPRAY ST
NEWPORT AV
NIAGARA AV
SANTA CRUZ AV
CORONADO AV
PESCADERO AV
BERMUDA AV
POINT LOMA AV
ADAIR ST
TIVOLI ST
GUIZOT ST
DEVONSHIRE DR
SUNSET CLIFFS BL
BACON ST
CABLE ST
OCEAN FRONT ST
0
800
Feet
THE CITY OF SAN DIEGO
Ocean Beach Community Plan
DRAFT Mobility Element
Figure 8
Transit Passenger Activity
Route 35 Bus Stop ← Route Direction
Route 923 Bus Stop 77/5 On/Off Dally Counts
Routes 35 and 923 Bus Stop
Route 35
Route 923
Ocean Beach Community Plan Boundary
SanGIS

Additionally, although it is a maintenance issue, Cable Street is in need of resurfacing to address cracking and potholes to improve the quality of the ride and the experience for bus riders.

Operational Issues
Ocean Beach transit services provide good regional connectivity due to their connections to Old Town Transit Center and downtown. They also provide good local connectivity by serving the community public facilities and commercial areas. Most of the community is within one-quarter mile of a transit stop with the maximum distance to a transit stop of approximately 2,000 feet for just a small residential area of the community.

Operational issues contribute to delays and affect the quality of transit service. Based on field observations and in consultation with MTS staff the following location was determined to adversely impact transit travel times:

- West Point Loma Boulevard at Nimitz Boulevard outbound (westbound) – Buses experience delays on westbound West Point Loma Blvd at Nimitz Boulevard as a result of congestion and queuing, especially during the evening peak period. This intersection approach has one left-turn, one through, and one right-turn lane. Traffic queues in the center through lane, especially during the evening peak period.

Transit operating conditions outside the community, such as on Midway Drive also impact travel times to and from Ocean Beach.

VEHICULAR TRAFFIC

This section addresses movements of vehicles in the community.

Daily Traffic Volumes
Mechanical traffic counters are used to quantify the number of vehicles that utilize a street segment. Counts are recorded by each direction in 15-minute increments. Due to the seasonal nature of the area, traffic data collection typically takes place in June. To learn about the off-season traffic conditions of the community, traffic counts were made in January of 2008.

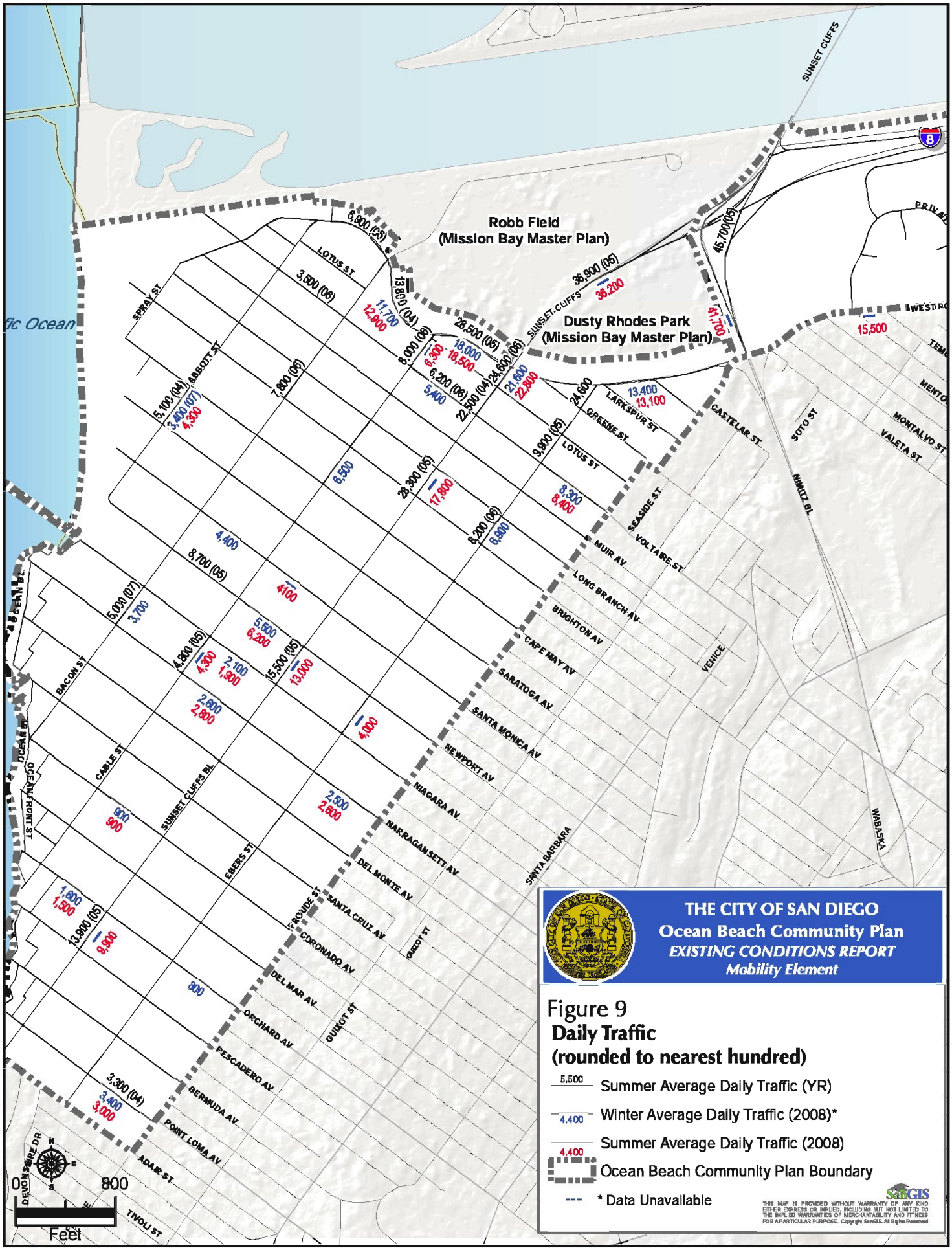
Figure 9 depicts the daily traffic in Ocean Beach. The average daily traffic (ADT) for winter 2008 is the result of two days of counts made in January. In this figure, former summer counts are shown with the respective years that they were made, along with July 2008 counts. The traffic counts taken in June of 2005 for Sunset Cliffs Boulevard, between Nimitz Boulevard and West Point Loma Boulevard, indicate that about 18,500 vehicles travel from the community toward I-8, and approximately 18,300 vehicles travel toward Ocean Beach, for a total of 36,800. The counts done in summer of 2008 show a reduction of 600 vehicles on this segment.

Table 3: Bus Stop Deficiencies

Existing Bus Stop (direction)*	Shelter	Bench	Lighting	Trash Container	Concrete Pad #	Sidewalk Concrete
W. Pt. Loma at Nimitz (IB)	X			X		
Cable at Voltaire (IB)	X					
Cable at Voltaire (OB)				X		
Cable at Brighton (OB)						X
Cable at Cape May (IB)			X			
Cable at Saratoga (OB)						X
Cable at Santa Monica (IB)		X				
Cable at Newport (IB)	X					
Cable at Narragansett (IB)		X	X			X
Cable at Narragansett (OB)						X
Cable at Santa Cruz (IB)			X			
Cable at Coronado (OB)						X
Cable at Del Mar (IB)		X	X			
Pt. Loma at Sunset Cliffs (both)			X			
Ebers at Pescadero (IB)						X
Orchard at Sunset Cliffs (IB)			X			
Voltaire at Ebers (IB)	X					

* IB = Inbound (from Ocean Beach to Old Town or downtown)
OB = Outbound (from Old Town or downtown to Ocean Beach)
No deficiency was identified

The morning peak hour towards the freeway system is at 7:30 and the afternoon peak hour towards the community is at 5:45. Figures 10a and 10b detail15-minute traffic counts for morning and afternoon peak periods for both directions of Sunset Cliffs Boulevard, between Nimitz Boulevard and West Point Loma Boulevard. As illustrated on Figure 10a, the southbound traffic between 11:00 AM and 1:00 PM, is more evenly distributed in each 15-minute interval. The peak two-hour traffic in the PM, is more even in the northbound direction than the southbound direction. The traffic volumes on Sunset Cliffs Boulevard decrease further south to 15,500, between Newport Avenue and Niagara Avenue, and to 13,900, between Orchard Avenue and Pescadero Avenue.


Robb Field
(Mission Bay Master Plan)
Dusty Rhodes Park
(Mission Bay Master Plan)
SUNSET CLIFFS
LOTUS ST
SPRAY ST
ABBOTT ST
GREENE ST
LARKSPUR ST
CASTELAR ST
SOTO ST
NIMITZ BL
SEASIDE ST
VOLTAIRE ST
MUIR AV
LONG BRANCH AV
BRIGHTON AV
CAPE MAY AV
SARATOGA AV
SANTA MONICA AV
NEWPORT AV
NIAGARA AV
NARRAGANSETT AV
DEL MONTE AV
SANTA CRUZ AV
CORONADO AV
DEL MAR AV
ORCHARD AV
PESCADERO AV
BERMUDA AV
POINT LOMA AV
ADAIR ST
TIVOLI ST
GUIZOT ST
SANTA BARBARA
VENICE
WABASKA
MONTALVO ST
VALETA ST
BACON ST
CABLE ST
EMERS ST
SUNSET CLIFFS BL
OCEAN FRONT ST
OCEAN AV
DEVONSHIRE DR
6,900 (05)
3,500 (06)
13,600 (04)
11,700
12,900
28,500 (05)
5,000 (05)
6,300
18,000
18,500
6,200 (06)
5,400
22,500 (04)
24,600 (06)
21,600
22,800
24,600
36,900 (05)
36,200
45,700(05)
41,700
15,500
13,400
13,100
9,900 (05)
8,300
8,400
8,200 (06)
6,900
26,300 (05)
17,800
6,500
7,800 (05)
5,100 (04)
3,400 (07)
4,300
4,400
8,700 (05)
4100
5,000 (07)
3,700
5,500
6,200
4,800 (05)
4,300
2,100
1,900
15,500 (05)
13,000
2,600
2,800
4,000
2,500
2,800
900
900
1,600
1,500
13,900 (05)
9,600
800
3,300 (04)
3,400
3,000
0
800
Feet
THE CITY OF SAN DIEGO
Ocean Beach Community Plan
EXISTING CONDITIONS REPORT
Mobility Element
Figure 9
Daily Traffic
(rounded to nearest hundred)
5,500 Summer Average Daily Traffic (YR)
4,400 Winter Average Daily Traffic (2008)*
4,400 Summer Average Daily Traffic (2008)
Ocean Beach Community Plan Boundary
--- * Data Unavailable
SanGIS
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As can be expected, summer counts, especially at the community entrances, around the beach, and at commercial areas, are higher than winter. For example, West Point Loma Boulevard, west of Sunset Cliffs Boulevard, has an ADT of 18,000 in winter. The same location registered a daily traffic of 28,500 in summer of 2005. Due to the economic conditions and higher fuel costs, the summer or 2008 count for this location was 18,500. Also, the traffic count in summer of 2006 for Sunset Cliffs Boulevard, just south of West Point Loma Boulevard was 1,800 more than the traffic count for summer of 2008. Figure 11 illustrates the daily traffic volumes for both directions of West Point Loma Boulevard, between Cable Street and Sunset Cliffs Boulevard. This is one of the main gateways to the community. As is shown on the figure, the typical summer traffic is always higher than winter traffic, for both directions. Also, the trend in increase and decrease of traffic volumes throughout the day for both seasons are about the same. Figures 12a and 12b are a more detailed illustration of the typical seasonal traffic counts for two peak hours in the morning and two peak hours in the afternoon, for each direction. Again, all summer traffic volumes are higher than winter in each 15-minute counts for both directions.

Winter counts in 2009 were done for the purpose of seasonal comparisons. The following locations registered lower average daily traffic in summer, than in winter:

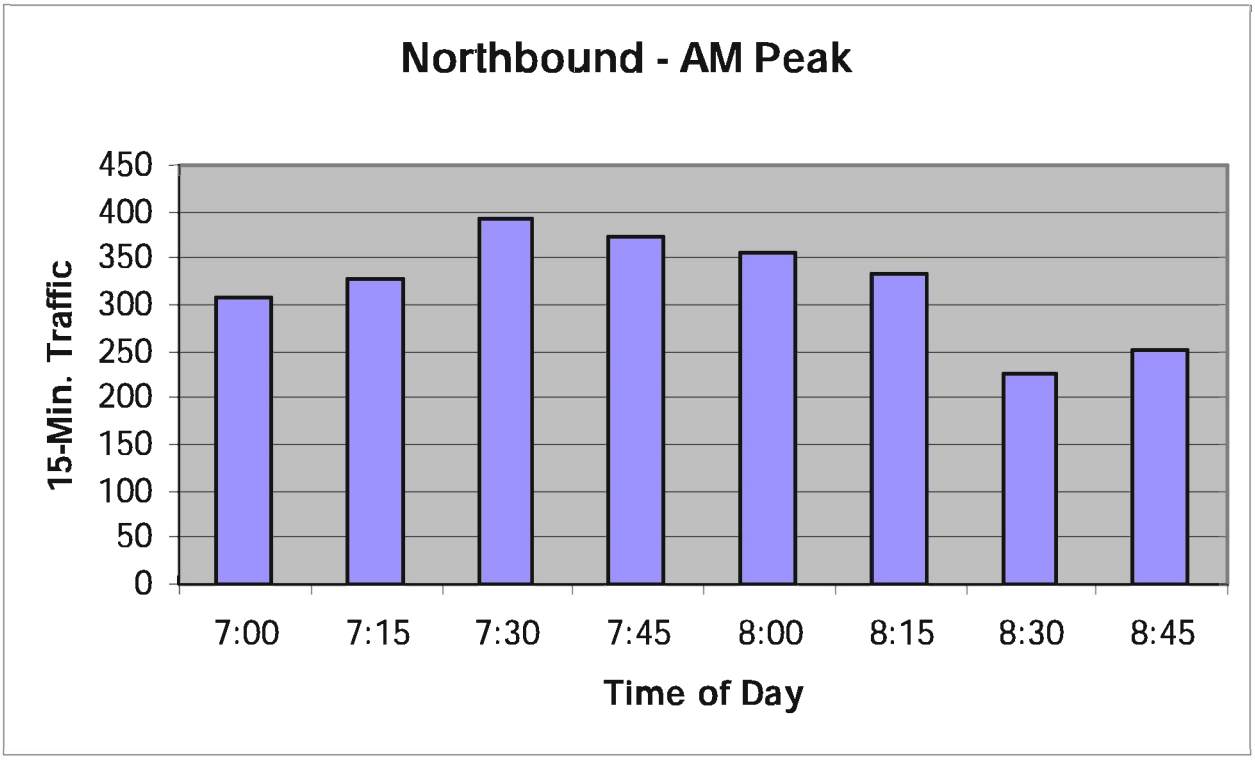
- Niagara Avenue, between Sunset Cliffs Boulevard and Cable Street
- Orchard Avenue, between Sunset Cliffs Boulevard and Cable Street
- Point Loma Avenue, between Froude Street and Ebers Street
- West Point Loma Boulevard, between Castelar Street and Larkspur Street

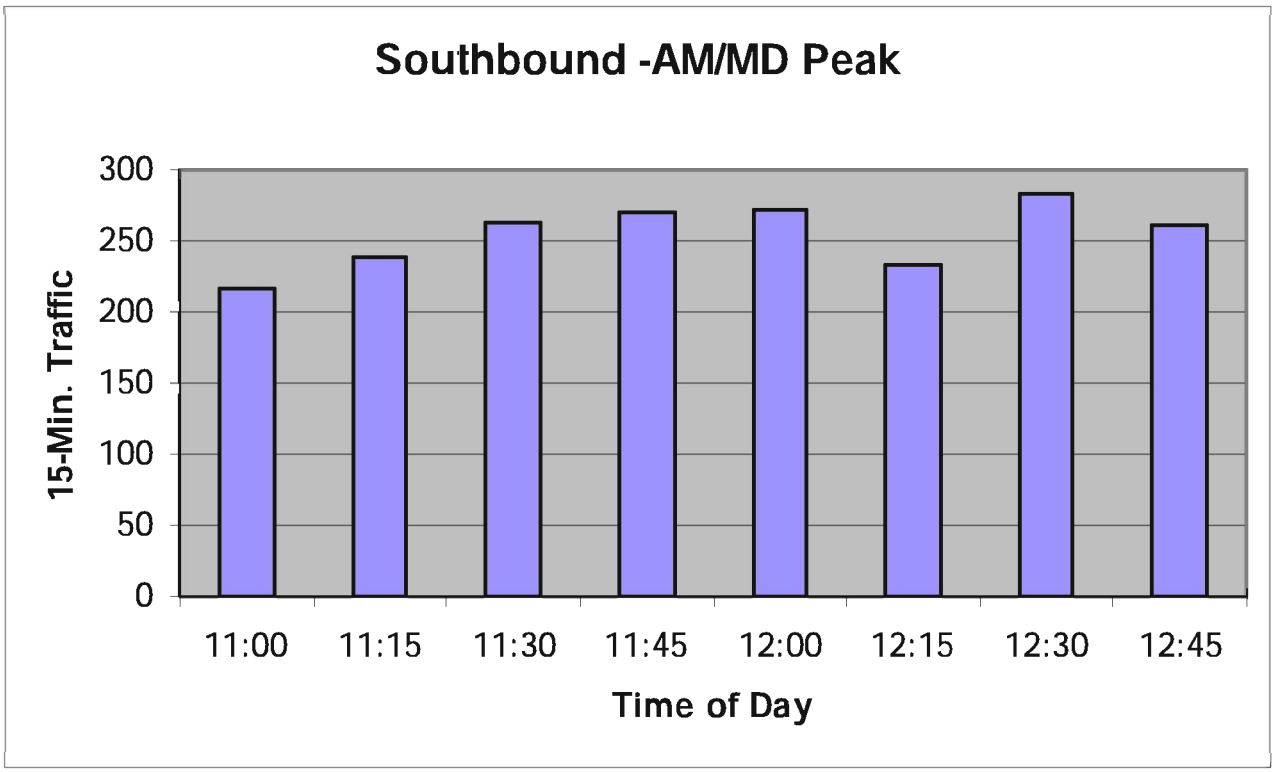
Appendix F includes the daily counts that were taken in the January of 2008. The two-day average of hourly counts is also illustrated. The summer traffic counts are presented in Appendix G, with illustration of hourly counts. As can be seen in the illustrations of traffic volumes, the morning and afternoon peak periods are more spread throughout the day and typical peaks of morning and afternoon hours with significant drops in traffic volumes during off peak periods are not experienced in the area.

Functional Street Classifications

Roadways have different designations, depending on their respective functions. The ascending order of a roadway classification system in a community is from Local Street to Primary Arterial. Freeways are the highest roadway classification that provide regional access to communities.

Local Streets provide access to dwelling units. These streets feed into Collector Streets; Collector Streets in turn feed into Major Streets. These streets serve various land uses. Major Streets are typically 4-lane facilities that are divided by painted or raised median. Primary Arterials are next in the classification hierarchy and are at least 4 lanes. Land use access is very limited to and from these roadways that typically connect Major Streets to carry the through traffic at high speed.





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EXISTING CONDITIONS REPORT
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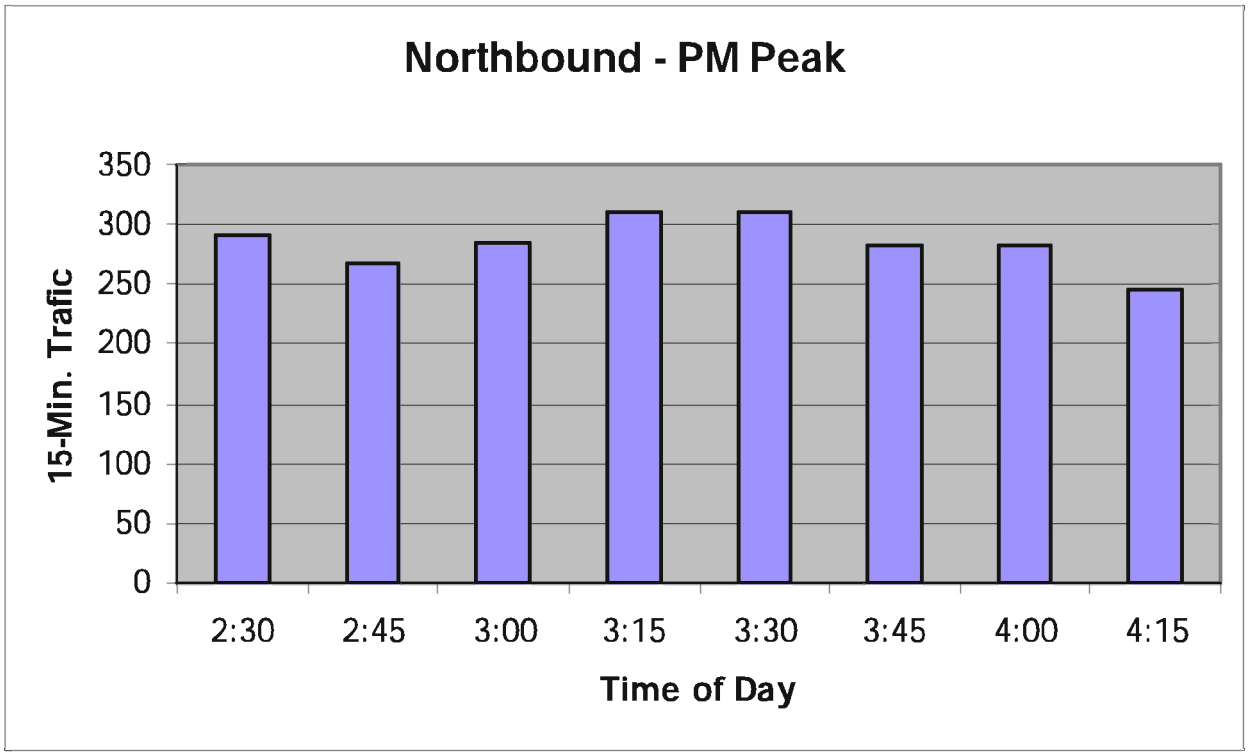
Figure 10a
Peak Period Summer Traffic
Sunset Cliffs Bl.: Nimitz-W. Pt. Loma



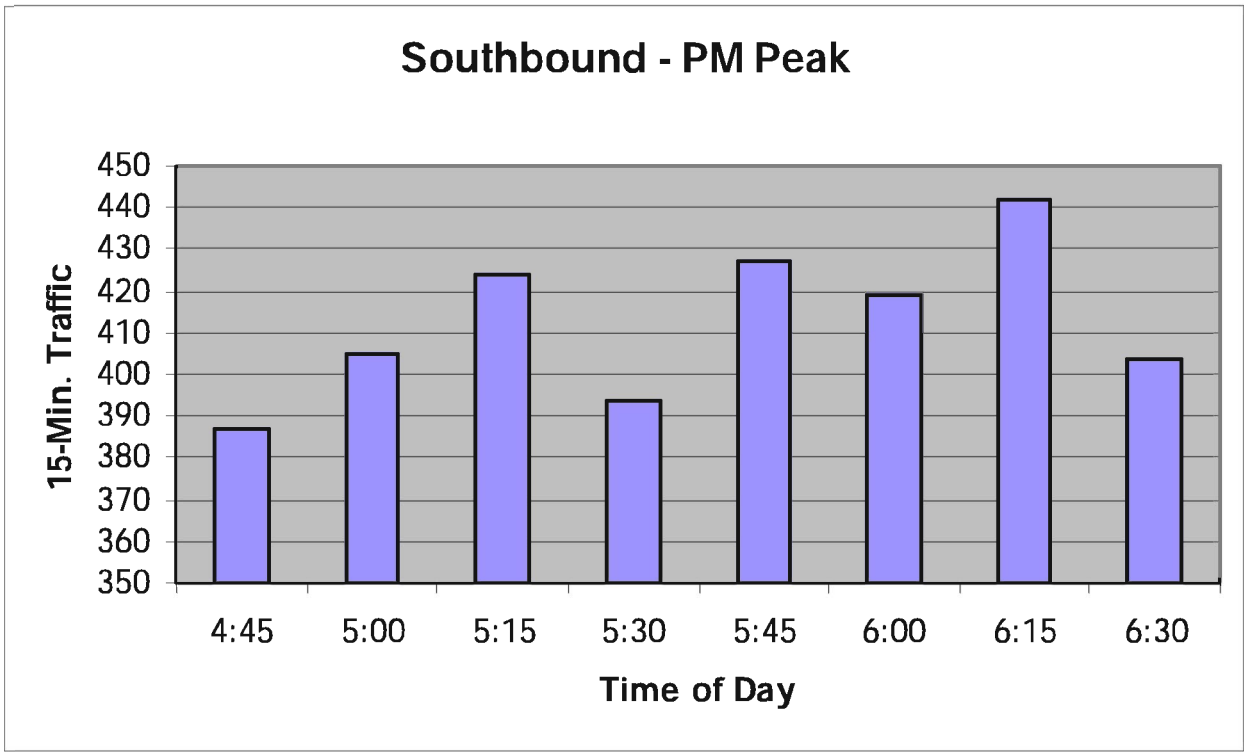


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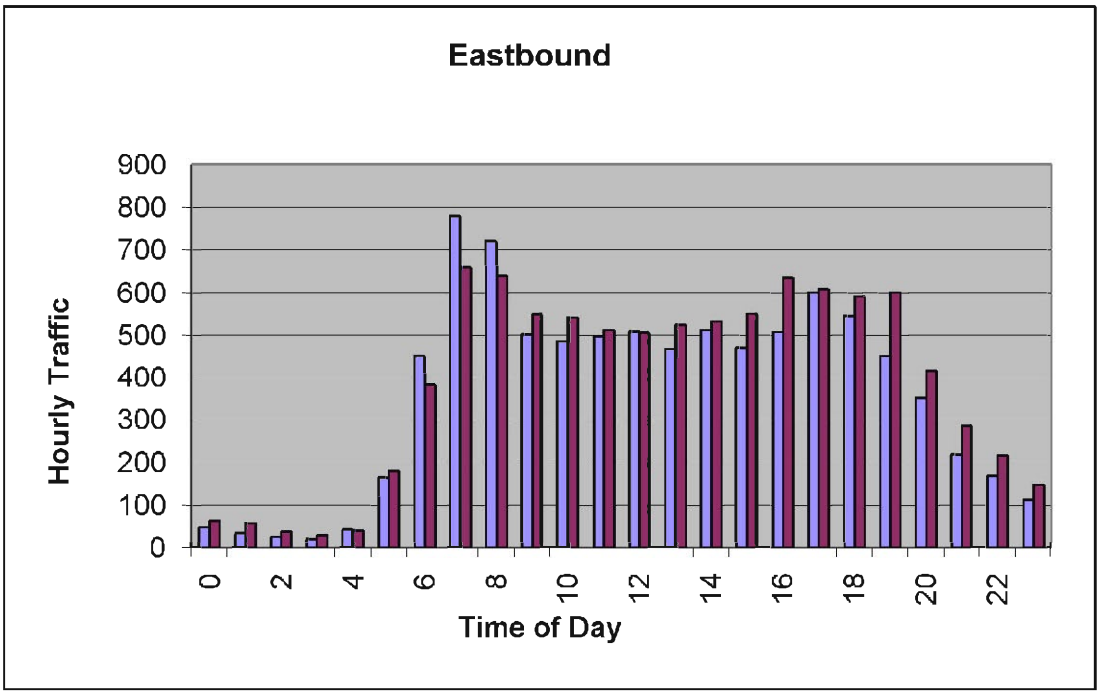
Figure 10b
Peak Period Summer Traffic
Sunset Cliffs Bl.: Nimitz-W. Pt. Loma



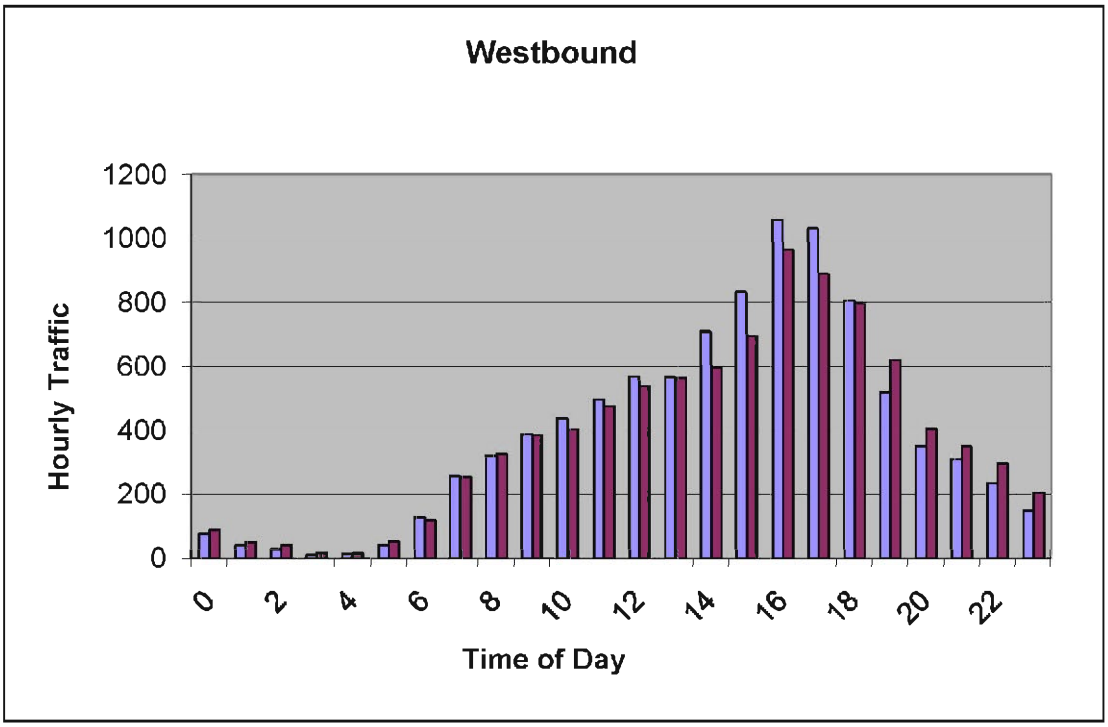


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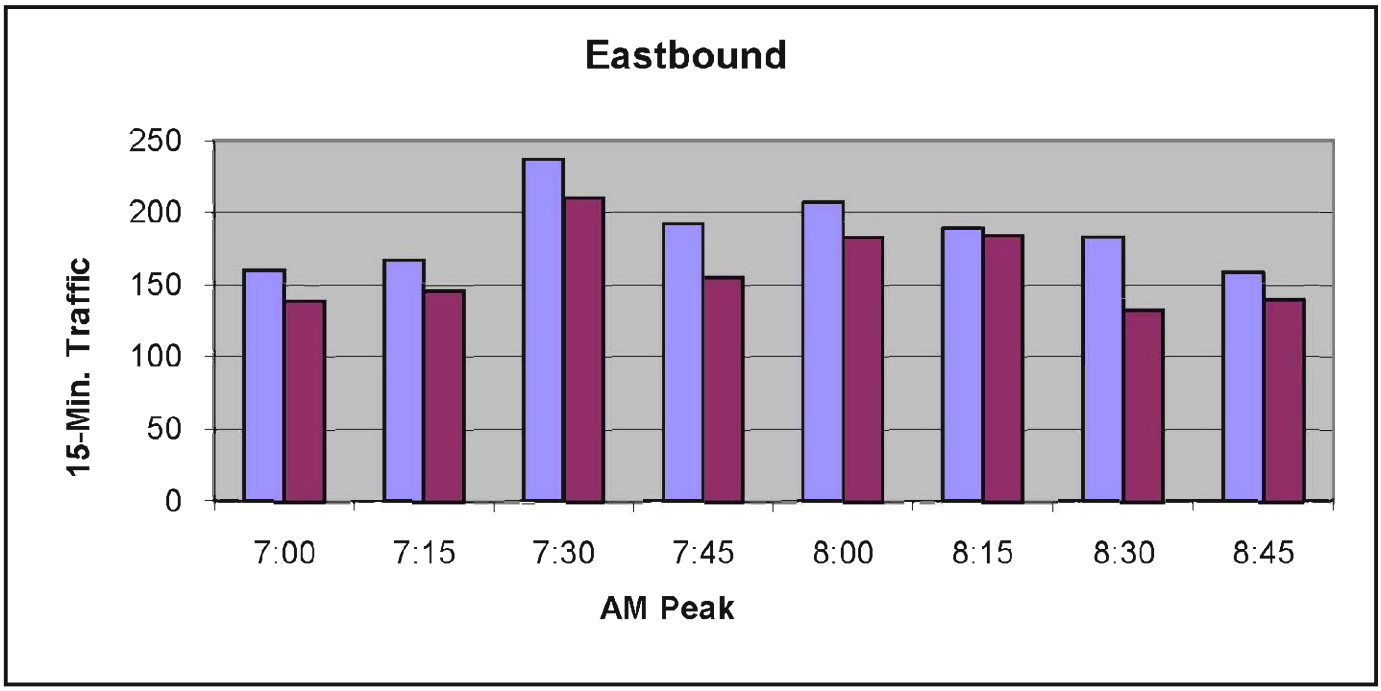
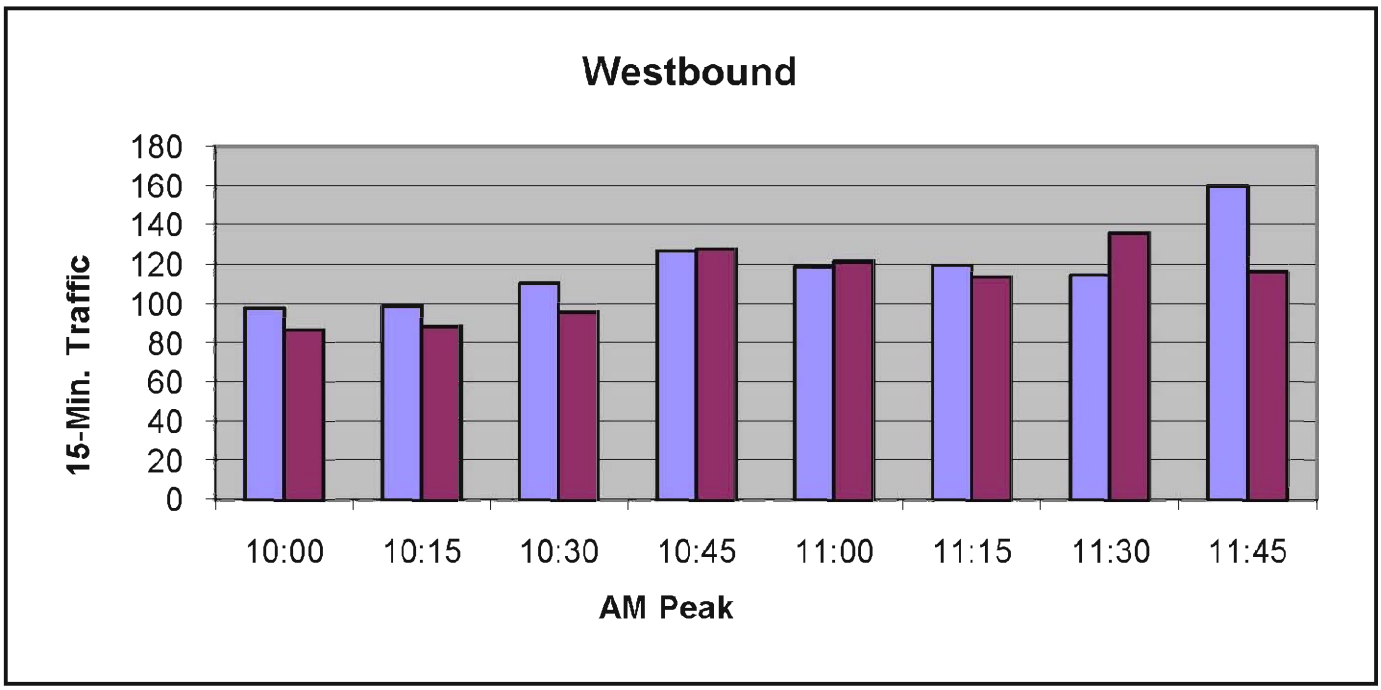
Figure 11
Daily Seasonal Traffic Comparison
W. Pt. Loma Bl.: Cable-Sunset Cliffs
Winter
Summer





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Ocean Beach Community Plan
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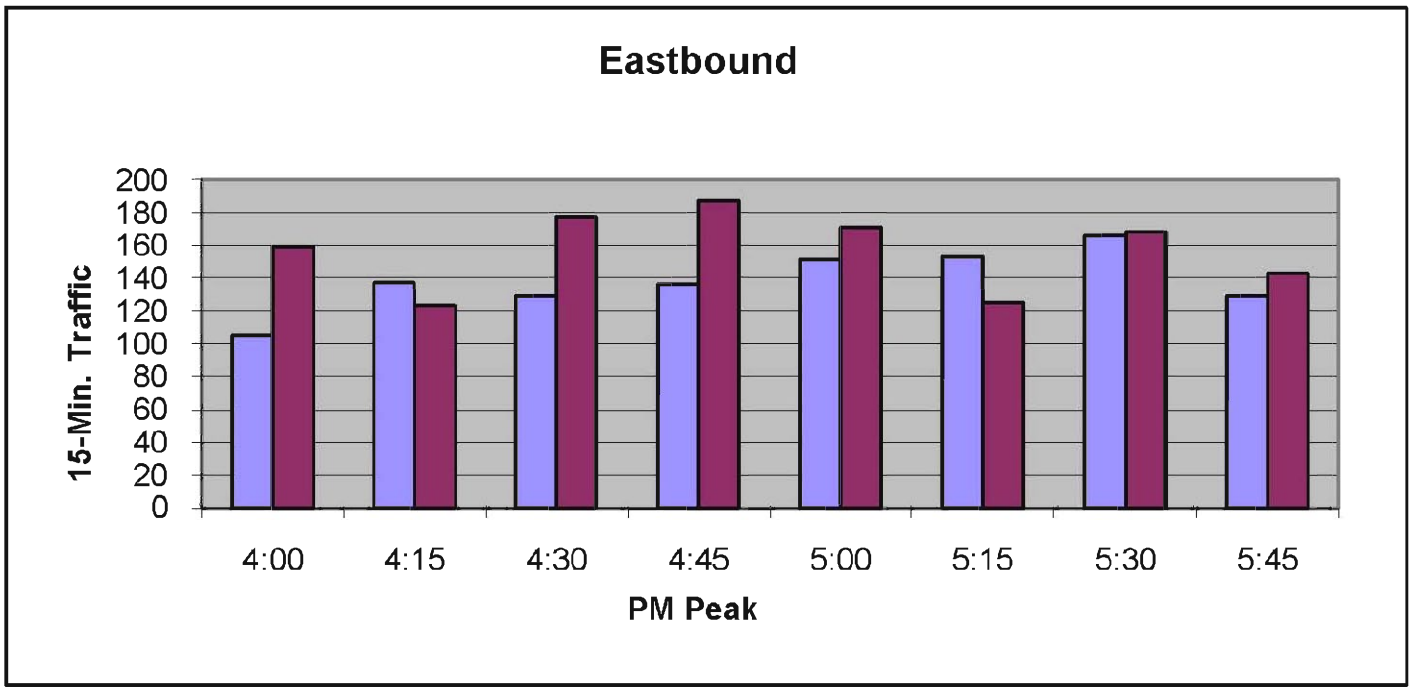
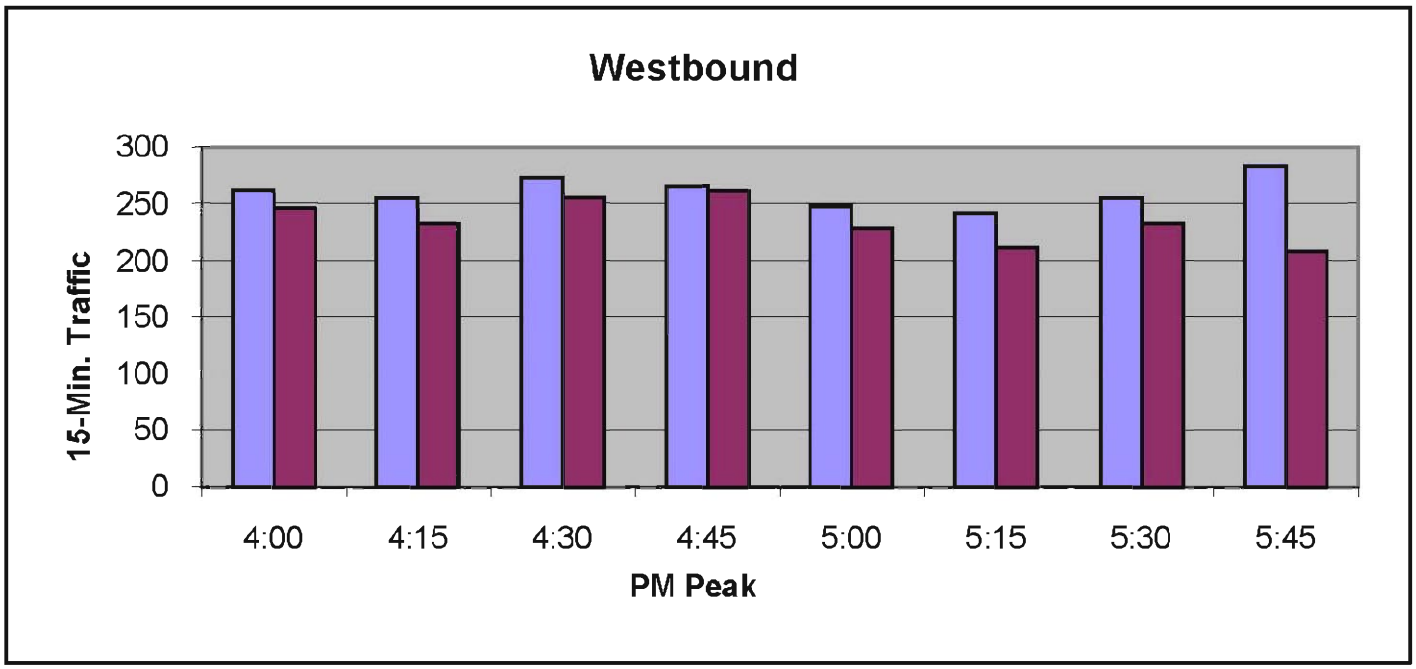
Figure 12a
Peak Period Seasonal Comparison
West Pt. Loma Bl.: Cable-Sunset Cliffs
Winter
Summer





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Ocean Beach Community Plan
EXISTING CONDITIONS REPORT
Mobility Element

Figure 12b
Peak Period Seasonal Comparison
West Pt. Loma Bl.: Cable-Sunset Cliffs
Winter
Summer

Figure 13 illustrates the Functional Street Classifications in Ocean Beach. Because this is an older urbanized area with many narrow roadways, some of the streets are functioning above their desired level of service due to carrying high traffic volumes. As indicated above, a Major Street is typically a 4-lane divided roadway, but 2-lane roadways such as Sunset Cliffs Boulevard, and segments of West Point Loma Boulevard and Voltaire Street are designated as Major Streets due to their function and the traffic volumes that they carry.

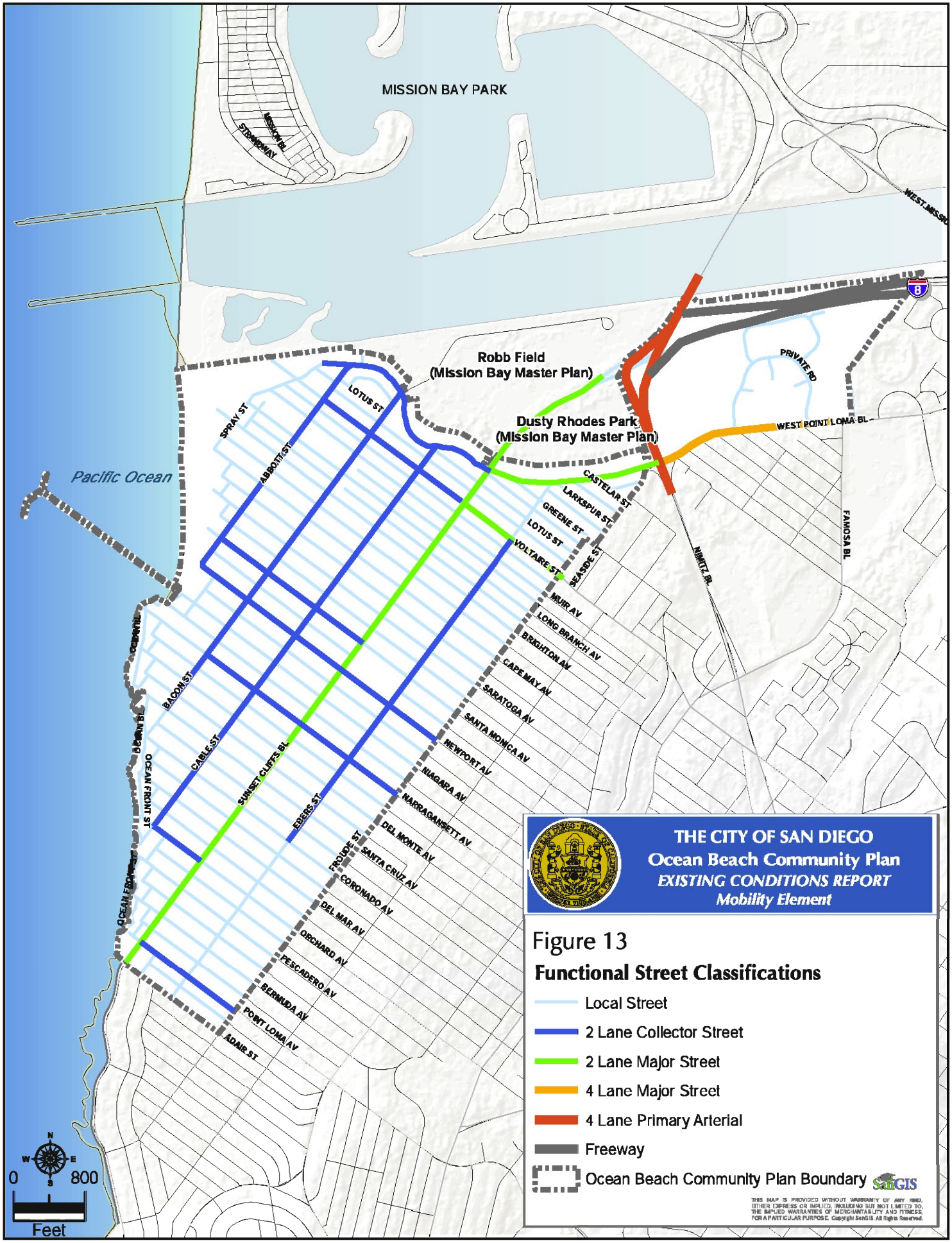
The following is a description of the classified streets in this community. It should be noted that only a segment of a street may be classified, and that the classification may change in different segments. The streets or segments that are not described are Local Streets.

Abbott Street, between Newport Street and West Point Loma Boulevard
This is a 2-Lane Collector Street with northeast-southwest alignment. It is 40' wide and has 60' of right-of way. The segment between Cape May Avenue and Saratoga Avenue registered a daily count of 5,090 in summer of 2004, 4,300 in summer of 2008, and 3,400 in winter of 2007.

Bacon Street, between Santa Cruz Avenue and West Point Loma Boulevard
This is a 2-Lane Collector Street with northeast-southwest alignment. It is 40' wide and has 60' of right-of-way between Brighton Avenue and West Point Loma Boulevard, and narrows to 36' south of Brighton Avenue. Right-of-way remains the same. The segment between Brighton Avenue and Long Branch Avenue registered daily traffic counts of 6,500 in summer of 2003, and 7,810 in summer of 2006. The segment between Narragansett Avenue and Niagara Avenue registered 5,000 vehicles in summer of 2007, and 3,700 vehicles in winter of 2008.

Cable Street, between Orchard Avenue and West Point Loma Boulevard
This is a 2-Lane Collector Street with northeast-southwest alignment. It is 40' wide and has 60' of right-of-way between Brighton Avenue and West Point Loma Boulevard, and narrows to 36' south of Brighton Avenue. Right-of-way remains the same. The segment between Narragansett Avenue and Niagara Avenue had a daily traffic of 4,800 in summer of 2005 and 4,300 in summer of 2008. The segment between Voltaire Street and West Point Loma Boulevard had a summer ADT of 6,600 daily traffic in 2003, 8,000 in 2006, and 6,300 in 2008.

Ebers Street, between Coronado Avenue and Voltaire Street
This is a 2-Lane Collector Street with northeast-southwest alignment. It is 40' wide and has 60' of right-of-way between West Point Loma Boulevard and Brighton Avenue, and narrows to 36' south of Brighton Avenue. Right-of-way remains the same. The segment between Brighton Avenue and Long Branch Avenue registered 8,200 vehicles in summer of 2006 and 6,900 in winter of 2008. The summer of 2008 count between Newport Avenue and Niagara Avenue was 4,000.



THE CITY OF SAN DIEGO
Ocean Beach Community Plan
EXISTING CONDITIONS REPORT
Mobility Element

Figure 13

Functional Street Classifications

- Local Street
- 2 Lane Collector Street
- 2 Lane Major Street
- 4 Lane Major Street
- 4 Lane Primary Arterial
- Freeway
- Ocean Beach Community Plan Boundary

SanGIS

Narragansett Avenue, between Bacon Street and Froude Street
This is a 2-Lane Collector Street with northwest-southeast alignment. It is 40' wide and has 80' of right-of-way. The winter 2008 traffic counts between Cable Street and Sunset Cliffs Boulevard showed 2,600 vehicles, and 2,800 vehicles in summer. The segment between Ebers Street and Froude Street showed the winter traffic to be 2,500 and the summer traffic 2,600.

Newport Avenue, between Abbott Street and Froude Street
This is a 2-Lane Collector Street with northwest-southeast alignment. It is 52' wide and has 80' of right-of-way. The winter 2008 daily traffic counts between Cable Street and Sunset Cliffs Boulevard showed 5,500 vehicles, and the summer counts were 6,200. The segment between Bacon Street and Cable Street showed 8,700 vehicles utilizing this street.

Orchard Avenue, between Cable Street and Sunset Cliffs Boulevard
This is a 2-Lane Collector Street with northwest-southeast alignment. It is 40' wide and has 80' of right-of-way. In 2008, there were 1,600 vehicles in winter and 1,500 vehicles in summer. The segment between Ebers Street and Froude Street registered 800 vehicles on this block.

Point Loma Avenue, between Froude Street and Sunset Cliffs Boulevard
This is a 2-Lane Collector Street with northwest-southeast alignment. It is 55' wide and has 80' of right-of-way. The winter 2008 average daily traffic is 3,300 between Ebers Street and Froude Street. The summer count in the same segment was 3,300 in 2004 and 3,000 in 2008.

Santa Monica Avenue, between Abbott Street and Sunset Cliffs Boulevard
This is a 2-Lane Collector Street with northwest-southeast alignment. It is 40' to 52' wide and has 80' of right-of-way. The winter 2008 average daily traffic between Bacon Street and Cable Street was 4,400. The segment between Cable Street and Sunset Cliffs Boulevard registered 4,100 vehicles in summer of 2008.

Sunset Cliffs Boulevard, between Adair Street and West Point Loma Boulevard
This is a 2-Lane Major Street with northeast-southwest alignment. It is 40' wide and has 60' of right-of-way between Brighton Avenue and West Point Loma Boulevard, and narrows to 36' south of Brighton Avenue. Right-of-way remains the same. The segment between Lotus Street and West Point Loma Boulevard is one of the entry points to the community. It had a daily traffic volume of 24,600 in summer of 2006. This volume was reduced in summer of 2008 to 22,800. The summer of 2005 had 28,300 daily traffic between Brighton and Long Branch. This traffic volume was significantly reduced to 17,800 in summer of 2008. The daily traffic for summer of 2005 between Newport Avenue and Niagara Avenue was 15,500 and 13,000 in summer of 2008. The segment between Orchard Avenue and Pescadero Avenue had a daily traffic volume of 13,900 in summer of 2005 and was reduced to 9,900 in summer of 2008.

Voltaire Street, between Abbott Street and Froude Street
The segment between Abbott Street and Sunset Cliffs Boulevard is a 2-Lane Collector Street with northwest-southeast alignment that is 52' wide and has 80' of right-of-way. The segment between Cable Street and Sunset Cliffs Boulevard showed 6,200 ADT for summer of 2006 and 5,400 ADT for winter of 2008.

The segment between Froude Street and Sunset Cliffs Boulevard is a 2-Lane Major Street. It is 52' wide and has 80' of right-of-way. The winter 2008 count registered an average daily traffic of 8,000 and the summer count was 8,400.

West Point Loma Boulevard, between Nimitz Boulevard and Spray Street
The segment between Nimitz Boulevard and Sunset Cliffs Boulevard is a 2-Lane Major Street with northeast-southwest alignment. It is 52' wide and has 80' of right-of-way. The winter 2008 counts were made between Castelar Street and Larkspur Street that showed an ADT of 13,400. Summer 2008 counts for the same location was 13,100.

The segment between Spray Street and Sunset Cliffs Boulevard is a 2-Lane Collector Street with varying alignments. It is 52' wide and has 80' of right-of-way. The segment between Bacon Street and Cable Street had an average daily traffic of 11,700 in winter of 2008. The summer count was 12,900 in 2009. This compares with 13,800 vehicle count in summer of 2004.

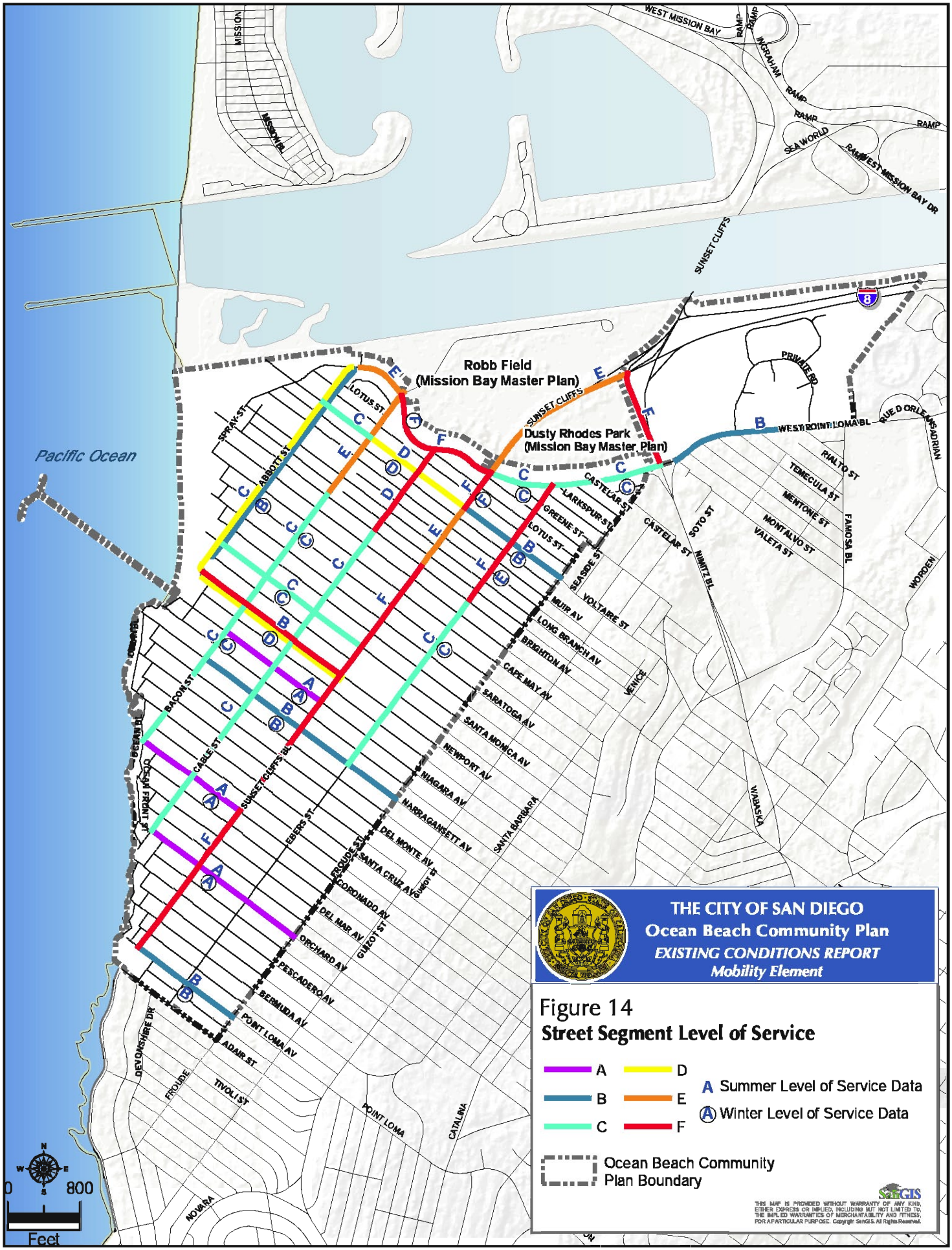
Street Segment Level of Service (LOS)
Factors such as increases in the area land use intensity have resulted in additional trips in the community that have caused congestion and long delays, especially on routes to and from I-8. The roadway segment level of service (LOS) is a measure of traffic volume relative to the capacity of the roadway. A letter grade from A through F is used to show the congestion of the roadway. Appendix H provides information on roadway classifications and their respective LOS, depending on the traffic volumes they carry. In urbanized areas of the city, such as Ocean Beach, street segments with levels of service E and F are considered congested and undesirable. There are four street segments within the community that operate at undesirable LOS in winter. These segments are:

- Ebers Street, between Brighton Avenue and West Point Loma Boulevard
- Sunset Cliffs Boulevard, between Voltaire Street and West point Loma Boulevard
- West Point Loma Boulevard, between Bacon Street and Cable Street
- West Point Loma Boulevard, between Cable Street and Sunset Cliffs Boulevard

Based on the daily traffic volumes that were counted during July of 2008, and depending on the Functional Street Classifications, the level of service for various street segments in Ocean Beach was determined. The street segments that perform at undesirable level of service in summer are:

- Bacon Street, between Brighton and West Point Loma Boulevard (E)
- Ebers Street, between Brighton Avenue and West Point Loma Boulevard (F)
- Nimitz Boulevard, between Sunset Cliffs Boulevard and West Point Loma Boulevard (F)
- Sunset Cliffs Boulevard, between Nimitz Boulevard and West Point Loma Boulevard (E)
- Sunset Cliffs Boulevard, between Voltaire Street and West Point Loma Blvd. (F)

Figure 14 illustrates the Street Segment Level of Service for winter and summer of 2008.



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EXISTING CONDITIONS REPORT
Mobility Element

Figure 14
Street Segment Level of Service

A
B
C
D
E
F

A Summer Level of Service Data
Ⓐ Winter Level of Service Data

Ocean Beach Community Plan Boundary

Intersections

The movement of traffic is regulated at crossings of more heavily traveled roadways. For the streets that carry about the same volume of traffic, all-way stop signs are installed where they cross. Traffic signals are installed at the busiest locations to allow orderly traffic movement. The locations for the all-way stop signs and signalized intersections are shown on Figure 15.

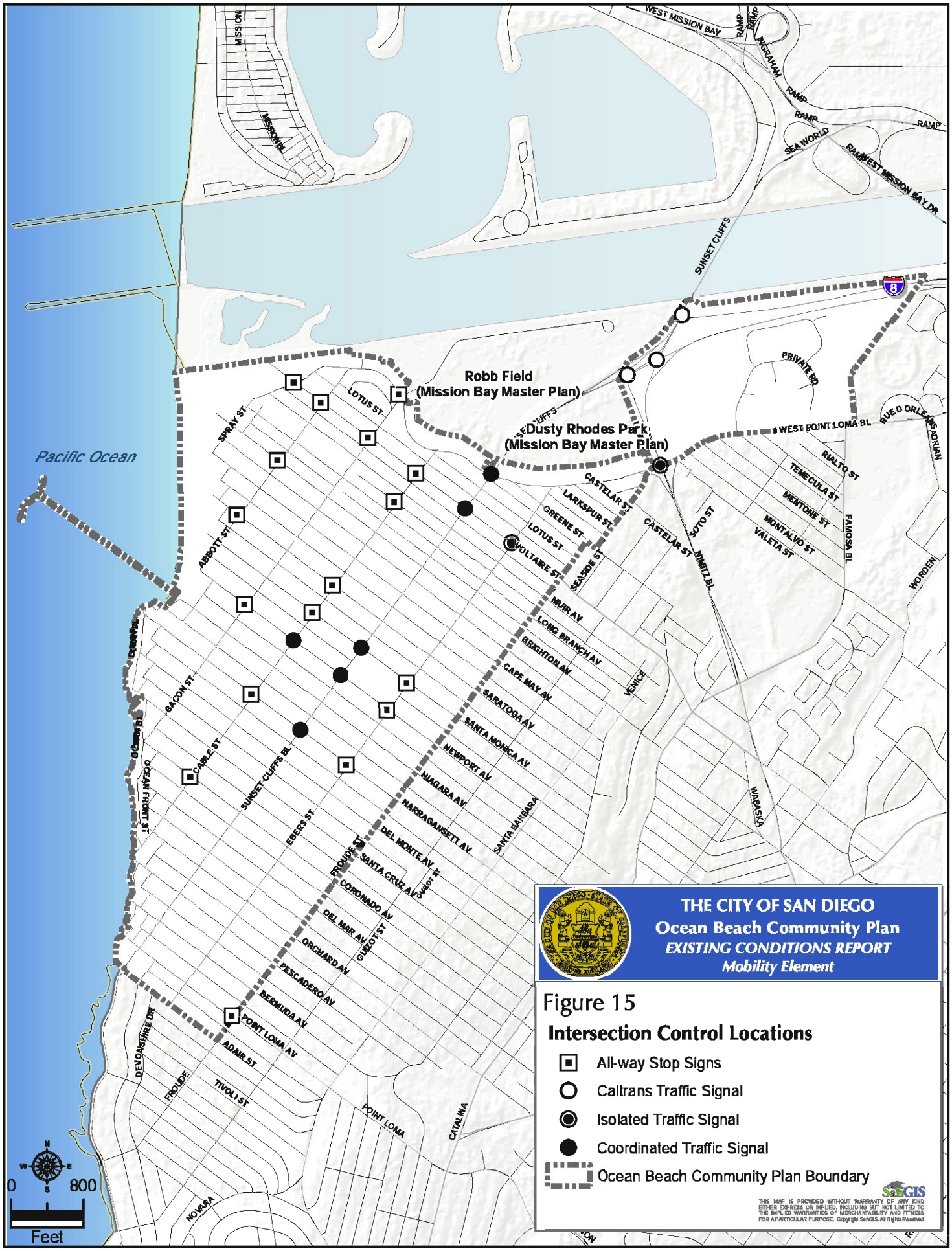
Traffic counts were made in January and July of 2008 to determine the traffic volume for each through and turning movements at nine signalized intersections within the community and at the I-8 ramps. Turning movement counts were made for morning and afternoon peak periods. Figures 16a, 16b, 17a, and 17b show the lane configurations and traffic movements for each of the counted signalized intersections for the morning and afternoon peak periods in winter and summer. These counts are used to determine the level of service at the intersections. The results of intersection LOS for morning and afternoon peak periods in winter and summer are shown on Figure 18a and 18b. To illustrate the differences between the winter and summer LOSs for the signalized intersections, refer to Figure 18c for morning and Figure 18d for afternoon peak periods. General description of evaluation criteria that corresponds to various levels of service is provided in Appendix I. For example, if the stopped delay per vehicle is more than 80 seconds, then the intersection is operating at level of service F.

Appendix J provides a summary of intersection LOS for the morning and afternoon peak periods. The table in this appendix also shows the average delay that is experienced by each driver. Appendix K describes delays per each move for the signalized intersections that operate at LOS E or F in the community. The manual intersection counts are in Appendix L.

Collisions

The vehicle-vehicle collisions in the community are analyzed based on various factors. A comparison is made for each of the factors between the community and the city-wide average. Table 4 is a summary of collision reports. For each category of crashes, comparison can be made between Ocean Beach and city-wide figures. Ocean Beach has proportionally lower crashes in head-on, hit fixed object, rear ends, right angle, run off road, and side swipe in the same direction accidents. However, for the remaining categories, this community's proportional share is more than city-wide figure.

The rate of vehicle-vehicle collisions for 1,000 population in Ocean Beach is just under 2.2 times the city-wide rate, even though categories such as head-on, hit fixed object, rear ends, right angle, run off road, and same direction swipe show below city-wide collision rate. The explanation for Ocean Beach's higher area-wide collision rate is because of the area's regional attractiveness that brings in many visitors, especially in the summer time.

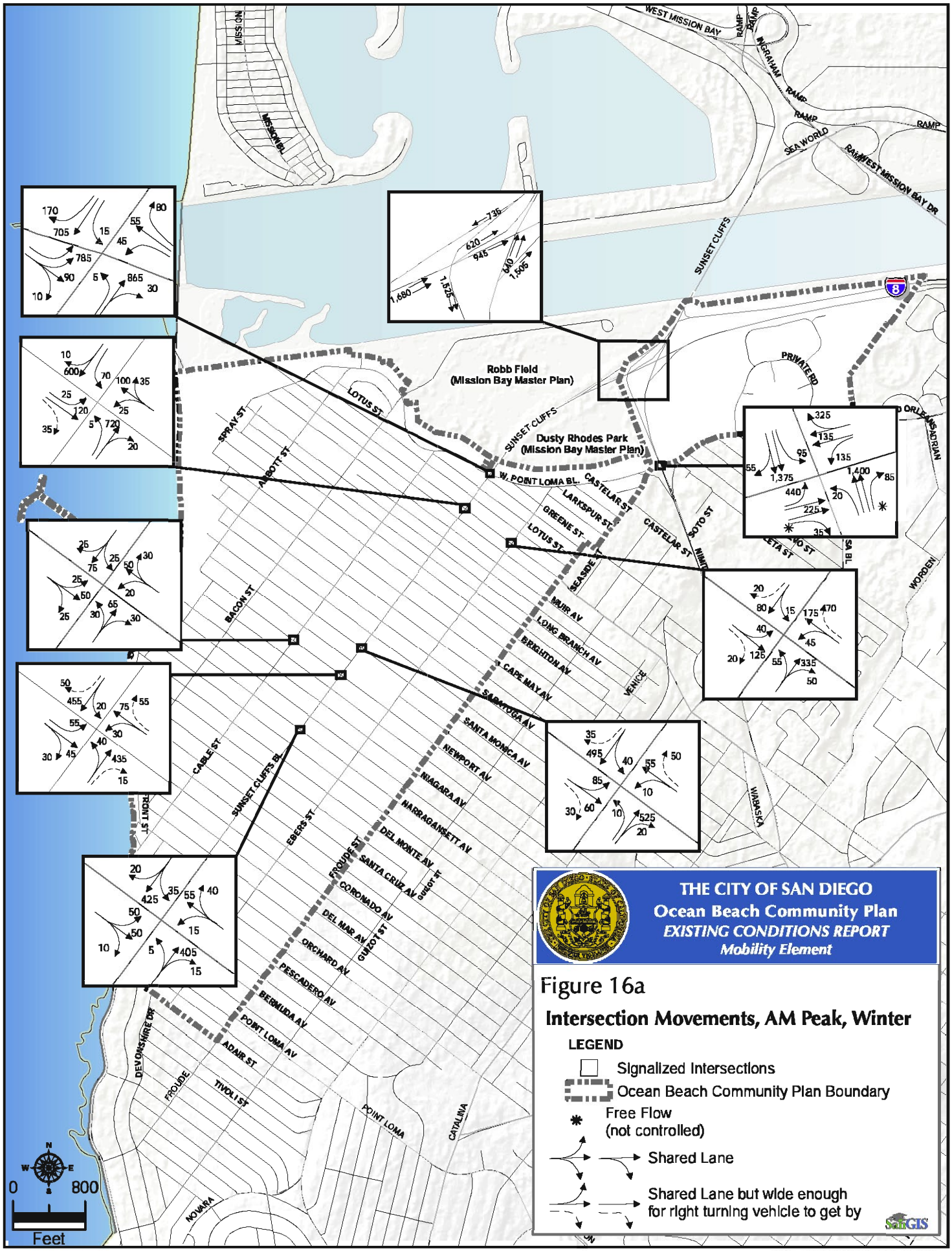


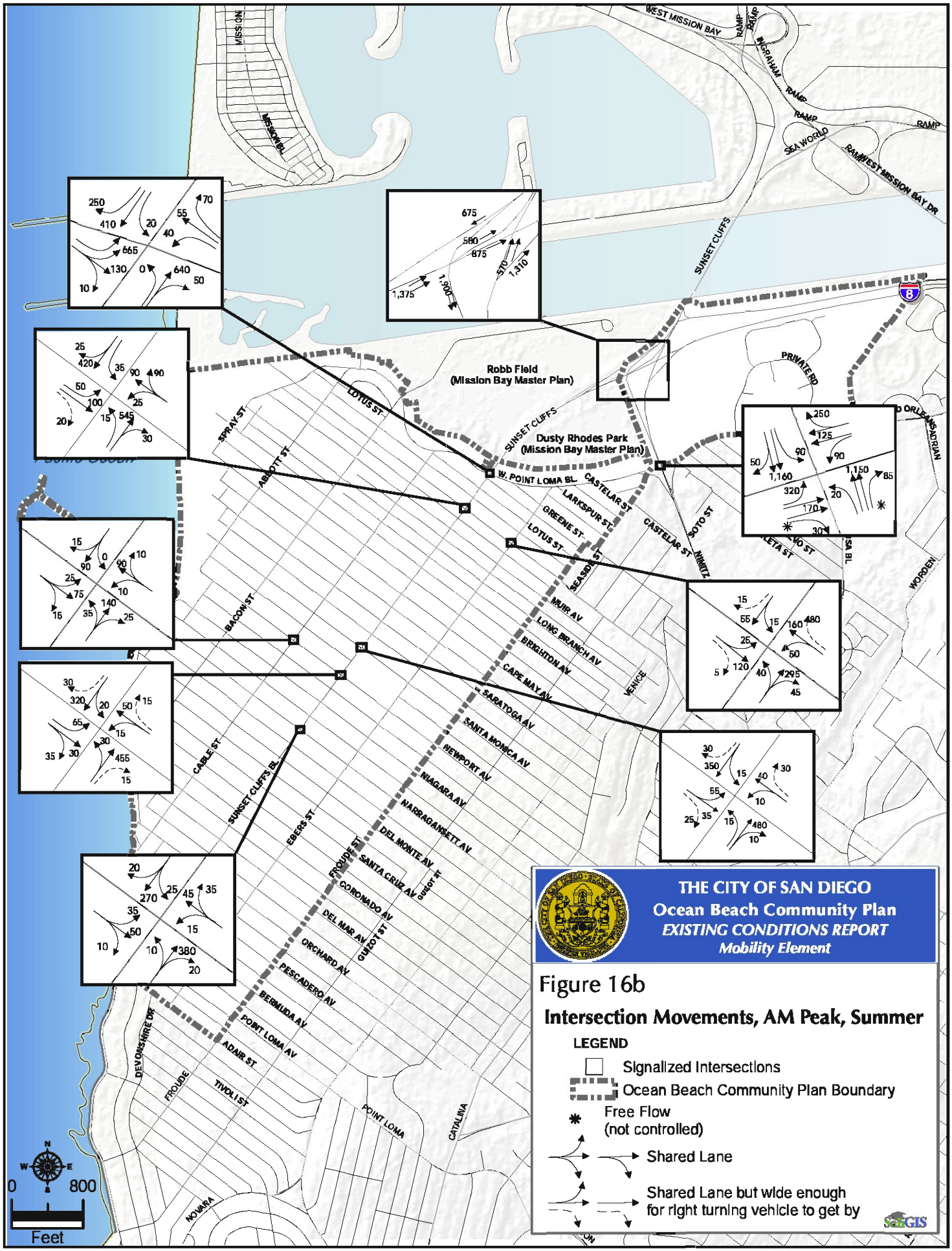
THE CITY OF SAN DIEGO
Ocean Beach Community Plan
EXISTING CONDITIONS REPORT
Mobility Element

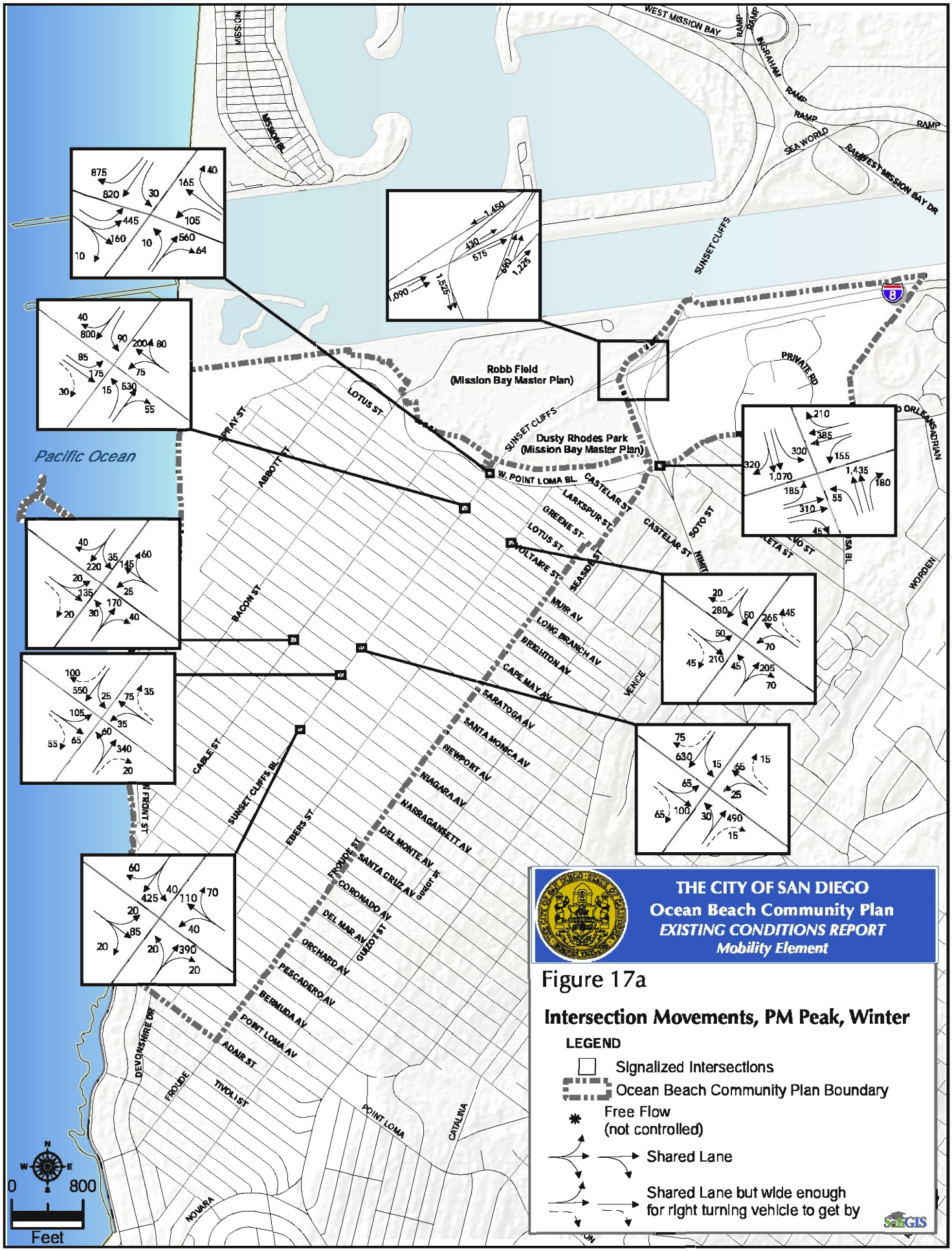
Figure 15

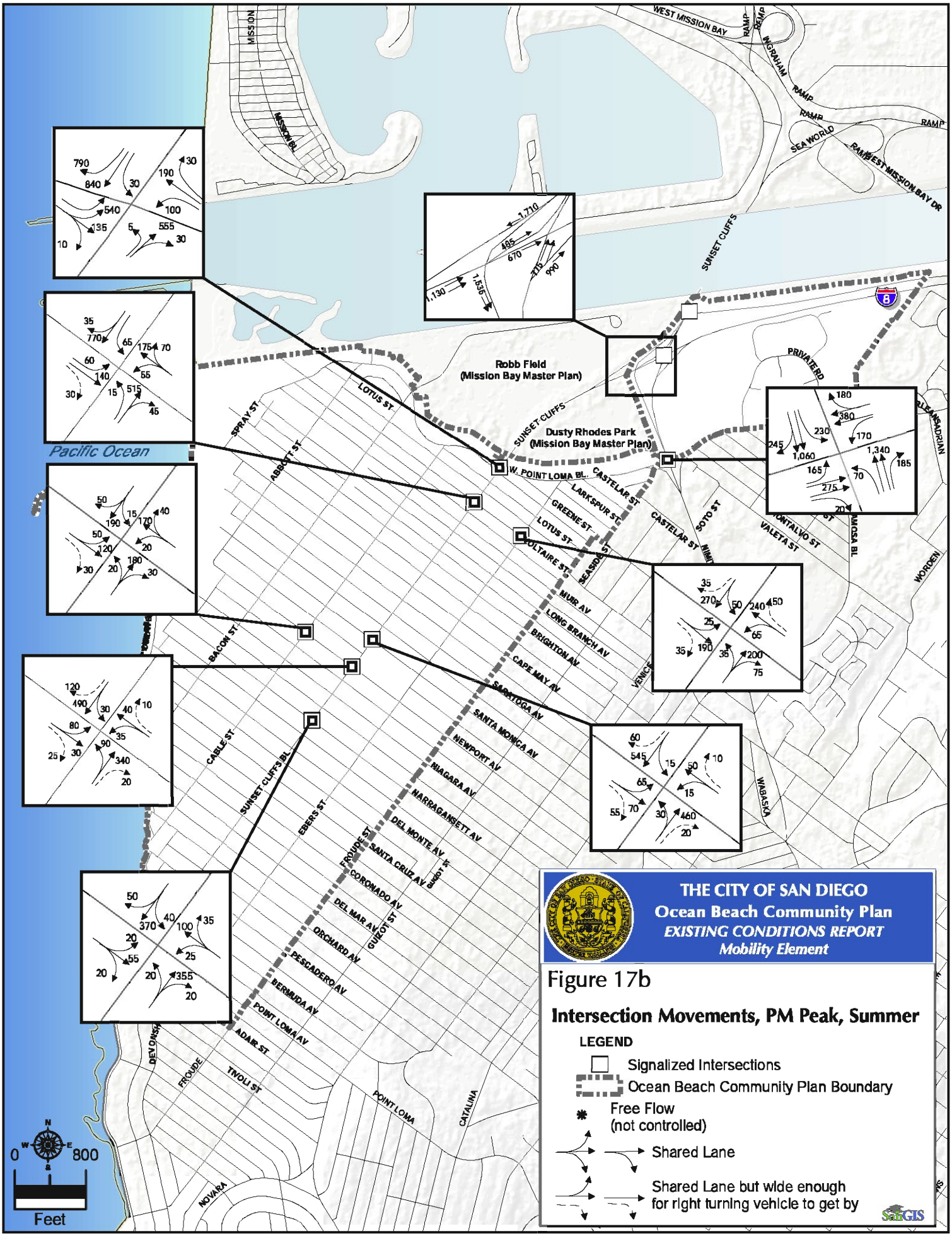
Intersection Control Locations

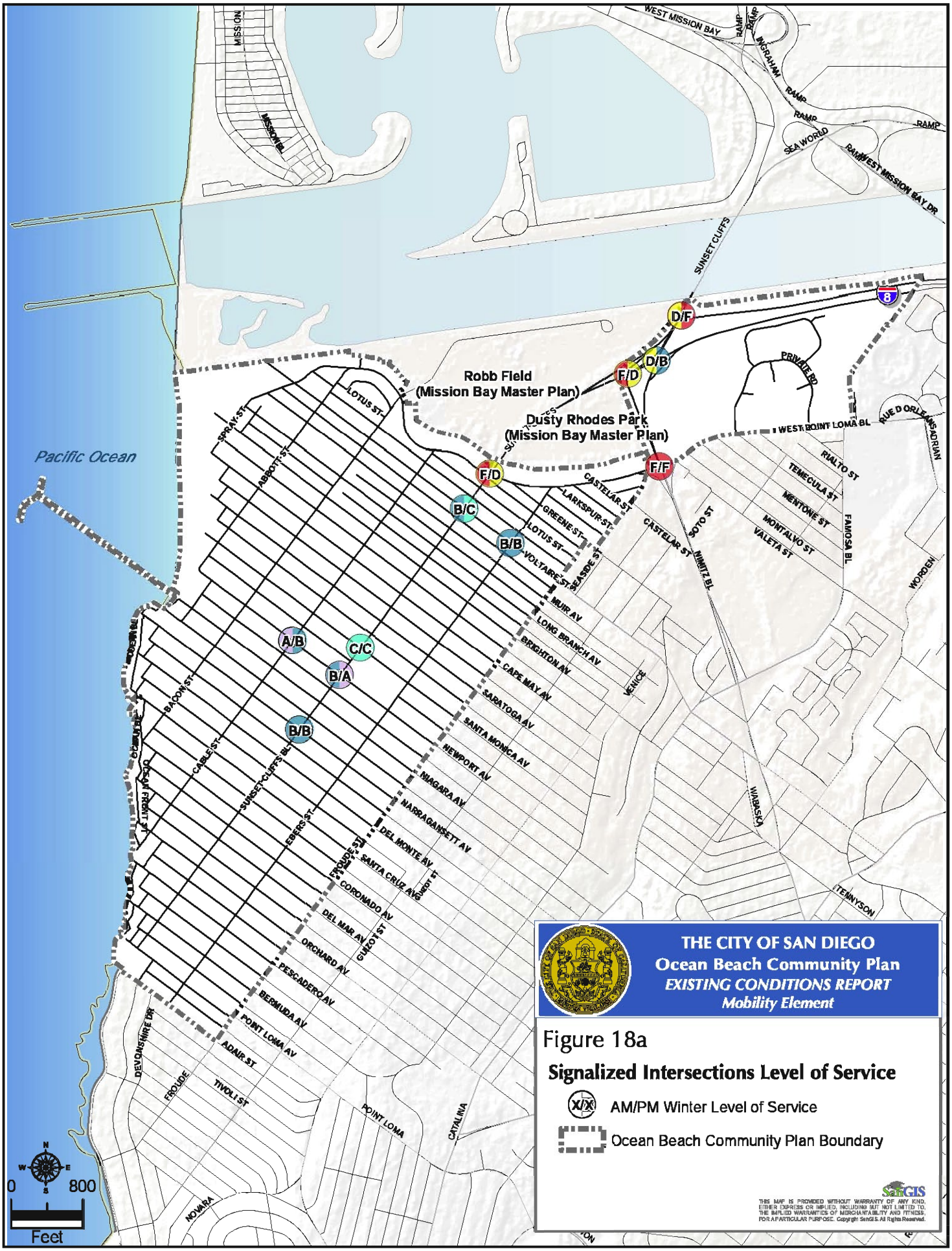
- All-way Stop Signs
- Caltrans Traffic Signal
- Isolated Traffic Signal
- Coordinated Traffic Signal
- Ocean Beach Community Plan Boundary










THE CITY OF SAN DIEGO
Ocean Beach Community Plan
EXISTING CONDITIONS REPORT
Mobility Element
Figure 18a
Signalized Intersections Level of Service
AM/PM Winter Level of Service
Ocean Beach Community Plan Boundary
Robb Field
(Mission Bay Master Plan)
Dusty Rhodes Park
(Mission Bay Master Plan)
Pacific Ocean
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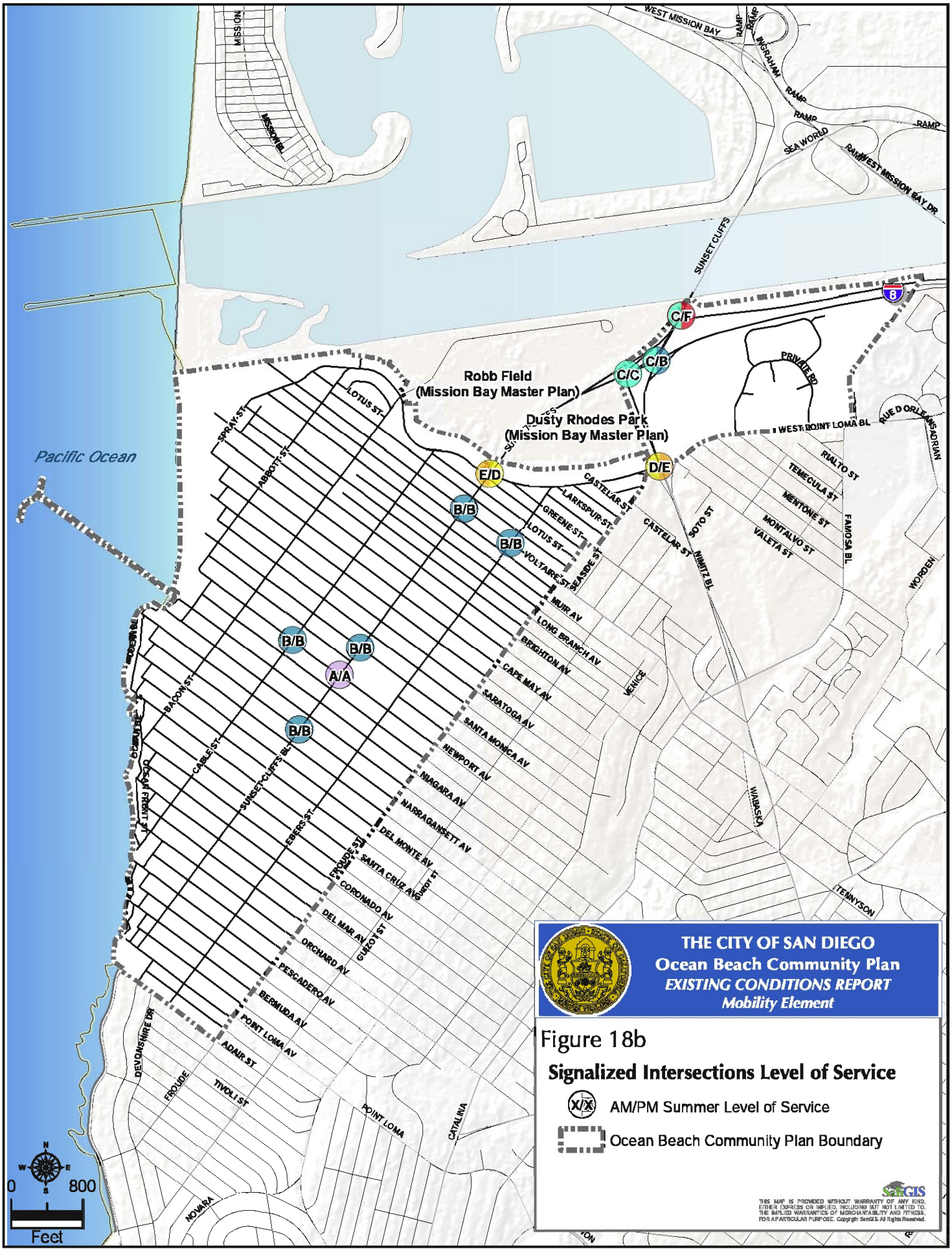
THE CITY OF SAN DIEGO
Ocean Beach Community Plan
EXISTING CONDITIONS REPORT
Mobility Element
Figure 18b
Signalized Intersections Level of Service
AM/PM Summer Level of Service
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Robb Field
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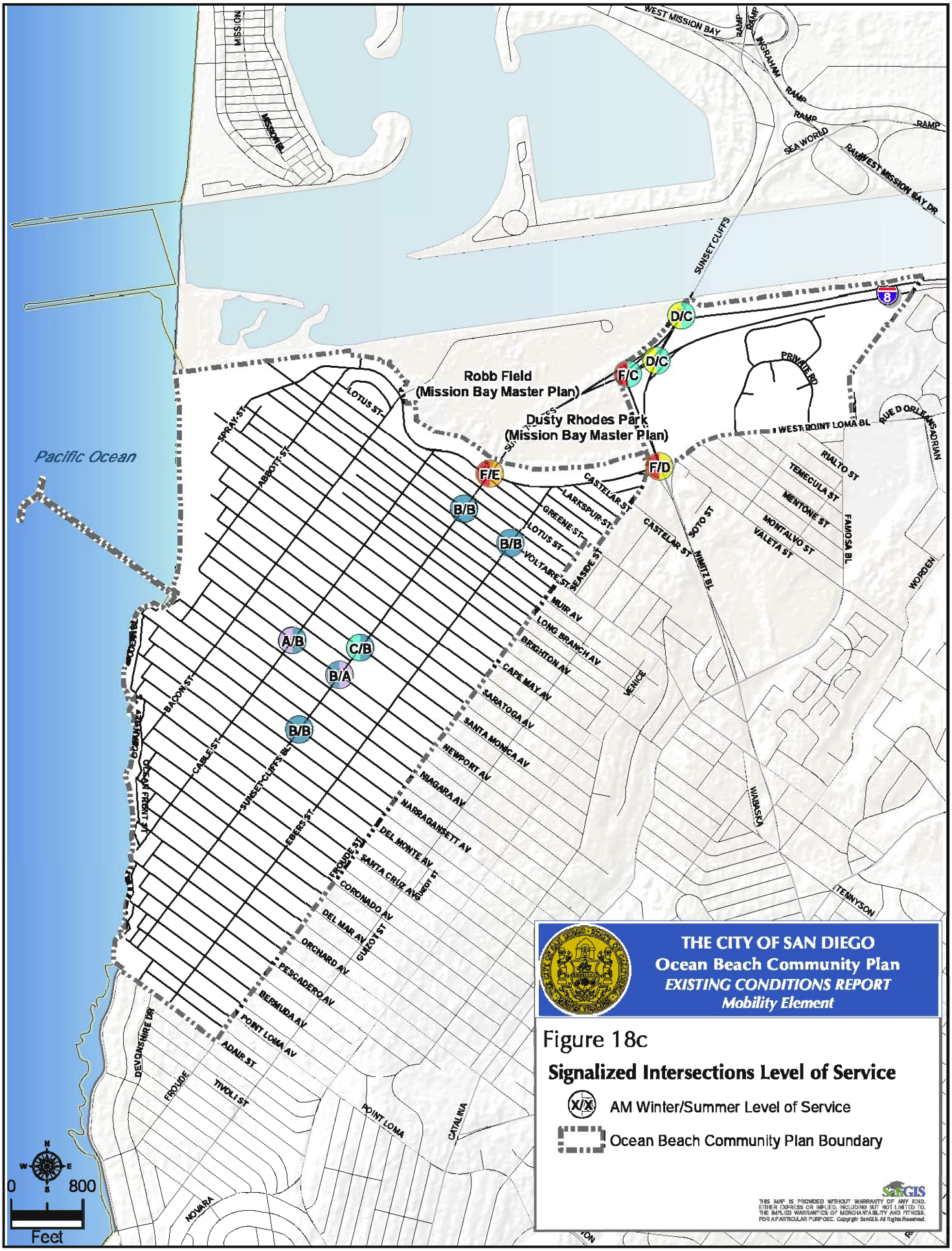
THE CITY OF SAN DIEGO
Ocean Beach Community Plan
EXISTING CONDITIONS REPORT
Mobility Element
Figure 18c
Signalized Intersections Level of Service
AM Winter/Summer Level of Service
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Robb Field
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Dusty Rhodes Park
(Mission Bay Master Plan)
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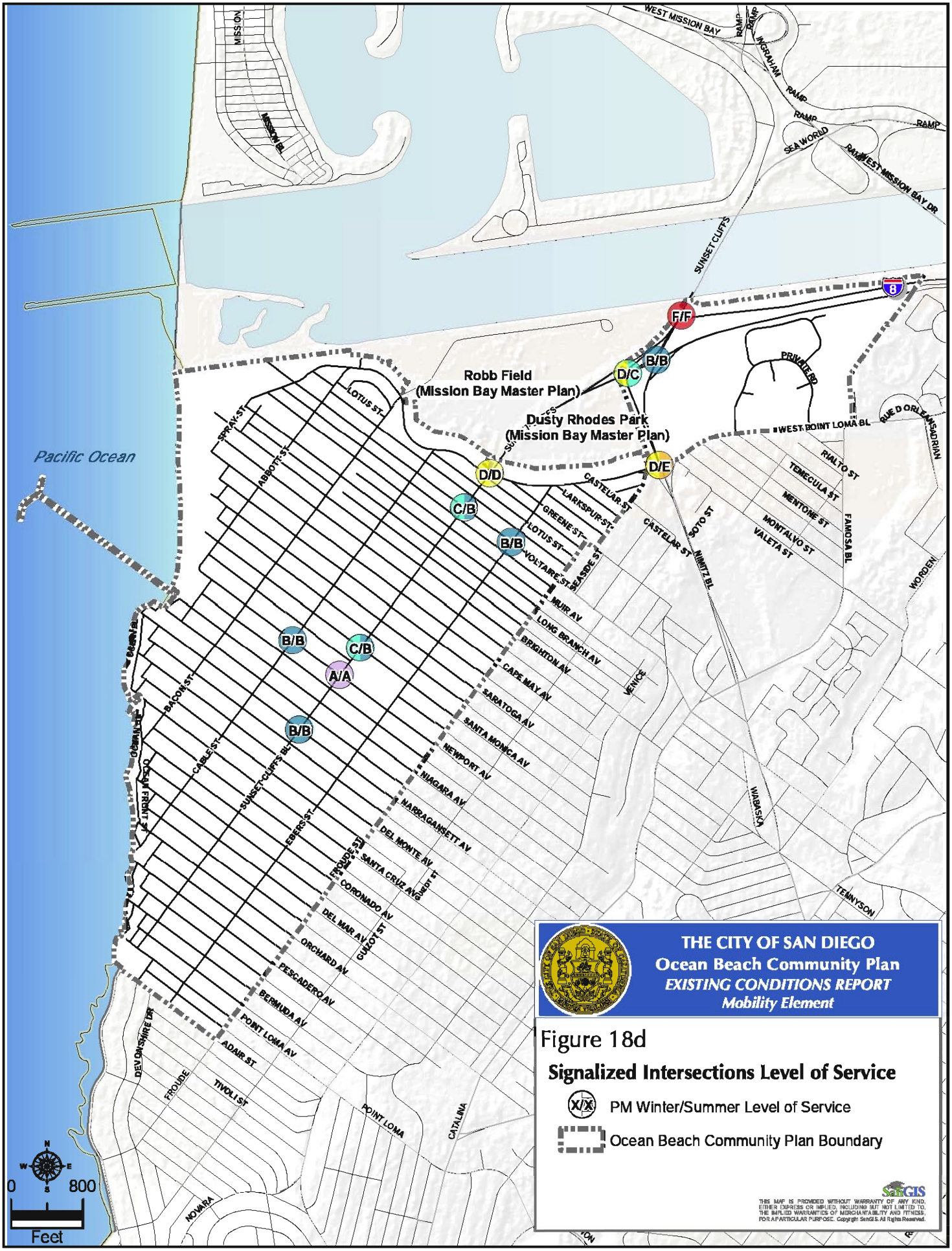


THE CITY OF SAN DIEGO
Ocean Beach Community Plan
EXISTING CONDITIONS REPORT
Mobility Element

Figure 18d

Signalized Intersections Level of Service

X/X PM Winter/Summer Level of Service

Ocean Beach Community Plan Boundary

Table 4: Vehicle-Vehicle Crash Data (2003-2007)

	Ocean Beach		Citywide	
	Crashes	%	Crashes	%
Total Crashes	852	2	37,589	100
Crashes Normalized by 1,000 Population *	12.2		5.6	
Collision Type				
Head-On	9	1.1	513	1.36
Hit Object	2	0.2	32	0.08
Hit Parked Vehicle	411	48	11,532	30.68
Hit Fixed Object	1	0.1	102	0.27
Non-Collision Accident	1	0.1	18	0.05
Rear End/Backing	9	1.1	510	1.36
Rear End Accident	166	19.5	8,492	22.59
Right Angle Accident	198	23.2	12,635	33.61
Run Off Road/Hit Object	5	0.6	390	1.04
Side Swipe, Opposing	14	1.6	316	0.84
Side Swipe, Same Direction	34	4	2,822	7.51
Other	2	0.05	227	0.61

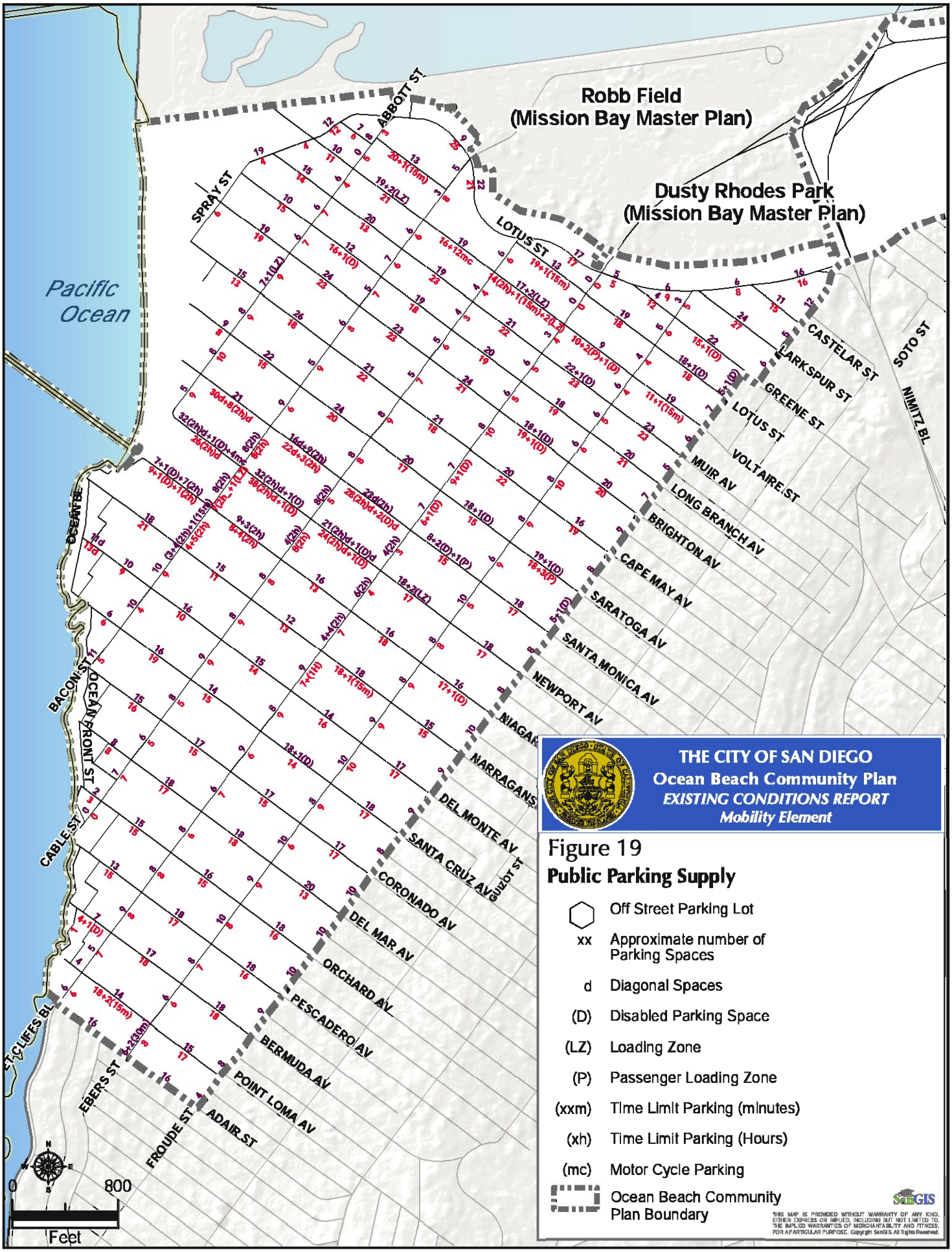
* Year 2007 population estimates were used for this calculation.

PARKING

Both on- and off-street parking are in high demand in most areas of Ocean Beach. Much of the development in Ocean Beach took place many years ago when the number of cars and the car ownership ratio were less. Currently, multi-car households create a high demand for the limited available on- and off-street parking.

Figure 19 shows a conservative estimate of on-street curb use which includes parking passenger zones and commercial loading zones. Also, three beach oriented City of San Diego off-street parking lots are shown. A greater number of cars may actually park on the streets than shown on the map, depending on the length of the vehicles the distance left between the cars and the placement of the vehicles along the curb.

To increase on-street parking supply, the following parking management strategies may be pursued: convert some of the on-street spaces to time-limited parking; remove red painted curb segments; and close off driveways. Conversion of parallel parking to diagonal configuration has been done in the core commercial area. However, most of the streets in Ocean beach are not wide enough to allow the streets to accommodate diagonal parking. Also, there should be at least 100 feet of uninterrupted curb length before a gain can be made from converting parallel spaces to diagonal configuration. All of these alternatives will need to be considered on a block by block basis to determine their suitability for implementation.


Robb Field
(Mission Bay Master Plan)
Dusty Rhodes Park
(Mission Bay Master Plan)
Pacific Ocean
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SPRAY ST
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THE CITY OF SAN DIEGO
Ocean Beach Community Plan
EXISTING CONDITIONS REPORT
Mobility Element
Figure 19
Public Parking Supply
Off Street Parking Lot
xx Approximate number of Parking Spaces
d Diagonal Spaces
(D) Disabled Parking Space
(LZ) Loading Zone
(P) Passenger Loading Zone
(xxm) Time Limit Parking (minutes)
(xh) Time Limit Parking (Hours)
(mc) Motor Cycle Parking
Ocean Beach Community Plan Boundary
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Community members do not favor paid parking in Ocean Beach. In order to determine what other strategies may be used to address parking management in the community, the Mobility Planning section staff requested community input to identify and rank three tiers of parking severity in Ocean Beach. Figure 20 illustrates these three areas of parking shortage. They are characterized as "always," in the area west of Sunset Cliffs Boulevard and north of Del Mar Avenue; "at night" east of Sunset Cliffs Boulevard and south of Del Mar Avenue; and "less often," south of Del Mar Avenue.

To quantify the parking utilization in the three identified tiers, several blocks from each tier were studied as representative samples. Weekday observations were made from 6:30 to 6:45 AM; 1:00 to 1:15 PM; and from 7:00 to 7:15 PM. Saturday observations were made from 8:00 to 8:15 AM; 1:00 to 1:15 PM; and from 7:00 to 7:15 PM. City staff and community members observed and recorded the number of on street parked vehicles along the pre designated blocks and in the two public lots as shown in parking occupancy figures. The number of parked vehicles was compared with the total available parking space to measure the parking utilization for each street block and parking lot. The parking utilization is reported between 85 to 100%; 70 to 84%; 50 to 69%; and 0 to 49% for each time period in weekday and weekend. Figures 21 through 26 illustrate the result of the parking utilization study that was conducted in summer of 2009. Each figure illustrates the parking utilization for the studied blocks and parking lots. The average of parking utilization was determined to identify the parking utilization for the three community-identified parking shortage areas. The area-wide parking utilization averages are illustrated by color dots for each of the three parking shortage areas identified by community members.

The area south of Del Mar Avenue was identified by the community members to be the least parking impacted area. The study; however, shows that in the weekday mornings, this area's on-street parking is 85 to 100% utilized, while the areas that were identified to be "Always" or "At Night" short on parking supply have between 50 and 69% of their parking spaces utilized. The same area shows 70 to 84% parking utilization in the weekend morning. The area identified to have parking shortage at night, that is located east of Sunset Cliffs Boulevard and north of Del Mar Avenue, shows to be less impacted tan the other areas, with the exception of weekend night that is equal in parking occupancy with the "Less Often Area." The area west of Sunset Cliffs Boulevard and north of Del Mar Avenue was identified to "Always" have parking shortage. The parking utilization for this area was 85 to 100% for PM period on weekdays, and for midday and PM on weekends, which is half the study periods.

INTELLIGENT TRANSPORTATION SYSTEM (ITS)

Coordinated traffic signals in the community are along Sunset Cliffs Boulevard (see Figure 15). No other ITS technologies have been implemented in the community.

TRANSPORTATION DEMAND MANAGEMENT (TDM)

The nature of employment in Ocean Beach is such that there are not employers with high enough number of employees that would result in preparing and implementing a TDM plan.

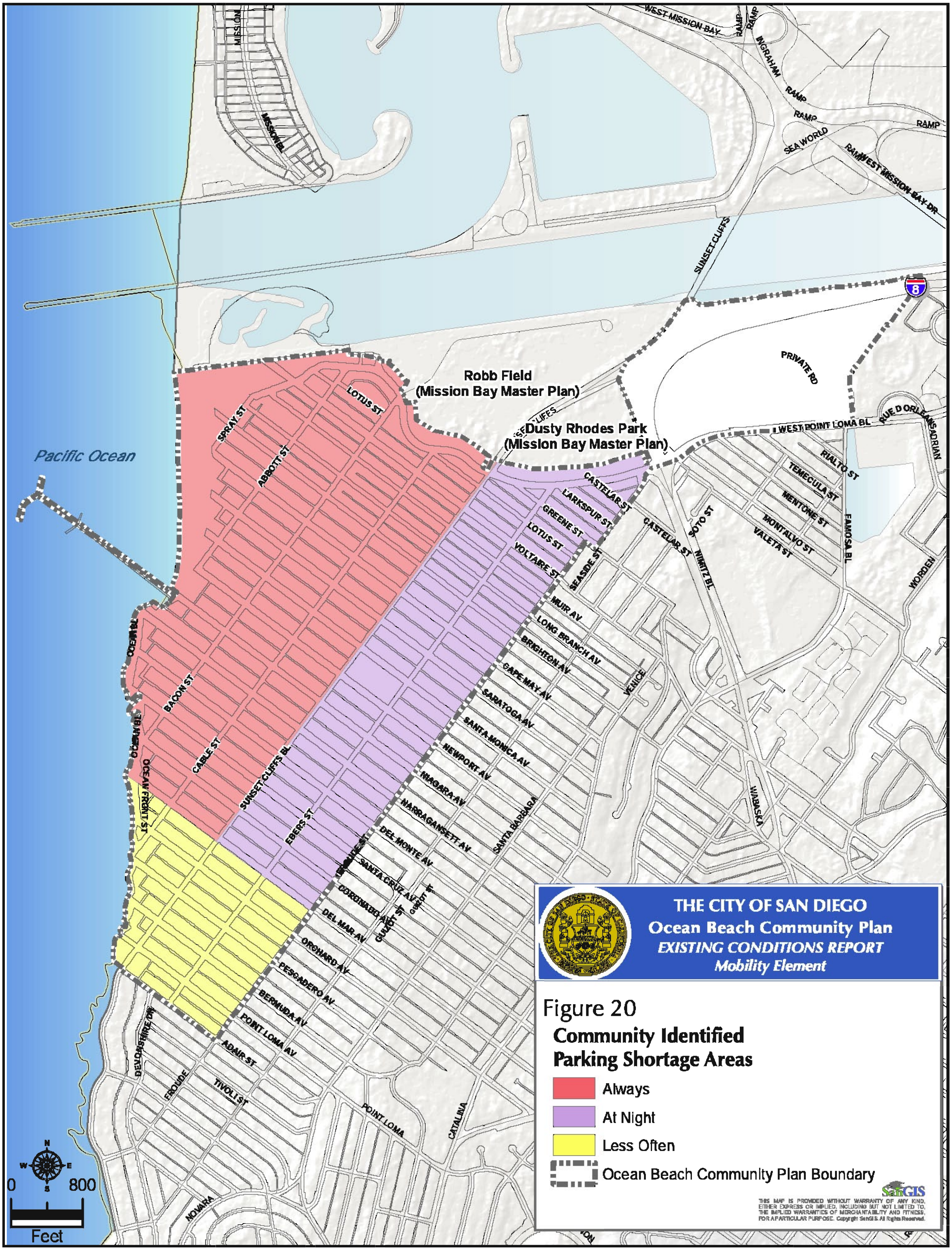
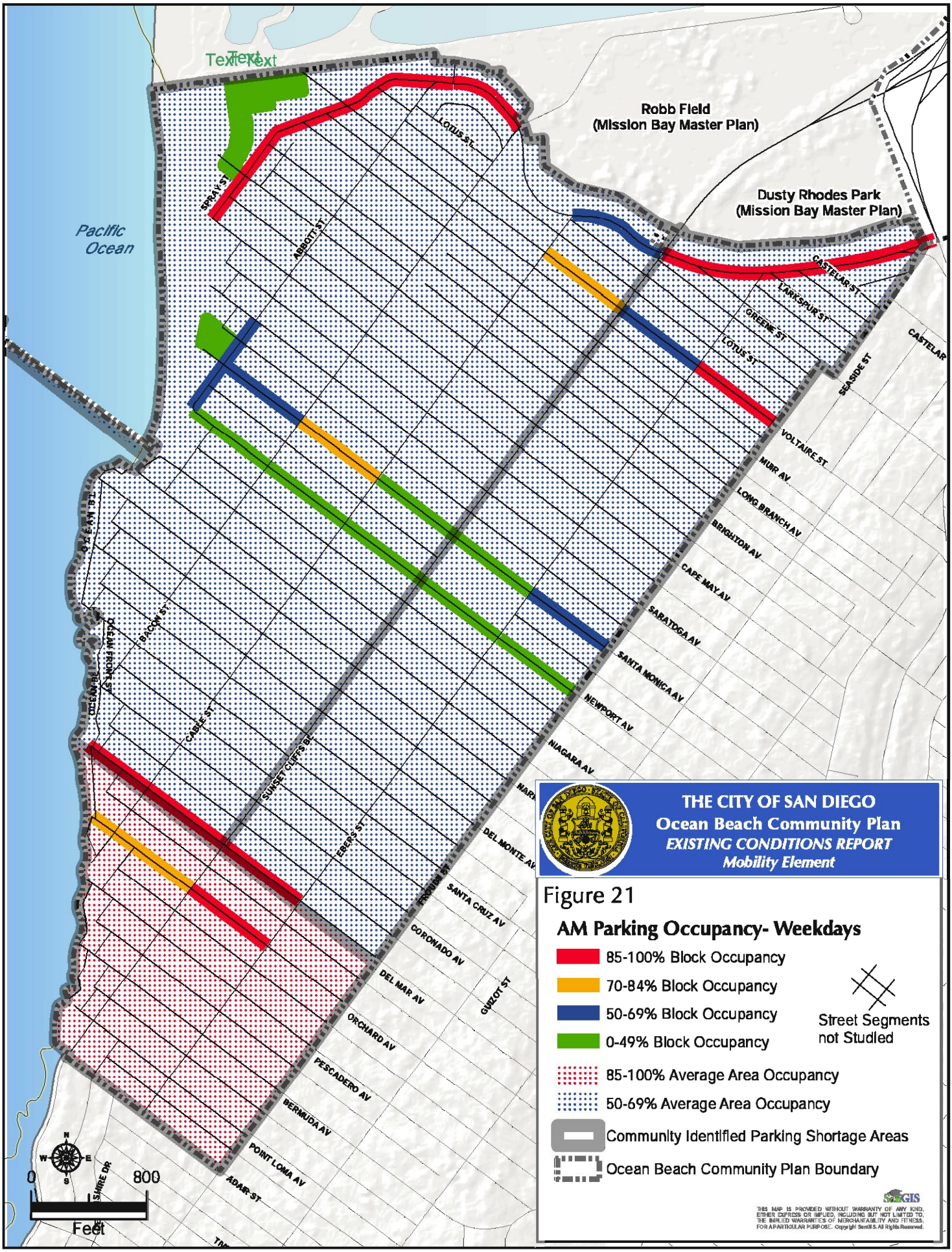


Figure 20
Community Identified Parking Shortage Areas


Robb Field
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Dusty Rhodes Park
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THE CITY OF SAN DIEGO
Ocean Beach Community Plan
EXISTING CONDITIONS REPORT
Mobility Element
Figure 21
AM Parking Occupancy- Weekdays
85-100% Block Occupancy
70-84% Block Occupancy
50-69% Block Occupancy
0-49% Block Occupancy
Street Segments not Studied
85-100% Average Area Occupancy
50-69% Average Area Occupancy
Community Identified Parking Shortage Areas
Ocean Beach Community Plan Boundary
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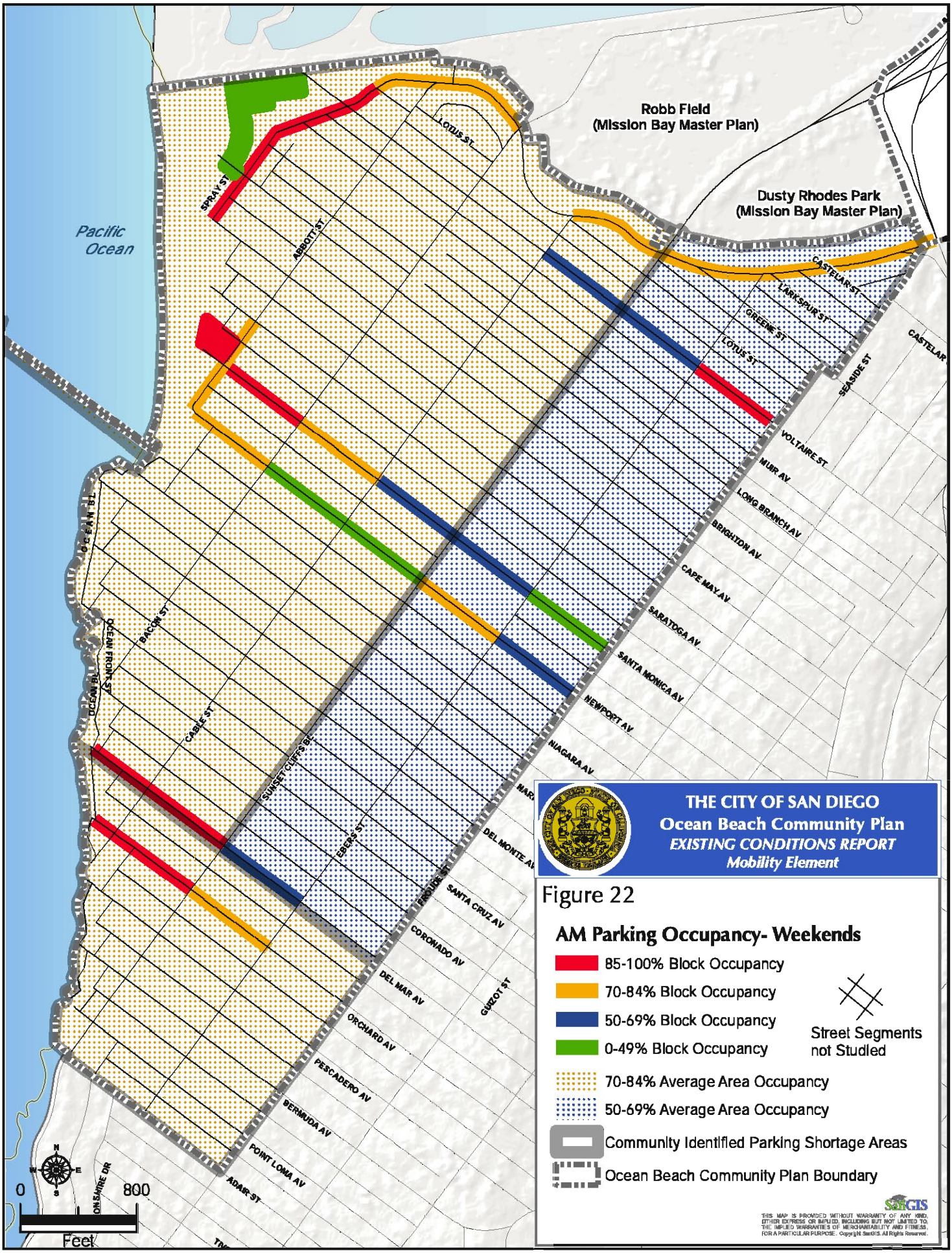
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THE CITY OF SAN DIEGO
Ocean Beach Community Plan
EXISTING CONDITIONS REPORT
Mobility Element
Figure 22
AM Parking Occupancy- Weekends
85-100% Block Occupancy
70-84% Block Occupancy
50-69% Block Occupancy
0-49% Block Occupancy
Street Segments not Studied
70-84% Average Area Occupancy
50-69% Average Area Occupancy
Community Identified Parking Shortage Areas
Ocean Beach Community Plan Boundary
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Robb Field
(Mission Bay Master Plan)
Dusty Rhodes Park
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Pacific Ocean
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THE CITY OF SAN DIEGO
Ocean Beach Community Plan
EXISTING CONDITIONS REPORT
Mobility Element
Figure 23
Midday Parking Occupancy - Weekdays
85-100% Block Occupancy
70-84% Block Occupancy
50-69% Block Occupancy
0-49% Block Occupancy
Street Segments not Studied
70-84% Average Area Occupancy
50-69% Average Area Occupancy
Community Identified Parking Shortage Areas
Ocean Beach Community Plan Boundary
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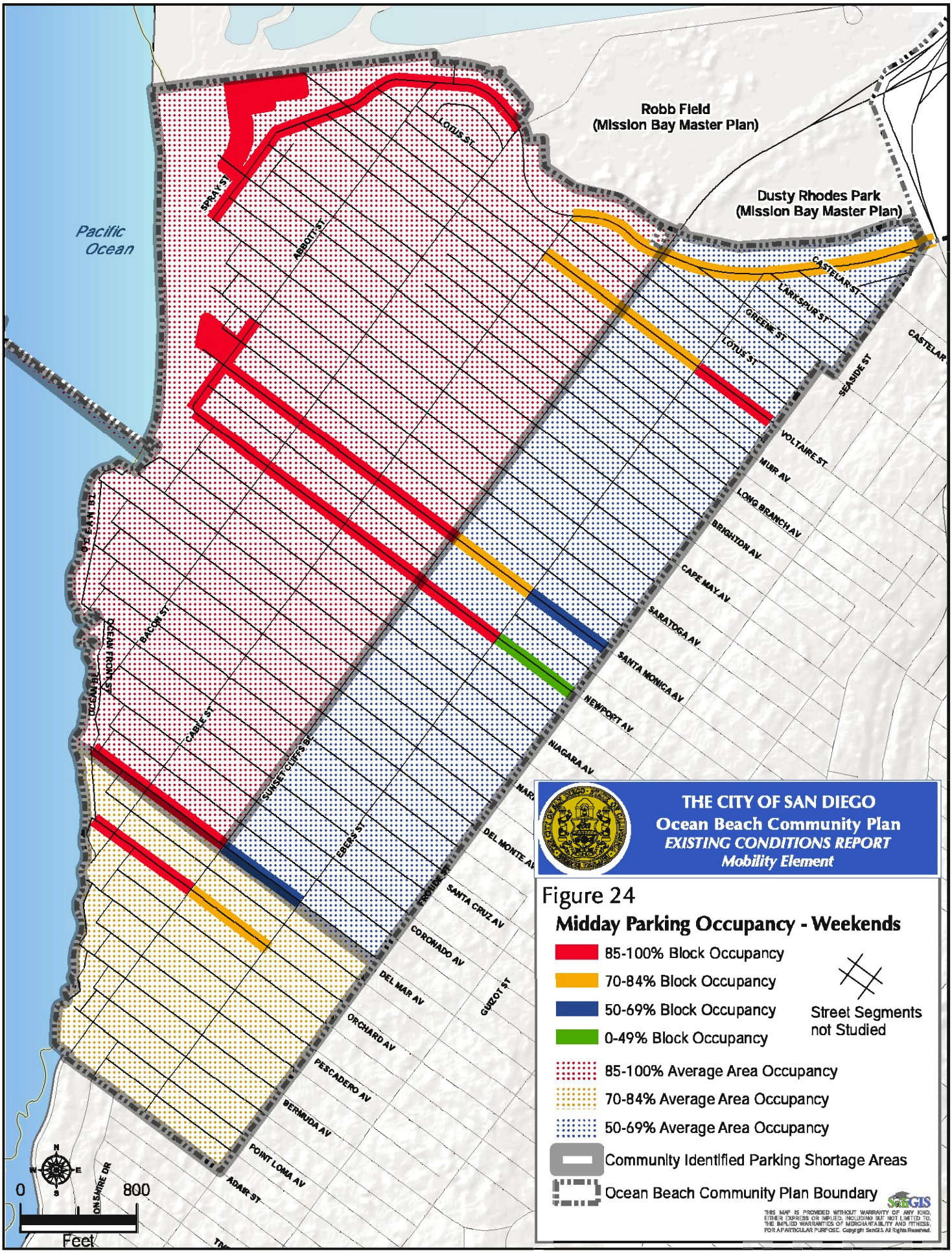
Robb Field
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THE CITY OF SAN DIEGO
Ocean Beach Community Plan
EXISTING CONDITIONS REPORT
Mobility Element
Figure 24
Midday Parking Occupancy - Weekends
85-100% Block Occupancy
70-84% Block Occupancy
50-69% Block Occupancy
0-49% Block Occupancy
Street Segments not Studied
85-100% Average Area Occupancy
70-84% Average Area Occupancy
50-69% Average Area Occupancy
Community Identified Parking Shortage Areas
Ocean Beach Community Plan Boundary
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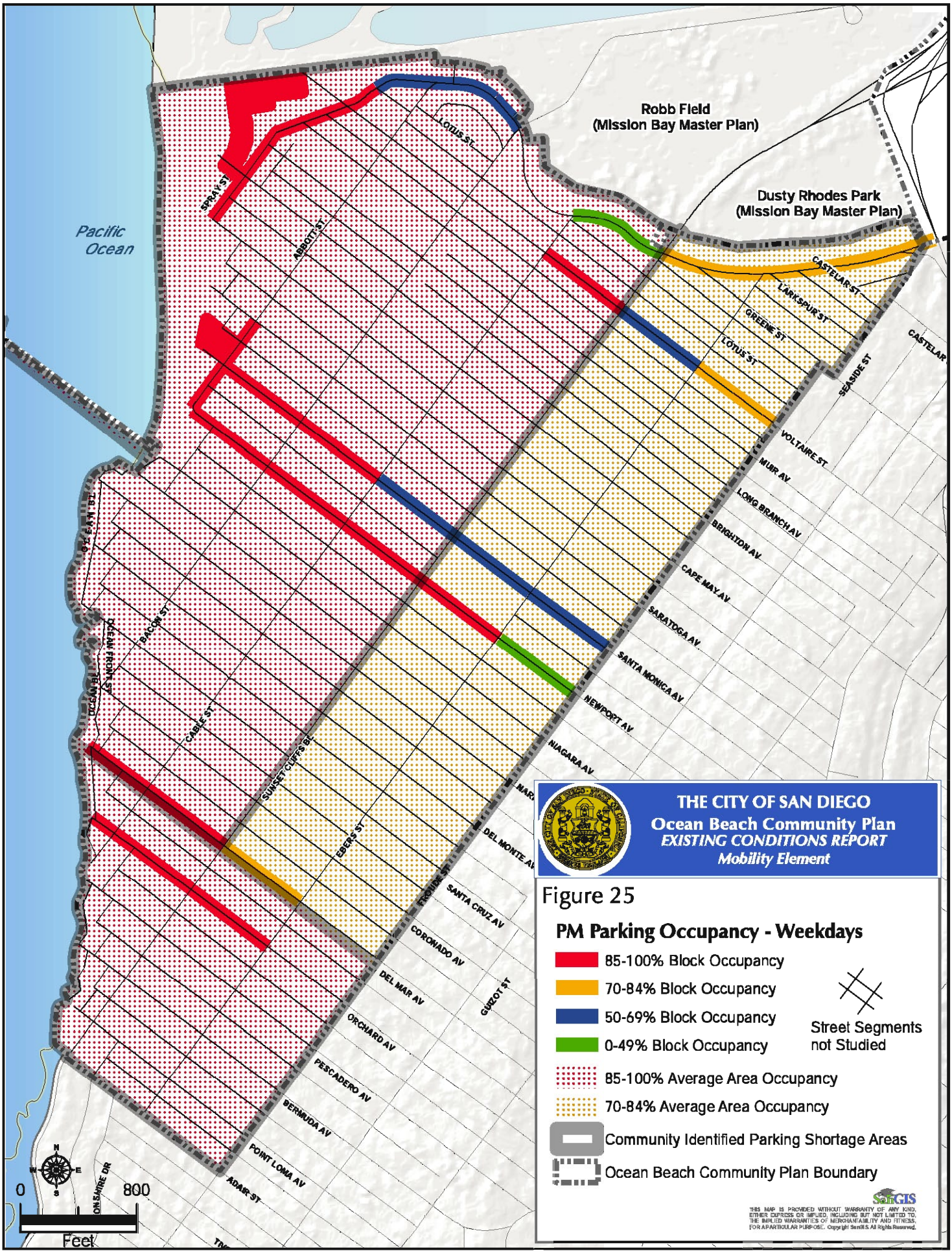
Robb Field
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THE CITY OF SAN DIEGO
Ocean Beach Community Plan
EXISTING CONDITIONS REPORT
Mobility Element
Figure 25
PM Parking Occupancy - Weekdays
85-100% Block Occupancy
70-84% Block Occupancy
50-69% Block Occupancy
0-49% Block Occupancy
Street Segments not Studied
85-100% Average Area Occupancy
70-84% Average Area Occupancy
Community Identified Parking Shortage Areas
Ocean Beach Community Plan Boundary
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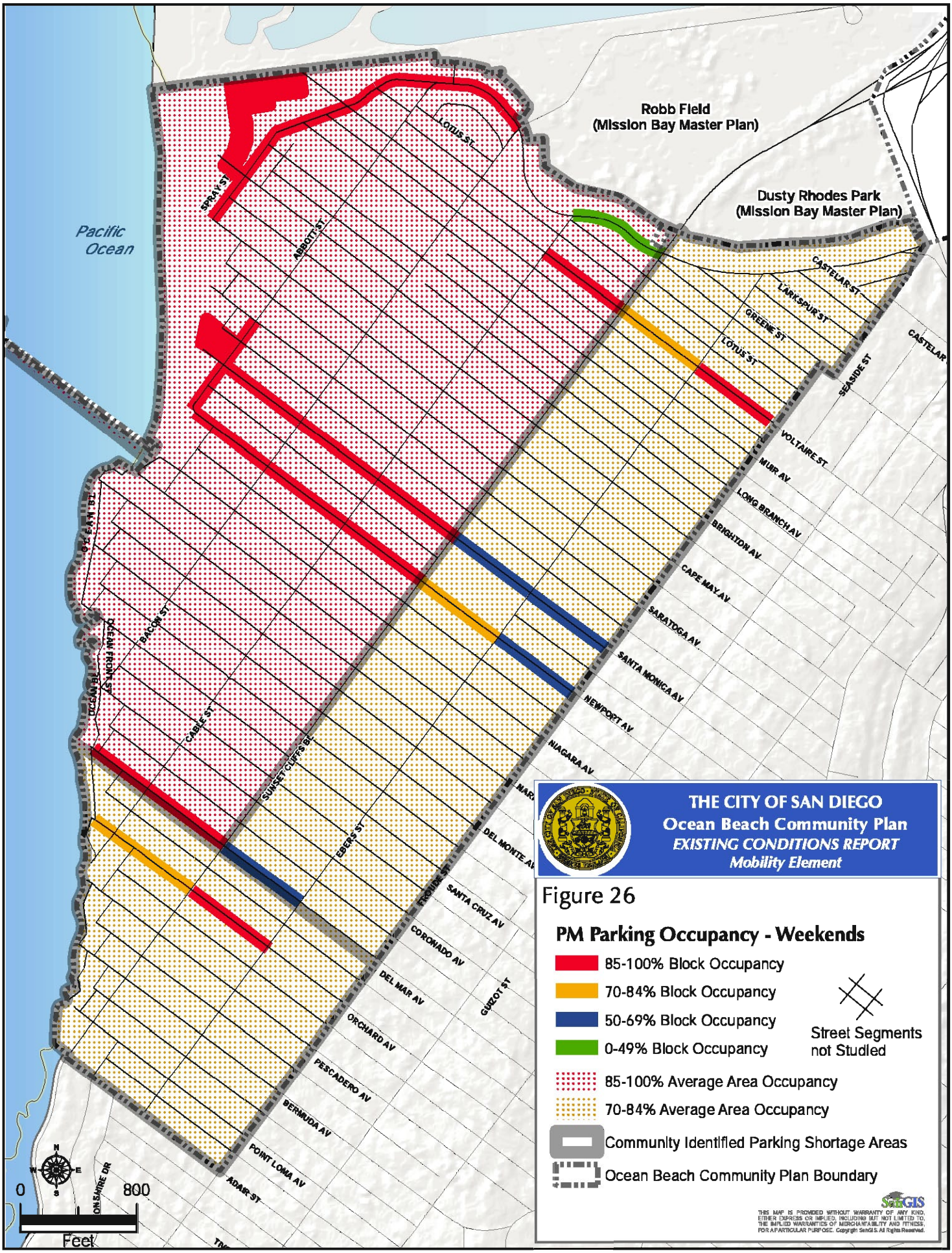
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THE CITY OF SAN DIEGO
Ocean Beach Community Plan
EXISTING CONDITIONS REPORT
Mobility Element
Figure 26
PM Parking Occupancy - Weekends
85-100% Block Occupancy
70-84% Block Occupancy
50-69% Block Occupancy
0-49% Block Occupancy
Street Segments not Studied
85-100% Average Area Occupancy
70-84% Average Area Occupancy
Community Identified Parking Shortage Areas
Ocean Beach Community Plan Boundary
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AIRPORTS

There is no airport in the Ocean Beach community. However, land use compatibility and noise issues in the land use and noise elements of the community plan. Ocean Beach is affected by the over-flight of aircraft and associated noise from the San Diego International Airport.

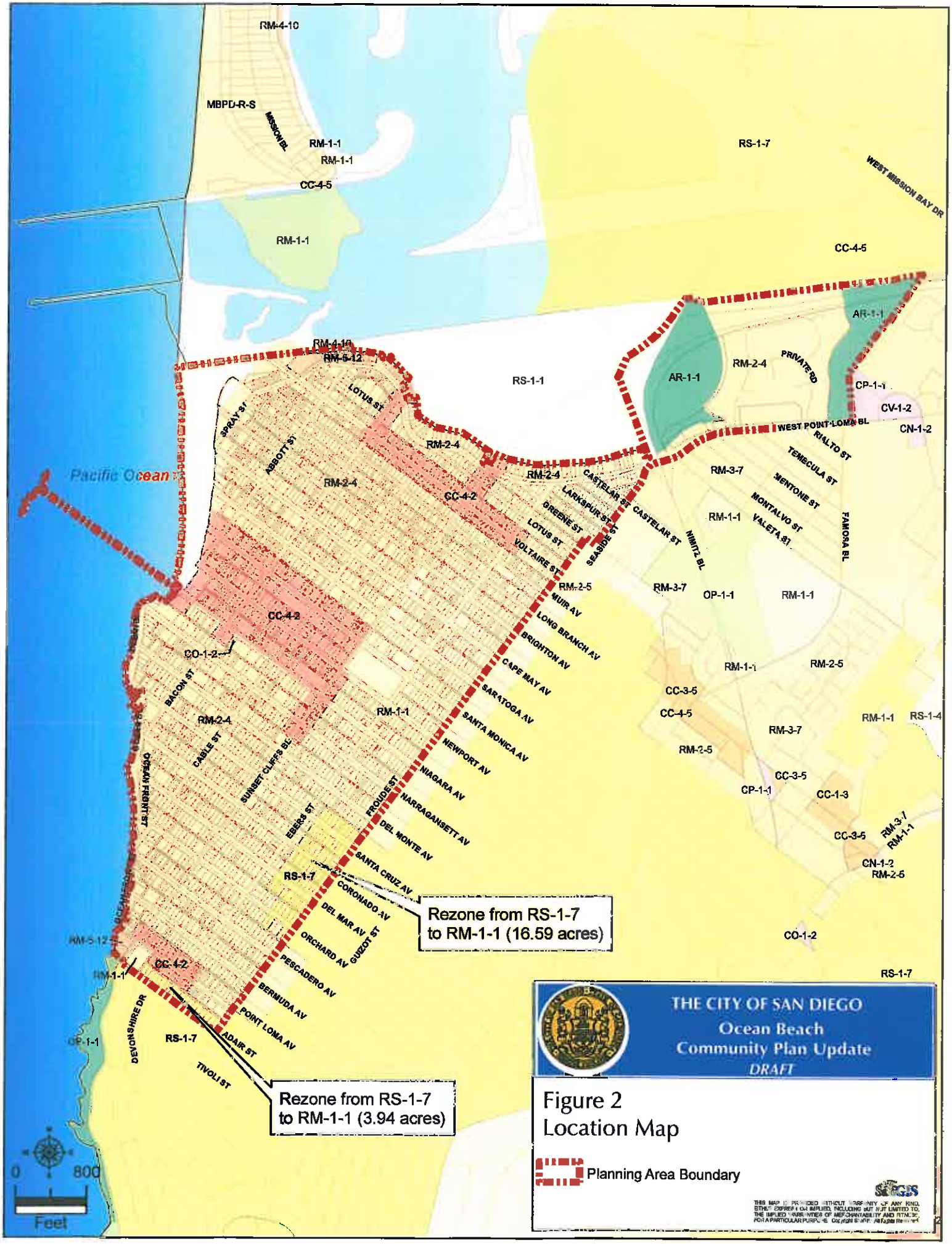
PASSENGER RAIL

Ocean Beach has no direct access to passenger rail; however, the connection to Old Town Transit Station that has trolley service is provided by bus lines 35 and 923.

GOODS MOVEMENT & FREIGHT

There are no industrial activities that would require raw material delivery to the community or movement of finished goods from it. The community has no truck route. Commercial good movements are limited to local deliveries to businesses.

Appendix B
Ocean Beach Community Rezoning Areas



THE CITY OF SAN DIEGO
Ocean Beach
Community Plan Update
DRAFT

Figure 2
Location Map

Planning Area Boundary

Appendix C
Trip Generation by TAZ

TRIP GENERATION TOTAL (FUTURE LANDUSES - TOTAL)

TAZ	Name	Land Use as Listed in San Diego	Units		Trip Rate	Daily Trips	AM Peak-Hour					PM Peak-Hour				
							% of ADT	In:Out Ratio	In	Out	Total	% of ADT	In:Out Ratio	In	Out	Total
3148	RIGHT-OF-WAY		33.1	acre	0	0					0					0
3148	OTHER RECREATION	Recreation - Undeveloped	14.0	acre	5	63	4%	5:5	1	1	3	8%	5:5	3	3	5
3148	INACTIVE USE		11.0	acre	0	0					0					0
3148	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	179.0	du	6	1081	8%	2:8	17	69	86	9%	7:3	68	29	97
3148	MULTI-FAMILY(UNDER 20DU/AC)	Multiple Dwelling Unit - Under 20du/acre	520.0	du	8	4198	8%	2:8	67	269	336	10%	7:3	294	126	420
3161	RIGHT-OF-WAY		6.1	acre	0	0										0
3161	COMMUNICATION OR UTILITY		0.4	acre	3	1	3%	6:4	0	0	0	1%	5:5	0	0	0
3161	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	31.0	du	10	314	8%	2:8	5	20	25	10%	7:3	22	9	31
3161	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	234.0	du	6	1413	8%	2:8	23	90	113	9%	7:3	89	38	127
3161	MULTI-FAMILY(UNDER 20DU/AC)	Multiple Dwelling Unit - Under 20du/acre	2.0	du	8	16	8%	2:8	0	1	1	10%	7:3	1	0	2
3161	STREETFRONT COMM (ksf)	Specialty Retail Center/Strip Commercial	10.1	ksf	40	406	3%	6:4	7	5	12	9%	5:5	18	18	37
3161	LOW RISE OFFICE	Commercial Office	3.0	ksf	Ln(T)= .756Ln(x)+3.95	132	13%	9:1	15	2	17	14%	2:8	4	15	18
3161	OTHER RETAIL AND COMM (ksf)	Specialty Retail Center/Strip Commercial	2.8	ksf	40	111	3%	6:4	2	1	3	9%	5:5	5	5	10
3188	RIGHT-OF-WAY		2.4	acre	0	0										0
3188	ACTIVE PARK	ACTIVE DEVELOPED	1.0	acre	50	44	4%	5:5	1	1	2	8%	5:5	2	2	4
3188	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	24.0	du	10	243	8%	2:8	4	16	19	10%	7:3	17	7	24
3188	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	238.0	du	6	1437	8%	2:8	23	92	115	9%	7:3	91	39	129
3188	MULTI-FAMILY(UNDER 20DU/AC)	Multiple Dwelling Unit - Under 20du/acre	3.0	du	8	24	8%	2:8	0	2	2	10%	7:3	2	1	2
3188	STREETFRONT COMM (ksf)	Specialty Retail Center/Strip Commercial	9.4	ksf	40	378	3%	6:4	7	5	11	9%	5:5	17	17	34
3188	LOW RISE OFFICE	Commercial Office	3.8	ksf	Ln(T)= .756Ln(x)+3.95	156	13%	9:1	18	2	20	14%	2:8	4	17	22
3188	LOW-RISE HOTEL-MOTEL-room	Motel	72.0	rooms	9	644	8%	4:6	21	31	52	9%	4:6	23	35	58
3194	RIGHT-OF-WAY		1.9	acre	0	0					0					0
3194	PARKING		4.5	acre	0	0					0					0
3194	ACTIVE PARK	ACTIVE DEVELOPED	0.5	acre	50	22	4%	5:5	0	0	1	8%	5:5	1	1	2
3194	ACTIVE BEACH		0.0	unique	--	7390	1%	6:4	22	15	37	1%	4:6	18	27	44
3194	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	97.0	du	6	586	8%	2:8	9	38	47	9%	7:3	37	16	53
3195	RIGHT-OF-WAY		9.4	acre	0	0					0					0
3195	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	133.0	du	10	1346	8%	2:8	22	86	108	10%	7:3	94	40	135
3195	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	221.0	du	6	1334	8%	2:8	21	85	107	9%	7:3	84	36	120
3195	MULTI-FAMILY(UNDER 20DU/AC)	Multiple Dwelling Unit - Under 20du/acre	2.0	du	8	16	8%	2:8	0	1	1	10%	7:3	1	0	2
3195	RESTAURANT (SIT DOWN-ksf)	RESTAURANT: High Turnover (sit down)	2.8	ksf	130	364	8%	5:5	15	15	29	8%	6:4	17	12	29
3195	GAS STATION W FOODMART-pump	GAS STATIONS: W FOODMART	3.0	pump	150	446	8%	5:5	18	18	36	8%	5:5	18	18	36
3195	STREETFRONT COMM (ksf)	Specialty Retail Center/Strip Commercial	3.5	ksf	40	141	3%	6:4	3	2	4	9%	5:5	6	6	13
3201	RIGHT-OF-WAY		2.9	acre	0	0					0					0
3201	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	10.0	du	10	101	8%	2:8	2	6	8	10%	7:3	7	3	10
3201	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	174.0	du	6	1051	8%	2:8	17	67	84	9%	7:3	66	28	95
3201	MULTI-FAMILY(UNDER 20DU/AC)	Multiple Dwelling Unit - Under 20du/acre	2.0	du	8	16	8%	2:8	0	1	1	10%	7:3	1	0	2
3201	STREETFRONT COMM (ksf)	Specialty Retail Center/Strip Commercial	3.1	ksf	40	125	3%	6:4	2	2	4	9%	5:5	6	6	11
3220	RIGHT-OF-WAY		2.5	acre	0	0					0					0
3220	ACTIVE BEACH		0.3	acre		1	1%	6:4	0	0	0	1%	4:6	0	0	0
3220	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	33.0	du	10	334	8%	2:8	5	21	27	10%	7:3	23	10	33
3220	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	322.0	du	6	1944	8%	2:8	31	124	156	9%	7:3	122	52	175
3220	MULTI-FAMILY(UNDER 20DU/AC)	Multiple Dwelling Unit - Under 20du/acre	2.0	du	8	16	8%	2:8	0	1	1	10%	7:3	1	0	2
3220	STREETFRONT COMM (ksf)	Specialty Retail Center/Strip Commercial	1.5	ksf	40	60	3%	6:4	1	1	2	9%	5:5	3	3	5
3220	RESTAURANT (SIT DOWN-ksf)	RESTAURANT: High Turnover (sit down)	4.0	ksf	130	520	8%	5:5	21	21	42	8%	6:4	25	17	42
3222	RIGHT-OF-WAY		5.5	acre	0	0					0					0
3222	ACTIVE BEACH		3.2	acre		7	1%	6:4	0	0	0	1%	4:6	0	0	0
3222	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	33.0	du	10	334	8%	2:8	5	21	27	10%	7:3	23	10	33
3222	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	172.0	du	6	1038	8%	2:8	17	66	83	9%	7:3	65	28	93
3223	RIGHT-OF-WAY		4.0	acre	0	0					0					0
3223	OTHER PUBLIC SERVICE		0.2	acre	290	58	9%	9:1	5	1	5	12%	3:7	2	5	7
3223	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	36.0	du	10	364	8%	2:8	6	23	29	10%	7:3	25	11	36
3223	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	186.0	du	6	1123	8%	2:8	18	72	90	9%	7:3	71	30	101

TRIP GENERATION TOTAL (FUTURE LANDUSES - TOTAL)

TAZ	Name	Land Use as Listed in San Diego	Units		Trip Rate	Daily Trips	AM Peak-Hour					PM Peak-Hour				
							% of ADT	In:Out Ratio	In	Out	Total	% of ADT	In:Out Ratio	In	Out	Total
3223	MULTI-FAMILY(UNDER 20DU/AC)	Multiple Dwelling Unit - Under 20du/acre	3.0	du	8	24	8%	2:8	0	2	2	10%	7:3	2	1	2
3223	STREETFRONT COMM (ksf)	Specialty Retail Center/Strip Commercial	20.9	ksf	40	841	3%	6:4	15	10	25	9%	5:5	38	38	76
3223	MARKET OPEN 16HR/DAY(ksf)		3.0	ksf	500	1503	8%	5:5	60	60	120	8%	5:5	60	60	120
3240	RIGHT-OF-WAY		3.8	acre	0	0					0					0
3240	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	29.0	du	10	293	8%	2:8	5	19	23	10%	7:3	21	9	29
3240	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	139.0	du	6	839	8%	2:8	13	54	67	9%	7:3	53	23	76
3240	MULTI-FAMILY(UNDER 20DU/AC)	Multiple Dwelling Unit - Under 20du/acre	5.0	du	8	40	8%	2:8	1	3	3	10%	7:3	3	1	4
3240	STREETFRONT COMM (ksf)	Specialty Retail Center/Strip Commercial	36.0	acre	40	1448	3%	6:4	26	17	43	9%	5:5	65	65	130
3240	RESTAURANT (SIT DOWN-ksf)	RESTAURANT: High Turnover (sit down)	3.8	ksf	130	494	8%	5:5	20	20	40	8%	6:4	24	16	40
3240	AUTO REPAIR(ksf)	Repair Shop	10.4	ksf	20	207	8%	7:3	12	5	17	11%	4:6			23
3246	RIGHT-OF-WAY		6.1	acre	0	0					0					0
3246	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	47.0	du	10	476	8%	2:8	8	30	38	10%	7:3	33	14	48
3246	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	323.0	du	6	1950	8%	2:8	31	125	156	9%	7:3	123	53	176
3246	MULTI-FAMILY(UNDER 20DU/AC)	Multiple Dwelling Unit - Under 20du/acre	4.0	du	8	32	8%	2:8	1	2	3	10%	7:3	2	1	3
3246	STREETFRONT COMM (ksf)	Specialty Retail Center/Strip Commercial	1.1	ksf	40	44	3%	6:4	1	1	1	9%	5:5	2	2	4
3251	RIGHT-OF-WAY		5.7	acre	0	0					0					0
3251	OTHER HEALTH CARE(ksf)	Medical Office: Less than 100,000sq ft	1.4	ksf	50	70	6%	8:2	3	1	4	10%	3:7	2	5	7
3251	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	155.0	du	10	1568	8%	2:8	25	100	125	10%	7:3	110	47	157
3251	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	103.0	du	6	622	8%	2:8	10	40	50	9%	7:3	39	17	56
3251	STREETFRONT COMM (ksf)	Specialty Retail Center/Strip Commercial	5.1	ksf	40	205	3%	6:4	4	2	6	9%	5:5	9	9	18
3261	RIGHT-OF-WAY		7.1	acre	0	0					0					0
3261	RESTAURANT (FAST FOOD-ksf)	RESTAURANT: Fast Food (With or without drive-thr)	3.2	ksf	700	2239	4%	6:4	54	36	90	8%	5:5	90	90	179
3261	FIRE OR POLICE STATION		1.0	site		229	15%	9:1	31	3	34	15%	1:9	3	31	34
3261	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	99.0	du	10	1002	8%	2:8	16	64	80	10%	7:3	70	30	100
3261	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	157.0	du	6	948	8%	2:8	15	61	76	9%	7:3	60	26	85
3261	STREETFRONT COMM (ksf)	Specialty Retail Center/Strip Commercial	35.8	ksf	40	1440	3%	6:4	26	17	43	9%	5:5	65	65	130
3261	GAS STATION W FOODMART-pump	GAS STATION W FOODMART-pump	8.0	pump	150	1191	8%	5:5	48	48	95	8%	5:5	48	48	95
3261	OTHER RETAIL AND COMM (ksf)	Specialty Retail Center/Strip Commercial	19.1	ksf	40	760	3%	6:4	14	9	23	9%	5:5	34	34	68
3261	SPECIALTY COMMERCIAL(ksf)	Specialty Retail Center/Strip Commercial	12.3	ksf	40	493	3%	6:4	9	6	15	9%	5:5	22	22	44
3261	MEDICAL OFFICE(KSF)	Medical Office: Less than 100,000sq ft	1.8	ksf	50	88	6%	8:2	4	1	5	10%	3:7	3	6	9
3264	RIGHT-OF-WAY		2.5	acre	0	0					0					0
3264	PARKING		1.6	acre	0	0					0					0
3264	OTHER PUBLIC SERVICE		0.3	acre	290	87	9%	9:1	7	1	8	12%	3:7	3	7	10
3264	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	1.0	du	10	10	8%	2:8	0	1	1	10%	7:3	1	0	1
3264	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	150.0	du	6	906	8%	2:8	14	58	72	9%	7:3	57	24	82
3264	STREETFRONT COMM (ksf)	Specialty Retail Center/Strip Commercial	8.7	ksf	40	350	3%	6:4	6	4	11	9%	5:5	16	16	32
3264	RESTAURANT (SIT DOWN-ksf)	RESTAURANT: High Turnover (sit down)	16.8	ksf	130	2183	8%	5:5	87	87	175	8%	6:4	105	70	175
3264	ACTIVE BEACH (3264)		0.0	unique		1939	1%	6:4	6	4	10	1%	4:6	5	7	12
3268	RIGHT-OF-WAY		1.4	acre	0	0					0					0
3268	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	45.0	du	10	455	8%	2:8	7	29	36	10%	7:3	32	14	46
3268	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	276.0	du	6	1666	8%	2:8	27	107	133	9%	7:3	105	45	150
3268	MULTI-FAMILY(UNDER 20DU/AC)	Multiple Dwelling Unit - Under 20du/acre	5.0	du	8	40	8%	2:8	1	3	3	10%	7:3	3	1	4
3287	RIGHT-OF-WAY		10.4	acre	0	0					0					0
3287	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	92.0	du	10	931	8%	2:8	15	60	74	10%	7:3	65	28	93
3287	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	203.0	du	6	1226	8%	2:8	20	78	98	9%	7:3	77	33	110
3287	MULTI-FAMILY(UNDER 20DU/AC)	Multiple Dwelling Unit - Under 20du/acre	2.0	du	8	16	8%	2:8	0	1	1	10%	7:3	1	0	2
3287	CHURCH (GENERAL-ksf)	HOUSE OF WORSHIP (GENERAL)	30.1	ksf	15	428	4%	8:2	14	3	17	8%	5:5	17	17	34
3295	RIGHT-OF-WAY		0.7	acre	0	0					0					0
3295	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	17.0	du	10	172	8%	2:8	3	11	14	10%	7:3	12	5	17
3295	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	134.0	du	6	809	8%	2:8	13	52	65	9%	7:3	51	22	73
3295	STREETFRONT COMM (ksf)	Specialty Retail Center/Strip Commercial	35.1	ksf	40	1412	3%	6:4	25	17	42	9%	5:5	64	64	127
3295	AUTO REPAIR(ksf)	Repair Shop	4.4	ksf	20	88	8%	7:3	5	2	7	11%	4:6	4	6	10

TRIP GENERATION TOTAL (FUTURE LANDUSES - TOTAL)

TAZ	Name	Land Use as Listed in San Diego	Units		Trip Rate	Daily Trips	AM Peak-Hour					PM Peak-Hour				
							% of ADT	In:Out Ratio	In	Out	Total	% of ADT	In:Out Ratio	In	Out	Total
3295	OTHER SCHOOL(ksf)	Community College (2years)	4.9	ksf	18	89	12%	9:1	10	1	11	8%	3:7	2	5	7
3300	RIGHT-OF-WAY		1.0	acre	0	0					0					0
3300	PARKING		0.9	acre	0	0					0					0
3300	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	48.0	du	6	290	8%	2:8	5	19	23	9%	7:3	18	8	26
3300	STREETFRONT COMM (ksf)	Specialty Retail Center/Strip Commercial	11.5	ksf	40	463	3%	6:4	8	6	14	9%	5:5	21	21	42
3300	RESTAURANT (SIT DOWN-ksf)	RESTAURANT: High Turnover (sit down)	3.5	ksf	130	455	8%	5:5	18	18	36	8%	6:4	22	15	36
3300	LOW RISE OFFICE	Commercial Office	14.3	ksf	Ln(T)= .756Ln(x)+3.95	425	13%	9:1			55	14%	2:8			60
3300	LOW-RISE HOTEL-MOTEL-room	Motel	56.0	room	9	501	8%	4:6	16	24	40	9%	4:6	18	27	45
3312	RIGHT-OF-WAY		2.4	acre	0	0					0					0
3312	OTHER HEALTH CARE(ksf)	Medical Office: Less than 100,000sq ft	7.9	ksf	50	395	6%	8:2	19	5	24	10%	3:7	12	28	40
3312	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	4.0	du	10	40	8%	2:8	1	3	3	10%	7:3	3	1	4
3312	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	168.0	du	6	1014	8%	2:8	16	65	81	9%	7:3	64	27	91
3312	STREETFRONT COMM (ksf)	Specialty Retail Center/Strip Commercial	40.5	ksf	40	1629	3%	6:4	29	20	49	9%	5:5	73	73	147
3312	OTHER SCHOOL(ksf)	Community College (2years)	10.8	ksf	18	196	12%	9:1	21	2	24	8%	3:7	5	11	16
3316	OTHER GROUP QUARTERS		0.2	acre	5	1	4%	5:5	0	0	0	4%	5:5	0	0	0
3316	RIGHT-OF-WAY		1.5	acre	0	0					0					0
3316	OTHER PUBLIC SERVICE		1.1	acre	290	318	9%	9:1	26	3	29	12%	3:7	11	27	38
3316	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	75.0	du	6	453	8%	2:8	7	29	36	9%	7:3	29	12	41
3316	STREETFRONT COMM (ksf)	Specialty Retail Center/Strip Commercial	90.7	ksf	40	3648	3%	6:4	66	44	109	9%	5:5	164	164	328
3316	RESTAURANT (SIT DOWN-ksf)	RESTAURANT: High Turnover (sit down)	2.5	ksf	130	325	8%	5:5	13	13	26	8%	6:4	16	10	26
3316	SUPERMARKET(ksf)	SUPERMARKET	9.3	ksf	150	1350	4%	7:3	38	16	54	10%	5:5	68	68	135
3316	FINANCIAL INST(ksf)	FINANCIAL INST. (Without drive-through)	3.7	ksf	150	555	4%	7:3	16	7	22	8%	4:6	18	27	44
3326	RIGHT-OF-WAY		1.7	acre	0	0					0					0
3326	ACTIVE BEACH		0.0	unique		6005	1%	6:4	18	12	30	1%	4:6	14	22	36
3326	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	4.0	du	10	40	8%	2:8	1	3	3	10%	7:3	3	1	4
3326	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	138.0	du	6	833	8%	2:8	13	53	67	9%	7:3	52	22	75
3326	STREETFRONT COMM (ksf)	Specialty Retail Center/Strip Commercial	10.3	ksf	40	414	3%	6:4	7	5	12	9%	5:5	19	19	37
3326	RESTAURANT (SIT DOWN-ksf)	RESTAURANT: High Turnover (sit down)	5.3	ksf	130	689	8%	5:5	28	28	55	8%	6:4	33	22	55
3329	RIGHT-OF-WAY		7.2	acre	0	0					0					0
3329	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	166.0	du	10	1680	8%	2:8	27	108	134	10%	7:3	118	50	168
3329	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	53.0	du	6	320	8%	2:8	5	20	26	9%	7:3	20	9	29
3329	MULTI-FAMILY(UNDER 20DU/AC)	Multiple Dwelling Unit - Under 20du/acre	3.0	du	8	24	8%	2:8	0	2	2	10%	7:3	2	1	2
3329	CHURCH(w/o SCH/Day-ksf)	HOUSE OF WORSHIP (Without School or Day Care)	8.4	ksf	5	42	4%	8:2	1	0	2	8%	5:5	2	2	3
3342	RIGHT-OF-WAY		4.0	acre	0	0					0					0
3342	OTHER HEALTH CARE(ksf)	Medical Office: Less than 100,000sq ft	3.7	ksf	50	185	6%	8:2	9	2	11	10%	3:7	6	13	19
3342	ACTIVE PARK	PARK DEVELOPED	0.4	acre	50	18	4%	5:5	0	0	1	8%	5:5	1	1	1
3342	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	6.0	du	10	61	8%	2:8	1	4	5	10%	7:3	4	2	6
3342	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	79.0	du	6	477	8%	2:8	8	31	38	9%	7:3	30	13	43
3342	CHURCH(w/o SCH/Day-ksf)	HOUSE OF WORSHIP (Without School or Day Care)	18.2	ksf	5	91	4%	8:2	3	1	4	8%	5:5	4	4	7
3342	STREETFRONT COMM (ksf)	Specialty Retail Center/Strip Commercial	17.8	ksf	40	716	3%	6:4	13	9	21	9%	5:5	32	32	64
3342	LOW RISE OFFICE	Commercial Office	4.2	ksf	Ln(T)= .756Ln(x)+3.95	169	13%	9:1	20	2	22	14%	2:8	5	19	24
3342	POST OFFICE (ksf)	Post Office (Community mail drop lane)	6.4	ksf	200	1280	6%	6:4	46	31	77	9%	5:5	58	58	115
3342	LIBRARY (ksf)	Library - Less than 100,000sq. Ft	4.5	ksf	50	214	2%	7:3	3	1	4	10%	5:5	11	11	21
3342	OTHER SCHOOL(ksf)	Community College (2years)	11.0	ksf	18	200	12%	9:1	22	2	24	8%	3:7	5	11	16
3342	SPORT FACILITY-IN	Sport Facility - Indoor	0.8	acre	30	24	1%	4:6	0	0	0	4%	5:5	0	0	1
3343	RIGHT-OF-WAY		7.1	acre	0	0					0					0
3343	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	22.0	du	10	223	8%	2:8	4	14	18	10%	7:3	16	7	22
3343	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	530.0	du	6	3200	8%	2:8	51	205	256	9%	7:3	202	86	288
3346	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	80.0	du	6	483	8%	2:8	8	31	39	9%	7:3	30	13	43
3346	RIGHT-OF-WAY		1.9	acre	0	0										
3346	STREETFRONT COMM (ksf)	Specialty Retail Center/Strip Commercial	78.2	ksf	40	3145	3%	6:4	57	38	94	9%	5:5	142	142	283
3346	RESTAURANT (SIT DOWN-ksf)	RESTAURANT: High Turnover (sit down)	5.0	ksf	130	650	8%	5:5	26	26	52	8%	6:4	31	21	52

TRIP GENERATION TOTAL (FUTURE LANDUSES - TOTAL)

TAZ	Name	Land Use as Listed in San Diego	Units		Trip Rate	Daily Trips	AM Peak-Hour					PM Peak-Hour				
							% of ADT	In:Out Ratio	In	Out	Total	% of ADT	In:Out Ratio	In	Out	Total
3346	OTHER RETAIL AND COMM (ksf)	Specialty Retail Center/Strip Commercial	2.2	ksf	40	88	3%	6:4	2	1	3	9%	5:5	4	4	8
3346	FURNITURE STORE (ksf)	Furniture Store	35.5	ksf	6	214	4%	7:3	6	3	9	9%	5:5	10	10	19
3353	RIGHT-OF-WAY		2.3	acre	0	0					0					0
3353	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	18.0	du	10	182	8%	2:8	3	12	15	10%	7:3	13	5	18
3353	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	180.0	du	6	1087	8%	2:8	17	70	87	9%	7:3	68	29	98
3353	MULTI-FAMILY(UNDER 20DU/AC)	Multiple Dwelling Unit - Under 20du/acre	6.0	du	8	48	8%	2:8	1	3	4	10%	7:3	3	1	5
3353	STREETFRONT COMM (ksf)	Specialty Retail Center/Strip Commercial	16.6	ksf	40	668	3%	6:4	12	8	20	9%	5:5	30	30	60
3353	LOW RISE OFFICE	Commercial Office	19.9	ksf	Ln(T)= .756Ln(x)+3.95	546	13%	9:1	64	7	71	14%	2:8	15	61	76
3364	RIGHT-OF-WAY		4.0	acre	0	0					0					0
3364	OTHER HEALTH CARE(ksf)	Medical Office: Less than 100,000sq ft	3.1	ksf	50	155	6%	8:2	7	2	9	10%	3:7	5	11	16
3364	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	14.0	du	10	142	8%	2:8	2	9	11	10%	7:3	10	4	14
3364	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	62.0	du	6	374	8%	2:8	6	24	30	9%	7:3	24	10	34
3364	STREETFRONT COMM (ksf)	Specialty Retail Center/Strip Commercial	29.1	ksf	40	1170	3%	6:4	21	14	35	9%	5:5	53	53	105
3364	GAS STATION W FOODMART-pump	GAS STATIONS: W FOODMART	4.0	pump	150	595	8%	5:5	24	24	48	8%	5:5	24	24	48
3364	ELEMENTARY SCHOOL-student	Education: Elementry School	414.0	student	2.9	1204	31%	6:4	224	149	373	19%	4:6	92	137	229
3364	FINANCIAL INST(ksf)	FINANCIAL INST. (Without drive-through)	6.5	ksf	150	975	4%	7:3	27	12	39	8%	4:6	31	47	78
3364	FURNITURE STORE (ksf)	FURNITURE STORE	11.9	ksf	6	72	4%	7:3	2	1	3	9%	5:5	3	3	6
3373	RIGHT-OF-WAY		3.6	acre	0	0					0					0
3373	OTHER HEALTH CARE(ksf)	Medical Office: Less than 100,000sq ft	7.9	ksf	50	395	6%	8:2	19	5	24	10%	3:7	12	28	40
3373	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	37.0	du	10	374	8%	2:8	6	24	30	10%	7:3	26	11	37
3373	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	244.0	du	6	1473	8%	2:8	24	94	118	9%	7:3	93	40	133
3373	MULTI-FAMILY(UNDER 20DU/AC)	Multiple Dwelling Unit - Under 20du/acre	5.0	du	8	40	8%	2:8	1	3	3	10%	7:3	3	1	4
3375	RIGHT-OF-WAY		3.9	acre	0	0					0					0
3375	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	46.0	du	10	465	8%	2:8	7	30	37	10%	7:3	33	14	47
3375	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	87.0	du	6	525	8%	2:8	8	34	42	9%	7:3	33	14	47
3375	STREETFRONT COMM (ksf)	Specialty Retail Center/Strip Commercial	30.8	ksf	40	1239	3%	6:4	22	15	37	9%	5:5	56	56	112
3375	LOW RISE OFFICE	Commercial Office	1.2	ksf	Ln(T)= .756Ln(x)+3.95	66	13%	9:1	8	1	9	14%	2:8	2	7	9
3375	AUTO PART SALE(ksf)	PARTS SALE	4.0	ksf	62	249	4%	5:5	5	5	10	10%	5:5	12	12	25
3379	RIGHT-OF-WAY		3.2	acre	0	0					0					0
3379	INACTIVE USE		7.9	acre	0	0					0					0
3379	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	15.0	du	10	152	8%	2:8	2	10	12	10%	7:3	11	5	15
3379	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	173.0	du	6	1045	8%	2:8	17	67	84	9%	7:3	66	28	94
3379	MULTI-FAMILY(UNDER 20DU/AC)	Multiple Dwelling Unit - Under 20du/acre	8.0	du	8	65	8%	2:8	1	4	5	10%	7:3	5	2	7
3386	RIGHT-OF-WAY		8.5	acre	0	0					0					0
3386	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	238.0	du	10	2408	8%	2:8	39	154	193	10%	7:3	169	72	241
3386	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	19.0	du	6	115	8%	2:8	2	7	9	9%	7:3	7	3	10
3386	MULTI-FAMILY(UNDER 20DU/AC)	Multiple Dwelling Unit - Under 20du/acre	5.0	du	8	40	8%	2:8	1	3	3	10%	7:3	3	1	4
3387	RIGHT-OF-WAY		4.4	acre	0	0					0					0
3387	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	97.0	du	10	981	8%	2:8	16	63	78	10%	7:3	69	29	98
3387	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	154.0	du	6	930	8%	2:8	15	60	74	9%	7:3	59	25	84
3387	MULTI-FAMILY(UNDER 20DU/AC)	Multiple Dwelling Unit - Under 20du/acre	3.0	du	8	24	8%	2:8	0	2	2	10%	7:3	2	1	2
3387	STREETFRONT COMM (ksf)	Specialty Retail Center/Strip Commercial	10.8	ksf	40	434	3%	6:4	8	5	13	9%	5:5	20	20	39
3387	LOW RISE OFFICE	Commercial Office	8.0	ksf	Ln(T)= .756Ln(x)+3.95	276	13%	9:1	32	4	36	14%	2:8	8	31	39
3387	SUPERMARKET(ksf)	SUPERMARKET	6.9	ksf	150	1002	4%	7:3	28	12	40	10%	5:5	50	50	100
3397	RIGHT-OF-WAY		4.5	acre	0	0					0					0
3397	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	64.0	du	10	648	8%	2:8	10	41	52	10%	7:3	45	19	65
3397	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	267.0	du	6	1612	8%	2:8	26	103	129	9%	7:3	102	44	145
3397	MULTI-FAMILY(UNDER 20DU/AC)	Multiple Dwelling Unit - Under 20du/acre	4.0	du	8	32	8%	2:8	1	2	3	10%	7:3	2	1	3
3414	RIGHT-OF-WAY		7.4	acre	0	0					0					0
3414	PARKING		0.2	acre	0	0					0					0
3414	OTHER PUBLIC SERVICE		0.3	acre	290	87	9%	9:1	7	1	8	12%	3:7	3	7	10
3414	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	107.0	du	10	1083	8%	2:8	17	69	87	10%	7:3	76	32	108

TRIP GENERATION TOTAL (FUTURE LANDUSES - TOTAL)

TAZ	Name	Land Use as Listed in San Diego	Units		Trip Rate	Daily Trips	AM Peak-Hour					PM Peak-Hour				
							% of ADT	In:Out Ratio	In	Out	Total	% of ADT	In:Out Ratio	In	Out	Total
3414	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	188.0	du	6	1135	8%	2:8	18	73	91	9%	7:3	72	31	102
3414	MULTI-FAMILY(UNDER 20DU/AC)	Multiple Dwelling Unit - Under 20du/acre	4.0	du	8	32	8%	2:8	1	2	3	10%	7:3	2	1	3
3419	RIGHT-OF-WAY		4.9	acre	0	0					0					0
3419	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	18.0	du	10	182	8%	2:8	3	12	15	10%	7:3	13	5	18
3419	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	193.0	du	6	1165	8%	2:8	19	75	93	9%	7:3	73	31	105
3419	MULTI-FAMILY(UNDER 20DU/AC)	Multiple Dwelling Unit - Under 20du/acre	6.0	du	8	48	8%	2:8	1	3	4	10%	7:3	3	1	5
3433	RIGHT-OF-WAY		7.7	acre	0	0					0					0
3433	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	97.0	du	10	981	8%	2:8	16	63	78	10%	7:3	69	29	98
3433	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	203.0	du	6	1226	8%	2:8	20	78	98	9%	7:3	77	33	110
3433	MULTI-FAMILY(UNDER 20DU/AC)	Multiple Dwelling Unit - Under 20du/acre	6.0	du	8	48	8%	2:8	1	3	4	10%	7:3	3	1	5
3442	RIGHT-OF-WAY		6.3	acre	0	0					0					0
3442	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	176.0	du	10	1781	8%	2:8	28	114	142	10%	7:3	125	53	178
3442	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	14.0	du	6	85	8%	2:8	1	5	7	9%	7:3	5	2	8
3442	MULTI-FAMILY(UNDER 20DU/AC)	Multiple Dwelling Unit - Under 20du/acre	3.0	du	8	24	8%	2:8	0	2	2	10%	7:3	2	1	2
3452	RIGHT-OF-WAY		5.0	acre	0	0					0					0
3452	ACTIVE BEACH		0.0	unique		7390	1%	6:4	22	15	37	1%	4:6	18	27	44
3452	INACTIVE USE		0.0	acre	0	0					0					0
3452	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	75.0	du	10	759	8%	2:8	12	49	61	10%	7:3	53	23	76
3452	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	162.0	du	6	978	8%	2:8	16	63	78	9%	7:3	62	26	88
3452	MULTI-FAMILY(UNDER 20DU/AC)	Multiple Dwelling Unit - Under 20du/acre	3.0	du	8	24	8%	2:8	0	2	2	10%	7:3	2	1	2
3452	CHURCH(w/o SCH/Day-ksf)	HOUSE OF WORSHIP (Without School or Day Care)	13.9	ksf	5	69	4%	8:2	2	1	3	8%	5:5	3	3	6
3452	STREETFRONT COMM (ksf)	Specialty Retail Center/Strip Commercial	20.6	ksf	40	829	3%	6:4	15	10	25	9%	5:5	37	37	75
3452	LOW RISE OFFICE	Commercial Office	10.2	ksf	Ln(T)= .756Ln(x)+3.95	299	13%	9:1	35	4	39	14%	2:8	8	33	42
3452	GAS STATION W FOODMART-pump	GAS STATIONS: W FOODMART	6.0	pump	150	893	8%	5:5	36	36	71	8%	5:5	36	36	71
3452	LOW-RISE HOTEL-MOTEL-room	Motel	24.0	room	10	215	8%	4:6	7	10	17	9%	4:6	8	12	19
3471	RIGHT-OF-WAY		4.7	acre	0	0										
3471	SINGLE FAMILY(RESIDENTIAL)	Single Family Detached	101.0	du	10	1022	8%	2:8	16	65	82	10%	7:3	72	31	102
3471	MULTI-FAMILY(OVER 20DU/AC)	Multiple Dwelling Unit - Over 20du/acre	17.0	du	6	103	8%	2:8	2	7	8	9%	7:3	6	3	9
3471	MULTI-FAMILY(UNDER 20DU/AC)	Multiple Dwelling Unit - Under 20du/acre	0.0	du	8	0	8%	2:8	0	0	0	10%	7:3	0	0	0
3471	STREETFRONT COMM (ksf)	Specialty Retail Center/Strip Commercial	0.9	ksf	40	36	3%	6:4	1	0	1	9%	5:5	2	2	3
3471	LOW RISE OFFICE	Commercial Office	3.1	ksf	Ln(T)= .756Ln(x)+3.95	126	13%	9:1	15	2	16	14%	2:8	4	14	18
3471	ELEMENTARY SCHOOL-student	Education: Elementry School	186.0	student	2.9	541	31%	6:4	101	67	168	19%	4:6	41	62	103

Appendix D
Select Link Analysis Plots

xx: 2003 Select Link ADT

xx: Buildout Select Link ADT

Select Link

SANDAG SR-11

Ocean Beach CPU

Sunset Cliff Bl (North of W. Point Loma)

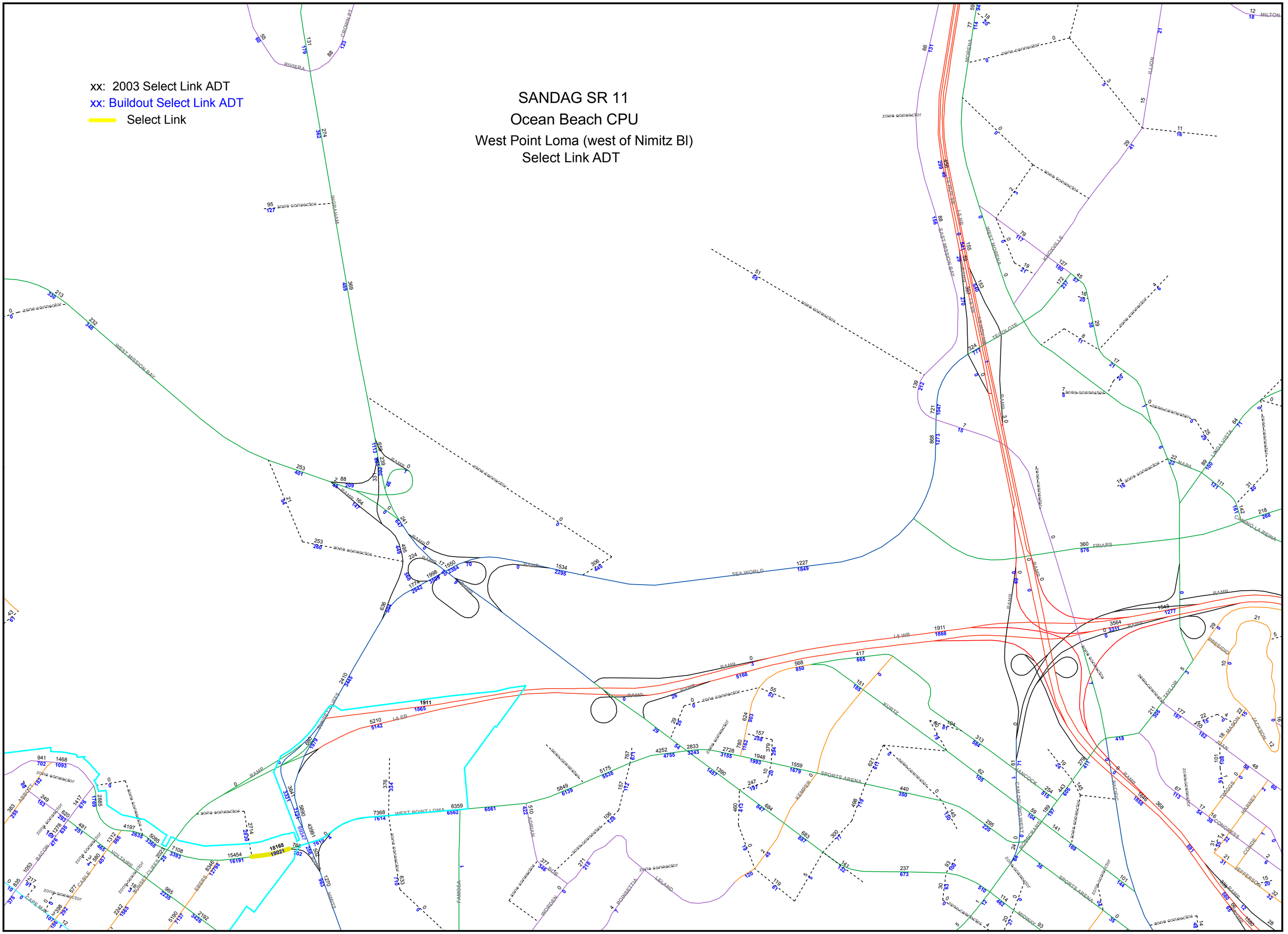
Select Link ADT

xx: 2003 Select Link ADT
xx: Buildout Select Link ADT
Select Link

SANDAG SR 11
Ocean Beach CPU
Nimitz Bl (North of W. Point Loma)
Select Link ADT

xx: 2003 Select Link ADT
xx: Buildout Select Link ADT
Select Link

SANDAG SR 11
Ocean Beach CPU
West Point Loma (west of Nimitz Bl)
Select Link ADT



Appendix E
Signal Warrant Analysis

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

COUNT DATE Buildout

DIST ____ CO ____ RTE ____ PM ____

CALC ____ DATE ____

CHK ____ DATE ____

Major St: W Point Loma Blvd — Critical Approach Speed ____ mph

Minor St: Ebers St — Critical Approach Speed ____ mph

Speed limit or critical speed on major street traffic > 40 mph..... ☐
or
In built up area of isolated community of < 10,000 population..... ☐
} **RURAL (R)**

☐ **URBAN (U)**

(Based on Estimated Average Daily Traffic - See Note)

URBAN..... X ..... RURAL.....

CONDITION A - Minimum Vehicular Volume

Satisfied X Not Satisfied ____

Number of lanes for moving traffic on each approach

Major Street	Minor Street
1..... X	1..... X .....
2 or More.....	1.....
2 or More.....	2 or More.....
1.....	2 or More.....

Minimum Requirements EADT

Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Urban	Rural	Urban	Rural
8,000	5,600	2,400	1,680
9,600	6,720	2,400	1,680
9,600	6,720	3,200	2,240
8,000	5,600	3,200	2,240

CONDITION B - Interruption of Continuous Traffic

Satisfied X Not Satisfied ____

Number of lanes for moving traffic on each approach

Major Street	Minor Street
1..... X	1..... X .....
2 or More.....	1.....
2 or More.....	2 or More.....
1.....	2 or More.....

19,000 Vehicles Per Day on Major Street (Total of Both Approaches)

7,500 Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)

Urban	Rural	Urban	Rural
12,000	8,400	1,200	850
14,400	10,080	1,200	850
14,400	10,080	1,600	1,120
12,000	8,400	1,600	1,120

Combination of CONDITIONS A + B

Satisfied X Not Satisfied ____

No one condition satisfied, but following conditions fulfilled 80% or more..... ____ (A) ____ (B)

2 CONDITIONS 80%

2 CONDITIONS 80%

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

COUNT DATE Buildout

DIST ____ CO ____ RTE ____ PM ____

CALC ____ DATE ____

CHK ____ DATE ____

Major St: W Point Loma Blvd — Critical Approach Speed ____ mph

Minor St: Bacon St — Critical Approach Speed ____ mph

Speed limit or critical speed on major street traffic > 40 mph..... ☐
or
In built up area of isolated community of < 10,000 population..... ☐
} **RURAL (R)**

☐ **URBAN (U)**

(Based on Estimated Average Daily Traffic - See Note)

URBAN..... X ..... RURAL.....

CONDITION A - Minimum Vehicular Volume

Satisfied X Not Satisfied ____

Number of lanes for moving traffic on each approach

Major Street	Minor Street
1..... X	1..... X .....
2 or More.....	1.....
2 or More.....	2 or More.....
1.....	2 or More.....

Minimum Requirements EADT

Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Urban	Rural	Urban	Rural
8,000	5,600	2,400	1,680
9,600	6,720	2,400	1,680
9,600	6,720	3,200	2,240
8,000	5,600	3,200	2,240

CONDITION B - Interruption of Continuous Traffic

Satisfied X Not Satisfied ____

Number of lanes for moving traffic on each approach

Major Street	Minor Street
1..... X	1..... X .....
2 or More.....	1.....
2 or More.....	2 or More.....
1.....	2 or More.....

13,000 Vehicles Per Day on Major Street (Total of Both Approaches)

3,750 Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)

Urban	Rural	Urban	Rural
12,000	8,400	1,200	850
14,400	10,080	1,200	850
14,400	10,080	1,600	1,120
12,000	8,400	1,600	1,120

Combination of CONDITIONS A + B

Satisfied X Not Satisfied ____

2 CONDITIONS 80%

2 CONDITIONS 80%

No one condition satisfied, but following conditions fulfilled 80% or more..... ____ (A) ____ (B)

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

COUNT DATE Buildout

DIST ____ CO ____ RTE ____ PM ____

CALC ____ DATE ____

CHK ____ DATE ____

Major St: Sunset Cliffs Blvd — Critical Approach Speed ____ mph

Minor St: Brighton Ave — Critical Approach Speed ____ mph

Speed limit or critical speed on major street traffic > 40 mph..... ☐
or
In built up area of isolated community of < 10,000 population..... ☐
} **RURAL (R)**

☐ **URBAN (U)**

(Based on Estimated Average Daily Traffic - See Note)

URBAN..... X RURAL.....

CONDITION A - Minimum Vehicular Volume

Satisfied ____ Not Satisfied X

Number of lanes for moving traffic on each approach

Major Street	Minor Street
1..... X	1..... X
2 or More.....	1.....
2 or More.....	2 or More.....
1.....	2 or More.....

Minimum Requirements EADT

Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Urban	Rural	Urban	Rural
8,000	5,600	2,400	1,680
9,600	6,720	2,400	1,680
9,600	6,720	3,200	2,240
8,000	5,600	3,200	2,240

CONDITION B - Interruption of Continuous Traffic

Satisfied ____ Not Satisfied X

Number of lanes for moving traffic on each approach

Major Street	Minor Street
1..... X	1..... X
2 or More.....	1.....
2 or More.....	2 or More.....
1.....	2 or More.....

25,000 Vehicles Per Day on Major Street (Total of Both Approaches)

950 Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)

Urban	Rural	Urban	Rural
12,000	8,400	1,200	850
14,400	10,080	1,200	850
14,400	10,080	1,600	1,120
12,000	8,400	1,600	1,120

Combination of CONDITIONS A + B

Satisfied ____ Not Satisfied X

No one condition satisfied, but following conditions fulfilled 80% or more..... NO (A) NO (B)

2 CONDITIONS 80%

2 CONDITIONS 80%

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

COUNT DATE Buildout

DIST _____ CO _____ RTE _____ PM _____

CALC _____ DATE _____

CHK _____ DATE _____

Major St: Sunset Cliffs Blvd — Critical Approach Speed _____ mph

Minor St: Orchard Ave — Critical Approach Speed _____ mph

Speed limit or critical speed on major street traffic > 40 mph..... ☐
or
In built up area of isolated community of < 10,000 population..... ☐
} **RURAL (R)**

☐ **URBAN (U)**

(Based on Estimated Average Daily Traffic - See Note)

URBAN..... X ..... RURAL.....

CONDITION A - Minimum Vehicular Volume

Satisfied _____ Not Satisfied X

Number of lanes for moving traffic on each approach

Major Street		Minor Street	
1.....	X	1.....	X
2 or More.....		1.....	
2 or More.....		2 or More.....	
1.....		2 or More.....	

Minimum Requirements EADT

Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Urban	Rural	Urban	Rural
8,000	5,600	2,400	1,680
9,600	6,720	2,400	1,680
9,600	6,720	3,200	2,240
8,000	5,600	3,200	2,240

CONDITION B - Interruption of Continuous Traffic

Satisfied _____ Not Satisfied X

Number of lanes for moving traffic on each approach

Major Street		Minor Street	
1.....	X	1.....	X
2 or More.....		1.....	
2 or More.....		2 or More.....	
1.....		2 or More.....	

19,250 — Vehicles Per Day on Major Street (Total of Both Approaches)

500 — Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)

Urban	Rural	Urban	Rural
12,000	8,400	1,200	850
14,400	10,080	1,200	850
14,400	10,080	1,600	1,120
12,000	8,400	1,600	1,120

Combination of CONDITIONS A + B

Satisfied _____ Not Satisfied X

No one condition satisfied, but following conditions fulfilled 80% or more..... NO (A) NO (B)

2 CONDITIONS 80%

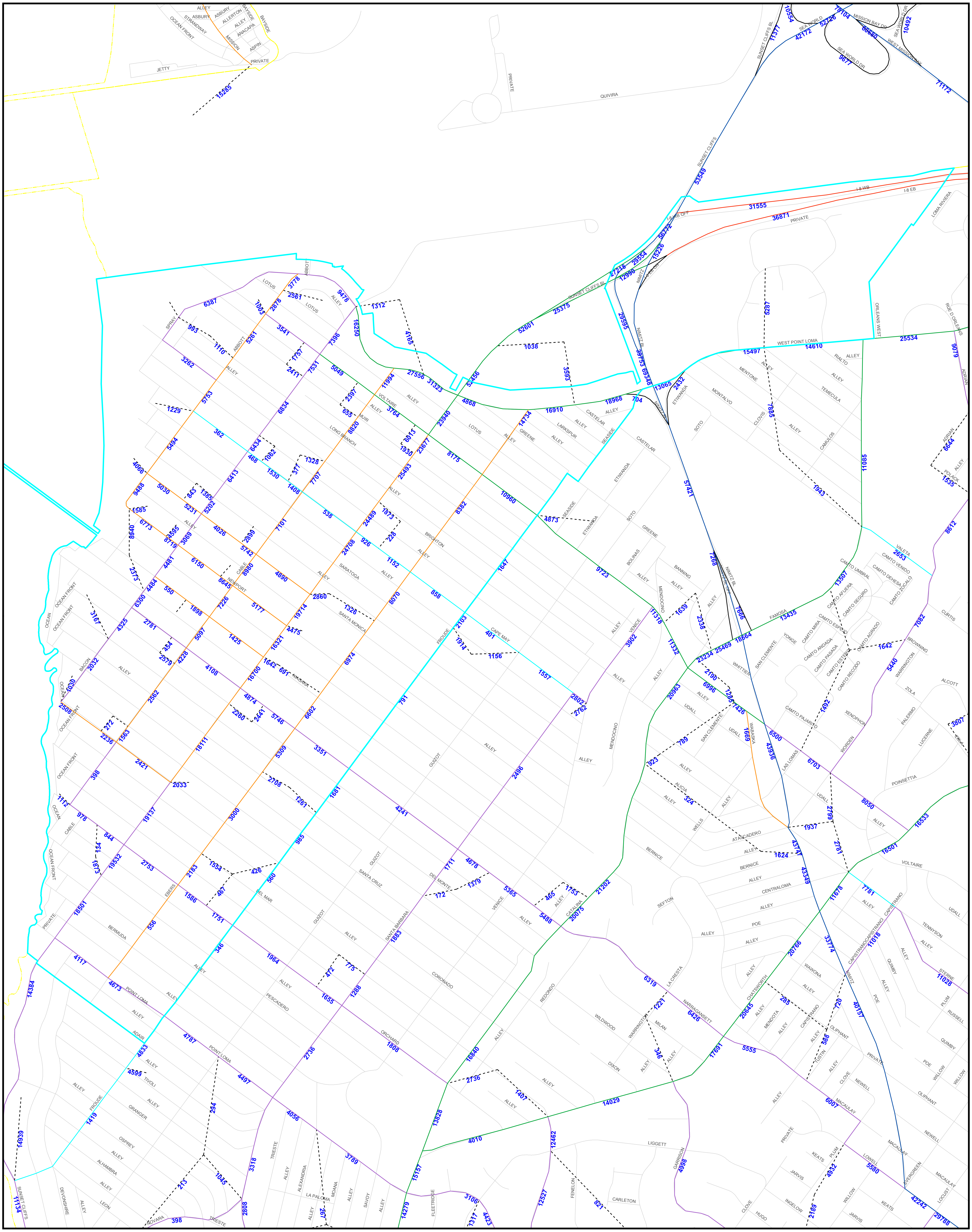
2 CONDITIONS 80%

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Appendix F
Buildout Traffic Forecast

OCEAN BEACH FUTURE VOLUMES



Legend

- Freeway
- Prime
- Major
- Collector
- Light Collector
- Rural Collector
- Local
- Freeway Ramp
- Local Ramp
- ZC

Appendix G
Turning Movement Forecast Worksheets

2030 AM Turning Movement Forecast

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
			EXISTING/BASE YEAR TURNS													EXISTING/BASE YEAR ADT				EXISTING/BASE YEAR K AND D FACTORS (ENTER K FACTOR IF EXISTING/BASE ADT NOT AVAILABLE)															FUTURE ADT				FUTURE ENTER/EXIT							
INT_ID	ROAD 1	ROAD 2	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	COUNT/PERCENT	SOUTH LEG	NORTH LEG	WEST LEG	EAST LEG	NB K	NB D	NB PEAK	SB K	SB D	SB PEAK	EB K	EB D	EB PEAK	WB K	WB D	WB PEAK	SOUTH LEG	NORTH LEG	WEST LEG	EAST LEG	NB ENTER	NB EXIT	SB ENTER	SB EXIT	EB ENTER	EB EXIT	WB ENTER	WB EXIT
1	Sunset Cliffs Blvd	I-8 WB off-ramp		1323			897					1455		8	COUNT	48020	48020		22250	8%	36%	EXIT	5%	40%	EXIT	9%	0%	EXIT	7%	100%	ENTER	56772	53549		31555	1564	2781	1000	1484	0	0	2075	0
2	Nimitz Blvd	I-8 EB on-ramp		636						943					COUNT	41700	48020	48020	22250	2%	100%	ENTER	1%	0%	EXIT	2%	100%	ENTER	4%	0%	EXIT	69348	56772	52601	36871	1058	0	0	752	1033	0	0	1563
3	Sunset Cliffs Blvd	Sunset Cliffs Blvd					1623			1668	13				COUNT	24100	48020	48020	22250	7%	0%	EXIT	3%	100%	ENTER	4%	100%	ENTER	7%	0%	EXIT	29595	56772	52601	36871	0	2009	1919	0	1841	0	0	2764
4	Sunset Cliffs Blvd	W Point Loma Blvd	1	862	30	12	706	167	783	88	7	45	56	80	COUNT	22800	48020	28500	13400	7%	54%	ENTER	5%	34%	EXIT	4%	80%	ENTER	2%	58%	ENTER	23940	52456	31323	16910	938	796	967	1884	965	246	228	164
5	Sunset Cliffs Blvd	Voltaire St	4	720	17	67	598	9	24	116	33	21	92	33	COUNT	17800	22500	5400	8400	8%	53%	ENTER	6%	46%	EXIT	5%	62%	ENTER	4%	42%	EXIT	23677	23940	6013	10960	986	867	717	827	193	117	190	261
6	Sunset Cliffs Blvd	Santa Monica Ave	9	523	20	40	494	36	84	58	28	9	53	50	COUNT	15500	17800	4400		7%	51%	ENTER	7%	46%	EXIT	6%	63%	ENTER	9%	49%	EXIT	16321	24708	4890	2860	581	559	791	912	189	109	125	132
7	Sunset Cliffs Blvd	Newport Ave	39	434	13	17	455	47	56	44	29	28	74	53	COUNT	15500	15500	5500		6%	49%	EXIT	7%	49%	EXIT	5%	45%	EXIT	9%	68%	ENTER	16321	19714	6150	4475	512	539	660	691	144	179	273	130
8	Sunset Cliffs Blvd	Narragansett Ave	4	403	12	35	424	20	49	50	10	12	52	38	COUNT	13900	15500	2600	2600	6%	48%	EXIT	6%	49%	EXIT	7%	59%	ENTER	8%	51%	ENTER	18111	16700	2781	3351	546	581	516	528	117	81	131	125
9	Nimitz Blvd	W Point Loma Blvd	19	1397	83	96	1375	52	437	223	32	133	134	325	COUNT	50000	41700	13400	15500	6%	49%	EXIT	9%	41%	EXIT	7%	77%	ENTER	6%	60%	ENTER	57421	39753	16910	15497	1721	1769	1452	2058	873	259	592	402
10	Ebers St	Voltaire St	53	332	48	15	81	18	39	123	19	44	174	71	COUNT	8200	24600	6200	8400	7%	75%	ENTER	2%	21%	EXIT	7%	42%	EXIT	6%	61%	ENTER	8382	14734	8175	10960	443	147	68	265	239	323	377	243
11	Cable St	Newport Ave	30	66	27	23	71	26	27	50	23	21	49	27	COUNT	4300	6500	8700	5500	6%	52%	ENTER	4%	50%	ENTER	2%	49%	EXIT	4%	49%	EXIT	7226	7707	8645	5177	207	193	142	142	99	104	91	94
12	Ebers St	W Point Loma Blvd	24		492					149	3	121	86		COUNT	24600		28500	13400	3%	81%	ENTER	9%	0%	EXIT	1%	58%	ENTER	6%	24%	EXIT	14734		31323	16910								
13	Bacon St	W Point Loma Blvd	70	86	11	4	192	1	5	7	253	5	5	1	COUNT	7800	2900	6900	13800	8%	27%	EXIT	10%	68%	ENTER	5%	78%	ENTER	0%	33%	EXIT	7396	2900	9478	16250	158	427	197	92	364	104	13	26
14	Sunset Cliffs Blvd	Brighton Ave	3	564	6	11	535	6	8	1	8	0	2	9	COUNT	17800	17800	300	300	6%	51%	ENTER	6%	49%	EXIT	9%	61%	ENTER	10%	38%	EXIT	24489	24489	300	300	788	747	759	799	17	11	11	18
15	Sunset Cliffs Blvd	Orchard Ave	3	270	0	12	257	14	26	9	2	1	1	24	COUNT	9900	9900	600	500	5%	51%	ENTER	6%	47%	EXIT	9%	67%	ENTER	9%	55%	ENTER	19137	19137	844	2753	528	503	547	619	52	25	143	116

2030 AM Turning Movement Forecast

Intersection # = 1

			S	W	N	E	Iterations = 1	
		FUTURE OUTFLOW	2907	0	1546	0		
		FROM PREV ITERATION						
	FUTURE INFLOW	FROM PREV INTERATION					TOTAL INFLOWS	
S	1502	1535		0	1502	0	1502	0.00%
W	0	0	0		0	0	0	0.00%
N	938	927	938	0		0	938	0.00%
E	2013	1991	2002	0	11		2013	0.00%
		TOTAL OUTFLOWS	2940	0	1513	0		
			1.14%	0.00%	-2.13%	0.00%		

Intersection # = 2

			S	W	N	E	Iterations = 200	
		FUTURE OUTFLOW	0	0	836	1535		
		FROM PREV ITERATION						
	FUTURE INFLOW	FROM PREV INTERATION					TOTAL INFLOWS	
S	1086	836		0	1086	0	1086	0.00%
W	1061	1535	0		0	1061	1061	0.00%
N	0	0	0	0		0	0	0.00%
E	0	0	0	0	0		0	0.00%
		TOTAL OUTFLOWS	0	0	1086	1061		
			0.00%	0.00%	29.90%	-30.88%		

Intersection # = 3

			S	W	N	E	Iterations = 200	
		FUTURE OUTFLOW	2387	0	0	2637		
		FROM PREV ITERATION						
	FUTURE INFLOW	FROM PREV INTERATION					TOTAL INFLOWS	
S	0	0		0	0	0	0	0.00%
W	1968	2642	4		0	1964	1968	0.00%
N	2046	2382	2046	0		0	2046	0.00%
E	0	0	0	0	0		0	0.00%
		TOTAL OUTFLOWS	2050	0	0	1964		
			-14.12%	0.00%	0.00%	-25.52%		

Intersection # = 4

			S	W	N	E	Iterations = 1	
		FUTURE OUTFLOW	797	247	1885	165		
		FROM PREV ITERATION						
	FUTURE INFLOW	FROM PREV INTERATION					TOTAL INFLOWS	
S	937	951		1	901	35	937	0.00%
W	964	992	8		845	111	964	0.00%
N	966	929	765	185		16	966	0.00%
E	227	222	54	70	103		227	0.00%
		TOTAL OUTFLOWS	827	256	1849	162		
			3.76%	3.64%	-1.91%	-1.82%		

Intersection # = 5

			S	W	N	E	Iterations = 21	
		FUTURE OUTFLOW	871	119	829	263		
		FROM PREV ITERATION						
	FUTURE INFLOW	FROM PREV INTERATION					TOTAL INFLOWS	
S	984	941		15	851	118	984	0.00%
W	191	195	72		6	113	191	0.00%
N	715	750	678	4		33	715	0.00%
E	188	195	83	96	9		188	0.00%
		TOTAL OUTFLOWS	833	115	866	264		
			-4.36%	-3.36%	4.46%	0.38%		

2030 AM Turning Movement Forecast

Intersection # = 6 | Iterations = 33

			S	W	N	E		
		FUTURE OUTFLOW	558	106	909	129		
		FROM PREV ITERATION						
	FUTURE INFLOW	FROM PREV INTERATION					TOTAL INFLOWS	
S	584	611		4	575	5	584	0.00%
W	192	200	5		178	10	193	0.52%
N	794	757	577	98		120	795	0.13%
E	128	133	3	9	116		128	0.00%
		TOTAL OUTFLOWS	585	111	869	135		
			4.84%	4.72%	-4.40%	4.65%		

Intersection # = 7 | Iterations = 7

			S	W	N	E		
		FUTURE OUTFLOW	547	185	697	136		
		FROM PREV ITERATION						
	FUTURE INFLOW	FROM PREV INTERATION					TOTAL INFLOWS	
S	506	534		21	467	18	506	0.00%
W	138	141	14		63	62	139	0.72%
N	654	619	529	67		58	654	0.00%
E	267	272	31	98	137		266	-0.37%
		TOTAL OUTFLOWS	574	186	667	138		
			4.94%	0.54%	-4.30%	1.47%		

Intersection # = 8 | Iterations = 13

			S	W	N	E		
		FUTURE OUTFLOW	583	80	527	124		
		FROM PREV ITERATION						
	FUTURE INFLOW	FROM PREV INTERATION					TOTAL INFLOWS	
S	547	518		11	499	37	547	0.00%
W	118	115	25		26	68	119	0.85%
N	517	546	487	9		22	518	0.19%
E	132	134	44	60	28		132	0.00%
		TOTAL OUTFLOWS	556	80	553	127		
			-4.63%	0.00%	4.93%	2.42%		

Intersection # = 9 | Iterations = 11

			S	W	N	E		
		FUTURE OUTFLOW	1790	278	2077	421		
		FROM PREV ITERATION						
	FUTURE INFLOW	FROM PREV INTERATION					TOTAL INFLOWS	
S	1702	1637		56	1534	112	1702	0.00%
W	854	834	119		451	285	855	0.12%
N	1433	1513	1360	40		33	1433	0.00%
E	573	581	235	179	160		574	0.17%
		TOTAL OUTFLOWS	1714	275	2145	430		
			-4.25%	-1.08%	3.27%	2.14%		

Intersection # = 10 | Iterations = 5

			S	W	N	E		
		FUTURE OUTFLOW	169	342	284	262		
		FROM PREV ITERATION						
	FUTURE INFLOW	FROM PREV INTERATION					TOTAL INFLOWS	
S	424	414		98	234	92	424	0.00%
W	220	223	37		19	165	221	0.45%
N	49	52	39	6		5	50	2.04%
E	358	368	89	233	36		358	0.00%
		TOTAL OUTFLOWS	165	337	289	262		
			-2.37%	-1.46%	1.76%	0.00%		

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Intersection # = 11

			S	W	N	E	Iterations = 5	
	FUTURE OUTFLOW		196	105	143	95		
	FROM PREV ITERATION							
	FUTURE INFLOW	FROM PREV INTERATION					TOTAL INFLOWS	
S	206	201		53	108	45	206	0.00%
W	98	100	43		19	36	98	0.00%
N	141	149	110	17		14	141	0.00%
E	90	91	36	36	19		91	1.11%
		TOTAL OUTFLOWS	189	106	146	95		
			-3.57%	0.95%	2.10%	0.00%		

Intersection # = 12

			S	W	N	E	Iterations = 1	
	FUTURE OUTFLOW		0	0	0	0		
	FROM PREV ITERATION							
	FUTURE INFLOW	FROM PREV INTERATION					TOTAL INFLOWS	
S	0	0		0	0	0	0	0.00%
W	0	0	0		0	0	0	0.00%
N	0	0	0	0		0	0	0.00%
E	0	0	0	0	0		0	0.00%
		TOTAL OUTFLOWS	0	0	0	0		
			0.00%	0.00%	0.00%	0.00%		

Intersection # = 13

			S	W	N	E	Iterations = 19	
	FUTURE OUTFLOW		440	114	102	36		
	FROM PREV ITERATION							
	FUTURE INFLOW	FROM PREV INTERATION					TOTAL INFLOWS	
S	148	155		96	48	4	148	0.00%
W	354	349	280		53	21	354	0.00%
N	187	185	165	11		11	187	0.00%
E	3	3	1	2	0		3	0.00%
		TOTAL OUTFLOWS	446	109	101	36		
			1.36%	-4.39%	-0.98%	0.00%		

Intersection # = 14

			S	W	N	E	Iterations = 1	
	FUTURE OUTFLOW		747	11	799	18		
	FROM PREV ITERATION							
	FUTURE INFLOW	FROM PREV INTERATION					TOTAL INFLOWS	
S	788	791		3	779	6	788	0.00%
W	17	17	8		8	1	17	0.00%
N	759	756	742	6		11	759	0.00%
E	11	11	0	2	9		11	0.00%
		TOTAL OUTFLOWS	750	11	796	18		
			0.40%	0.00%	-0.38%	0.00%		

Intersection # = 15

			S	W	N	E	Iterations = 20	
	FUTURE OUTFLOW		505	26	620	117		
	FROM PREV ITERATION							
	FUTURE INFLOW	FROM PREV INTERATION					TOTAL INFLOWS	
S	527	503		5	522	0	527	0.00%
W	51	52	2		10	39	51	0.00%
N	546	574	457	16		73	546	0.00%
E	142	138	24	3	115		142	0.00%
		TOTAL OUTFLOWS	483	24	647	112		
			-4.36%	-7.69%	4.35%	-4.27%		

2030 PM Turning Movement Forecast

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
			EXISTING/BASE YEAR TURNS													EXISTING/BASE YEAR ADT				EXISTING/BASE YEAR K AND D FACTORS (ENTER K FACTOR IF EXISTING/BASE ADT NOT AVAILABLE)															FUTURE ADT				FUTURE ENTER/EXIT							
INT_ID	ROAD 1	ROAD 2	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	COUNT/PERCENT	SOUTH LEG	NORTH LEG	WEST LEG	EAST LEG	NB K	NB D	NB PEAK	SB K	SB D	SB PEAK	EB K	EB D	EB PEAK	WB K	WB D	WB PEAK	SOUTH LEG	NORTH LEG	WEST LEG	EAST LEG	NB ENTER	NB EXIT	SB ENTER	SB EXIT	EB ENTER	EB EXIT	WB ENTER	WB EXIT
1	Sunset Cliffs Blvd	I-8 WB off-ramp		1093			1368					1881		14	COUNT	48020	48020		22250	9%	25%	EXIT	5%	55%	ENTER	9%	0%	EXIT	9%	100%	ENTER	56772	53549		31555	1292	3841	1526	1234	0	0	2687	0
2	Nimitz Blvd	I-8 EB on-ramp		682						576					COUNT	41700	48020	48020	22250	2%	100%	ENTER	1%	0%	EXIT	1%	100%	ENTER	3%	0%	EXIT	69348	56772	52601	36871	1134	0	0	806	631	0	0	955
3	Sunset Cliffs Blvd	Sunset Cliffs Blvd					1801			1050	36				COUNT	24100	48020	48020	22250	8%	0%	EXIT	4%	100%	ENTER	2%	100%	ENTER	5%	0%	EXIT	29595	56772	52601	36871	0	2256	2129	0	1190	0	0	1740
4	Sunset Cliffs Blvd	W Point Loma Blvd	6	560	64	28	820	874	445	159	8	105	164	37	COUNT	22800	48020	28500	13400	7%	40%	EXIT	6%	62%	ENTER	6%	37%	EXIT	4%	55%	ENTER	23940	52456	31323	16910	662	980	1881	1138	673	1147	386	317
5	Sunset Cliffs Blvd	Voltaire St	15	531	56	87	793	38	82	175	29	73	196	81	COUNT	17800	22500	5400	8400	8%	40%	EXIT	7%	57%	ENTER	10%	53%	ENTER	8%	52%	ENTER	23677	23940	6013	10960	801	1191	977	738	318	277	457	415
6	Sunset Cliffs Blvd	Santa Monica Ave	28	488	14	12	628	74	64	102	66	24	63	16	COUNT	15500	17800	4400		8%	42%	EXIT	7%	56%	ENTER	9%	58%	ENTER	9%	45%	EXIT	16321	24708	4890	2860	558	756	991	788	258	183	115	143
7	Sunset Cliffs Blvd	Newport Ave	58	338	18	22	549	98	102	64	53	32	71	36	COUNT	15500	15500	5500		7%	40%	EXIT	7%	58%	ENTER	8%	49%	EXIT	9%	57%	ENTER	16321	19714	6150	4475	436	668	851	605	245	254	230	172
8	Sunset Cliffs Blvd	Narragansett Ave	16	391	17	41	426	57	19	84	21	38	109	70	COUNT	13900	15500	2600	2600	7%	47%	EXIT	6%	52%	ENTER	12%	41%	EXIT	14%	60%	ENTER	18111	16700	2781	3351	552	632	565	517	133	195	280	183
9	Nimitz Blvd	W Point Loma Blvd	54	1435	181	299	1070	317	185	310	42	155	382	210	COUNT	50000	41700	13400	15500	6%	57%	ENTER	8%	48%	EXIT	10%	42%	EXIT	10%	49%	EXIT	57421	39753	16910	15497	1918	1455	1607	1745	678	950	747	790
10	Ebers St	Voltaire St	42	205	70	49	278	21	47	210	43	71	265	42	COUNT	8200	24600	6200	8400	9%	45%	EXIT	3%	54%	ENTER	10%	48%	EXIT	8%	53%	ENTER	8382	14734	8175	10960	324	401	208	176	396	432	493	429
11	Cable St	Newport Ave	27	171	41	32	217	37	21	136	19	24	144	61	COUNT	4300	6500	8700	5500	12%	48%	EXIT	8%	53%	ENTER	4%	46%	EXIT	8%	52%	ENTER	7226	7707	8645	5177	402	437	339	300	175	207	216	197
12	Ebers St	W Point Loma Blvd	16		338					188	4	382	304		COUNT	24600		28500	13400	3%	48%	EXIT	9%	0%	EXIT	2%	38%	EXIT	9%	57%	ENTER	14734		31323	16910	212	231	0	0	211	352	866	664
13	Bacon St	W Point Loma Blvd	210	215	147	13	160	11	17	56	145	66	36	2	COUNT	7800	4200	6900	13800	12%	61%	ENTER	10%	44%	EXIT	7%	46%	EXIT	2%	33%	EXIT	7396	4200	9478	16250	542	352	184	234	299	353	122	254
14	Sunset Cliffs Blvd	Brighton Ave	6	494	3	17	728	15	5	5	8	1	4	9	COUNT	17800	17800	500	400	7%	41%	EXIT	7%	60%	ENTER	9%	42%	EXIT	10%	36%	EXIT	24489	24489	500	400	692	1014	1046	699	18	25	14	25
15	Sunset Cliffs Blvd	Orchard Ave	10	362	2	16	371	28	17	6	8	2	6	19	COUNT	9900	9900	800	600	8%	50%	EXIT	8%	51%	ENTER	9%	41%	EXIT	9%	53%	ENTER	19137	19137	844	2753	723	736	802	769	33	46	124	110

2030 PM Turning Movement Forecast

Intersection # = 1 | Iterations = 3

			S	W	N	E		
		FUTURE OUTFLOW	3983	0	1306	0		
		FROM PREV ITERATION						
	FUTURE INFLOW	FROM PREV INTERATION					TOTAL INFLOWS	
S	1220	1285		0	1220	0	1220	0.00%
W	0	0	0		0	0	0	0.00%
N	1454	1430	1454	0		0	1454	0.00%
E	2615	2574	2594	0	21		2615	0.00%
		TOTAL OUTFLOWS	4048	0	1241	0		
			1.63%	0.00%	-4.98%	0.00%		

Intersection # = 2 | Iterations = 200

			S	W	N	E		
		FUTURE OUTFLOW	0	0	809	956		
		FROM PREV ITERATION						
	FUTURE INFLOW	FROM PREV INTERATION					TOTAL INFLOWS	
S	1134	809		0	1134	0	1134	0.00%
W	631	956	0		0	631	631	0.00%
N	0	0	0	0		0	0	0.00%
E	0	0	0	0	0		0	0.00%
		TOTAL OUTFLOWS	0	0	1134	631		
			0.00%	0.00%	40.17%	-34.00%		

Intersection # = 3 | Iterations = 200

			S	W	N	E		
		FUTURE OUTFLOW	2508	0	0	1655		
		FROM PREV ITERATION						
	FUTURE INFLOW	FROM PREV INTERATION					TOTAL INFLOWS	
S	0	0		0	0	0	0	0.00%
W	1275	1661	5		0	1270	1275	0.00%
N	2214	2502	2214	0		0	2214	0.00%
E	0	0	0	0	0		0	0.00%
		TOTAL OUTFLOWS	2219	0	0	1270		
			-11.52%	0.00%	0.00%	-23.26%		

Intersection # = 4 | Iterations = 1

			S	W	N	E		
		FUTURE OUTFLOW	983	1150	1141	320		
		FROM PREV ITERATION						
	FUTURE INFLOW	FROM PREV INTERATION					TOTAL INFLOWS	
S	660	682		6	578	76	660	0.00%
W	671	711	8		469	193	670	-0.15%
N	1879	1826	874	968		37	1879	0.00%
E	384	375	128	208	48		384	0.00%
		TOTAL OUTFLOWS	1010	1182	1095	306		
			2.75%	2.78%	-4.03%	-4.38%		

Intersection # = 5 | Iterations = 9

			S	W	N	E		
		FUTURE OUTFLOW	1183	269	730	407		
		FROM PREV ITERATION						
	FUTURE INFLOW	FROM PREV INTERATION					TOTAL INFLOWS	
S	810	770		26	648	136	810	0.00%
W	327	320	56		51	220	327	0.00%
N	986	1026	906	19		61	986	0.00%
E	466	472	182	221	63		466	0.00%
		TOTAL OUTFLOWS	1144	266	762	417		
			-3.30%	-1.12%	4.38%	2.46%		

2030 PM Turning Movement Forecast

Intersection # = 6

			S	W	N	E	Iterations = 17	
		FUTURE OUTFLOW	763	190	795	150		
		FROM PREV ITERATION						
	FUTURE INFLOW	FROM PREV INTERATION					TOTAL INFLOWS	
S	552	586		6	542	5	553	0.18%
W	252	261	14		152	86	252	0.00%
N	985	940	774	152		59	985	0.00%
E	109	111	9	38	62		109	0.00%
		TOTAL OUTFLOWS	797	196	756	150		
			4.46%	3.16%	-4.91%	0.00%		

Intersection # = 7

			S	W	N	E	Iterations = 7	
		FUTURE OUTFLOW	677	262	613	180		
		FROM PREV ITERATION						
	FUTURE INFLOW	FROM PREV INTERATION					TOTAL INFLOWS	
S	428	451		33	372	23	428	0.00%
W	237	245	28		122	87	237	0.00%
N	843	811	637	137		69	843	0.00%
E	222	225	35	94	94		223	0.45%
		TOTAL OUTFLOWS	700	264	588	179		
			3.40%	0.76%	-4.08%	-0.56%		

Intersection # = 8

			S	W	N	E	Iterations = 9	
		FUTURE OUTFLOW	635	195	517	183		
		FROM PREV ITERATION						
	FUTURE INFLOW	FROM PREV INTERATION					TOTAL INFLOWS	
S	552	524		28	474	50	552	0.00%
W	133	135	30		9	95	134	0.75%
N	565	588	493	34		38	565	0.00%
E	280	281	91	133	57		281	0.36%
		TOTAL OUTFLOWS	614	195	540	183		
			-3.31%	0.00%	4.45%	0.00%		

Intersection # = 9

			S	W	N	E	Iterations = 7	
		FUTURE OUTFLOW	1458	951	1746	791		
		FROM PREV ITERATION						
	FUTURE INFLOW	FROM PREV INTERATION					TOTAL INFLOWS	
S	1917	1831		140	1530	247	1917	0.00%
W	677	665	103		182	392	677	0.00%
N	1606	1683	1113	330		163	1606	0.00%
E	746	768	186	458	103		747	0.13%
		TOTAL OUTFLOWS	1402	928	1815	802		
			-3.84%	-2.42%	3.95%	1.39%		

Intersection # = 10

			S	W	N	E	Iterations = 5	
		FUTURE OUTFLOW	400	430	174	427		
		FROM PREV ITERATION						
	FUTURE INFLOW	FROM PREV INTERATION					TOTAL INFLOWS	
S	326	315		71	135	120	326	0.00%
W	398	394	84		24	290	398	0.00%
N	210	219	178	10		22	210	0.00%
E	495	502	129	345	21		495	0.00%
		TOTAL OUTFLOWS	391	426	180	432		
			-2.25%	-0.93%	3.45%	1.17%		

2030 PM Turning Movement Forecast

Intersection # = 11

			S	W	N	E	Iterations = 9	
		FUTURE OUTFLOW	437	206	299	196		
		FROM PREV ITERATION						
	FUTURE INFLOW	FROM PREV INTERATION					TOTAL INFLOWS	
S	403	388		65	262	76	403	0.00%
W	176	176	55		13	108	176	0.00%
N	340	358	307	19		14	340	0.00%
E	217	216	59	125	33		217	0.00%
		TOTAL OUTFLOWS	421	209	308	198		
			-3.66%	1.46%	3.01%	1.02%		

Intersection # = 12

			S	W	N	E	Iterations = 200	
		FUTURE OUTFLOW	238	359	0	671		
		FROM PREV ITERATION						
	FUTURE INFLOW	FROM PREV INTERATION					TOTAL INFLOWS	
S	205	337		1	0	204	205	0.00%
W	204	336	1		0	203	204	0.00%
N	0	0	0	0		0	0	0.00%
E	859	595	342	517	0		859	0.00%
		TOTAL OUTFLOWS	343	518	0	407		
			44.12%	44.29%	0.00%	-39.34%		

Intersection # = 13

			S	W	N	E	Iterations = 5	
		FUTURE OUTFLOW	348	347	228	248		
		FROM PREV ITERATION						
	FUTURE INFLOW	FROM PREV INTERATION					TOTAL INFLOWS	
S	548	568		243	184	121	548	0.00%
W	305	295	161		36	108	305	0.00%
N	190	181	146	24		20	190	0.00%
E	128	127	53	73	2		128	0.00%
		TOTAL OUTFLOWS	360	340	222	249		
			3.45%	-2.02%	-2.63%	0.40%		

Intersection # = 14

			S	W	N	E	Iterations = 1	
		FUTURE OUTFLOW	1016	26	700	26		
		FROM PREV ITERATION						
	FUTURE INFLOW	FROM PREV INTERATION					TOTAL INFLOWS	
S	691	696		6	682	3	691	0.00%
W	17	17	8		5	4	17	0.00%
N	1045	1043	1009	17		19	1045	0.00%
E	13	12	1	3	9		13	0.00%
		TOTAL OUTFLOWS	1018	26	696	26		
			0.20%	0.00%	-0.57%	0.00%		

Intersection # = 15

			S	W	N	E	Iterations = 2	
		FUTURE OUTFLOW	742	49	772	113		
		FROM PREV ITERATION						
	FUTURE INFLOW	FROM PREV INTERATION					TOTAL INFLOWS	
S	720	694		9	699	11	719	-0.14%
W	30	40	6		11	13	30	0.00%
N	799	836	693	25		81	799	0.00%
E	121	104	10	15	95		120	-0.83%
		TOTAL OUTFLOWS	709	49	805	105		
			-4.45%	0.00%	4.27%	-7.08%		

Appendix H
Validation of Existing Traffic Counts Memo

WILSON &COMPANY

Memorandum

Arizona
California
Colorado
Kansas
Missouri
Nebraska
New Mexico
Oklahoma
Texas
Utah

To: Samir Hajjiri, City of San Diego
Victoria Huffman, City of San Diego

From: Marc Mizuta, Wilson & Company, Inc.
Nicholas Abboud, Wilson & Company, Inc.

Date: November 8, 2011 File Number: 11-100-60100

Re: Validation of Existing Traffic Counts in Ocean Beach

The following memorandum summarizes how the existing traffic data contained in the Ocean Beach Existing Conditions Report – Mobility Element, dated January 2010 were validated for continued use in the Ocean Beach Future Conditions Report. Most of the traffic data contained in the Existing Conditions Report were obtained in 2008. Validation of those traffic counts were needed to determine if the traffic counts obtained in 2008 still represented the traffic conditions over the last year.

Daily Traffic Volumes

The average daily traffic (ADT) volumes along key roadway segments in the Ocean Beach Existing Conditions Report completed by the City of San Diego were collected in January 2008 and July 2008. Recent ADT volumes were provided by the City from their machine count traffic volumes database. Many of the roadway segments listed in the Existing Conditions Report did not have updated traffic data.

Table 1 provides a summary of the ADT volumes for the segments where recent traffic counts were obtained and provides a comparison to the existing ADT volumes obtained in 2008. In the table, cells containing counts from the same season (winter or summer) are shown in gray highlights. It is acknowledged that traffic volumes vary inconsistently during different seasons of the year, with no clear conclusion of one being consistently higher or lower than the other. As shown in Figure 9 of the Existing Conditions Report, ADT volumes for various segments within the Ocean Beach community resulted in summer counts being higher on some segments and lower on other segments than winter counts.

Also, bolded values in the table indicate traffic counts that are within 10 percent of each other. Generally, traffic counts that are within 10 percent of each other are considered to be within an acceptable range. As shown in the table, it does not appear that there is a pattern with the recent ADT volumes as they are both higher and lower than the counts obtained in 2008. Historically, ADT volumes within the Ocean Beach community can be affected by a number of factors that are uncontrollable and can vary significantly on a daily basis. Some of these factors include weather conditions and the size of the waves. Larger waves on a sunny day would be expected to be an added attraction to surfers and can cause an increase in traffic volumes.

However, the ADT volumes shown for one of the primary gateways into the Ocean Beach community, Sunset Cliffs Boulevard, indicate that traffic volumes have not experienced significant change over the last few years, which supports the validity of the 2008 traffic counts used by the City in developing the Existing Conditions Report. Traffic volumes along Sunset Cliffs Boulevard between Lotus Street and W Point Loma Boulevard remained fairly constant between 2008 and 2010 with an increase of 150 vehicles on a daily basis.

Table 1: Comparison on ADT Volumes Along Roadway Segments

Segment	Date of Count	ADT	Δ in ADT*	Δ in %
Bacon St (Narragansett Ave and Niagara Ave)	Thu, 01/17/08	3,700	1,115	30%
	Tue, 06/15/10	4,815		
Cable St (Brighton Ave to Long Branch Ave)	Thu, 01/17/08	6,500	-1,835	-28%
	Tue, 11/16/10	4,665		
Narragansett Ave (Cable St to Sunset Cliffs Blvd)	Thu, 07/24/08	2,800	145	5%
	Tue, 06/15/10	2,945		
Newport Ave (Cable St to Sunset Cliffs Blvd)	Thu, 07/24/08	6,200	1,970	32%
	Tue, 06/15/10	8,170		
Point Loma Ave (Ebers St to Froude St)	Thu, 07/24/08	3,000	670	22%
	Tue, 07/27/10	3,670		
Sunset Cliffs Blvd (Lotus St to W Point Loma Blvd)	Thu, 07/24/08	22,800	-150	-1%
	Tue, 06/15/10	22,650		
Sunset Cliffs Blvd (W Point Loma Blvd to Nimitz Blvd)	Thu, 07/24/08	36,200	945	3%
	Sat, 01/29/11	37,145		
Voltaire St (Sunset Cliffs Blvd to Ebers St)	Thu, 01/17/08	5,400	2,670	49%
	Tue, 06/15/10	8,070		
W Point Loma Blvd (Bacon St to Cable St)	Thu, 07/24/08	12,900	-25	0%
	Tue, 06/15/10	12,875		

Notes:
* Delta refers to increase (+) or decrease (-) in volumes between 2008 and 2010 counts. (2010 minus 2008)
Cells highlighted in gray indicate counts that were obtained during the same season (winter or summer)
Values shown in bold indicate traffic counts that are within 10% of each other.

Peak-Hour Traffic Volumes

The peak-hour traffic volumes at the study intersections in Ocean Beach were obtained in July 2008 for the Existing Conditions Report. A total of 11 intersections were evaluated for the existing conditions. Recent peak-hour traffic volumes at several of the study intersections were provided by the City of San Diego and collected in August 2010.

Table 2 provides a summary of the entering traffic volumes during the weekday AM and PM peak-hour and provides a comparison to the existing peak-hour traffic volumes obtained in 2008. Only four of the 11 intersections had matching traffic count data in 2008 and 2010. Values shown in bold indicate traffic volumes that are within 10 percent of each other. As shown in the table, all but one peak-hour volumes at the intersections had traffic volumes that are within 10 percent of each other. Averaging the traffic volumes at all intersections resulted in a deviation of less than 2 percent. As a

result, the recent peak-hour traffic data reflects no significant change from the 2008 counts and supports the validity of the intersection peak hour counts used by the City in the Existing Conditions Report.

Table 2: Comparison on Peak-Hour Volumes at Intersections

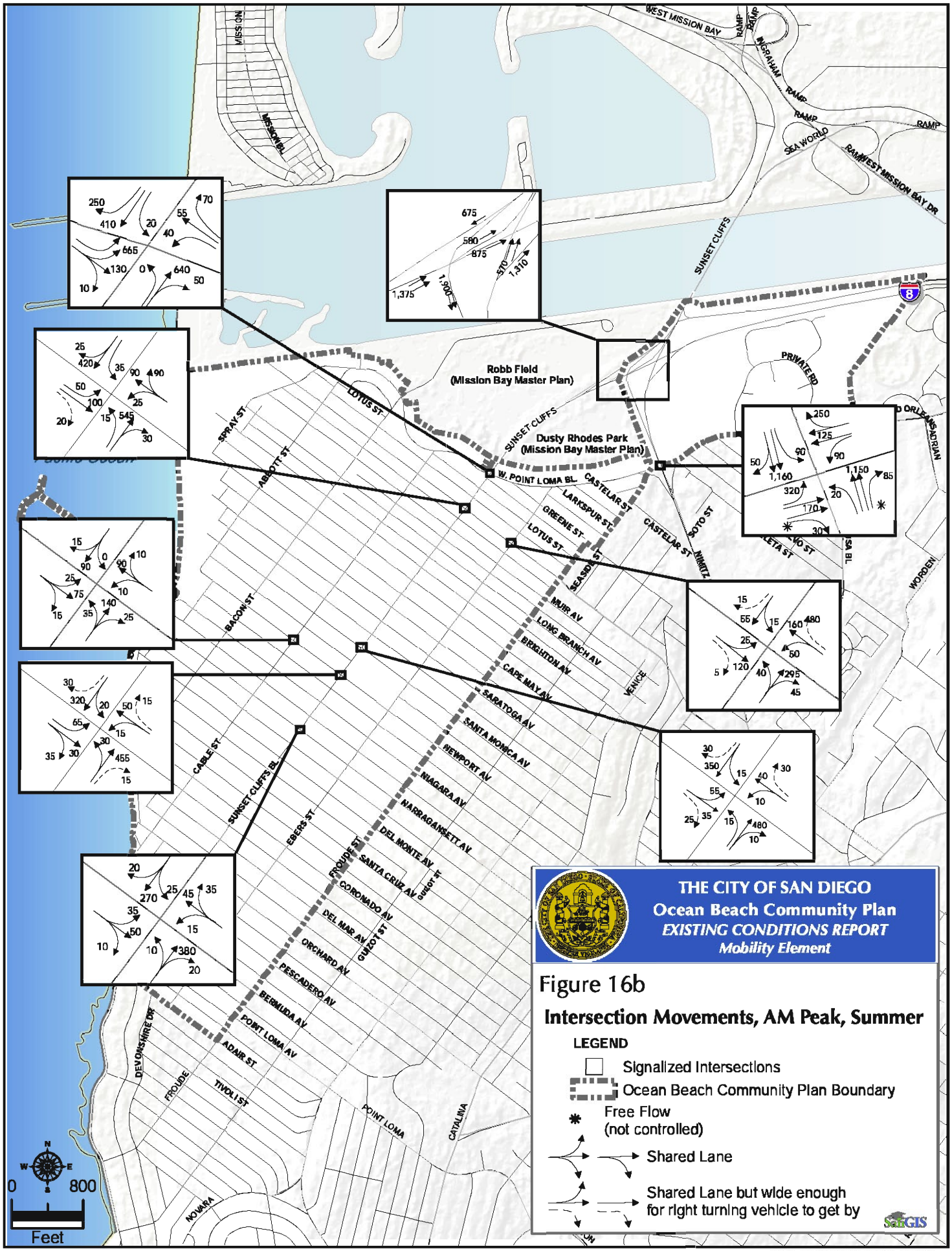
Intersection	Peak Hour	Date of Count	Total Entering Volume	Date of Count	Total Entering Volume	Δ in %
Sunset Cliffs Blvd/W Point Loma Blvd	AM	Wed 07/16/08	2,326	Thu 08/05/10	2,297	-1%
	PM		3,245		3,290	1%
Sunset Cliffs Blvd/Voltaire St	AM	Wed 07/16/08	1,438	Thu 08/05/10	1,503	5%
	PM		1,966		1,942	-1%
Sunset Cliffs Blvd/Narragansett Ave	AM	Wed 07/16/08	909	Thu 08/05/10	767	-16%
	PM		1,104		1,140	3%
Cable St/Newport Ave	AM	Wed 07/16/08	543	Thu 08/05/10	555	2%
	PM		923		880	-5%
Average	AM		5,216		5,122	-2%
	PM		7,238		7,252	0%

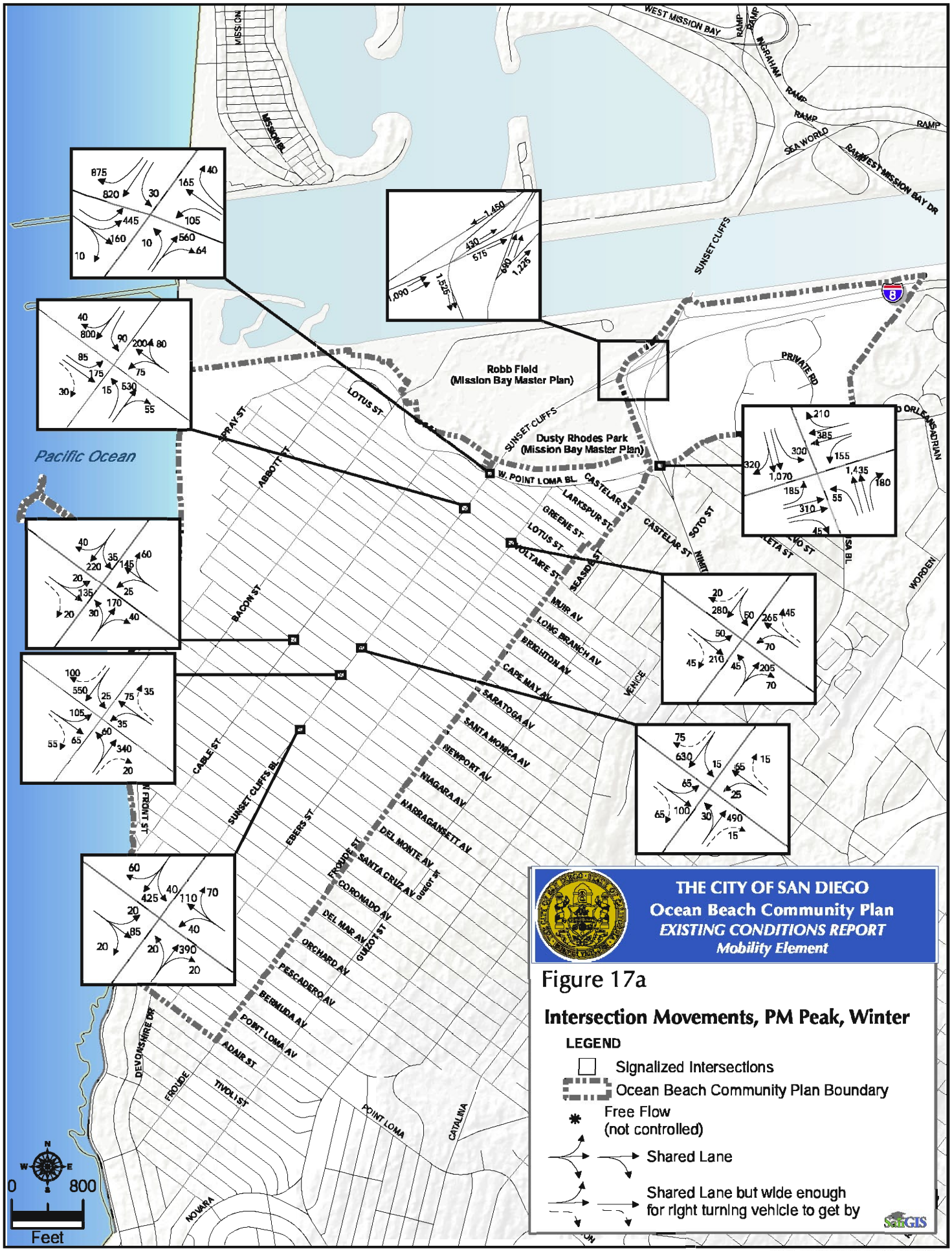
Notes:
* Delta refers to % increase (+) or decrease (-) in volumes between 2008 and 2010 counts. (2010 minus 2008)
Values that are shown in **bold** indicate traffic counts that are within 10% of each other.

Conclusion

Based on the traffic volumes comparisons presented in the above discussion, it is concluded that the traffic volumes used by the City of San Diego in the preparation of the Existing Conditions Report continue to offer valid representation of the existing conditions. Although the ADT volumes shown in Table 1 show a great variability depending on the location of the roadway segment, more emphasis is placed on the main gateways into the community as indicators of the overall traffic changes since the traffic on the local minor roadways would be expected to fluctuate greatly depending on the exact location of beach activities as well as weather conditions. One of the main gateways into the Ocean Beach Community is Sunset Cliffs Boulevard, which is shown to exhibit fairly consistent traffic volumes over the last few years. In further support, traffic volumes during the peak-hour also indicate that traffic volumes traveling through the intersections during the peak-hour have also remained fairly constant over the last few years. As a result, the traffic patterns along Sunset Cliffs Boulevard are considered indicative of the insignificant changes in the overall community traffic patterns and provide support to the validity of the 2008 traffic counts used in the City's Existing Conditions Report.

Appendix I
Traffic Volumes Used for Validation




THE CITY OF SAN DIEGO
Ocean Beach Community Plan
EXISTING CONDITIONS REPORT
Mobility Element
Figure 17a
Intersection Movements, PM Peak, Winter
LEGEND
Signalized Intersections
Ocean Beach Community Plan Boundary
Free Flow
(not controlled)
Shared Lane
Shared Lane but wide enough
for right turning vehicle to get by
Robb Field
(Mission Bay Master Plan)
Dusty Rhodes Park
(Mission Bay Master Plan)
Pacific Ocean
WEST MISSION BAY RAMP
INGRAHAM RAMP
SEA WORLD RAMP
WEST MISSION BAY DR
SUNSET CLIFFS
PRIVATE RD
W. POINT LOMA BL
LOTUS ST
SPRAY ST
ABBOTT ST
CASTELAR ST
LARKSPUR ST
GREENE ST
VOLTAIRE ST
SEASIDE ST
SOTO ST
BACON ST
MUIR AV
LONG BRANCH AV
BRIGHTON AV
CAPE MAY AV
SARATOGA AV
SANTA MONICA AV
NEWPORT AV
NIAGARA AV
NARRAGANSETT AV
DEL MONTE AV
SANTA CRUZ AV
CORONADO AV
DEL MAR AV
ORCHARD AV
PESCADERO AV
BERMUDA AV
POINT LOMA AV
ADAIR ST
TIVOLI ST
FROUDE ST
GUIZOT ST
EBERS ST
CABLE ST
SUNSET CLIFFS BL
N FRONT ST
DEVONSHIRE DR
NOVARA
POINT LOMA
CATALINA
VENICE
WORDEN
0
800
Feet
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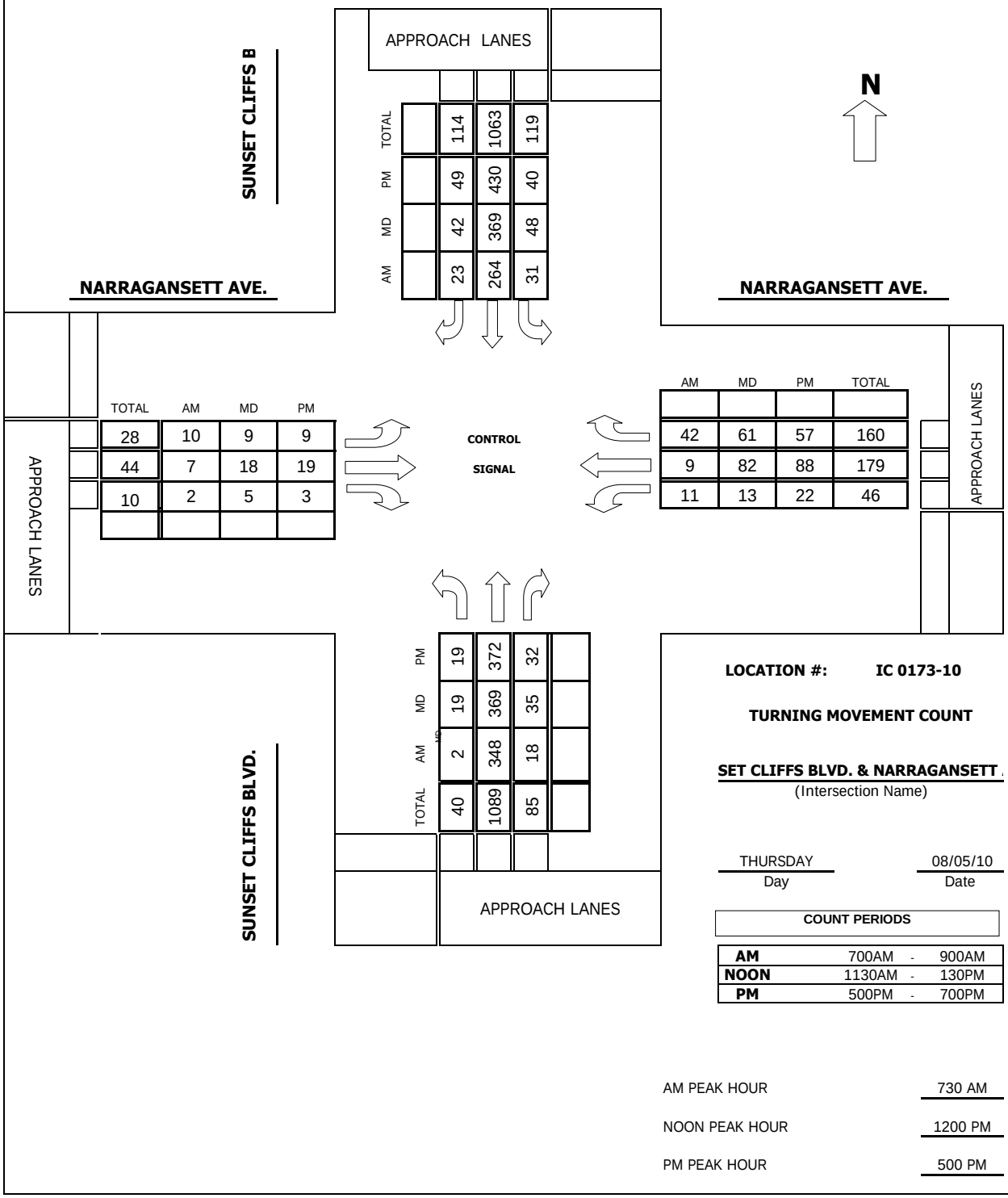
Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: IC 0173-10

TMC SUMMARY OF SUNSET CLIFFS BLVD. & NARRAGANSETT AVE.



LOCATION #: IC 0173-10

TURNING MOVEMENT COUNT

SET CLIFFS BLVD. & NARRAGANSETT
(Intersection Name)

THURSDAY (Day) 08/05/10 (Date)

COUNT PERIODS			
AM	700AM	-	900AM
NOON	1130AM	-	130PM
PM	500PM	-	700PM

AM PEAK HOUR	730 AM
NOON PEAK HOUR	1200 PM
PM PEAK HOUR	500 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

N-S STREET:	SUNSET CLIFFS BLVD.	DATE:	08/05/10	LOCATION:	SAN DIEGO
E-W STREET:	NARRAGANSETT AVE.	DAY:	THURSDAY	PROJECT#	IC 0173-10

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	1	75	3	4	61	3	6	3	0	0	5	12	173
7:15 AM	0	76	3	1	58	3	4	4	0	0	1	7	157
7:30 AM	0	95	4	6	69	5	4	3	0	3	9	8	206
7:45 AM	1	78	5	10	69	11	3	2	0	3	0	6	188
8:00 AM	1	88	1	4	66	3	3	2	0	2	0	12	182
8:15 AM	0	87	8	11	60	4	0	0	2	3	0	16	191
8:30 AM	0	97	4	5	63	2	3	3	0	4	2	16	199
8:45 AM	0	81	4	4	68	3	1	0	0	8	0	12	181
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	3	677	32	45	514	34	24	17	2	23	17	89	1477
Approach %	0.42	95.08	4.49	7.59	86.68	5.73	55.81	39.53	4.65	17.83	13.18	68.99	
App/Depart	712	/	790	593	/	539	43	/	94	129	/	54	

AM Peak Hr Begins at: 730 AM

PEAK													
Volumes	2	348	18	31	264	23	10	7	2	11	9	42	767
Approach %	0.54	94.57	4.89	9.75	83.02	7.23	52.63	36.84	10.53	17.74	14.52	67.74	
PEAK HR. FACTOR:		0.929			0.883			0.679			0.775		0.931

CONTROL:	SIGNAL
COMMENT 1:	
COMMENT 2:	

Intersection Turning Movement

Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

N-S STREET:	SUNSET CLIFFS BLVD.	DATE:	08/05/10	LOCATION:	SAN DIEGO
E-W STREET:	NARRAGANSETT AVE.	DAY:	THURSDAY	PROJECT#	IC 0173-10

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM	4	92	4	7	81	12	2	0	0	5	14	14	235
11:45 AM	3	90	4	4	80	8	5	2	0	5	20	18	239
12:00 PM	4	97	13	15	89	6	1	2	1	4	14	18	264
12:15 PM	8	99	6	12	107	13	2	9	1	4	17	15	293
12:30 PM	4	90	7	10	84	13	4	6	3	3	23	13	260
12:45 PM	3	83	9	11	89	10	2	1	0	2	28	15	253
1:00 PM	5	106	2	17	88	6	3	0	1	3	22	9	262
1:15 PM	4	89	5	8	93	9	3	4	1	7	10	8	241
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	35	746	50	84	711	77	22	24	7	33	148	110	2047
Approach %	4.21	89.77	6.02	9.63	81.54	8.83	41.51	45.28	13.21	11.34	50.86	37.80	
App/Depart	831	/	878	872	/	751	53	/	158	291	/	260	

NOON Peak Hr Begins at: 1200 PM

PEAK													
Volumes	19	369	35	48	369	42	9	18	5	13	82	61	1070
Approach %	4.49	87.23	8.27	10.46	80.39	9.15	28.13	56.25	15.63	8.33	52.56	39.10	
PEAK HR. FACTOR:		0.928			0.869			0.615			0.867		0.913

CONTROL: SIGNAL
COMMENT 1: 0
COMMENT 2: 0

HOURS:

	FROM:		TO:	
AM	700	AM	900	AM
NOON	1130	AM	130	PM
PM	500	PM	700	PM

Intersection Turning Movement

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

N-S STREET:	SUNSET CLIFFS BLVD.	DATE:	08/05/10	LOCATION:	SAN DIEGO
E-W STREET:	NARRAGANSETT AVE.	DAY:	THURSDAY	PROJECT#	IC 0173-10

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM													
4:15 PM													
4:30 PM													
4:45 PM													
5:00 PM	8	101	6	10	104	11	1	4	1	9	20	12	287
5:15 PM	2	84	8	13	114	13	5	7	1	3	26	19	295
5:30 PM	6	98	7	10	104	15	1	4	0	5	21	18	289
5:45 PM	3	89	11	7	108	10	2	4	1	5	21	8	269
6:00 PM	4	73	3	12	101	15	1	3	0	7	16	11	246
6:15 PM	5	75	7	17	100	12	2	9	3	8	15	9	262
6:30 PM	6	92	4	14	99	17	2	4	2	4	19	9	272
6:45 PM	2	78	14	6	115	15	2	5	4	6	10	14	271

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	36	690	60	89	845	108	16	40	12	47	148	100	2191
Approach %	4.58	87.79	7.63	8.54	81.09	10.36	23.53	58.82	17.65	15.93	50.17	33.90	
App/Depart	786	/	806	1042	/	904	68	/	189	295	/	292	

PM Peak Hr Begins at: 500 PM

PEAK													
Volumes	19	372	32	40	430	49	9	19	3	22	88	57	1140
Approach %	4.49	87.94	7.57	7.71	82.85	9.44	29.03	61.29	9.68	13.17	52.69	34.13	
PEAK HR. FACTOR:		0.920			0.927			0.596			0.870		0.966

CONTROL: SIGNAL
COMMENT 1: 0
COMMENT 2: 0

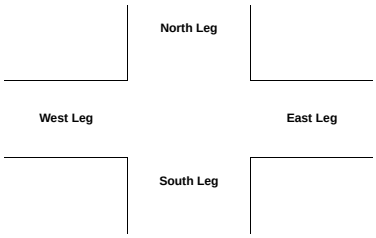
FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Pedestrian & Bicycle Study

Location: NARRAGANSETT AVE. & SUNSET CLIFFS BLVD. **Date:** 08/05/10 **City:** SAN DIEGO
Day: THURSDAY **Project #:** IC 0173-10

	PEDESTRIANS			
	N-LEG	S-LEG	E-LEG	W-LEG
7:00 AM	4	0	4	4
7:15 AM	1	1	3	1
7:30 AM	0	1	3	5
7:45 AM	1	1	2	9
8:00 AM	1	1	4	4
8:15 AM	0	2	3	3
8:30 AM	1	5	1	5
8:45 AM	0	1	4	5
TOTAL	**8**	**12**	**24**	**36**

	BICYCLES			
	N-LEG	S-LEG	E-LEG	W-LEG
7:00 AM	0	0	0	1
7:15 AM	0	0	0	1
7:30 AM	0	0	0	0
7:45 AM	0	0	1	1
8:00 AM	0	0	0	1
8:15 AM	0	0	0	0
8:30 AM	0	0	2	5
8:45 AM	0	0	0	2
TOTAL	**0**	**0**	**3**	**11**



	PEDESTRIANS			
	N-LEG	S-LEG	E-LEG	W-LEG
11:30 AM	2	3	6	8
11:45 AM	1	15	4	17
12:00 PM	3	11	3	9
12:15 PM	0	2	9	5
12:30 PM	3	1	0	15
12:45 PM	1	7	5	15
1:00 PM	1	10	8	17
1:15 PM	1	2	3	5
TOTAL	**12**	**51**	**38**	**91**

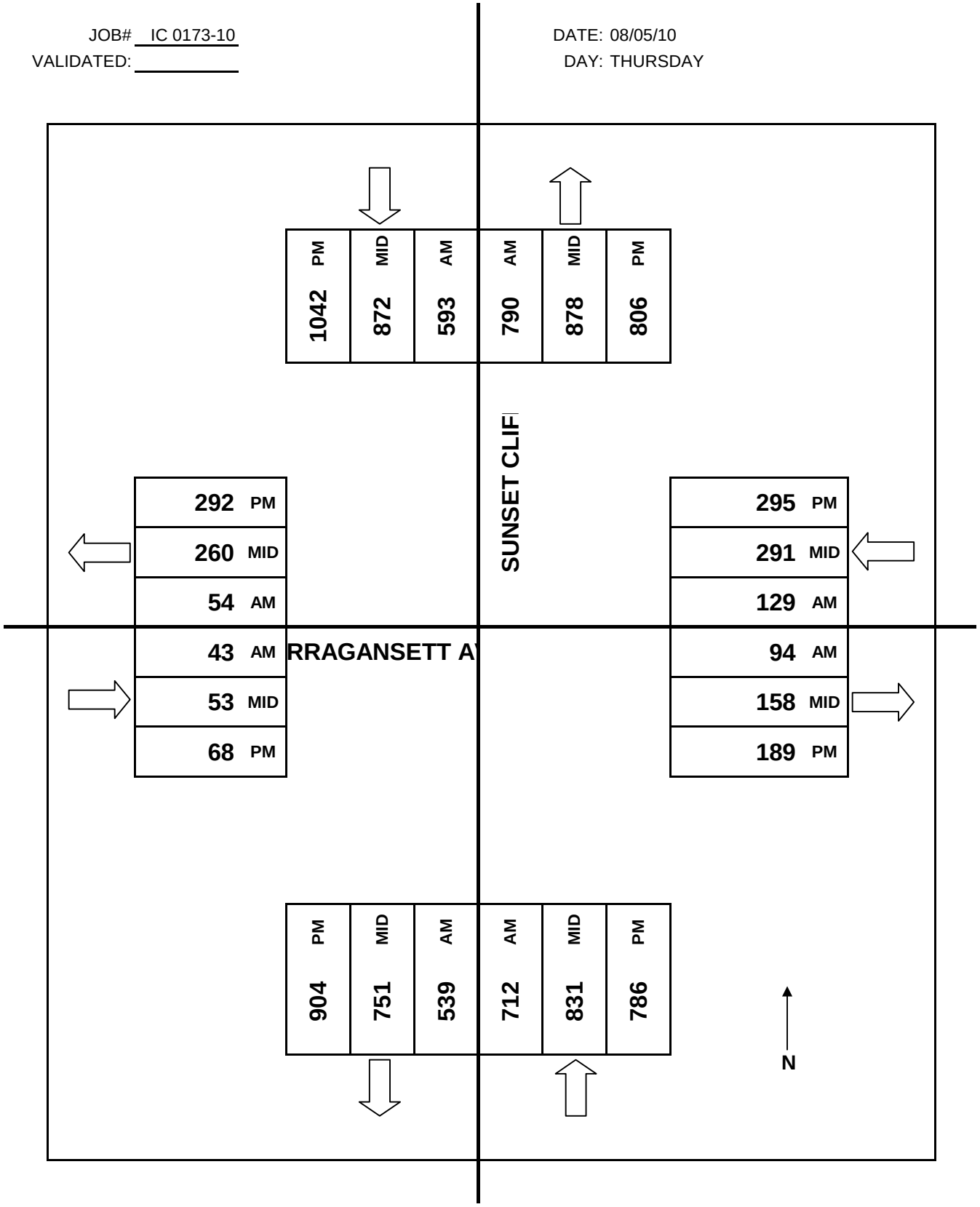
	BICYCLES			
	N-LEG	S-LEG	E-LEG	W-LEG
11:30 AM	0	0	0	3
11:45 AM	0	0	0	1
12:00 PM	0	0	0	1
12:15 PM	3	0	6	0
12:30 PM	0	0	0	1
12:45 PM	1	0	1	1
1:00 PM	0	0	1	0
1:15 PM	0	0	5	0
TOTAL	**4**	**0**	**13**	**7**

	PEDESTRIANS			
	N-LEG	S-LEG	E-LEG	W-LEG
5:00 PM	1	2	3	10
5:15 PM	2	6	3	8
5:30 PM	2	3	10	7
5:45 PM	5	9	5	14
6:00 PM	1	3	2	12
6:15 PM	1	2	3	13
6:30 PM	2	13	5	26
6:45 PM	0	5	7	10
TOTAL	**14**	**43**	**38**	**100**

	BICYCLES			
	N-LEG	S-LEG	E-LEG	W-LEG
5:00 PM	0	0	2	4
5:15 PM	0	0	3	2
5:30 PM	0	0	0	3
5:45 PM	1	0	6	0
6:00 PM	0	0	0	1
6:15 PM	0	0	0	3
6:30 PM	1	2	2	6
6:45 PM	1	0	3	2
TOTAL	**3**	**2**	**16**	**21**

JOB# IC 0173-10
VALIDATED: _____

DATE: 08/05/10
DAY: THURSDAY

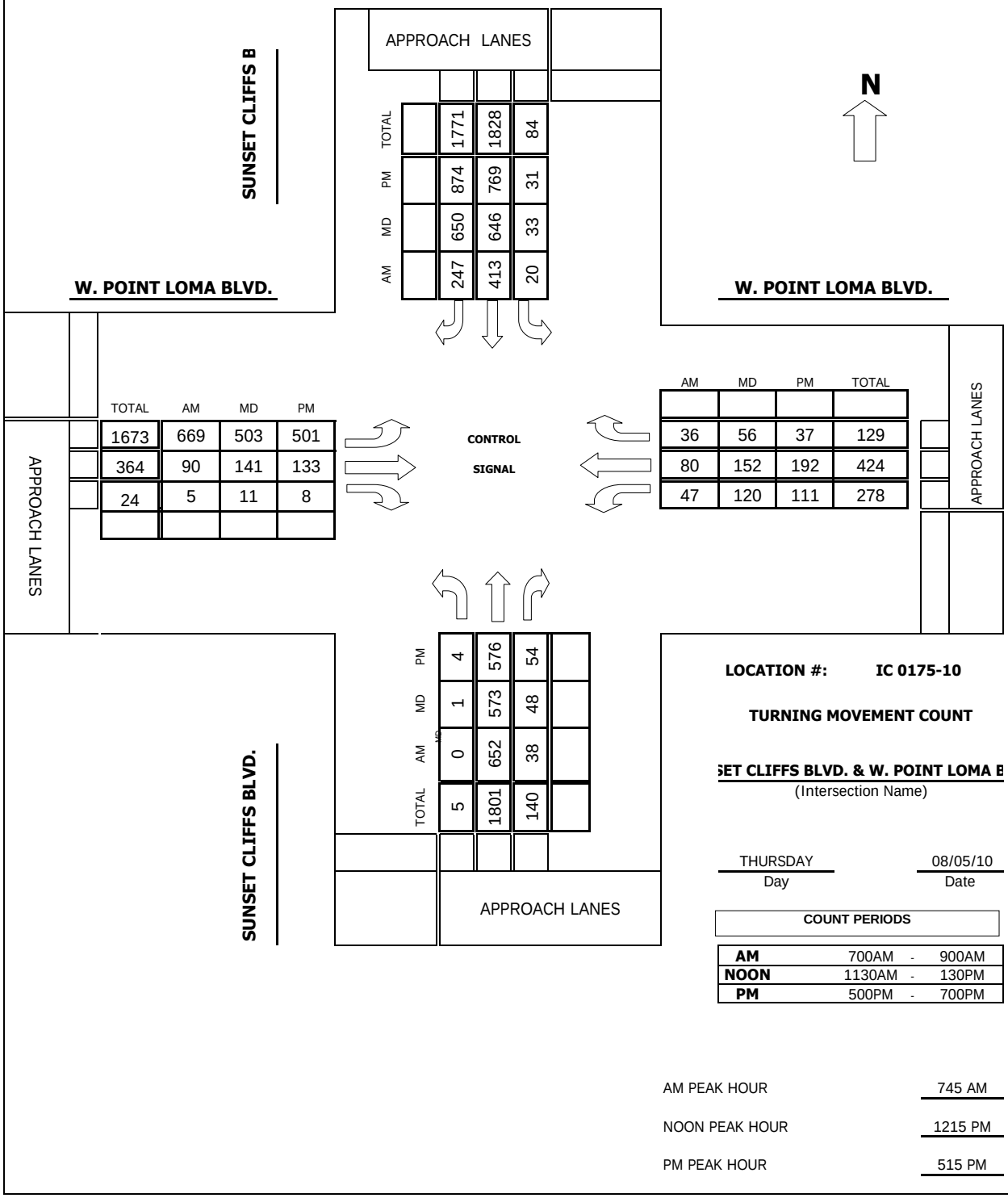


Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: IC 0175-10

TMC SUMMARY OF SUNSET CLIFFS BLVD. & W. POINT LOMA BLVD.



LOCATION #: IC 0175-10

TURNING MOVEMENT COUNT

SET CLIFFS BLVD. & W. POINT LOMA B
(Intersection Name)

THURSDAY (Day) 08/05/10 (Date)

COUNT PERIODS			
AM	700AM	-	900AM
NOON	1130AM	-	130PM
PM	500PM	-	700PM

AM PEAK HOUR 745 AM

NOON PEAK HOUR 1215 PM

PM PEAK HOUR 515 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

N-S STREET:	SUNSET CLIFFS BLVD.	DATE:	08/05/10	LOCATION:	SAN DIEGO
E-W STREET:	W. POINT LOMA BLVD.	DAY:	THURSDAY	PROJECT#	IC 0175-10

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	1	1	1	0	1	1	1	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	0	148	8	2	76	58	156	21	1	8	11	9	498
7:15 AM	0	152	11	5	89	54	147	29	2	5	7	5	506
7:30 AM	0	168	13	7	90	60	181	23	2	6	8	12	570
7:45 AM	0	184	8	4	105	65	157	28	1	12	19	9	592
8:00 AM	0	149	10	5	89	53	148	21	1	14	17	16	523
8:15 AM	0	159	11	4	109	55	167	17	2	10	20	5	559
8:30 AM	0	160	9	7	110	74	197	24	1	11	24	6	623
8:45 AM	0	148	8	6	98	59	185	24	1	9	21	5	564
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	1268	78	40	766	478	1338	187	11	75	127	67	4435
Approach %	0.00	94.21	5.79	3.12	59.66	37.23	87.11	12.17	0.72	27.88	47.21	24.91	
App/Depart	1346	/	2673	1284	/	852	1536	/	305	269	/	605	

AM Peak Hr Begins at: 745 AM

PEAK													
Volumes	0	652	38	20	413	247	669	90	5	47	80	36	2297
Approach %	0.00	94.49	5.51	2.94	60.74	36.32	87.57	11.78	0.65	28.83	49.08	22.09	
PEAK HR. FACTOR:		0.898			0.890			0.860			0.867		0.922

CONTROL: SIGNAL
COMMENT 1:
COMMENT 2:

Intersection Turning Movement

Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

N-S STREET:	SUNSET CLIFFS BLVD.	DATE:	08/05/10	LOCATION:	SAN DIEGO
E-W STREET:	W. POINT LOMA BLVD.	DAY:	THURSDAY	PROJECT#	IC 0175-10

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	1	1	1	0	1	1	1	
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM	2	150	27	7	148	132	123	30	4	23	28	14	688
11:45 AM	0	122	12	12	124	139	99	28	3	37	40	11	627
12:00 PM	1	127	23	17	140	133	119	30	0	25	41	9	665
12:15 PM	1	108	11	10	142	149	124	38	2	32	48	11	676
12:30 PM	0	157	12	8	174	156	112	21	3	29	31	9	712
12:45 PM	0	151	13	2	153	170	153	41	4	34	46	19	786
1:00 PM	0	157	12	13	177	175	114	41	2	25	27	17	760
1:15 PM	0	142	11	8	148	163	110	28	1	21	25	16	673
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	4	1114	121	77	1206	1217	954	257	19	226	286	106	5587
Approach %	0.32	89.91	9.77	3.08	48.24	48.68	77.56	20.89	1.54	36.57	46.28	17.15	
App/Depart	1239	/	2174	2500	/	1451	1230	/	455	618	/	1507	

NOON Peak Hr Begins at: 1215 PM

PEAK													
Volumes	1	573	48	33	646	650	503	141	11	120	152	56	2934
Approach %	0.16	92.12	7.72	2.48	48.61	48.91	76.79	21.53	1.68	36.59	46.34	17.07	
PEAK HR. FACTOR:		0.920			0.910			0.827			0.828		0.933

CONTROL: SIGNAL
COMMENT 1: 0
COMMENT 2: 0

HOURS:

	FROM:		TO:	
AM	700	AM	900	AM
NOON	1130	AM	130	PM
PM	500	PM	700	PM

Intersection Turning Movement

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

N-S STREET:	SUNSET CLIFFS BLVD.	DATE:	08/05/10	LOCATION:	SAN DIEGO
E-W STREET:	W. POINT LOMA BLVD.	DAY:	THURSDAY	PROJECT#	IC 0175-10

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	1	1	1	0	1	1	1	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM													
4:15 PM													
4:30 PM													
4:45 PM													
5:00 PM	0	128	11	8	182	223	118	47	6	25	52	8	808
5:15 PM	1	143	12	5	195	223	122	39	3	27	51	10	831
5:30 PM	0	148	18	6	194	216	136	29	2	30	38	10	827
5:45 PM	2	141	11	15	186	212	115	39	1	18	50	10	800
6:00 PM	1	144	13	5	194	223	128	26	2	36	53	7	832
6:15 PM	1	130	15	10	190	221	125	35	3	28	54	10	822
6:30 PM	3	137	13	9	200	204	114	37	4	33	52	6	812
6:45 PM	2	122	11	8	184	208	113	29	5	24	48	5	759

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	10	1093	104	66	1525	1730	971	281	26	221	398	66	6491
Approach %	0.83	90.56	8.62	1.99	45.92	52.09	75.98	21.99	2.03	32.26	58.10	9.64	
App/Depart	1207	/	2130	3321	/	1772	1278	/	451	685	/	2138	

PM Peak Hr Begins at: 515 PM

PEAK													
Volumes	4	576	54	31	769	874	501	133	8	111	192	37	3290
Approach %	0.63	90.85	8.52	1.85	45.94	52.21	78.04	20.72	1.25	32.65	56.47	10.88	
PEAK HR. FACTOR:		0.955			0.989			0.961			0.885		0.989

CONTROL:	SIGNAL
COMMENT 1:	0
COMMENT 2:	0

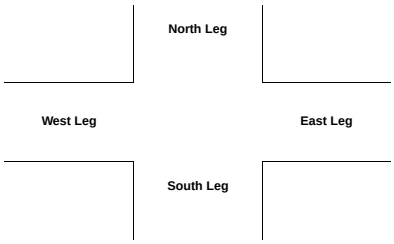
FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Pedestrian & Bicycle Study

Location: W. POINT LOMA BLVD. & SUNSET CLIFFS BLVD.
Date: 08/05/10
Day: THURSDAY
City: SAN DIEGO
Project #: IC 0175-10

	PEDESTRIANS			
	N-LEG	S-LEG	E-LEG	W-LEG
7:00 AM	0	0	0	0
7:15 AM	0	1	1	1
7:30 AM	0	1	0	1
7:45 AM	0	1	2	0
8:00 AM	0	2	5	2
8:15 AM	2	0	0	3
8:30 AM	1	4	1	2
8:45 AM	1	2	1	2
TOTAL	4	11	10	11

	BICYCLES			
	N-LEG	S-LEG	E-LEG	W-LEG
7:00 AM	0	0	0	0
7:15 AM	0	1	1	0
7:30 AM	0	0	2	0
7:45 AM	1	7	1	1
8:00 AM	0	0	0	1
8:15 AM	0	0	1	0
8:30 AM	0	1	1	1
8:45 AM	0	0	1	0
TOTAL	1	9	7	3



	PEDESTRIANS			
	N-LEG	S-LEG	E-LEG	W-LEG
11:30 AM	0	0	3	0
11:45 AM	4	2	5	0
12:00 PM	2	0	0	3
12:15 PM	2	0	0	2
12:30 PM	11	0	6	2
12:45 PM	3	0	5	0
1:00 PM	3	4	0	3
1:15 PM	2	1	1	2
TOTAL	27	7	20	12

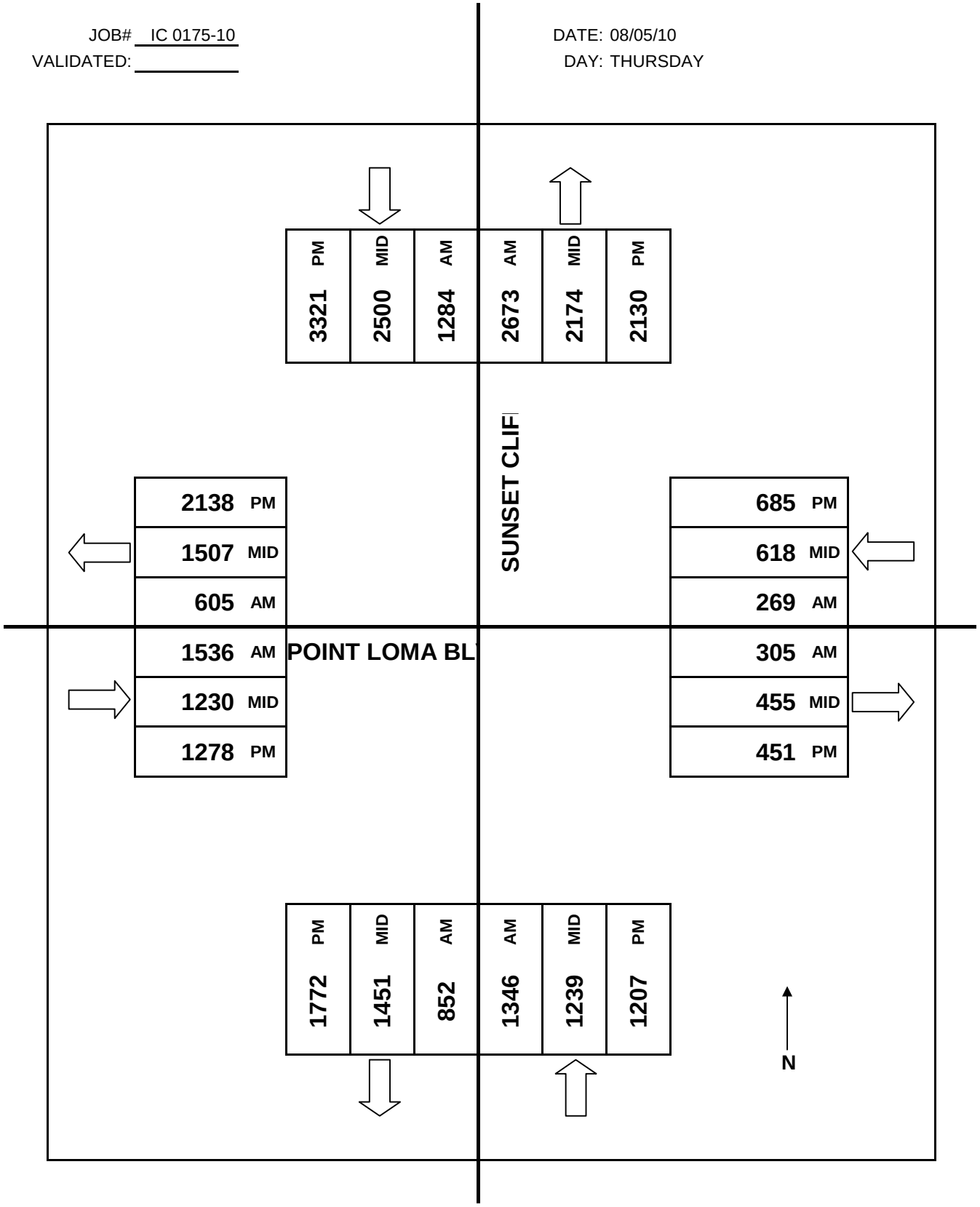
	BICYCLES			
	N-LEG	S-LEG	E-LEG	W-LEG
11:30 AM	0	4	1	7
11:45 AM	0	0	2	0
12:00 PM	0	0	0	2
12:15 PM	5	1	1	8
12:30 PM	1	0	2	0
12:45 PM	4	0	1	7
1:00 PM	2	8	0	7
1:15 PM	0	1	1	1
TOTAL	12	14	8	32

	PEDESTRIANS			
	N-LEG	S-LEG	E-LEG	W-LEG
5:00 PM	4	0	1	7
5:15 PM	4	3	3	2
5:30 PM	6	0	5	3
5:45 PM	4	10	1	0
6:00 PM	6	3	5	5
6:15 PM	5	1	5	4
6:30 PM	0	1	2	2
6:45 PM	2	1	2	1
TOTAL	31	19	24	24

	BICYCLES			
	N-LEG	S-LEG	E-LEG	W-LEG
5:00 PM	1	3	1	2
5:15 PM	0	3	1	3
5:30 PM	3	2	0	3
5:45 PM	1	2	0	3
6:00 PM	6	3	2	3
6:15 PM	5	0	0	0
6:30 PM	1	0	0	4
6:45 PM	1	1	1	2
TOTAL	18	14	5	20

JOB# IC 0175-10
VALIDATED:

DATE: 08/05/10
DAY: THURSDAY

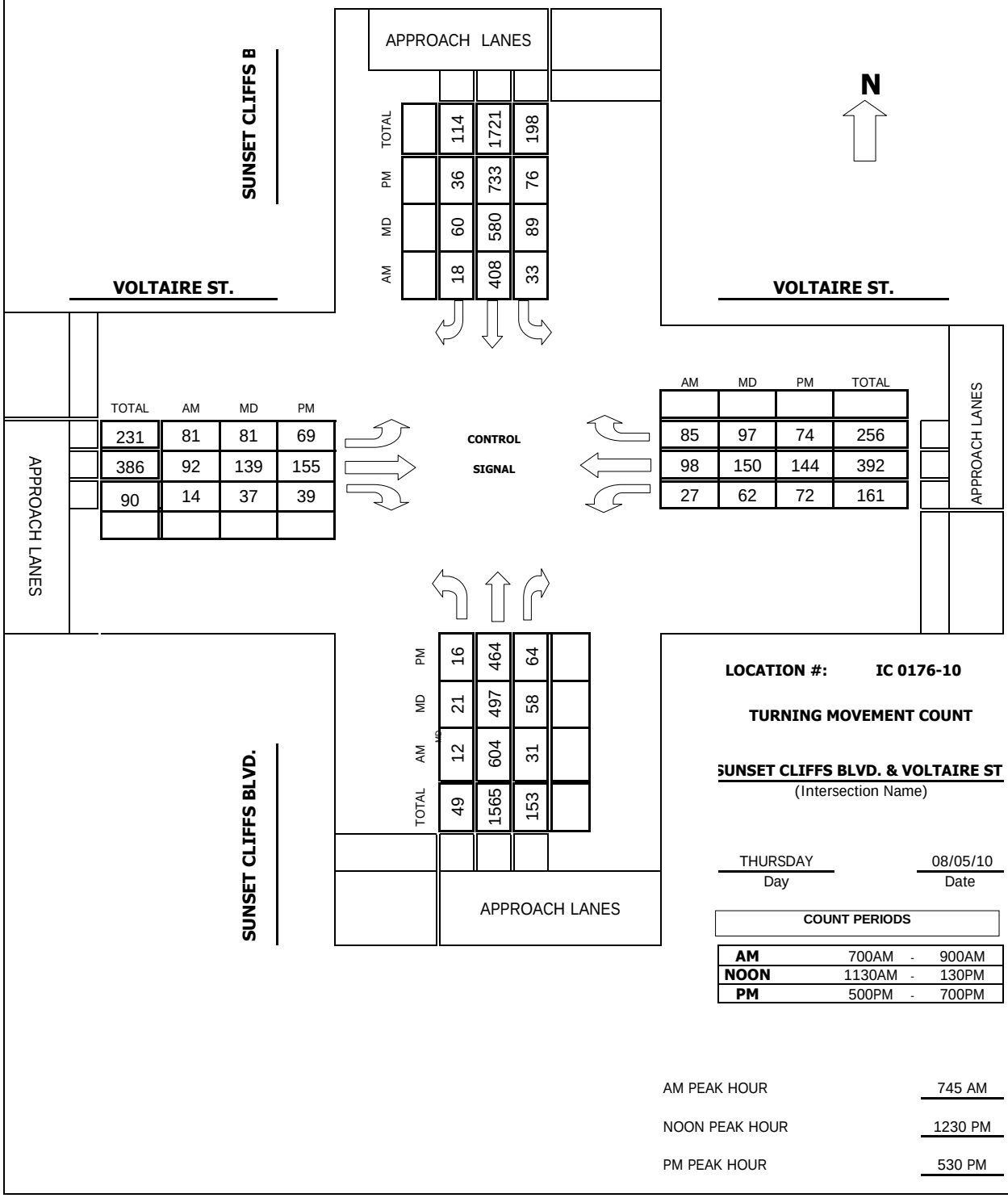


Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: IC 0176-10

TMC SUMMARY OF SUNSET CLIFFS BLVD. & VOLTAIRE ST.



LOCATION #: IC 0176-10

TURNING MOVEMENT COUNT

SUNSET CLIFFS BLVD. & VOLTAIRE ST
(Intersection Name)

THURSDAY (Day) 08/05/10 (Date)

COUNT PERIODS

AM	700AM	-	900AM
NOON	1130AM	-	130PM
PM	500PM	-	700PM

AM PEAK HOUR 745 AM

NOON PEAK HOUR 1230 PM

PM PEAK HOUR 530 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

N-S STREET:	SUNSET CLIFFS BLVD.	DATE:	08/05/10	LOCATION:	SAN DIEGO
E-W STREET:	VOLTAIRE ST.	DAY:	THURSDAY	PROJECT#	IC 0176-10

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	1	1	0	1	1	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	3	118	5	5	87	9	8	17	5	2	13	11	283
7:15 AM	2	123	7	7	85	5	11	19	2	3	18	19	301
7:30 AM	5	122	8	5	99	8	14	17	6	6	24	14	328
7:45 AM	2	147	9	8	90	7	24	20	3	9	28	24	371
8:00 AM	4	155	11	11	103	4	28	22	2	5	24	20	389
8:15 AM	1	139	7	9	111	5	16	26	5	8	25	22	374
8:30 AM	5	163	4	5	104	2	13	24	4	5	21	19	369
8:45 AM	2	123	8	7	96	5	18	28	7	8	19	21	342
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	24	1090	59	57	775	45	132	173	34	46	172	150	2757
Approach %	2.05	92.92	5.03	6.50	88.37	5.13	38.94	51.03	10.03	12.50	46.74	40.76	
App/Depart	1173	/	1372	877	/	855	339	/	289	368	/	241	

AM Peak Hr Begins at: 745 AM

PEAK													
Volumes	12	604	31	33	408	18	81	92	14	27	98	85	1503
Approach %	1.85	93.35	4.79	7.19	88.89	3.92	43.32	49.20	7.49	12.86	46.67	40.48	
PEAK HR. FACTOR:		0.940			0.918			0.899			0.861		0.966

CONTROL: SIGNAL
COMMENT 1:
COMMENT 2:

Intersection Turning Movement

Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

N-S STREET:	SUNSET CLIFFS BLVD.	DATE:	08/05/10	LOCATION:	SAN DIEGO
E-W STREET:	VOLTAIRE ST.	DAY:	THURSDAY	PROJECT#	IC 0176-10

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	1	1	0	1	1	0	
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM	7	123	13	19	150	12	20	31	14	20	27	22	458
11:45 AM	5	106	18	17	147	9	11	40	6	21	42	26	448
12:00 PM	2	125	18	17	149	10	15	23	8	18	36	19	440
12:15 PM	2	111	12	18	149	15	15	32	8	15	33	26	436
12:30 PM	7	120	13	25	140	15	18	34	9	12	37	26	456
12:45 PM	6	134	11	20	135	17	22	30	10	19	34	29	467
1:00 PM	5	127	24	23	155	19	18	40	9	8	36	23	487
1:15 PM	3	116	10	21	150	9	23	35	9	23	43	19	461
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	37	962	119	160	1175	106	142	265	73	136	288	190	3653
Approach %	3.31	86.05	10.64	11.10	81.54	7.36	29.58	55.21	15.21	22.15	46.91	30.94	
App/Depart	1118	/	1294	1441	/	1384	480	/	544	614	/	431	

NOON Peak Hr Begins at: 1230 PM

PEAK													
Volumes	21	497	58	89	580	60	81	139	37	62	150	97	1871
Approach %	3.65	86.28	10.07	12.21	79.56	8.23	31.52	54.09	14.40	20.06	48.54	31.39	
PEAK HR. FACTOR:		0.923			0.925			0.959			0.909		0.960

CONTROL: SIGNAL
COMMENT 1: 0
COMMENT 2: 0

HOURS:

	FROM:		TO:	
AM	700	AM	900	AM
NOON	1130	AM	130	PM
PM	500	PM	700	PM

Intersection Turning Movement

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

N-S STREET:	SUNSET CLIFFS BLVD.	DATE:	08/05/10	LOCATION:	SAN DIEGO
E-W STREET:	VOLTAIRE ST.	DAY:	THURSDAY	PROJECT#	IC 0176-10

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	1	1	0	1	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM													
4:15 PM													
4:30 PM													
4:45 PM													
5:00 PM	3	110	16	26	180	4	9	45	9	16	40	18	476
5:15 PM	4	118	12	12	183	4	6	46	3	12	31	2	433
5:30 PM	4	117	23	23	167	4	20	41	10	25	25	14	473
5:45 PM	5	124	13	15	174	12	20	42	10	21	38	15	489
6:00 PM	4	112	13	17	206	9	16	36	8	11	41	36	509
6:15 PM	3	111	15	21	186	11	13	36	11	15	40	9	471
6:30 PM	4	111	17	26	191	5	9	38	1	8	31	21	462
6:45 PM	4	111	9	22	198	7	12	35	7	17	40	27	489

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	31	914	118	162	1485	56	105	319	59	125	286	142	3802
Approach %	2.92	85.98	11.10	9.51	87.20	3.29	21.74	66.05	12.22	22.60	51.72	25.68	
App/Depart	1063	/	1161	1703	/	1669	483	/	599	553	/	373	

PM Peak Hr Begins at: 530 PM

PEAK													
Volumes	16	464	64	76	733	36	69	155	39	72	144	74	1942
Approach %	2.94	85.29	11.76	8.99	86.75	4.26	26.24	58.94	14.83	24.83	49.66	25.52	

PEAK HR. FACTOR:	0.944	0.911	0.913	0.824	0.954

CONTROL:	SIGNAL
COMMENT 1:	0
COMMENT 2:	0

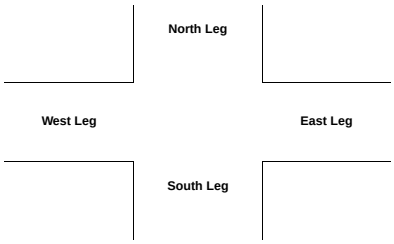
FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Pedestrian & Bicycle Study

Location: VOLTAIRE ST. & SUNSET CLIFFS BLVD.
Date: 08/05/10
Day: THURSDAY
City: SAN DIEGO
Project #: IC 0176-10

	PEDESTRIANS			
	N-LEG	S-LEG	E-LEG	W-LEG
7:00 AM	1	0	0	3
7:15 AM	1	0	1	2
7:30 AM	2	2	0	1
7:45 AM	2	1	1	0
8:00 AM	0	0	2	1
8:15 AM	0	0	1	2
8:30 AM	0	6	2	1
8:45 AM	0	1	1	0
TOTAL	6	10	8	10

	BICYCLES			
	N-LEG	S-LEG	E-LEG	W-LEG
7:00 AM	0	0	1	0
7:15 AM	0	0	0	0
7:30 AM	0	1	1	0
7:45 AM	3	2	2	0
8:00 AM	1	1	1	0
8:15 AM	1	0	0	1
8:30 AM	2	0	0	2
8:45 AM	0	1	1	0
TOTAL	7	5	6	3



	PEDESTRIANS			
	N-LEG	S-LEG	E-LEG	W-LEG
11:30 AM	0	13	4	2
11:45 AM	1	5	6	3
12:00 PM	6	11	0	3
12:15 PM	1	14	4	1
12:30 PM	3	4	5	1
12:45 PM	2	5	2	3
1:00 PM	3	10	4	3
1:15 PM	0	15	7	2
TOTAL	16	77	32	18

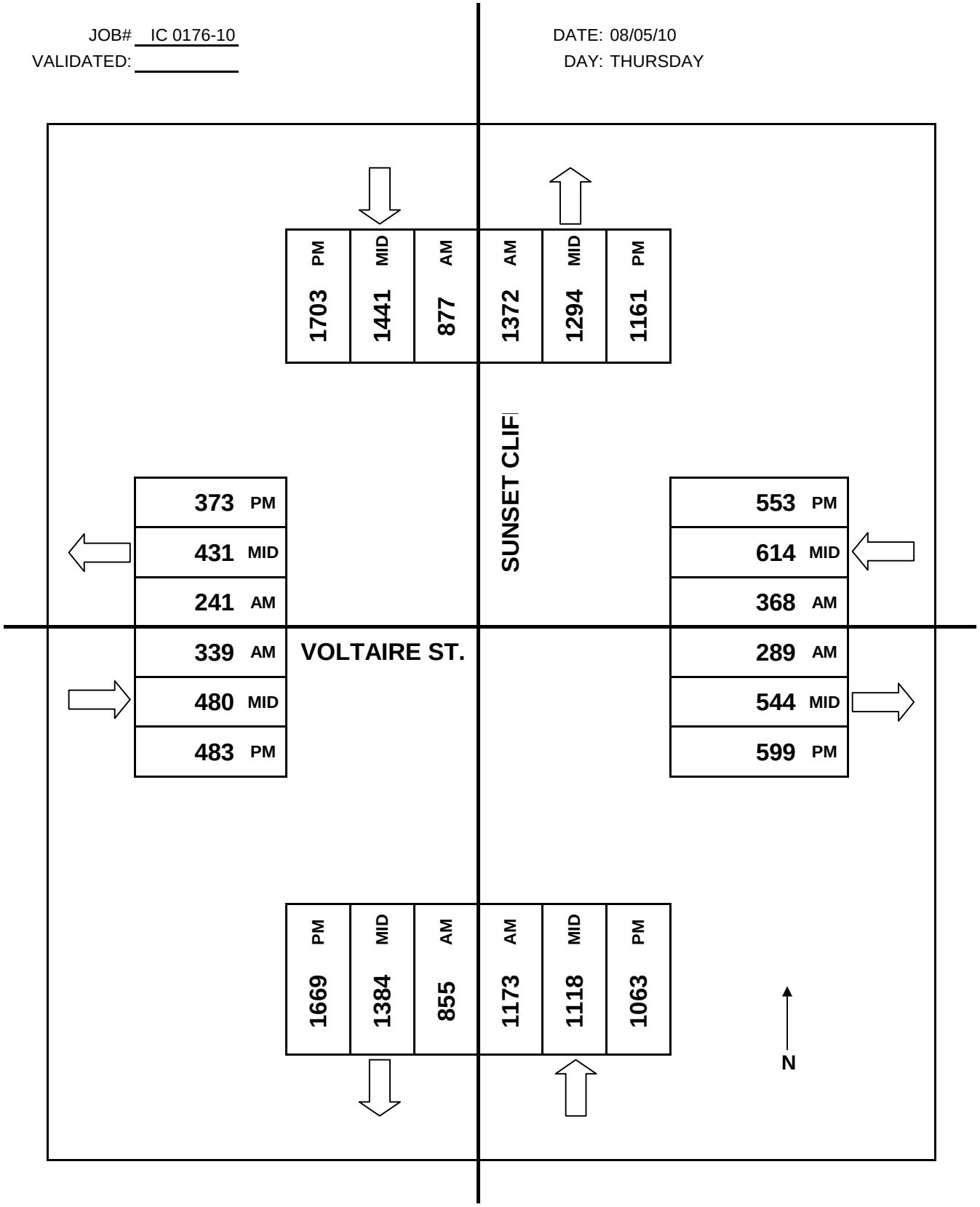
	BICYCLES			
	N-LEG	S-LEG	E-LEG	W-LEG
11:30 AM	2	3	3	2
11:45 AM	1	2	1	0
12:00 PM	1	3	2	2
12:15 PM	4	4	2	8
12:30 PM	0	7	5	1
12:45 PM	3	4	1	3
1:00 PM	3	6	4	3
1:15 PM	3	4	0	3
TOTAL	17	33	18	22

	PEDESTRIANS			
	N-LEG	S-LEG	E-LEG	W-LEG
5:00 PM	2	12	4	3
5:15 PM	3	10	4	2
5:30 PM	3	17	0	2
5:45 PM	1	18	4	2
6:00 PM	1	14	9	1
6:15 PM	6	18	14	3
6:30 PM	6	18	10	5
6:45 PM	8	10	5	5
TOTAL	30	117	50	23

	BICYCLES			
	N-LEG	S-LEG	E-LEG	W-LEG
5:00 PM	2	4	1	1
5:15 PM	0	8	2	2
5:30 PM	1	12	2	2
5:45 PM	2	2	2	4
6:00 PM	3	7	1	4
6:15 PM	2	5	0	2
6:30 PM	10	6	1	5
6:45 PM	6	5	4	5
TOTAL	26	49	13	25

JOB# IC 0176-10
VALIDATED: _____

DATE: 08/05/10
DAY: THURSDAY

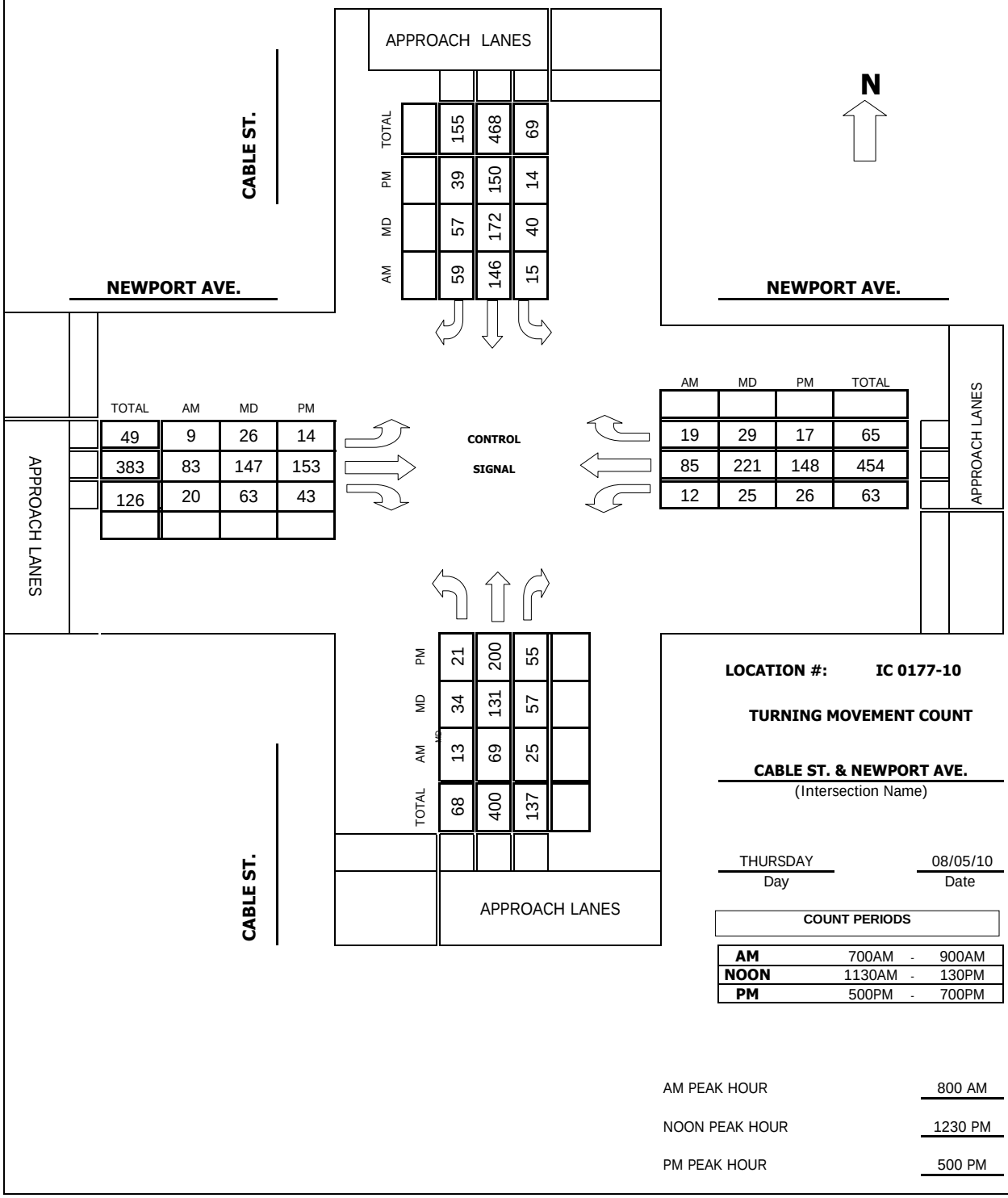


Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: IC 0177-10

TMC SUMMARY OF CABLE ST. & NEWPORT AVE.



LOCATION #: IC 0177-10

TURNING MOVEMENT COUNT

CABLE ST. & NEWPORT AVE.
(Intersection Name)

THURSDAY (Day) 08/05/10 (Date)

COUNT PERIODS

AM	700AM	-	900AM
NOON	1130AM	-	130PM
PM	500PM	-	700PM

AM PEAK HOUR	800 AM
NOON PEAK HOUR	1230 PM
PM PEAK HOUR	500 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

N-S STREET:	CABLE ST.	DATE:	08/05/10	LOCATION:	SAN DIEGO
E-W STREET:	NEWPORT AVE.	DAY:	THURSDAY	PROJECT#	IC 0177-10

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	1	12	2	5	26	8	1	14	3	3	16	0	91
7:15 AM	2	5	7	5	28	8	0	18	2	2	18	2	97
7:30 AM	3	12	1	4	25	15	0	19	7	4	16	1	107
7:45 AM	2	18	6	5	41	18	0	18	5	5	19	4	141
8:00 AM	4	15	8	1	40	10	3	12	4	3	13	3	116
8:15 AM	4	14	3	2	33	14	2	26	7	5	22	4	136
8:30 AM	2	14	7	4	40	21	1	12	2	1	22	5	131
8:45 AM	3	26	7	8	33	14	3	33	7	3	28	7	172
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	21	116	41	34	266	108	10	152	37	26	154	26	991
Approach %	11.80	65.17	23.03	8.33	65.20	26.47	5.03	76.38	18.59	12.62	74.76	12.62	
App/Depart	178	/	152	408	/	329	199	/	227	206	/	283	

AM Peak Hr Begins at: 800 AM

PEAK													
Volumes	13	69	25	15	146	59	9	83	20	12	85	19	555
Approach %	12.15	64.49	23.36	6.82	66.36	26.82	8.04	74.11	17.86	10.34	73.28	16.38	
PEAK HR. FACTOR:		0.743			0.846			0.651			0.763		0.807

CONTROL: SIGNAL
COMMENT 1:
COMMENT 2:

Intersection Turning Movement

Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

N-S STREET:	CABLE ST.	DATE:	08/05/10	LOCATION:	SAN DIEGO
E-W STREET:	NEWPORT AVE.	DAY:	THURSDAY	PROJECT#	IC 0177-10

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM	3	41	11	7	52	13	5	31	14	8	54	5	244
11:45 AM	5	28	12	8	33	13	7	50	13	5	49	2	225
12:00 PM	7	35	7	6	37	9	7	43	12	7	44	9	223
12:15 PM	4	24	5	4	35	11	7	40	10	10	61	4	215
12:30 PM	11	35	16	18	40	13	6	40	15	8	55	12	269
12:45 PM	10	40	12	5	43	17	6	31	18	6	53	3	244
1:00 PM	8	23	15	3	45	11	6	34	16	8	55	4	228
1:15 PM	5	33	14	14	44	16	8	42	14	3	58	10	261
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	53	259	92	65	329	103	52	311	112	55	429	49	1909
Approach %	13.12	64.11	22.77	13.08	66.20	20.72	10.95	65.47	23.58	10.32	80.49	9.19	
App/Depart	404	/	360	497	/	496	475	/	468	533	/	585	

NOON Peak Hr Begins at: 1230 PM

PEAK													
Volumes	34	131	57	40	172	57	26	147	63	25	221	29	1002
Approach %	15.32	59.01	25.68	14.87	63.94	21.19	11.02	62.29	26.69	9.09	80.36	10.55	
PEAK HR. FACTOR:		0.895			0.909			0.922			0.917		0.931

CONTROL: SIGNAL
COMMENT 1: 0
COMMENT 2: 0

HOURS:

	FROM:		TO:	
AM	700	AM	900	AM
NOON	1130	AM	130	PM
PM	500	PM	700	PM

Intersection Turning Movement

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

N-S STREET:	CABLE ST.	DATE:	08/05/10	LOCATION:	SAN DIEGO
E-W STREET:	NEWPORT AVE.	DAY:	THURSDAY	PROJECT#	IC 0177-10

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM													
4:15 PM													
4:30 PM													
4:45 PM													
5:00 PM	11	49	15	2	50	5	7	34	15	8	44	4	244
5:15 PM	3	53	19	3	34	5	3	33	9	6	35	4	207
5:30 PM	2	56	8	5	35	14	3	39	10	4	38	4	218
5:45 PM	5	42	13	4	31	15	1	47	9	8	31	5	211
6:00 PM	7	46	10	3	36	4	2	32	14	7	38	4	203
6:15 PM	3	43	8	6	38	12	6	37	11	4	26	5	199
6:30 PM	6	45	28	1	23	6	0	38	6	6	40	8	207
6:45 PM	9	41	21	5	43	11	4	42	6	7	36	7	232

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	46	375	122	29	290	72	26	302	80	50	288	41	1721
Approach %	8.47	69.06	22.47	7.42	74.17	18.41	6.37	74.02	19.61	13.19	75.99	10.82	
App/Depart	543	/	442	391	/	420	408	/	453	379	/	406	

PM Peak Hr Begins at: 500 PM

PEAK													
Volumes	21	200	55	14	150	39	14	153	43	26	148	17	880
Approach %	7.61	72.46	19.93	6.90	73.89	19.21	6.67	72.86	20.48	13.61	77.49	8.90	
PEAK HR. FACTOR:		0.920			0.890			0.921			0.853		0.902

CONTROL: SIGNAL
COMMENT 1: 0
COMMENT 2: 0

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Pedestrian & Bicycle Study

Location: CABLE ST. & NEWPORT AVE.

Date: 08/05/10
Day: THURSDAY

City: SAN DIEGO
Project #: IC 0177-10

	PEDESTRIANS			
	N-LEG	S-LEG	E-LEG	W-LEG
7:00 AM	3	1	0	1
7:15 AM	15	4	5	6
7:30 AM	10	5	5	0
7:45 AM	7	0	0	1
8:00 AM	10	8	1	5
8:15 AM	1	4	9	1
8:30 AM	10	8	0	3
8:45 AM	6	6	3	2
TOTAL	**62**	**36**	**23**	**19**

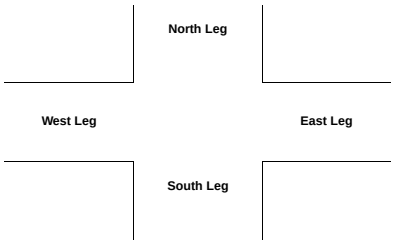
	BICYCLES			
	N-LEG	S-LEG	E-LEG	W-LEG
7:00 AM	0	1	1	1
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	0	0	2	3
8:00 AM	0	1	0	0
8:15 AM	1	1	1	5
8:30 AM	5	1	0	2
8:45 AM	3	1	1	2
TOTAL	**9**	**5**	**5**	**13**

	PEDESTRIANS			
	N-LEG	S-LEG	E-LEG	W-LEG
11:30 AM	36	42	20	12
11:45 AM	26	53	28	15
12:00 PM	32	40	32	27
12:15 PM	10	45	28	5
12:30 PM	30	51	31	12
12:45 PM	39	62	26	14
1:00 PM	36	63	19	18
1:15 PM	36	47	23	16
TOTAL	**245**	**403**	**207**	**119**

	BICYCLES			
	N-LEG	S-LEG	E-LEG	W-LEG
11:30 AM	5	2	4	6
11:45 AM	3	0	1	2
12:00 PM	2	2	0	2
12:15 PM	0	1	4	4
12:30 PM	3	3	5	4
12:45 PM	1	4	4	3
1:00 PM	2	1	2	4
1:15 PM	1	3	1	3
TOTAL	**17**	**16**	**21**	**28**

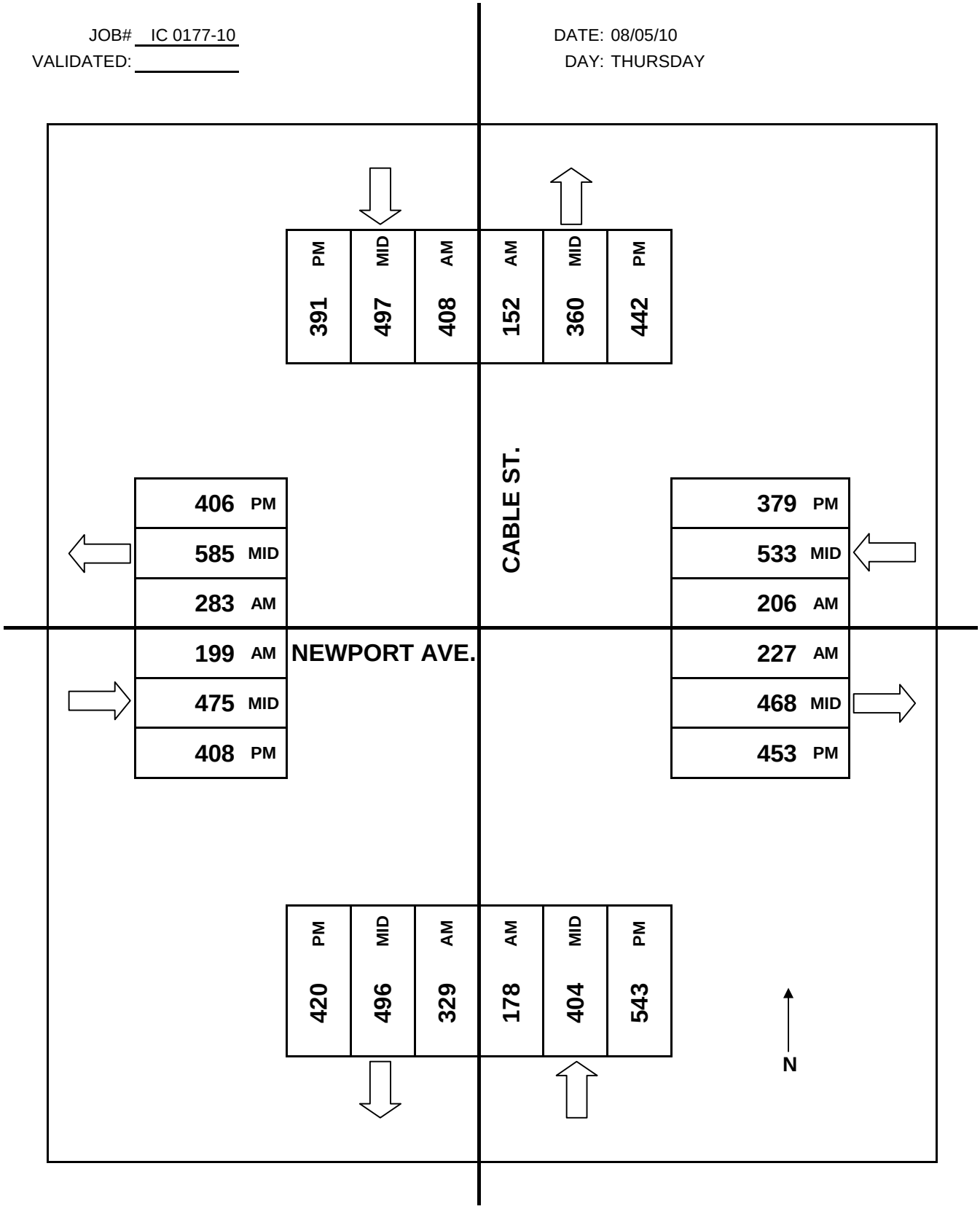
	PEDESTRIANS			
	N-LEG	S-LEG	E-LEG	W-LEG
5:00 PM	35	40	20	13
5:15 PM	28	83	20	29
5:30 PM	36	45	19	20
5:45 PM	43	31	24	21
6:00 PM	21	53	39	10
6:15 PM	36	64	14	10
6:30 PM	37	32	24	11
6:45 PM	22	52	28	21
TOTAL	**258**	**400**	**188**	**135**

	BICYCLES			
	N-LEG	S-LEG	E-LEG	W-LEG
5:00 PM	2	4	3	6
5:15 PM	4	1	4	3
5:30 PM	1	3	5	6
5:45 PM	2	0	6	1
6:00 PM	2	3	4	4
6:15 PM	2	7	2	3
6:30 PM	1	2	2	5
6:45 PM	5	1	4	5
TOTAL	**19**	**21**	**30**	**33**



JOB# IC 0177-10
VALIDATED: _____

DATE: 08/05/10
DAY: THURSDAY

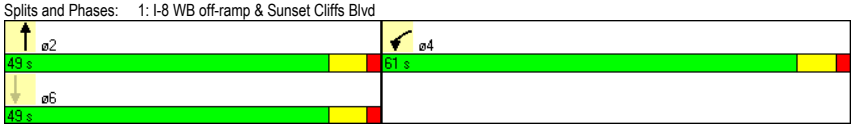


Appendix J
Intersection LOS Worksheets

Lane Group	WBL	NBT	SBT
Lane Configurations			
Volume (vph)	2005	1505	940
Turn Type			
Protected Phases	4	2	
Permitted Phases			6
Detector Phase	4	2	6
Switch Phase			
Minimum Initial (s)	5.0	5.0	5.0
Minimum Split (s)	30.0	25.0	25.0
Total Split (s)	61.0	49.0	49.0
Total Split (%)	55.5%	44.5%	44.5%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	C-Max	C-Max
Act Effct Green (s)	54.0	42.0	42.0
Actuated g/C Ratio	0.49	0.38	0.38
v/c Ratio	1.30	1.21	0.76
Control Delay	166.5	133.8	34.0
Queue Delay	0.0	0.0	0.0
Total Delay	166.5	133.8	34.0
LOS	F	F	C
Approach Delay	166.5	133.8	34.0
Approach LOS	F	F	C

Intersection Summary			
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.30			
Intersection Signal Delay: 127.6		Intersection LOS: F	
Intersection Capacity Utilization 110.9%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 1: I-8 WB off-ramp & Sunset Cliffs Blvd



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	2005	15	1505	0	0	940
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0		7.0			7.0
Lane Util. Factor	0.97		0.95			0.95
Frpb, ped/bikes	1.00		1.00			1.00
Flpb, ped/bikes	1.00		1.00			1.00
Frt	1.00		1.00			1.00
Flt Protected	0.95		1.00			1.00
Satd. Flow (prot)	3439		3539			3539
Flt Permitted	0.95		1.00			1.00
Satd. Flow (perm)	3439		3539			3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2179	16	1636	0	0	1022
RTOR Reduction (vph)	1	0	0	0	0	0
Lane Group Flow (vph)	2194	0	1636	0	0	1022
Confl. Peds. (#/hr)		1				
Turn Type						
Protected Phases	4		2			
Permitted Phases						6
Actuated Green, G (s)	54.0		42.0			42.0
Effective Green, g (s)	54.0		42.0			42.0
Actuated g/C Ratio	0.49		0.38			0.38
Clearance Time (s)	7.0		7.0			7.0
Vehicle Extension (s)	3.0		3.0			3.0
Lane Grp Cap (vph)	1688		1351			1351
v/s Ratio Prot	c0.64		c0.46			
v/s Ratio Perm						0.29
v/c Ratio	1.30		1.21			0.76
Uniform Delay, d1	28.0		34.0			29.6
Progression Factor	1.00		1.00			1.00
Incremental Delay, d2	139.5		102.0			4.0
Delay (s)	167.5		136.0			33.5
Level of Service	F		F			C
Approach Delay (s)	167.5		136.0			33.5
Approach LOS	F		F			C

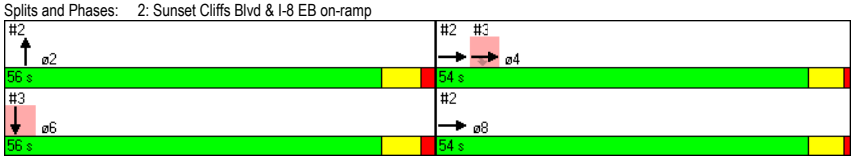
Intersection Summary			
HCM Average Control Delay	128.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.26		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	110.9%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	NBT	ø4	ø6	ø8
Lane Configurations					
Volume (vph)	1065	1090			
Turn Type					
Protected Phases	4 8	2	4	6	8
Permitted Phases					
Detector Phase	4	2			
Switch Phase	8				
Minimum Initial (s)		10.0	10.0	10.0	5.0
Minimum Split (s)		27.0	22.5	21.5	22.5
Total Split (s)	108.0	56.0	54.0	56.0	54.0
Total Split (%)	98.2%	50.9%	49%	51%	49%
Yellow Time (s)		5.0	4.5	5.0	4.5
All-Red Time (s)		2.0	1.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0			
Total Lost Time (s)	5.5	7.0			
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode		C-Max	None	C-Min	None
Act Effct Green (s)	48.5	49.0			
Actuated g/C Ratio	0.44	0.45			
v/c Ratio	1.24	0.75			
Control Delay	148.2	29.2			
Queue Delay	187.0	0.0			
Total Delay	335.1	29.2			
LOS	F	C			
Approach Delay	335.1	29.2			
Approach LOS	F	C			

Intersection Summary			
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Yellow			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.41			
Intersection Signal Delay: 180.4		Intersection LOS: F	
Intersection Capacity Utilization 96.6%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 2: Sunset Cliffs Blvd & I-8 EB on-ramp



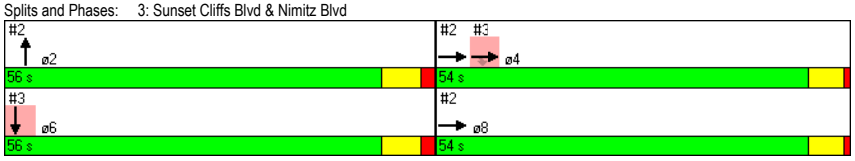
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1065	0	0	0	0	0	1090	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		5.5						7.0				
Lane Util. Factor		1.00						0.95				
Frpb, ped/bikes		1.00						1.00				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						1.00				
Flt Protected		1.00						1.00				
Satd. Flow (prot)		2111						3539				
Flt Permitted		1.00						1.00				
Satd. Flow (perm)		2111						3539				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1158	0	0	0	0	0	1185	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1158	0	0	0	0	0	1185	0	0	0	0
Confl. Bikes (#/hr)												2
Turn Type												
Protected Phases		4 8						2				
Permitted Phases												
Actuated Green, G (s)		48.5						49.0				
Effective Green, g (s)		48.5						49.0				
Actuated g/C Ratio		0.44						0.45				
Clearance Time (s)								7.0				
Vehicle Extension (s)								3.0				
Lane Grp Cap (vph)		931						1576				
v/s Ratio Prot		c0.55						c0.33				
v/s Ratio Perm												
v/c Ratio		1.24						0.75				
Uniform Delay, d1		30.8						25.4				
Progression Factor		1.00						1.00				
Incremental Delay, d2		118.8						3.4				
Delay (s)		149.6						28.8				
Level of Service		F						C				
Approach Delay (s)		149.6			0.0			28.8			0.0	
Approach LOS		F			A			C			A	

Intersection Summary					
HCM Average Control Delay	88.5	HCM Level of Service	F		
HCM Volume to Capacity ratio	1.00				
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.5		
Intersection Capacity Utilization	96.6%	ICU Level of Service	F		
Analysis Period (min)	15				
c Critical Lane Group					

Lane Group	EBT	EBR	SBT	ø2	ø8
Lane Configurations					
Volume (vph)	1965	15	2050		
Turn Type		Perm			
Protected Phases	4		6	2	8
Permitted Phases		4			
Detector Phase	4	4	6		
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0
Minimum Split (s)	22.5	22.5	21.5	27.0	22.5
Total Split (s)	54.0	54.0	56.0	56.0	54.0
Total Split (%)	49.1%	49.1%	50.9%	51%	49%
Yellow Time (s)	4.5	4.5	5.0	5.0	4.5
All-Red Time (s)	1.0	1.0	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		
Total Lost Time (s)	5.5	5.5	7.0		
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	C-Min	C-Max	None
Act Effct Green (s)	48.5	48.5	49.0		
Actuated g/C Ratio	0.44	0.44	0.45		
v/c Ratio	1.37	0.02	1.41		
Control Delay	198.5	16.9	217.7		
Queue Delay	0.0	0.0	0.0		
Total Delay	198.5	16.9	217.7		
LOS	F	B	F		
Approach Delay	197.2		217.7		
Approach LOS	F		F		

Intersection Summary			
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Yellow			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.41			
Intersection Signal Delay: 207.6		Intersection LOS: F	
Intersection Capacity Utilization 121.4%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 3: Sunset Cliffs Blvd & Nimitz Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1965	15	0	0	0	0	0	0	0	2050	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	12	12	12	12	12	12	12	12	12
Total Lost time (s)		5.5	5.5								7.0	
Lane Util. Factor		0.95	1.00								0.95	
Frt		1.00	0.85								1.00	
Flt Protected		1.00	1.00								1.00	
Satd. Flow (prot)		3539	1478								3539	
Flt Permitted		1.00	1.00								1.00	
Satd. Flow (perm)		3539	1478								3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2136	16	0	0	0	0	0	0	0	2228	0
RTOR Reduction (vph)	0	0	1	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2136	15	0	0	0	0	0	0	0	2228	0
Turn Type			Perm									
Protected Phases		4									6	
Permitted Phases			4									
Actuated Green, G (s)		48.5	48.5								49.0	
Effective Green, g (s)		48.5	48.5								49.0	
Actuated g/C Ratio		0.44	0.44								0.45	
Clearance Time (s)		5.5	5.5								7.0	
Vehicle Extension (s)		3.0	3.0								3.0	
Lane Grp Cap (vph)		1560	652								1576	
v/s Ratio Prot		c0.60									c0.63	
v/s Ratio Perm			0.01									
v/c Ratio		1.37	0.02								1.41	
Uniform Delay, d1		30.8	17.4								30.5	
Progression Factor		1.00	1.00								1.00	
Incremental Delay, d2		170.3	0.0								190.0	
Delay (s)		201.1	17.4								220.5	
Level of Service		F	B								F	
Approach Delay (s)		199.7			0.0			0.0			220.5	
Approach LOS		F			A			A			F	

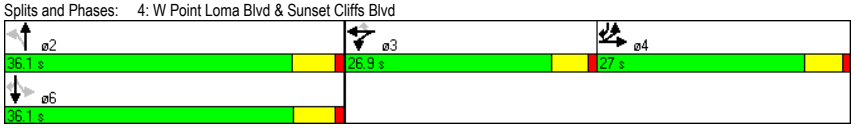
Intersection Summary					
HCM Average Control Delay		210.3	HCM Level of Service		F
HCM Volume to Capacity ratio		1.39			
Actuated Cycle Length (s)		110.0	Sum of lost time (s)		12.5
Intersection Capacity Utilization		121.4%	ICU Level of Service		H
Analysis Period (min)		15			

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Volume (vph)	845	115	55	70	105	5	905	20	765	185
Turn Type	Split		Split		Perm	Perm		Perm		pm+ov
Protected Phases	4	4	3	3			2		6	4
Permitted Phases					3	2		6		6
Detector Phase	4	4	3	3	3	2	2	6	6	4
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	7.0	7.0	7.0	7.0	4.0
Minimum Split (s)	24.9	24.9	26.9	26.9	26.9	26.5	26.5	27.4	27.4	24.9
Total Split (s)	27.0	27.0	26.9	26.9	26.9	36.1	36.1	36.1	36.1	27.0
Total Split (%)	30.0%	30.0%	29.9%	29.9%	29.9%	40.1%	40.1%	40.1%	40.1%	30.0%
Yellow Time (s)	3.9	3.9	3.9	3.9	3.9	4.5	4.5	4.4	4.4	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.9	4.9	4.9	4.9	4.9	5.5	5.5	5.4	5.4	4.9
Lead/Lag	Lag	Lag	Lead	Lead	Lead					Lag
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	None
Act Effct Green (s)	22.1	22.1	12.2	12.2	12.2	40.4	40.4	40.5	40.5	63.1
Actuated g/C Ratio	0.25	0.25	0.14	0.14	0.14	0.45	0.45	0.45	0.45	0.70
v/c Ratio	1.36	1.41	0.27	0.30	0.60	0.06	1.37	0.28	0.99	0.21
Control Delay	207.7	230.2	35.1	35.6	43.1	25.2	195.1	32.1	57.3	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	207.7	230.2	35.1	35.6	43.1	25.2	195.1	32.1	57.3	1.4
LOS	F	F	D	D	D	C	F	C	E	A
Approach Delay		219.0		38.9			194.3		46.2	
Approach LOS		F		D			F		D	

Intersection Summary			
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.41			
Intersection Signal Delay: 144.4		Intersection LOS: F	
Intersection Capacity Utilization 98.4%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 4: W Point Loma Blvd & Sunset Cliffs Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	845	115	10	55	70	105	5	905	35	20	765	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	10	12	10	10	12	12	10	12	10
Total Lost time (s)	4.9	4.9		4.9	4.9	4.9	5.5	5.5		5.4	5.4	4.9
Lane Util. Factor	0.95	0.95		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	0.96		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1569	1530		1652	1863	1302	1652	1666		1652	1863	1301
Flt Permitted	0.95	0.96		0.95	1.00	1.00	0.10	1.00		0.10	1.00	1.00
Satd. Flow (perm)	1569	1530		1652	1863	1302	172	1666		172	1863	1301
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	918	125	11	60	76	114	5	984	38	22	832	201
RTOR Reduction (vph)	0	1	0	0	0	13	0	1	0	0	0	61
Lane Group Flow (vph)	523	530	0	60	76	101	5	1021	0	22	832	140
Confl. Peds. (#/hr)			5			6	6					6
Confl. Bikes (#/hr)			1			1			4			1
Parking (#/hr)		0				0		0				0
Turn Type	Split			Split		Perm	Perm			Perm		pm+ov
Protected Phases	4	4		3	3			2			6	4
Permitted Phases						3	2			6		6
Actuated Green, G (s)	22.1	22.1		12.2	12.2	12.2	40.4	40.4		40.5	40.5	62.6
Effective Green, g (s)	22.1	22.1		12.2	12.2	12.2	40.4	40.4		40.5	40.5	62.6
Actuated g/C Ratio	0.25	0.25		0.14	0.14	0.14	0.45	0.45		0.45	0.45	0.70
Clearance Time (s)	4.9	4.9		4.9	4.9	4.9	5.5	5.5		5.4	5.4	4.9
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	385	376		224	253	176	77	748		77	838	976
v/s Ratio Prot	0.33	c0.35		0.04	0.04			c0.61			0.45	0.04
v/s Ratio Perm						c0.08	0.03			0.13		0.07
v/c Ratio	1.36	1.41		0.27	0.30	0.57	0.06	1.36		0.29	0.99	0.14
Uniform Delay, d1	34.0	34.0		34.9	35.1	36.5	14.1	24.8		15.6	24.6	4.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.26	0.99		1.00	1.00	1.00
Incremental Delay, d2	177.4	199.8		0.2	0.2	2.8	0.9	169.2		9.1	29.4	0.0
Delay (s)	211.4	233.8		35.1	35.3	39.3	18.6	193.6		24.7	54.0	4.7
Level of Service	F	F		D	D	D	B	F		C	D	A
Approach Delay (s)		222.6			37.1			192.8			44.0	
Approach LOS		F			D			F			D	

Intersection Summary					
HCM Average Control Delay	144.2	HCM Level of Service		F	
HCM Volume to Capacity ratio	1.25				
Actuated Cycle Length (s)	90.0	Sum of lost time (s)		15.3	
Intersection Capacity Utilization	98.4%	ICU Level of Service		F	
Analysis Period (min)	15				
c Critical Lane Group					

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Volume (vph)	25	120	85	100	15	855	70	680
Turn Type	Perm		Perm		Perm		Perm	
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	7.0	7.0	7.0	7.0
Minimum Split (s)	26.0	26.0	22.0	22.0	27.0	27.0	28.0	28.0
Total Split (s)	26.0	26.0	26.0	26.0	64.0	64.0	64.0	64.0
Total Split (%)	28.9%	28.9%	28.9%	28.9%	71.1%	71.1%	71.1%	71.1%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	15.1	15.1	15.1	15.1	66.9	66.9	66.9	66.9
Actuated g/C Ratio	0.17	0.17	0.17	0.17	0.74	0.74	0.74	0.74
v/c Ratio	0.17	0.73	0.84	0.51	0.04	0.87	0.37	0.60
Control Delay	31.8	43.7	85.7	34.9	4.7	19.7	4.3	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3
Total Delay	31.8	43.7	85.7	34.9	4.7	19.7	4.3	5.0
LOS	C	D	F	C	A	B	A	A
Approach Delay		42.3		54.5		19.5		5.0
Approach LOS		D		D		B		A

Intersection Summary			
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 20.3		Intersection LOS: C	
Intersection Capacity Utilization 83.9%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 5: Voltaire St & Sunset Cliffs Blvd

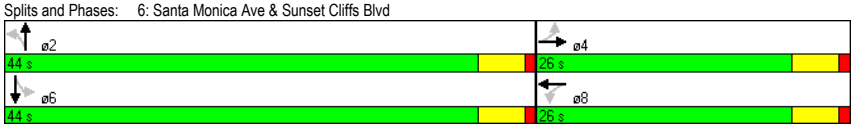
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	120	75	85	100	35	15	855	120	70	680	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	10	12	12	10	12	12	10	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.96		1.00	0.98		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1652	1565		1649	1611		1652	1641		1652	1672	
Flt Permitted	0.55	1.00		0.38	1.00		0.31	1.00		0.16	1.00	
Satd. Flow (perm)	950	1565		654	1611		538	1641		280	1672	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	130	82	92	109	38	16	929	130	76	739	11
RTOR Reduction (vph)	0	27	0	0	15	0	0	4	0	0	1	0
Lane Group Flow (vph)	27	185	0	92	132	0	16	1055	0	76	749	0
Confl. Peds. (#/hr)			1	1								
Confl. Bikes (#/hr)									1			1
Parking (#/hr)		0			0			0			0	
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	15.1	15.1		15.1	15.1		66.9	66.9		66.9	66.9	
Effective Green, g (s)	15.1	15.1		15.1	15.1		66.9	66.9		66.9	66.9	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.74	0.74		0.74	0.74	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.0	2.0		3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	159	263		110	270		400	1220		208	1243	
v/s Ratio Prot		0.12			0.08			c0.64			0.45	
v/s Ratio Perm	0.03			c0.14			0.03			0.27		
v/c Ratio	0.17	0.70		0.84	0.49		0.04	0.86		0.37	0.60	
Uniform Delay, d1	32.1	35.3		36.3	34.0		3.1	8.3		4.1	5.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		0.37	0.44	
Incremental Delay, d2	0.2	6.7		39.6	1.4		0.2	8.3		1.7	0.7	
Delay (s)	32.3	42.1		75.8	35.3		3.2	16.6		3.2	3.1	
Level of Service	C	D		E	D		A	B		A	A	
Approach Delay (s)		41.0			50.9			16.4			3.1	
Approach LOS		D			D			B			A	

Intersection Summary					
HCM Average Control Delay	17.7	HCM Level of Service		B	
HCM Volume to Capacity ratio	0.86				
Actuated Cycle Length (s)	90.0	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	83.9%	ICU Level of Service		E	
Analysis Period (min)	15				
c Critical Lane Group					

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Volume (vph)	180	60	10	55	10	575	120	580
Turn Type	Perm		Perm		Perm		Perm	
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	15.0	15.0	15.0	15.0	16.0	16.0	21.0	21.0
Minimum Split (s)	25.9	25.9	22.9	22.9	22.9	22.9	25.9	25.9
Total Split (s)	26.0	26.0	26.0	26.0	44.0	44.0	44.0	44.0
Total Split (%)	37.1%	37.1%	37.1%	37.1%	62.9%	62.9%	62.9%	62.9%
Yellow Time (s)	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	17.3	17.3	17.3	17.3	42.9	42.9	42.9	42.9
Actuated g/C Ratio	0.25	0.25	0.25	0.25	0.61	0.61	0.61	0.61
v/c Ratio	0.76	0.24	0.04	0.42	0.04	0.63	0.36	0.74
Control Delay	43.5	15.7	18.6	10.8	4.8	9.8	11.3	16.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	43.5	15.7	18.6	10.8	4.8	10.0	11.3	16.2
LOS	D	B	B	B	A	B	B	B
Approach Delay		34.2		11.2		9.9		15.5
Approach LOS		C		B		A		B

Intersection Summary			
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 62 (89%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 16.0		Intersection LOS: B	
Intersection Capacity Utilization 93.4%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 6: Santa Monica Ave & Sunset Cliffs Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	180	60	30	10	55	120	10	575	20	120	580	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9		4.9	4.9		4.9	4.9		4.9	4.9	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.94		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.95	1.00		0.93	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.95		1.00	0.90		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1683	1540		1649	1416		1752	1665		1751	1625	
Flt Permitted	0.59	1.00		0.69	1.00		0.26	1.00		0.32	1.00	
Satd. Flow (perm)	1044	1540		1204	1416		478	1665		587	1625	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	196	65	33	11	60	130	11	625	22	130	630	109
RTOR Reduction (vph)	0	25	0	0	98	0	0	2	0	0	8	0
Lane Group Flow (vph)	196	73	0	11	92	0	11	645	0	130	731	0
Confl. Peds. (#/hr)	34		40	40		34	25		17	17		25
Confl. Bikes (#/hr)						1						1
Parking (#/hr)		0			0			0			0	
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	17.3	17.3		17.3	17.3		42.9	42.9		42.9	42.9	
Effective Green, g (s)	17.3	17.3		17.3	17.3		42.9	42.9		42.9	42.9	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.61	0.61		0.61	0.61	
Clearance Time (s)	4.9	4.9		4.9	4.9		4.9	4.9		4.9	4.9	
Vehicle Extension (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lane Grp Cap (vph)	258	381		298	350		293	1020		360	996	
v/s Ratio Prot		0.05			0.07			0.39			c0.45	
v/s Ratio Perm	c0.19			0.01			0.02			0.22		
v/c Ratio	0.76	0.19		0.04	0.26		0.04	0.63		0.36	0.73	
Uniform Delay, d1	24.4	20.8		20.0	21.2		5.4	8.6		6.7	9.5	
Progression Factor	1.00	1.00		1.00	1.00		0.68	0.73		1.00	1.00	
Incremental Delay, d2	10.8	0.1		0.0	0.1		0.2	2.7		2.8	4.8	
Delay (s)	35.2	20.9		20.0	21.4		3.9	8.9		9.5	14.3	
Level of Service	D	C		C	C		A	A		A	B	
Approach Delay (s)		30.5			21.3			8.8			13.6	
Approach LOS		C			C			A			B	

Intersection Summary					
HCM Average Control Delay	15.3	HCM Level of Service		B	
HCM Volume to Capacity ratio	0.74				
Actuated Cycle Length (s)	70.0	Sum of lost time (s)		9.8	
Intersection Capacity Utilization	93.4%	ICU Level of Service		F	
Analysis Period (min)	15				

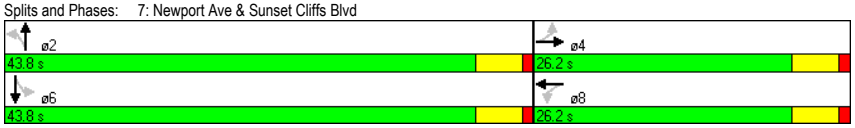
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Volume (vph)	65	65	35	100	40	470	60	530
Turn Type	Perm		Perm		Perm		Perm	
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	14.0	14.0	14.0	14.0	18.0	18.0	19.0	19.0
Minimum Split (s)	25.9	25.9	25.9	25.9	22.9	22.9	23.9	23.9
Total Split (s)	26.2	26.2	26.2	26.2	43.8	43.8	43.8	43.8
Total Split (%)	37.4%	37.4%	37.4%	37.4%	62.6%	62.6%	62.6%	62.6%
Yellow Time (s)	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	15.1	15.1	15.1	15.1	45.1	45.1	45.1	45.1
Actuated g/C Ratio	0.22	0.22	0.22	0.22	0.64	0.64	0.64	0.64
v/c Ratio	0.43	0.28	0.14	0.65	0.11	0.50	0.13	0.61
Control Delay	26.0	13.1	22.8	23.0	9.1	11.2	1.8	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Total Delay	26.0	13.1	22.8	23.0	9.1	11.2	1.8	3.4
LOS	C	B	C	C	A	B	A	A
Approach Delay		18.3		23.0		11.0		3.3
Approach LOS		B		C		B		A

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 1 (1%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 10.6 Intersection LOS: B
Intersection Capacity Utilization 88.5% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 7: Newport Ave & Sunset Cliffs Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	65	65	30	35	100	140	40	470	20	60	530	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9		4.9	4.9		4.9	4.9		4.9	4.9	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.97		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.98	1.00		0.98	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.95		1.00	0.91		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1734	1575		1741	1482		1762	1663		1752	1640	
Flt Permitted	0.42	1.00		0.69	1.00		0.33	1.00		0.41	1.00	
Satd. Flow (perm)	773	1575		1264	1482		615	1663		753	1640	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	71	33	38	109	152	43	511	22	65	576	76
RTOR Reduction (vph)	0	26	0	0	81	0	0	2	0	0	5	0
Lane Group Flow (vph)	71	78	0	38	180	0	43	531	0	65	647	0
Confl. Peds. (#/hr)	16		9	9		16	8		13	13		8
Confl. Bikes (#/hr)			3			1			2			1
Parking (#/hr)		0			0			0			0	
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	15.1	15.1		15.1	15.1		45.1	45.1		45.1	45.1	
Effective Green, g (s)	15.1	15.1		15.1	15.1		45.1	45.1		45.1	45.1	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.64	0.64		0.64	0.64	
Clearance Time (s)	4.9	4.9		4.9	4.9		4.9	4.9		4.9	4.9	
Vehicle Extension (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lane Grp Cap (vph)	167	340		273	320		396	1071		485	1057	
v/s Ratio Prot		0.05			c0.12			0.32			c0.39	
v/s Ratio Perm	0.09			0.03			0.07			0.09		
v/c Ratio	0.43	0.23		0.14	0.56		0.11	0.50		0.13	0.61	
Uniform Delay, d1	23.7	22.7		22.2	24.5		4.8	6.5		4.8	7.3	
Progression Factor	0.76	0.69		1.00	1.00		1.52	1.35		0.23	0.14	
Incremental Delay, d2	0.6	0.1		0.1	1.4		0.5	1.4		0.4	2.0	
Delay (s)	18.6	15.7		22.3	25.9		7.7	10.2		1.6	3.0	
Level of Service	B	B		C	C		A	B		A	A	
Approach Delay (s)		16.9			25.4			10.1			2.9	
Approach LOS		B			C			B			A	

Intersection Summary

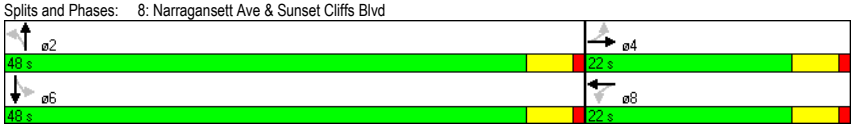
HCM Average Control Delay	10.4	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.60			
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.8	
Intersection Capacity Utilization	88.5%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Volume (vph)	50	70	45	60	15	500	35	490
Turn Type	Perm		Perm		Perm		Perm	
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	15.0	15.0	14.0	14.0	15.0	15.0	16.0	16.0
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
Total Split (s)	22.0	22.0	22.0	22.0	48.0	48.0	48.0	48.0
Total Split (%)	31.4%	31.4%	31.4%	31.4%	68.6%	68.6%	68.6%	68.6%
Yellow Time (s)	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)		15.3		15.1		49.9		49.9
Actuated g/C Ratio		0.22		0.22		0.71		0.71
v/c Ratio		0.53		0.51		0.52		0.53
Control Delay		29.3		26.7		8.5		3.6
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		29.3		26.7		8.5		3.6
LOS		C		C		A		A
Approach Delay		29.3		26.7		8.5		3.6
Approach LOS		C		C		A		A

Intersection Summary			
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 14 (20%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.53			
Intersection Signal Delay: 10.6		Intersection LOS: B	
Intersection Capacity Utilization 64.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 8: Narragansett Ave & Sunset Cliffs Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	70	25	45	60	40	15	500	40	35	490	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9			4.9			4.9			4.9	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			0.99			1.00			1.00	
Flpb, ped/bikes		0.99			0.99			1.00			1.00	
Frt		0.98			0.96			0.99			0.99	
Flt Protected		0.98			0.98			1.00			1.00	
Satd. Flow (prot)		1577			1549			1651			1659	
Flt Permitted		0.81			0.84			0.98			0.95	
Satd. Flow (perm)		1304			1320			1625			1573	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	76	27	49	65	43	16	543	43	38	533	22
RTOR Reduction (vph)	0	12	0	0	21	0	0	3	0	0	2	0
Lane Group Flow (vph)	0	145	0	0	136	0	0	599	0	0	591	0
Confl. Peds. (#/hr)	11		26	26		11	10		15	15		10
Confl. Bikes (#/hr)			1						2			2
Parking (#/hr)		0			0			0			0	
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		12.3			12.3			47.9			47.9	
Effective Green, g (s)		12.3			12.3			47.9			47.9	
Actuated g/C Ratio		0.18			0.18			0.68			0.68	
Clearance Time (s)		4.9			4.9			4.9			4.9	
Vehicle Extension (s)		1.0			1.0			1.0			1.0	
Lane Grp Cap (vph)		229			232			1112			1076	
v/s Ratio Prot												
v/s Ratio Perm		c0.11			0.10			0.37			c0.38	
v/c Ratio		0.64			0.58			0.54			0.55	
Uniform Delay, d1		26.8			26.5			5.5			5.6	
Progression Factor		1.00			1.00			1.00			0.30	
Incremental Delay, d2		4.2			2.4			1.9			1.7	
Delay (s)		31.0			28.9			7.4			3.4	
Level of Service		C			C			A			A	
Approach Delay (s)		31.0			28.9			7.4			3.4	
Approach LOS		C			C			A			A	

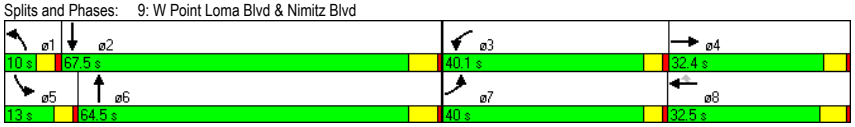
Intersection Summary				
HCM Average Control Delay	10.5	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.57			
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.8	
Intersection Capacity Utilization	64.1%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Volume (vph)	455	285	120	235	180	325	60	1535	115	100	1375
Turn Type	Prot		Free	Prot		Perm	Prot		Free	Prot	
Protected Phases	7	4		3	8		1	6		5	2
Permitted Phases			Free			8			Free		
Detector Phase	7	4		3	8	8	1	6		5	2
Switch Phase											
Minimum Initial (s)	4.0	10.0		4.0	10.0	10.0	4.0	10.0		4.0	10.0
Minimum Split (s)	8.4	30.9		8.4	32.5	32.5	8.4	27.0		8.4	27.0
Total Split (s)	40.0	32.4	0.0	40.1	32.5	32.5	10.0	64.5	0.0	13.0	67.5
Total Split (%)	26.7%	21.6%	0.0%	26.7%	21.7%	21.7%	6.7%	43.0%	0.0%	8.7%	45.0%
Yellow Time (s)	3.4	3.9		3.4	4.5	4.5	3.4	5.0		3.4	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	4.9	4.0	4.4	5.5	5.5	4.4	6.0	4.0	4.4	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag
Lead-Lag Optimize?											
Recall Mode	None	None		None	None	None	None	Max		None	Max
Act Effct Green (s)	35.6	35.8	150.0	27.4	27.0	27.0	5.6	58.5	150.0	8.6	61.5
Actuated g/C Ratio	0.24	0.24	1.00	0.18	0.18	0.18	0.04	0.39	1.00	0.06	0.41
v/c Ratio	1.26	0.37	0.09	0.84	0.59	1.07	1.05	1.21	0.09	1.15	1.08
Control Delay	182.8	50.6	0.1	82.7	64.3	110.9	194.2	140.8	0.1	196.6	89.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	182.8	50.6	0.1	82.7	64.3	110.9	194.2	140.8	0.1	196.6	89.5
LOS	F	D	A	F	E	F	F	F	A	F	F
Approach Delay		113.6			90.6			133.2			96.5
Approach LOS		F			F			F			F

Intersection Summary			
Cycle Length: 150			
Actuated Cycle Length: 150			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.26			
Intersection Signal Delay: 111.6		Intersection LOS: F	
Intersection Capacity Utilization 102.0%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 9: W Point Loma Blvd & Nimitz Blvd



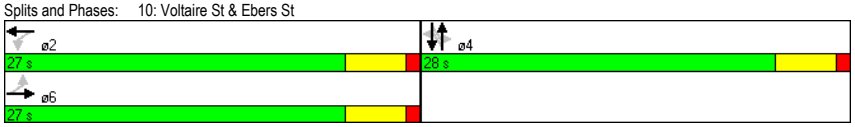
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	455	285	120	235	180	325	60	1535	115	100	1375	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	10	10	12	10	10	12	10	10	12	10
Total Lost time (s)	4.4	4.9	4.0	4.4	5.5	5.5	4.4	6.0	4.0	4.4	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1652	3539	1455	1652	1863	1444	1652	3539	1459	1652	3515	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1652	3539	1455	1652	1863	1444	1652	3539	1459	1652	3515	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	495	310	130	255	196	353	65	1668	125	109	1495	60
RTOR Reduction (vph)	0	0	0	0	0	71	0	0	0	0	2	0
Lane Group Flow (vph)	495	310	130	255	196	282	65	1668	125	109	1553	0
Confl. Peds. (#/hr)			10			6			1			2
Confl. Bikes (#/hr)			3			1			1			2
Parking (#/hr)												0
Turn Type	Prot		Free	Prot		Perm	Prot		Free	Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			Free			8			Free			
Actuated Green, G (s)	35.6	35.8	150.0	27.4	27.0	27.0	5.6	58.5	150.0	8.6	61.5	
Effective Green, g (s)	35.6	35.8	150.0	27.4	27.0	27.0	5.6	58.5	150.0	8.6	61.5	
Actuated g/C Ratio	0.24	0.24	1.00	0.18	0.18	0.18	0.04	0.39	1.00	0.06	0.41	
Clearance Time (s)	4.4	4.9		4.4	5.5	5.5	4.4	6.0		4.4	6.0	
Vehicle Extension (s)	2.0	4.9		2.0	3.7	3.7	2.0	3.7		2.0	5.8	
Lane Grp Cap (vph)	392	845	1455	302	335	260	62	1380	1459	95	1441	
v/s Ratio Prot	c0.30	0.09		0.15	0.11		0.04	c0.47		c0.07	c0.44	
v/s Ratio Perm			0.09			c0.20			0.09			
v/c Ratio	1.26	0.37	0.09	0.84	0.59	1.08	1.05	1.21	0.09	1.15	1.08	
Uniform Delay, d1	57.2	47.6	0.0	59.2	56.4	61.5	72.2	45.8	0.0	70.7	44.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	137.3	0.5	0.1	18.3	2.9	79.8	128.4	100.9	0.1	137.5	47.7	
Delay (s)	194.5	48.2	0.1	77.5	59.3	141.3	200.6	146.7	0.1	208.2	92.0	
Level of Service	F	D	A	E	E	F	F	F	A	F	F	
Approach Delay (s)		118.9			101.1			138.7			99.6	
Approach LOS		F			F			F			F	

Intersection Summary					
HCM Average Control Delay	117.1	HCM Level of Service		F	
HCM Volume to Capacity ratio	1.25				
Actuated Cycle Length (s)	150.0	Sum of lost time (s)		26.3	
Intersection Capacity Utilization	102.0%	ICU Level of Service		G	
Analysis Period (min)	15				
c Critical Lane Group					

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Volume (vph)	40	165	90	235	100	335	15	85
Turn Type	Perm		Perm		Perm		Perm	
Protected Phases		6		2		4		4
Permitted Phases	6		2		4		4	
Detector Phase	6	6	2	2	4	4	4	4
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.9	22.9	22.9	22.9	23.9	23.9	23.9	23.9
Total Split (s)	27.0	27.0	27.0	27.0	28.0	28.0	28.0	28.0
Total Split (%)	49.1%	49.1%	49.1%	49.1%	50.9%	50.9%	50.9%	50.9%
Yellow Time (s)	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	Max	Max	None	None	None	None
Act Effct Green (s)		22.1		22.1		21.9		21.9
Actuated g/C Ratio		0.41		0.41		0.41		0.41
v/c Ratio		0.43		0.73		0.93		0.21
Control Delay		13.7		22.6		41.0		9.7
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		13.7		22.6		41.0		9.7
LOS		B		C		D		A
Approach Delay		13.7		22.6		41.0		9.7
Approach LOS		B		C		D		A

Intersection Summary			
Cycle Length: 55			
Actuated Cycle Length: 53.9			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 27.3		Intersection LOS: C	
Intersection Capacity Utilization 77.1%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 10: Voltaire St & Ebers St



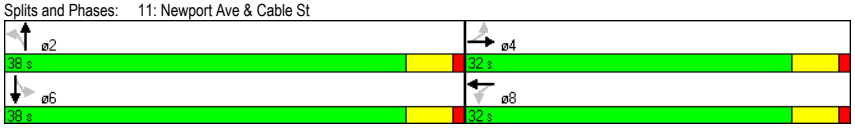
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	165	40	90	235	75	100	335	95	15	85	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9			4.9			4.9			4.9	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			0.99			0.99			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.98			0.97			0.98			0.98	
Flt Protected		0.99			0.99			0.99			0.99	
Satd. Flow (prot)		1616			1603			1611			1620	
Flt Permitted		0.89			0.87			0.91			0.92	
Satd. Flow (perm)		1454			1414			1479			1500	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	179	43	98	255	82	109	364	103	16	92	22
RTOR Reduction (vph)	0	12	0	0	15	0	0	15	0	0	13	0
Lane Group Flow (vph)	0	253	0	0	420	0	0	561	0	0	117	0
Confl. Peds. (#/hr)	8		7	7		8	4		6	6		4
Confl. Bikes (#/hr)			4			2			1			1
Parking (#/hr)		0			0			0			0	
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			2			4			4	
Permitted Phases	6			2			4			4		
Actuated Green, G (s)		22.1			22.1			21.9			21.9	
Effective Green, g (s)		22.1			22.1			21.9			21.9	
Actuated g/C Ratio		0.41			0.41			0.41			0.41	
Clearance Time (s)		4.9			4.9			4.9			4.9	
Vehicle Extension (s)		3.5			3.5			2.0			2.0	
Lane Grp Cap (vph)		597			581			602			611	
v/s Ratio Prot												
v/s Ratio Perm		0.17			c0.30			c0.38			0.08	
v/c Ratio		0.42			0.72			0.93			0.19	
Uniform Delay, d1		11.3			13.3			15.2			10.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.6			7.6			21.2			0.1	
Delay (s)		11.9			20.9			36.4			10.3	
Level of Service		B			C			D			B	
Approach Delay (s)		11.9			20.9			36.4			10.3	
Approach LOS		B			C			D			B	

Intersection Summary					
HCM Average Control Delay	24.6	HCM Level of Service	C		
HCM Volume to Capacity ratio	0.83				
Actuated Cycle Length (s)	53.8	Sum of lost time (s)	9.8		
Intersection Capacity Utilization	77.1%	ICU Level of Service	D		
Analysis Period (min)	15				
c Critical Lane Group					

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Volume (vph)	30	50	40	50	55	110	25	110
Turn Type	Perm		Perm		Perm		Perm	
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	15.0	15.0	14.0	14.0	19.0	19.0	19.0	19.0
Minimum Split (s)	22.9	22.9	23.0	23.0	23.9	23.9	23.9	23.9
Total Split (s)	32.0	32.0	32.0	32.0	38.0	38.0	38.0	38.0
Total Split (%)	45.7%	45.7%	45.7%	45.7%	54.3%	54.3%	54.3%	54.3%
Yellow Time (s)	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Act Effct Green (s)		40.8		40.8		19.4		19.4
Actuated g/C Ratio		0.58		0.58		0.28		0.28
v/c Ratio		0.15		0.16		0.56		0.42
Control Delay		5.1		4.4		24.9		21.4
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		5.1		4.4		24.9		21.4
LOS		A		A		C		C
Approach Delay		5.1		4.4		24.9		21.4
Approach LOS		A		A		C		C

Intersection Summary			
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 16.2		Intersection LOS: B	
Intersection Capacity Utilization 40.7%		ICU Level of Service A	
Analysis Period (min) 15			

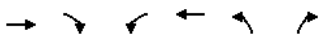
Splits and Phases: 11: Newport Ave & Cable St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	50	45	40	50	30	55	110	45	25	110	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9			4.9			4.9			4.9	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.97			0.97			0.98			0.99	
Flpb, ped/bikes		0.98			0.98			0.99			0.99	
Frt		0.95			0.97			0.97			0.98	
Flt Protected		0.99			0.98			0.99			0.99	
Satd. Flow (prot)		1502			1524			1560			1589	
Flt Permitted		0.93			0.90			0.89			0.93	
Satd. Flow (perm)		1413			1388			1404			1490	
Peak-hour factor, PHF	1.00	1.00	1.00	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	50	45	43	54	33	60	120	49	27	120	33
RTOR Reduction (vph)	0	19	0	0	12	0	0	20	0	0	16	0
Lane Group Flow (vph)	0	106	0	0	118	0	0	209	0	0	164	0
Confl. Peds. (#/hr)	33		27	27		33	26		40	40		26
Confl. Bikes (#/hr)			6			2			4			7
Parking (#/hr)		0			0			0			0	
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		40.8			40.8			19.4			19.4	
Effective Green, g (s)		40.8			40.8			19.4			19.4	
Actuated g/C Ratio		0.58			0.58			0.28			0.28	
Clearance Time (s)		4.9			4.9			4.9			4.9	
Vehicle Extension (s)		1.0			1.0			1.0			1.0	
Lane Grp Cap (vph)		824			809			389			413	
v/s Ratio Prot												
v/s Ratio Perm		0.08			c0.08			c0.15			0.11	
v/c Ratio		0.13			0.15			0.54			0.40	
Uniform Delay, d1		6.6			6.7			21.5			20.6	
Progression Factor		1.00			0.72			1.00			1.00	
Incremental Delay, d2		0.3			0.3			0.7			0.2	
Delay (s)		6.9			5.1			22.2			20.8	
Level of Service		A			A			C			C	
Approach Delay (s)		6.9			5.1			22.2			20.8	
Approach LOS		A			A			C			C	

Intersection Summary					
HCM Average Control Delay	15.6	HCM Level of Service		B	
HCM Volume to Capacity ratio	0.27				
Actuated Cycle Length (s)	70.0	Sum of lost time (s)		9.8	
Intersection Capacity Utilization	40.7%	ICU Level of Service		A	
Analysis Period (min)	15				
c Critical Lane Group					

12: W Point Loma Blvd & Ebers St

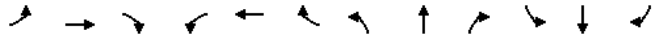


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	150	5	125	90	25	495
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	163	5	136	98	27	538
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	793			1248		
pX, platoon unblocked						
vC, conflicting volume			168		535	166
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			168		535	166
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			90		94	39
cM capacity (veh/h)			1409		457	879

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	168	136	98	565
Volume Left	0	136	0	27
Volume Right	5	0	0	538
cSH	1700	1409	1700	841
Volume to Capacity	0.10	0.10	0.06	0.67
Queue Length 95th (ft)	0	8	0	133
Control Delay (s)	0.0	7.8	0.0	17.6
Lane LOS		A		C
Approach Delay (s)	0.0	4.6		17.6
Approach LOS				C

Intersection Summary			
Average Delay	11.4		
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		

13: W Point Loma Blvd & Bacon St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	55	25	280	5	5	5	100	90	15	15	195	15
Peak Hour Factor	0.85	0.85	0.85	0.69	0.69	0.69	0.85	0.85	0.85	0.82	0.82	0.82
Hourly flow rate (vph)	65	29	329	7	7	7	118	106	18	18	238	18

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total (vph)	424	22	224	18	274
Volume Left (vph)	65	7	118	0	18
Volume Right (vph)	329	7	0	18	18
Hadj (s)	-0.40	-0.10	0.14	-0.57	0.01
Departure Headway (s)	4.9	5.9	5.7	3.2	5.5
Degree Utilization, x	0.58	0.04	0.35	0.02	0.42
Capacity (veh/h)	694	497	581	1121	608
Control Delay (s)	14.5	9.2	11.7	6.3	12.3
Approach Delay (s)	14.5	9.2	11.3		12.3
Approach LOS	B	A	B		B

Intersection Summary			
Delay	13.0		
HCM Level of Service	B		
Intersection Capacity Utilization	56.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	5	10	0	5	10	5	780	10	15	745	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.55	0.55	0.55	0.90	0.90	0.90	0.92	0.92	0.92
Hourly flow rate (vph)	12	6	12	0	9	18	6	867	11	16	810	11
Pedestrians		8			13			7			4	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1766	1758	830	1766	1758	889	829			891		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1766	1758	830	1766	1758	889	829			891		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	78	93	97	100	89	95	99			98		
cM capacity (veh/h)	54	81	365	57	81	337	797			753		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	29	27	883	837
Volume Left	12	0	6	16
Volume Right	12	18	11	11
cSH	91	164	797	753
Volume to Capacity	0.32	0.17	0.01	0.02
Queue Length 95th (ft)	31	14	1	2
Control Delay (s)	62.2	31.3	0.2	0.6
Lane LOS	F	D	A	A
Approach Delay (s)	62.2	31.3	0.2	0.6
Approach LOS	F	D		

Intersection Summary					
Average Delay			1.9		
Intersection Capacity Utilization			66.1%	ICU Level of Service	C
Analysis Period (min)			15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	30	40	5	25	5	115	5	525	0	75	460	20
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.77	0.77	0.77	0.65	0.65	0.65	0.88	0.88	0.88	0.90	0.90	0.90
Hourly flow rate (vph)	39	52	6	38	8	177	6	597	0	83	511	22
Pedestrians		20			13			3			2	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		2			1			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1500	1330	545	1345	1341	612	553			610		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1500	1330	545	1345	1341	612	553			610		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	29	62	99	52	94	64	99			91		
cM capacity (veh/h)	55	137	528	81	135	487	1000			959		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	97	223	602	617
Volume Left	39	38	6	83
Volume Right	6	177	0	22
cSH	88	249	1000	959
Volume to Capacity	1.10	0.90	0.01	0.09
Queue Length 95th (ft)	166	192	0	7
Control Delay (s)	213.7	75.9	0.2	2.2
Lane LOS	F	F	A	A
Approach Delay (s)	213.7	75.9	0.2	2.2
Approach LOS	F	F		

Intersection Summary					
Average Delay			25.5		
Intersection Capacity Utilization			77.4%	ICU Level of Service	D
Analysis Period (min)			15		

Lane Group	WBL	NBT	SBT
Lane Configurations			
Volume (vph)	2595	1220	1455
Turn Type			
Protected Phases	4	2	
Permitted Phases			6
Detector Phase	4	2	6
Switch Phase			
Minimum Initial (s)	5.0	5.0	5.0
Minimum Split (s)	30.0	25.0	25.0
Total Split (s)	74.0	46.0	46.0
Total Split (%)	61.7%	38.3%	38.3%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	C-Max	C-Max
Act Effct Green (s)	67.0	39.0	39.0
Actuated g/C Ratio	0.56	0.32	0.32
v/c Ratio	1.48	1.15	1.38
Control Delay	245.2	116.5	207.9
Queue Delay	0.0	0.0	0.0
Total Delay	245.2	116.5	207.9
LOS	F	F	F
Approach Delay	245.2	116.5	207.9
Approach LOS	F	F	F

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.48			
Intersection Signal Delay: 205.3		Intersection LOS: F	
Intersection Capacity Utilization 126.7%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 1: I-8 WB off-ramp & Sunset Cliffs Blvd

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	2595	25	1220	0	0	1455
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0		7.0			7.0
Lane Util. Factor	0.97		0.95			0.95
Frpb, ped/bikes	1.00		1.00			1.00
Flpb, ped/bikes	1.00		1.00			1.00
Frt	1.00		1.00			1.00
Flt Protected	0.95		1.00			1.00
Satd. Flow (prot)	3438		3539			3539
Flt Permitted	0.95		1.00			1.00
Satd. Flow (perm)	3438		3539			3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2821	27	1326	0	0	1582
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	2848	0	1326	0	0	1582
Confl. Peds. (#/hr)		1				
Turn Type						
Protected Phases	4		2			
Permitted Phases						6
Actuated Green, G (s)	67.0		39.0			39.0
Effective Green, g (s)	67.0		39.0			39.0
Actuated g/C Ratio	0.56		0.32			0.32
Clearance Time (s)	7.0		7.0			7.0
Vehicle Extension (s)	3.0		3.0			3.0
Lane Grp Cap (vph)	1920		1150			1150
v/s Ratio Prot	c0.83		0.37			
v/s Ratio Perm						c0.45
v/c Ratio	1.48		1.15			1.38
Uniform Delay, d1	26.5		40.5			40.5
Progression Factor	1.00		1.00			1.00
Incremental Delay, d2	220.2		79.1			174.6
Delay (s)	246.7		119.6			215.1
Level of Service	F		F			F
Approach Delay (s)	246.7		119.6			215.1
Approach LOS	F		F			F

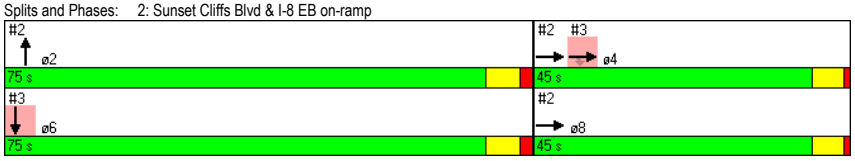
Intersection Summary			
HCM Average Control Delay	208.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.44		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	126.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	NBT	ø4	ø6	ø8
Lane Configurations					
Volume (vph)	635	1135			
Turn Type					
Protected Phases	4 8	2	4	6	8
Permitted Phases					
Detector Phase	4	2			
Switch Phase	8				
Minimum Initial (s)		10.0	10.0	10.0	5.0
Minimum Split (s)		27.0	22.5	21.5	22.5
Total Split (s)	90.0	75.0	45.0	75.0	45.0
Total Split (%)	75.0%	62.5%	38%	63%	38%
Yellow Time (s)		5.0	4.5	5.0	4.5
All-Red Time (s)		2.0	1.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0			
Total Lost Time (s)	5.5	7.0			
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode		C-Max	None	C-Min	None
Act Effct Green (s)	39.5	68.0			
Actuated g/C Ratio	0.33	0.57			
v/c Ratio	0.99	0.62			
Control Delay	73.0	19.0			
Queue Delay	209.9	0.0			
Total Delay	282.9	19.0			
LOS	F	B			
Approach Delay	282.9	19.0			
Approach LOS	F	B			

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Yellow			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.20			
Intersection Signal Delay: 113.6		Intersection LOS: F	
Intersection Capacity Utilization 75.2%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: Sunset Cliffs Blvd & I-8 EB on-ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	635	0	0	0	0	0	1135	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		5.5						7.0				
Lane Util. Factor		1.00						0.95				
Frpb, ped/bikes		1.00						1.00				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						1.00				
Flt Protected		1.00						1.00				
Satd. Flow (prot)		2111						3539				
Flt Permitted		1.00						1.00				
Satd. Flow (perm)		2111						3539				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	690	0	0	0	0	0	1234	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	690	0	0	0	0	0	1234	0	0	0	0
Confl. Bikes (#/hr)												2
Turn Type												
Protected Phases		4 8						2				
Permitted Phases												
Actuated Green, G (s)		39.5						68.0				
Effective Green, g (s)		39.5						68.0				
Actuated g/C Ratio		0.33						0.57				
Clearance Time (s)								7.0				
Vehicle Extension (s)								3.0				
Lane Grp Cap (vph)		695						2005				
v/s Ratio Prot		c0.33						c0.35				
v/s Ratio Perm												
v/c Ratio		0.99						0.62				
Uniform Delay, d1		40.1						17.3				
Progression Factor		1.00						1.00				
Incremental Delay, d2		32.2						1.4				
Delay (s)		72.3						18.7				
Level of Service		E						B				
Approach Delay (s)		72.3			0.0			18.7			0.0	
Approach LOS		E			A			B			A	

Intersection Summary					
HCM Average Control Delay		37.9	HCM Level of Service		D
HCM Volume to Capacity ratio		0.75			
Actuated Cycle Length (s)		120.0	Sum of lost time (s)		12.5
Intersection Capacity Utilization		75.2%	ICU Level of Service		D
Analysis Period (min)		15			
c Critical Lane Group					

Lane Group	EBT	EBR	SBT	ø2	ø8
Lane Configurations					
Volume (vph)	1270	40	2215		
Turn Type		Perm			
Protected Phases	4		6	2	8
Permitted Phases		4			
Detector Phase	4	4	6		
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0
Minimum Split (s)	22.5	22.5	21.5	27.0	22.5
Total Split (s)	45.0	45.0	75.0	75.0	45.0
Total Split (%)	37.5%	37.5%	62.5%	63%	38%
Yellow Time (s)	4.5	4.5	5.0	5.0	4.5
All-Red Time (s)	1.0	1.0	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		
Total Lost Time (s)	5.5	5.5	7.0		
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	C-Min	C-Max	None
Act Effct Green (s)	39.5	39.5	68.0		
Actuated g/C Ratio	0.33	0.33	0.57		
v/c Ratio	1.18	0.09	1.20		
Control Delay	128.6	27.0	121.9		
Queue Delay	0.0	0.0	0.0		
Total Delay	128.6	27.0	121.9		
LOS	F	C	F		
Approach Delay	125.5		121.9		
Approach LOS	F		F		

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Yellow			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.20			
Intersection Signal Delay: 123.2		Intersection LOS: F	
Intersection Capacity Utilization 106.8%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 3: Sunset Cliffs Blvd & Nimitz Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1270	40	0	0	0	0	0	0	0	2215	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	12	12	12	12	12	12	12	12	12
Total Lost time (s)		5.5	5.5								7.0	
Lane Util. Factor		0.95	1.00								0.95	
Frt		1.00	0.85								1.00	
Flt Protected		1.00	1.00								1.00	
Satd. Flow (prot)		3539	1478								3539	
Flt Permitted		1.00	1.00								1.00	
Satd. Flow (perm)		3539	1478								3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1380	43	0	0	0	0	0	0	0	2408	0
RTOR Reduction (vph)	0	0	2	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1380	41	0	0	0	0	0	0	0	2408	0
Turn Type			Perm									
Protected Phases		4									6	
Permitted Phases			4									
Actuated Green, G (s)		39.5	39.5								68.0	
Effective Green, g (s)		39.5	39.5								68.0	
Actuated g/C Ratio		0.33	0.33								0.57	
Clearance Time (s)		5.5	5.5								7.0	
Vehicle Extension (s)		3.0	3.0								3.0	
Lane Grp Cap (vph)		1165	487								2005	
v/s Ratio Prot		c0.39									c0.68	
v/s Ratio Perm			0.03									
v/c Ratio		1.18	0.08								1.20	
Uniform Delay, d1		40.2	27.8								26.0	
Progression Factor		1.00	1.00								1.00	
Incremental Delay, d2		92.0	0.1								95.5	
Delay (s)		132.2	27.8								121.5	
Level of Service		F	C								F	
Approach Delay (s)		129.1			0.0			0.0			121.5	
Approach LOS		F			A			A			F	

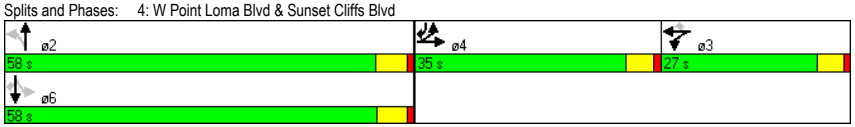
Intersection Summary					
HCM Average Control Delay		124.3	HCM Level of Service		F
HCM Volume to Capacity ratio		1.19			
Actuated Cycle Length (s)		120.0	Sum of lost time (s)		12.5
Intersection Capacity Utilization		106.8%	ICU Level of Service		G
Analysis Period (min)		15			

c Critical Lane Group

Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Volume (vph)	470	195	210	50	10	580	40	875	970
Turn Type	Split			Perm	Perm		Perm		pm+ov
Protected Phases	4	4	3			2		6	4
Permitted Phases				3	2		6		6
Detector Phase	4	4	3	3	2	2	6	6	4
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	7.0	7.0	7.0	7.0	4.0
Minimum Split (s)	24.9	24.9	26.9	26.9	26.5	26.5	27.4	27.4	24.9
Total Split (s)	35.0	35.0	27.0	27.0	58.0	58.0	58.0	58.0	35.0
Total Split (%)	29.2%	29.2%	22.5%	22.5%	48.3%	48.3%	48.3%	48.3%	29.2%
Yellow Time (s)	3.9	3.9	3.9	3.9	4.5	4.5	4.4	4.4	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.9	4.9	4.9	4.9	5.5	5.5	5.4	5.4	4.9
Lead/Lag	Lead	Lead	Lag	Lag					Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					Yes
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	None
Act Effct Green (s)	30.1	30.1	22.1	22.1	52.5	52.5	52.6	52.6	83.2
Actuated g/C Ratio	0.25	0.25	0.18	0.18	0.44	0.44	0.44	0.44	0.69
v/c Ratio	0.92	0.95	1.10	0.20	0.19	0.99	0.57	1.16	1.10
Control Delay	73.8	79.6	123.7	24.0	25.1	51.8	58.1	119.3	75.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	42.9	0.0	0.0	0.0
Total Delay	73.8	79.6	123.7	24.0	25.1	94.6	58.1	119.3	75.3
LOS	E	E	F	C	C	F	E	F	E
Approach Delay		76.7	111.0			93.6		95.4	
Approach LOS		E	F			F		F	

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 8 (7%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.16			
Intersection Signal Delay: 93.2		Intersection LOS: F	
Intersection Capacity Utilization 97.5%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 4: W Point Loma Blvd & Sunset Cliffs Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	195	10	130	210	50	10	580	80	40	875	970
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	10	12	10	10	12	12	10	12	10
Total Lost time (s)	4.9	4.9			4.9	4.9	5.5	5.5		5.4	5.4	4.9
Lane Util. Factor	0.95	0.95			1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00			1.00	0.98	1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00			1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	0.98			0.98	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1569	1553			1828	1300	1652	1641		1652	1863	1298
Flt Permitted	0.95	0.98			0.98	1.00	0.08	1.00		0.10	1.00	1.00
Satd. Flow (perm)	1569	1553			1828	1300	132	1641		174	1863	1298
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	511	212	11	141	228	54	11	630	87	43	951	1054
RTOR Reduction (vph)	0	1	0	0	0	25	0	4	0	0	0	61
Lane Group Flow (vph)	363	370	0	0	369	29	11	713	0	43	951	993
Confl. Peds. (#/hr)			5			6	6					6
Confl. Bikes (#/hr)			1			1			4			1
Parking (#/hr)		0				0		0				0
Turn Type	Split			Split		Perm	Perm			Perm		pm+ov
Protected Phases	4	4		3	3			2			6	4
Permitted Phases						3	2			6		6
Actuated Green, G (s)	30.1	30.1			22.1	22.1	52.5	52.5		52.6	52.6	82.7
Effective Green, g (s)	30.1	30.1			22.1	22.1	52.5	52.5		52.6	52.6	82.7
Actuated g/C Ratio	0.25	0.25			0.18	0.18	0.44	0.44		0.44	0.44	0.69
Clearance Time (s)	4.9	4.9			4.9	4.9	5.5	5.5		5.4	5.4	4.9
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	394	390			337	239	58	718		76	817	895
v/s Ratio Prot	0.23	0.24			c0.20			0.43			c0.51	c0.28
v/s Ratio Perm						0.02	0.08			0.25		0.49
v/c Ratio	0.92	0.95			1.09	0.12	0.19	0.99		0.57	1.16	1.11
Uniform Delay, d1	43.8	44.2			49.0	40.8	20.7	33.6		25.2	33.7	18.6
Progression Factor	1.00	1.00			1.00	1.00	0.88	0.79		1.00	1.00	1.00
Incremental Delay, d2	26.3	32.1			76.9	0.1	4.2	24.2		27.1	87.1	64.7
Delay (s)	70.1	76.3			125.9	40.9	22.4	50.7		52.3	120.8	83.3
Level of Service	E	E			F	D	C	D		D	F	F
Approach Delay (s)		73.2			115.0			50.3			100.1	
Approach LOS		E			F			D			F	

Intersection Summary					
HCM Average Control Delay	87.4	HCM Level of Service		F	
HCM Volume to Capacity ratio	1.13				
Actuated Cycle Length (s)	120.0	Sum of lost time (s)		15.2	
Intersection Capacity Utilization	97.5%	ICU Level of Service		F	
Analysis Period (min)	15				
c Critical Lane Group					

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Volume (vph)	85	220	185	225	30	650	90	910
Turn Type	Perm		Perm		Perm		Perm	
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	7.0	7.0	7.0	7.0
Minimum Split (s)	26.0	26.0	22.0	22.0	27.0	27.0	28.0	28.0
Total Split (s)	41.0	41.0	41.0	41.0	79.0	79.0	79.0	79.0
Total Split (%)	34.2%	34.2%	34.2%	34.2%	65.8%	65.8%	65.8%	65.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	37.0	37.0	37.0	37.0	75.0	75.0	75.0	75.0
Actuated g/C Ratio	0.31	0.31	0.31	0.31	0.62	0.62	0.62	0.62
v/c Ratio	0.52	0.60	1.00	0.66	0.42	0.84	0.52	0.99
Control Delay	46.6	39.6	106.3	41.8	31.7	26.8	2.4	18.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	26.8	0.0	13.5
Total Delay	46.6	39.6	106.3	41.8	31.7	53.7	2.4	31.5
LOS	D	D	F	D	C	D	A	C
Approach Delay		41.3		65.9		52.9		28.9
Approach LOS		D		E		D		C

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay: 44.5		Intersection LOS: D	
Intersection Capacity Utilization 95.0%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 5: Voltaire St & Sunset Cliffs Blvd

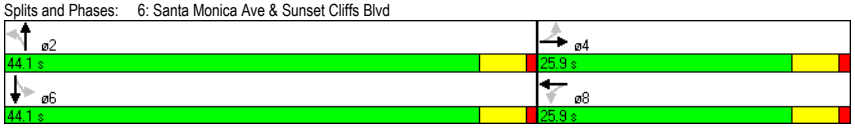
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	85	220	60	185	225	85	30	650	140	90	910	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	10	12	12	10	12	12	10	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.96		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1652	1614		1649	1608		1652	1626		1652	1665	
Flt Permitted	0.33	1.00		0.38	1.00		0.07	1.00		0.17	1.00	
Satd. Flow (perm)	574	1614		651	1608		126	1626		302	1665	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	239	65	201	245	92	33	707	152	98	989	43
RTOR Reduction (vph)	0	8	0	0	11	0	0	6	0	0	1	0
Lane Group Flow (vph)	92	296	0	201	326	0	33	853	0	98	1031	0
Confl. Peds. (#/hr)			1	1								
Confl. Bikes (#/hr)									1			1
Parking (#/hr)		0			0			0			0	
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	37.0	37.0		37.0	37.0		75.0	75.0		75.0	75.0	
Effective Green, g (s)	37.0	37.0		37.0	37.0		75.0	75.0		75.0	75.0	
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.62	0.62		0.62	0.62	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.0	2.0		3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	177	498		201	496		79	1016		189	1041	
v/s Ratio Prot		0.18			0.20			0.52			c0.62	
v/s Ratio Perm	0.16			c0.31			0.26			0.32		
v/c Ratio	0.52	0.59		1.00	0.66		0.42	0.84		0.52	0.99	
Uniform Delay, d1	34.2	35.1		41.5	36.0		11.4	17.7		12.5	22.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		0.10	0.41	
Incremental Delay, d2	1.1	1.3		63.5	3.1		15.4	8.3		0.9	6.4	
Delay (s)	35.3	36.4		105.0	39.1		26.9	26.0		2.2	15.6	
Level of Service	D	D		F	D		C	C		A	B	
Approach Delay (s)		36.1			63.7			26.1			14.4	
Approach LOS		D			E			C			B	

Intersection Summary					
HCM Average Control Delay	29.8	HCM Level of Service		C	
HCM Volume to Capacity ratio	0.99				
Actuated Cycle Length (s)	120.0	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	95.0%	ICU Level of Service		F	
Analysis Period (min)	15				
c Critical Lane Group					

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Volume (vph)	155	105	25	65	30	545	60	775
Turn Type	Perm		Perm		Perm		Perm	
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	15.0	15.0	15.0	15.0	16.0	16.0	21.0	21.0
Minimum Split (s)	25.9	25.9	22.9	22.9	22.9	22.9	25.9	25.9
Total Split (s)	25.9	25.9	25.9	25.9	44.1	44.1	44.1	44.1
Total Split (%)	37.0%	37.0%	37.0%	37.0%	63.0%	63.0%	63.0%	63.0%
Yellow Time (s)	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	16.7	16.7	16.7	16.7	43.5	43.5	43.5	43.5
Actuated g/C Ratio	0.24	0.24	0.24	0.24	0.62	0.62	0.62	0.62
v/c Ratio	0.60	0.48	0.11	0.35	0.28	0.59	0.16	1.00
Control Delay	33.1	20.6	20.9	14.0	9.5	7.0	7.6	43.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0
Total Delay	33.1	20.6	20.9	14.0	9.5	7.4	7.6	43.6
LOS	C	C	C	B	A	A	A	D
Approach Delay		26.5		15.1		7.5		41.4
Approach LOS		C		B		A		D

Intersection Summary			
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 61 (87%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay: 27.4		Intersection LOS: C	
Intersection Capacity Utilization 89.7%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 6: Santa Monica Ave & Sunset Cliffs Blvd



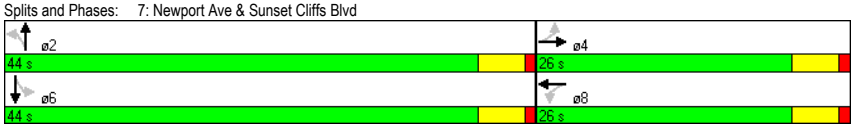
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	155	105	70	25	65	65	30	545	15	60	775	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9		4.9	4.9		4.9	4.9		4.9	4.9	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.96		1.00	0.96		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.95	1.00		0.94	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.94		1.00	0.93		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1674	1515		1668	1484		1770	1667		1749	1618	
Flt Permitted	0.67	1.00		0.58	1.00		0.10	1.00		0.35	1.00	
Satd. Flow (perm)	1174	1515		1027	1484		186	1667		641	1618	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	168	114	76	27	71	71	33	592	16	65	842	168
RTOR Reduction (vph)	0	37	0	0	54	0	0	1	0	0	9	0
Lane Group Flow (vph)	168	153	0	27	88	0	33	607	0	65	1001	0
Confl. Peds. (#/hr)	34		40	40		34	25		17	17		25
Confl. Bikes (#/hr)						1						1
Parking (#/hr)		0			0			0			0	
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	16.7	16.7		16.7	16.7		43.5	43.5		43.5	43.5	
Effective Green, g (s)	16.7	16.7		16.7	16.7		43.5	43.5		43.5	43.5	
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.62	0.62		0.62	0.62	
Clearance Time (s)	4.9	4.9		4.9	4.9		4.9	4.9		4.9	4.9	
Vehicle Extension (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lane Grp Cap (vph)	280	361		245	354		116	1036		398	1005	
v/s Ratio Prot		0.10			0.06			0.36			c0.62	
v/s Ratio Perm	c0.14			0.03			0.18			0.10		
v/c Ratio	0.60	0.42		0.11	0.25		0.28	0.59		0.16	1.00	
Uniform Delay, d1	23.7	22.6		20.8	21.6		6.1	7.9		5.6	13.2	
Progression Factor	1.00	1.00		1.00	1.00		0.42	0.53		1.00	1.00	
Incremental Delay, d2	2.3	0.3		0.1	0.1		5.6	2.2		0.9	27.5	
Delay (s)	26.0	22.9		20.9	21.7		8.2	6.4		6.5	40.7	
Level of Service	C	C		C	C		A	A		A	D	
Approach Delay (s)		24.3			21.6			6.5			38.6	
Approach LOS		C			C			A			D	

Intersection Summary					
HCM Average Control Delay	25.9	HCM Level of Service		C	
HCM Volume to Capacity ratio	0.89				
Actuated Cycle Length (s)	70.0	Sum of lost time (s)		9.8	
Intersection Capacity Utilization	89.7%	ICU Level of Service		E	
Analysis Period (min)	15				
c Critical Lane Group					

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Volume (vph)	125	90	35	95	60	375	70	640
Turn Type	Perm		Perm		Perm		Perm	
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	14.0	14.0	14.0	14.0	18.0	18.0	19.0	19.0
Minimum Split (s)	25.9	25.9	25.9	25.9	22.9	22.9	23.9	23.9
Total Split (s)	26.0	26.0	26.0	26.0	44.0	44.0	44.0	44.0
Total Split (%)	37.1%	37.1%	37.1%	37.1%	62.9%	62.9%	62.9%	62.9%
Yellow Time (s)	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	15.3	15.3	15.3	15.3	44.9	44.9	44.9	44.9
Actuated g/C Ratio	0.22	0.22	0.22	0.22	0.64	0.64	0.64	0.64
v/c Ratio	0.63	0.42	0.15	0.53	0.26	0.41	0.14	0.81
Control Delay	33.3	16.2	22.6	20.2	15.2	13.2	2.0	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2
Total Delay	33.3	16.2	22.6	20.2	15.2	13.2	2.0	9.2
LOS	C	B	C	C	B	B	A	A
Approach Delay		24.1		20.6		13.5		8.6
Approach LOS		C		C		B		A

Intersection Summary			
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 13.6		Intersection LOS: B	
Intersection Capacity Utilization 94.8%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 7: Newport Ave & Sunset Cliffs Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	125	90	55	35	95	95	60	375	25	70	640	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9		4.9	4.9		4.9	4.9		4.9	4.9	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.97		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.98	1.00		0.99	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.94		1.00	0.93		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1729	1555		1744	1509		1765	1656		1747	1621	
Flt Permitted	0.54	1.00		0.64	1.00		0.21	1.00		0.47	1.00	
Satd. Flow (perm)	982	1555		1177	1509		395	1656		873	1621	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	136	98	60	38	103	103	65	408	27	76	696	152
RTOR Reduction (vph)	0	35	0	0	58	0	0	3	0	0	9	0
Lane Group Flow (vph)	136	123	0	38	148	0	65	432	0	76	839	0
Confl. Peds. (#/hr)	16		9	9		16	8		13	13		8
Confl. Bikes (#/hr)			3			1			2			1
Parking (#/hr)		0			0			0			0	
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	15.3	15.3		15.3	15.3		44.9	44.9		44.9	44.9	
Effective Green, g (s)	15.3	15.3		15.3	15.3		44.9	44.9		44.9	44.9	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.64	0.64		0.64	0.64	
Clearance Time (s)	4.9	4.9		4.9	4.9		4.9	4.9		4.9	4.9	
Vehicle Extension (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lane Grp Cap (vph)	215	340		257	330		253	1062		560	1040	
v/s Ratio Prot		0.08			0.10			0.26			c0.52	
v/s Ratio Perm	c0.14			0.03			0.16			0.09		
v/c Ratio	0.63	0.36		0.15	0.45		0.26	0.41		0.14	0.81	
Uniform Delay, d1	24.8	23.2		22.1	23.7		5.4	6.1		4.9	9.3	
Progression Factor	0.83	0.79		1.00	1.00		1.91	1.85		0.30	0.21	
Incremental Delay, d2	4.1	0.2		0.1	0.4		1.8	0.9		0.2	2.7	
Delay (s)	24.6	18.6		22.2	24.1		12.1	12.1		1.7	4.6	
Level of Service	C	B		C	C		B	B		A	A	
Approach Delay (s)		21.4			23.8			12.1			4.4	
Approach LOS		C			C			B			A	

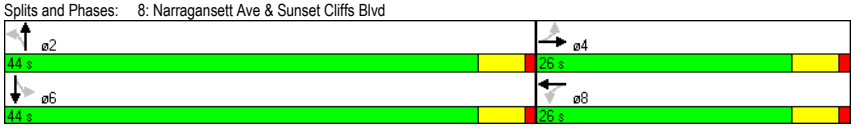
Intersection Summary					
HCM Average Control Delay	11.3	HCM Level of Service		B	
HCM Volume to Capacity ratio	0.76				
Actuated Cycle Length (s)	70.0	Sum of lost time (s)		9.8	
Intersection Capacity Utilization	94.8%	ICU Level of Service		F	
Analysis Period (min)	15				

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Volume (vph)	20	95	95	135	30	475	45	495
Turn Type	Perm		Perm		Perm		Perm	
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	15.0	15.0	14.0	14.0	15.0	15.0	16.0	16.0
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
Total Split (s)	26.0	26.0	26.0	26.0	44.0	44.0	44.0	44.0
Total Split (%)	37.1%	37.1%	37.1%	37.1%	62.9%	62.9%	62.9%	62.9%
Yellow Time (s)	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)		18.8		18.6		41.6		41.6
Actuated g/C Ratio		0.27		0.27		0.59		0.59
v/c Ratio		0.38		0.89		0.65		0.71
Control Delay		20.5		49.5		14.0		8.2
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		20.5		49.5		14.0		8.2
LOS		C		D		B		A
Approach Delay		20.5		49.5		14.0		8.2
Approach LOS		C		D		B		A

Intersection Summary			
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 18 (26%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 19.1		Intersection LOS: B	
Intersection Capacity Utilization 85.6%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 8: Narragansett Ave & Sunset Cliffs Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	20	95	30	95	135	70	30	475	50	45	495	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9			4.9			4.9			4.9	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.98			0.99			1.00			1.00	
Flpb, ped/bikes		1.00			0.99			1.00			1.00	
Frt		0.97			0.97			0.99			0.99	
Flt Protected		0.99			0.98			1.00			1.00	
Satd. Flow (prot)		1588			1559			1643			1639	
Flt Permitted		0.93			0.83			0.95			0.93	
Satd. Flow (perm)		1493			1322			1565			1528	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	103	33	103	147	76	33	516	54	49	538	65
RTOR Reduction (vph)	0	14	0	0	16	0	0	4	0	0	5	0
Lane Group Flow (vph)	0	144	0	0	310	0	0	599	0	0	647	0
Confl. Peds. (#/hr)	11		26	26		11	10		15	15		10
Confl. Bikes (#/hr)			1						2			2
Parking (#/hr)		0			0			0			0	
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		18.6			18.6			41.6			41.6	
Effective Green, g (s)		18.6			18.6			41.6			41.6	
Actuated g/C Ratio		0.27			0.27			0.59			0.59	
Clearance Time (s)		4.9			4.9			4.9			4.9	
Vehicle Extension (s)		1.0			1.0			1.0			1.0	
Lane Grp Cap (vph)		397			351			930			908	
v/s Ratio Prot												
v/s Ratio Perm		0.10			c0.23			0.38			c0.42	
v/c Ratio		0.36			0.88			0.64			0.71	
Uniform Delay, d1		20.9			24.7			9.3			10.0	
Progression Factor		1.00			1.00			1.00			0.41	
Incremental Delay, d2		0.2			21.5			3.4			3.1	
Delay (s)		21.1			46.2			12.8			7.3	
Level of Service		C			D			B			A	
Approach Delay (s)		21.1			46.2			12.8			7.3	
Approach LOS		C			D			B			A	

Intersection Summary				
HCM Average Control Delay	17.7	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.76			
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.8	
Intersection Capacity Utilization	85.6%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Volume (vph)	185	395	105	190	460	210	140	1530	250	300	1115
Turn Type	Prot		Free	Prot		Perm	Prot		Free	Prot	
Protected Phases	7	4		3	8		1	6		5	2
Permitted Phases			Free			8			Free		
Detector Phase	7	4		3	8	8	1	6		5	2
Switch Phase											
Minimum Initial (s)	4.0	10.0		4.0	10.0	10.0	4.0	10.0		4.0	10.0
Minimum Split (s)	8.4	30.9		8.4	32.5	32.5	8.4	27.0		8.4	27.0
Total Split (s)	19.0	30.9	0.0	28.1	40.0	40.0	18.4	64.0	0.0	27.0	72.6
Total Split (%)	12.7%	20.6%	0.0%	18.7%	26.7%	26.7%	12.3%	42.7%	0.0%	18.0%	48.4%
Yellow Time (s)	3.4	3.9		3.4	4.5	4.5	3.4	5.0		3.4	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	4.9	4.0	4.4	5.5	5.5	4.4	6.0	4.0	4.4	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag
Lead-Lag Optimize?											
Recall Mode	None	None		None	None	None	None	Max		None	Max
Act Effct Green (s)	14.6	28.2	150.0	21.5	34.5	34.5	14.0	58.0	150.0	22.6	66.6
Actuated g/C Ratio	0.10	0.19	1.00	0.14	0.23	0.23	0.09	0.39	1.00	0.15	0.44
v/c Ratio	1.25	0.64	0.08	0.87	1.17	0.50	0.99	1.22	0.19	1.31	1.03
Control Delay	205.4	62.0	0.1	95.8	147.6	20.5	135.5	143.8	0.3	212.7	70.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	205.4	62.0	0.1	95.8	147.6	20.5	135.5	143.8	0.3	212.7	70.8
LOS	F	E	A	F	F	C	F	F	A	F	E
Approach Delay		91.2			105.1			124.5			95.2
Approach LOS		F			F			F			F

Intersection Summary			
Cycle Length: 150			
Actuated Cycle Length: 150			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.31			
Intersection Signal Delay: 107.1		Intersection LOS: F	
Intersection Capacity Utilization 110.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 9: W Point Loma Blvd & Nimitz Blvd

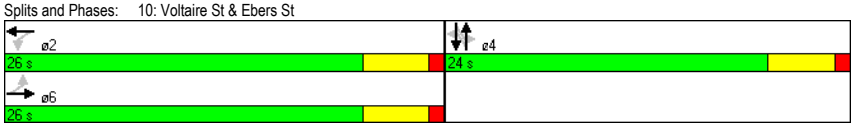
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	185	395	105	190	460	210	140	1530	250	300	1115	330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	10	10	12	10	10	12	10	10	12	10
Total Lost time (s)	4.4	4.9	4.0	4.4	5.5	5.5	4.4	6.0	4.0	4.4	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.99	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1652	3539	1455	1652	1863	1444	1652	3539	1459	1652	3396	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1652	3539	1455	1652	1863	1444	1652	3539	1459	1652	3396	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	201	429	114	207	500	228	152	1663	272	326	1212	359
RTOR Reduction (vph)	0	0	0	0	0	120	0	0	0	0	18	0
Lane Group Flow (vph)	201	429	114	207	500	108	152	1663	272	326	1553	0
Confl. Peds. (#/hr)			10			6			1			2
Confl. Bikes (#/hr)			3			1			1			2
Parking (#/hr)												0
Turn Type	Prot		Free	Prot		Perm	Prot		Free	Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			Free			8			Free			
Actuated Green, G (s)	14.6	28.2	150.0	21.5	34.5	34.5	14.0	58.0	150.0	22.6	66.6	
Effective Green, g (s)	14.6	28.2	150.0	21.5	34.5	34.5	14.0	58.0	150.0	22.6	66.6	
Actuated g/C Ratio	0.10	0.19	1.00	0.14	0.23	0.23	0.09	0.39	1.00	0.15	0.44	
Clearance Time (s)	4.4	4.9		4.4	5.5	5.5	4.4	6.0		4.4	6.0	
Vehicle Extension (s)	2.0	4.9		2.0	3.7	3.7	2.0	3.7		2.0	5.8	
Lane Grp Cap (vph)	161	665	1455	237	428	332	154	1368	1459	249	1508	
v/s Ratio Prot	c0.12	0.12		0.13	c0.27		0.09	c0.47		c0.20	0.46	
v/s Ratio Perm			0.08			0.07			0.19			
v/c Ratio	1.25	0.65	0.08	0.87	1.17	0.32	0.99	1.22	0.19	1.31	1.03	
Uniform Delay, d1	67.7	56.3	0.0	62.9	57.8	48.1	67.9	46.0	0.0	63.7	41.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	152.9	2.9	0.1	27.2	98.2	0.7	67.9	104.0	0.3	165.0	31.1	
Delay (s)	220.6	59.2	0.1	90.1	156.0	48.8	135.8	150.0	0.3	228.7	72.8	
Level of Service	F	E	A	F	F	D	F	F	A	F	E	
Approach Delay (s)		93.7			115.2			129.4			99.6	
Approach LOS		F			F			F			F	

Intersection Summary					
HCM Average Control Delay	112.4	HCM Level of Service		F	
HCM Volume to Capacity ratio	1.22				
Actuated Cycle Length (s)	150.0	Sum of lost time (s)		20.3	
Intersection Capacity Utilization	110.3%	ICU Level of Service		H	
Analysis Period (min)	15				
c Critical Lane Group					

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Volume (vph)	50	290	130	345	75	205	50	280
Turn Type	Perm		Perm		Perm		Perm	
Protected Phases		6		2		4		4
Permitted Phases	6		2		4		4	
Detector Phase	6	6	2	2	4	4	4	4
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.9	22.9	22.9	22.9	23.9	23.9	23.9	23.9
Total Split (s)	26.0	26.0	26.0	26.0	24.0	24.0	24.0	24.0
Total Split (%)	52.0%	52.0%	52.0%	52.0%	48.0%	48.0%	48.0%	48.0%
Yellow Time (s)	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	Max	Max	None	None	None	None
Act Effct Green (s)		21.2		21.2		16.5		16.5
Actuated g/C Ratio		0.45		0.45		0.35		0.35
v/c Ratio		0.69		0.97		0.86		0.74
Control Delay		18.0		49.7		32.1		23.0
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		18.0		49.7		32.1		23.0
LOS		B		D		C		C
Approach Delay		18.0		49.7		32.1		23.0
Approach LOS		B		D		C		C

Intersection Summary			
Cycle Length: 50			
Actuated Cycle Length: 47.6			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 32.1		Intersection LOS: C	
Intersection Capacity Utilization 92.4%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 10: Voltaire St & Ebers St



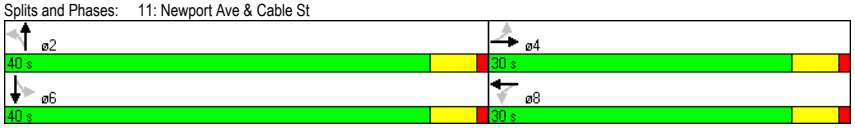
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	290	85	130	345	45	75	205	120	50	280	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9			4.9			4.9			4.9	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			1.00			0.99			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.97			0.99			0.96			0.99	
Flt Protected		0.99			0.99			0.99			0.99	
Satd. Flow (prot)		1611			1630			1580			1645	
Flt Permitted		0.91			0.78			0.86			0.90	
Satd. Flow (perm)		1468			1293			1366			1491	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	315	92	141	375	49	82	223	130	54	304	27
RTOR Reduction (vph)	0	17	0	0	7	0	0	33	0	0	6	0
Lane Group Flow (vph)	0	444	0	0	558	0	0	402	0	0	379	0
Confl. Peds. (#/hr)	8		7	7		8	4		6	6		4
Confl. Bikes (#/hr)			4			2			1			1
Parking (#/hr)		0			0			0			0	
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			2			4			4	
Permitted Phases	6			2			4			4		
Actuated Green, G (s)		21.2			21.2			16.5			16.5	
Effective Green, g (s)		21.2			21.2			16.5			16.5	
Actuated g/C Ratio		0.45			0.45			0.35			0.35	
Clearance Time (s)		4.9			4.9			4.9			4.9	
Vehicle Extension (s)		3.5			3.5			2.0			2.0	
Lane Grp Cap (vph)		655			577			475			518	
v/s Ratio Prot												
v/s Ratio Perm		0.30			c0.43			c0.29			0.25	
v/c Ratio		0.68			0.97			0.85			0.73	
Uniform Delay, d1		10.4			12.8			14.3			13.6	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.9			30.3			12.6			4.6	
Delay (s)		13.3			43.1			27.0			18.1	
Level of Service		B			D			C			B	
Approach Delay (s)		13.3			43.1			27.0			18.1	
Approach LOS		B			D			C			B	

Intersection Summary					
HCM Average Control Delay	26.7	HCM Level of Service		C	
HCM Volume to Capacity ratio	0.92				
Actuated Cycle Length (s)	47.5	Sum of lost time (s)		9.8	
Intersection Capacity Utilization	92.4%	ICU Level of Service		F	
Analysis Period (min)	15				
c Critical Lane Group					

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Volume (vph)	25	140	60	145	65	265	35	310
Turn Type	Perm		Perm		Perm		Perm	
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	15.0	15.0	14.0	14.0	19.0	19.0	19.0	19.0
Minimum Split (s)	22.9	22.9	23.0	23.0	23.9	23.9	23.9	23.9
Total Split (s)	30.0	30.0	30.0	30.0	40.0	40.0	40.0	40.0
Total Split (%)	42.9%	42.9%	42.9%	42.9%	57.1%	57.1%	57.1%	57.1%
Yellow Time (s)	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Act Effct Green (s)		33.8		33.8		26.4		26.4
Actuated g/C Ratio		0.48		0.48		0.38		0.38
v/c Ratio		0.30		0.43		0.83		0.71
Control Delay		12.8		14.0		32.1		24.3
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		12.8		14.0		32.1		24.3
LOS		B		B		C		C
Approach Delay		12.8		14.0		32.1		24.3
Approach LOS		B		B		C		C

Intersection Summary			
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 40 (57%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 22.8		Intersection LOS: C	
Intersection Capacity Utilization 71.2%		ICU Level of Service C	
Analysis Period (min) 15			

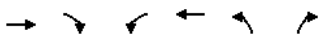
Splits and Phases: 11: Newport Ave & Cable St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	140	55	60	145	65	65	265	80	35	310	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9			4.9			4.9			4.9	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.98			0.98			0.98			0.99	
Flpb, ped/bikes		0.99			0.99			1.00			1.00	
Frt		0.97			0.97			0.97			0.99	
Flt Protected		0.99			0.99			0.99			1.00	
Satd. Flow (prot)		1568			1550			1584			1629	
Flt Permitted		0.95			0.89			0.86			0.94	
Satd. Flow (perm)		1496			1397			1379			1538	
Peak-hour factor, PHF	1.00	1.00	1.00	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	140	55	65	158	71	71	288	87	38	337	43
RTOR Reduction (vph)	0	14	0	0	13	0	0	16	0	0	7	0
Lane Group Flow (vph)	0	206	0	0	281	0	0	430	0	0	411	0
Confl. Peds. (#/hr)	33		27	27		33	26		40	40		26
Confl. Bikes (#/hr)			6			2			4			7
Parking (#/hr)		0			0			0			0	
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		33.8			33.8			26.4			26.4	
Effective Green, g (s)		33.8			33.8			26.4			26.4	
Actuated g/C Ratio		0.48			0.48			0.38			0.38	
Clearance Time (s)		4.9			4.9			4.9			4.9	
Vehicle Extension (s)		1.0			1.0			1.0			1.0	
Lane Grp Cap (vph)		722			675			520			580	
v/s Ratio Prot												
v/s Ratio Perm		0.14			c0.20			c0.31			0.27	
v/c Ratio		0.29			0.42			0.83			0.71	
Uniform Delay, d1		10.9			11.7			19.7			18.5	
Progression Factor		1.00			0.94			1.00			1.00	
Incremental Delay, d2		1.0			1.6			10.0			3.2	
Delay (s)		11.8			12.6			29.7			21.8	
Level of Service		B			B			C			C	
Approach Delay (s)		11.8			12.6			29.7			21.8	
Approach LOS		B			B			C			C	

Intersection Summary					
HCM Average Control Delay	20.8	HCM Level of Service	C		
HCM Volume to Capacity ratio	0.60				
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.8		
Intersection Capacity Utilization	71.2%	ICU Level of Service	C		
Analysis Period (min)	15				

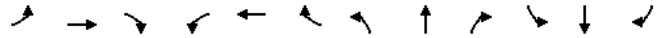
c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	190	5	385	305	20	340
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	207	5	418	332	22	370
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	793			1248		
pX, platoon unblocked						
vC, conflicting volume			212		1378	209
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			212		1378	209
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			69		80	56
cM capacity (veh/h)			1358		110	831

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	212	418	332	391
Volume Left	0	418	0	22
Volume Right	5	0	0	370
cSH	1700	1358	1700	610
Volume to Capacity	0.12	0.31	0.20	0.64
Queue Length 95th (ft)	0	33	0	115
Control Delay (s)	0.0	8.8	0.0	20.9
Lane LOS		A		C
Approach Delay (s)	0.0	4.9		20.9
Approach LOS				C

Intersection Summary			
Average Delay	8.8		
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	40	110	165	70	75	5	245	215	150	20	160	25
Peak Hour Factor	0.73	0.73	0.73	0.61	0.61	0.61	0.84	0.84	0.84	0.98	0.98	0.98
Hourly flow rate (vph)	55	151	226	115	123	8	292	256	179	20	163	26

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total (vph)	432	246	548	179	209
Volume Left (vph)	55	115	292	0	20
Volume Right (vph)	226	8	0	179	26
Hadj (s)	-0.25	0.11	0.14	-0.57	-0.02
Departure Headway (s)	7.1	8.0	7.3	3.2	8.0
Degree Utilization, x	0.85	0.55	1.11	0.16	0.47
Capacity (veh/h)	432	424	495	1121	410
Control Delay (s)	38.2	20.2	100.7	6.8	17.8
Approach Delay (s)	38.2	20.2	77.6		17.8
Approach LOS	E	C	F		C

Intersection Summary			
Delay	50.5		
HCM Level of Service	F		
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	5	10	5	5	10	10	685	5	20	1010	20
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.50	0.50	0.50	0.70	0.70	0.70	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	10	10	20	7	7	14	11	737	5	22	1086	22
Pedestrians		24			22			3			1	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		2			2			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1943	1949	1124	1951	1957	762	1132			764		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1943	1949	1124	1951	1957	762	1132			764		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	75	83	92	80	88	96	98			97		
cM capacity (veh/h)	39	59	244	36	59	397	605			833		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	40	29	753	1129
Volume Left	10	7	11	22
Volume Right	20	14	5	22
cSH	79	80	605	833
Volume to Capacity	0.50	0.36	0.02	0.03
Queue Length 95th (ft)	53	34	1	2
Control Delay (s)	89.7	73.5	0.5	0.9
Lane LOS	F	F	A	A
Approach Delay (s)	89.7	73.5	0.5	0.9
Approach LOS	F	F		

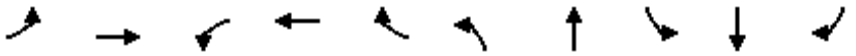
Intersection Summary					
Average Delay			3.6		
Intersection Capacity Utilization			76.7%	ICU Level of Service	D
Analysis Period (min)			15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	20	15	10	10	15	95	10	700	15	85	695	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.71	0.71	0.71	0.56	0.56	0.56	0.92	0.92	0.92	0.85	0.85	0.85
Hourly flow rate (vph)	28	21	14	18	27	170	11	761	16	100	818	35
Pedestrians		18			28			1			7	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			2			0			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2034	1880	854	1880	1890	804	871			805		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2034	1880	854	1880	1890	804	871			805		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	64	96	45	54	54	99			88		
cM capacity (veh/h)	13	59	353	32	58	372	762			800		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	63	214	788	953
Volume Left	28	18	11	100
Volume Right	14	170	16	35
cSH	24	146	762	800
Volume to Capacity	2.63	1.47	0.01	0.12
Queue Length 95th (ft)	198	355	1	11
Control Delay (s)	1076.4	301.4	0.4	3.3
Lane LOS	F	F	A	A
Approach Delay (s)	1076.4	301.4	0.4	3.3
Approach LOS	F	F		

Intersection Summary					
Average Delay			67.5		
Intersection Capacity Utilization			100.5%	ICU Level of Service	G
Analysis Period (min)			15		

Appendix K
Queuing Worksheets



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	523	531	60	76	114	5	1022	22	832	201
v/c Ratio	1.36	1.41	0.27	0.30	0.60	0.06	1.37	0.28	0.99	0.21
Control Delay	207.7	230.2	35.1	35.6	43.1	25.2	195.1	32.1	57.3	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	207.7	230.2	35.1	35.6	43.1	25.2	195.1	32.1	57.3	1.4
Queue Length 50th (ft)	~415	~434	32	40	54	2	~760	7	445	0
Queue Length 95th (ft)	#618	#645	59	70	95	m3	m#1080	#41	#838	22
Internal Link Dist (ft)		657		713			400		1400	
Turn Bay Length (ft)	500		120		120	120		120		
Base Capacity (vph)	385	376	404	455	330	77	748	78	837	972
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.36	1.41	0.15	0.17	0.35	0.06	1.37	0.28	0.99	0.21

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	363	371	369	54	11	717	43	951	1054
v/c Ratio	0.92	0.95	1.10	0.20	0.19	0.99	0.57	1.16	1.10
Control Delay	73.8	79.6	123.7	24.0	25.1	51.8	58.1	119.3	75.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	42.9	0.0	0.0	0.0
Total Delay	73.8	79.6	123.7	24.0	25.1	94.6	58.1	119.3	75.3
Queue Length 50th (ft)	289	297	~324	15	3	456	24	~875	~599
Queue Length 95th (ft)	#484	#504	#515	52	m5	m#790	#87	#1125	#1180
Internal Link Dist (ft)		657	713			400		1400	
Turn Bay Length (ft)	500			120	120		120		
Base Capacity (vph)	394	390	336	265	58	722	76	817	960
Starvation Cap Reductn	0	0	0	0	0	80	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.95	1.10	0.20	0.19	1.12	0.57	1.16	1.10

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

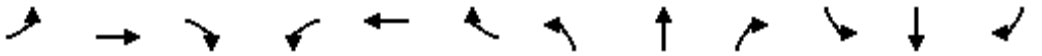
m Volume for 95th percentile queue is metered by upstream signal.

Appendix L
Caltrans Data for Freeway Analysis

									AM PEAK							PM PEAK						
DI	RTE	CO	PRE	PM	CS	LEG	YR	Dir	1 WAY	%	%	%	HR	DAY	MNTH	Dir	1 WAY	%	%	%	HR	DAY	MNTH
09	006	INY	R	3.952	945	A	08	S	138	8.39	86.25	7.23	7	MON	SEP	N	123	10.59	60.89	6.45	17	FRI	NOV
09	006	MNO		32.29	997	B	09	S	49	10.55	56.32	5.94	12	THU	AUG	S	54	10.18	64.29	6.55	13	SUN	JUL
11	007	IMP		1.188	607	B	09	N	303	6.86	63.26	4.34	12	MON	APR	S	388	10.16	54.73	5.56	17	FRI	DEC
11	007	IMP		1.188	401	A	09	N	237	5.84	78.74	4.6	6	MON	MAY	S	289	9.47	59.22	5.61	16	FRI	NOV
11	008	SD	L	1.213	951	B	09	E	2260	7.7	63.41	4.88	8	WED	MAR	W	2155	8.79	52.97	4.65	17	WED	SEP
11	008	SD	L	1.213	958	A	09	E	4475	7.37	59.57	4.39	7	THU	FEB	W	4771	8.59	54.46	4.68	17	MON	APR
11	008	SD		.946	804	A	09	W	8140	7.35	57.74	4.24	7	THU	OCT	E	8538	8.21	54.2	4.45	16	THU	JUN
11	008	SD		5.638	953	B	09	W	11582	7.43	64.8	4.81	7	WED	MAY	E	11019	7.9	57.98	4.58	15	MON	MAR
11	008	SD		8.336	807	B	09	W	11263	8.07	61.65	4.98	7	TUE	SEP	E	10748	8	59.33	4.75	15	TUE	SEP
11	008	SD		8.336	808	A	09	W	10246	7.72	67.24	5.19	7	TUE	NOV	E	9769	8.13	60.83	4.95	16	FRI	APR
11	008	SD		11.76	810	B	09	W	8418	7.04	62.5	4.4	7	MON	NOV	E	9010	8.17	57.65	4.71	16	TUE	JAN
11	008	SD		14.59	806	B	09	W	8323	7.2	61.1	4.4	7	TUE	MAY	E	8751	8.64	53.52	4.62	15	FRI	MAY
11	008	SD	R	18.73	824	B	09	W	4526	7.12	70.46	5.02	7	THU	NOV	E	4322	7.92	60.52	4.79	16	WED	NOV
11	008	SD	R	23.64	979	O	09	E	2481	6.61	67.2	4.44	7	WED	MAR	W	2931	9.05	57.98	5.25	16	FRI	MAR
11	008	SD	R	37.83	811	A	09	E	1201	11.61	53.64	6.23	11	SUN	DEC	W	1447	11.32	66.26	7.5	16	SAT	NOV
11	008	SD	R	51.98	621	B	09	W	1047	11.42	58.33	6.66	12	SUN	MAR	E	1315	13.86	60.38	8.37	13	WED	NOV
11	008	IMP	R	10.29	993	B	09	W	975	12.89	54.93	7.08	11	SUN	DEC	W	1210	12.94	67.86	8.78	13	SAT	JAN
11	008	IMP	R	10.29	994	A	09	W	904	12.67	59.32	7.51	12	SUN	MAR	W	1108	13.45	68.48	9.21	13	SAT	JAN
11	008	IMP	R	23.48	624	A	09	W	855	11.08	63.01	6.98	10	SAT	JUL	E	1075	16.86	52.08	8.78	14	MON	MAY
11	008	IMP	R	36.97	982	B	09	W	1020	10.19	57.37	5.85	12	MON	FEB	E	1209	11.68	59.32	6.93	17	WED	NOV
11	008	IMP	R	40.94	638	B	09	E	1416	7.91	55.99	4.43	12	FRI	MAR	E	1784	9.62	58	5.58	16	FRI	FEB
11	008	IMP	R	53.50	964	A	09	E	891	12.43	59.64	7.41	11	SUN	JUL	W	1036	15.02	57.4	8.62	13	SUN	DEC
11	008	IMP	R	96.55	995	B	09	W	1253	11.51	53.52	6.16	12	SUN	DEC	E	1352	12.6	52.79	6.65	14	WED	NOV
11	008	IMP	R	96.99	988	B	09	E	1081	11.54	56.1	6.48	11	FRI	JAN	E	1160	10.95	63.46	6.95	13	WED	JAN
05	009	SCR		.63	681	A	08	S	380	8.29	91.79	7.61	8	TUE	DEC	S	390	8.27	94.43	7.81	17	MON	DEC
05	009	SCR		8.11	430	B	08	S	1364	8.35	78.89	6.58	7	THU	MAR	N	1250	9.09	66.38	6.03	17	TUE	DEC
05	009	SCR		13.04	169	B	08	N	731	9.14	64.92	5.93	10	WED	DEC	N	643	8.85	58.99	5.22	17	MON	DEC
05	009	SCR		27.09	49	B	08	N	294	12.23	97.35	11.91	7	MON	JUN	S	233	11.06	85.35	9.44	17	WED	SEP
04	009	SCL		7.09	170	A	07	S	456	10.67	61.13	6.52	11	SAT	JUL	N	537	9.69	79.2	7.68	22	SAT	JUL
04	009	SCL		11.45	171	B	07	N	1613	7.59	60.8	4.62	8	WED	OCT	N	1841	8.84	59.64	5.27	15	TUE	JAN
07	010	LA		18.41	456	B	09	W	794	11.12	94.19	10.47	9	THU	FEB	E	752	11.91	83.28	9.92	15	THU	AUG
07	010	LA		19.71	783	O	08	W	868	11.22	92.34	10.36	9	THU	OCT	E	569	8.93	76.07	6.79	17	THU	NOV
07	010	LA		24.31	785	A	09	W	1479	6.46	90.02	5.82	9	THU	OCT	E	1593	8.47	73.92	6.26	15	THU	JUN

RTE	DIST	CNTY	POST MILE	LEG	DESCRIPTION	VEHICLE AADT TOTAL	TRUCK AADT TOTAL	TRUCK % TOT VEH	TRUCK AADT TOTAL ---- By Axle ---- 2	3	4	5+	% TRUCK AADT ---- By Axle ---- 2	3	4	5+	EAL 2-WAY (1000)	YEAR VER/ EST
008	11	SD	T .407	A	SAN DIEGO, SUNSET CLIFFS BOULEVARD	10,500	105	1.00	86	8	3	8	82.30	7.40	2.90	7.40	7	78E
008	11	SD	L 2.379	B	JCT RTE 5 LT LANES	102,000	1,224	1.20	1,038	87	9	91	84.80	7.10	0.70	7.40	77	78V
008	11	SD	L 2.379	A	JCT RTE 5 LT LANES	132,000	3,696	2.80	2,473	532	159	532	66.90	14.40	4.30	14.40	342	83V
008	11	SD	2.41	B	SAN DIEGO, JCT. RTE. 163	200,000	5,400	2.70	4,180	583	135	502	77.40	10.80	2.50	9.30	393	83E
008	11	SD	2.41	A	SAN DIEGO, JCT. RTE. 163	204,000	5,712	2.80	4,461	571	137	543	78.10	10.00	2.40	9.50	416	83E
008	11	SD	4.378	B	SAN DIEGO, JCT. RTE. 805	193,000	6,176	3.20	4,638	611	210	716	75.10	9.90	3.40	11.60	496	83E
008	11	SD	5.638	B	JCT. RTE. 15	240,000	7,200	3.00	4,212	914	302	1,771	58.50	12.70	4.20	24.60	887	83V
008	11	SD	5.638	A	JCT. RTE. 15	213,000	7,455	3.50	4,771	857	335	1,491	64.00	11.50	4.50	20.00	809	84E
008	11	SD	10.57	B	FLETCHER PARKWAY	189,000	6,993	3.70	4,182	888	245	1,678	59.80	12.70	3.50	24.00	843	84V
008	11	SD	10.57	A	FLETCHER PARKWAY	173,000	7,612	4.40	4,301	1,172	388	1,751	56.50	15.40	5.10	23.00	919	78V
008	11	SD	15.8	B	EL CAJON, JCT. RTE. 67 NORTH	165,000	7,755	4.70	4,180	1,016	357	2,202	53.90	13.10	4.60	28.40	1,052	78V
008	11	SD	15.8	A	EL CAJON, JCT. RTE. 67 NORTH	131,000	3,799	2.90	2,105	429	133	1,132	55.40	11.30	3.50	29.80	523	78V
008	11	SD	R 18.727	A	GREENFIELD DRIVE	77,000	5,313	6.90	2,800	414	128	1,971	52.70	7.80	2.40	37.10	835	86V
008	11	SD	R 37.831	B	JCT. RTE. 79 NORTH, JAPATUL VALLEY ROAD	25,000	3,000	12.00	1,179	177	90	1,554	39.30	5.90	3.00	51.80	607	86E
008	11	SD	R 37.831	A	JCT. RTE. 79 NORTH, JAPATUL VALLEY ROAD	19,600	2,666	13.60	866	208	77	1,514	32.50	7.80	2.90	56.80	583	00E

Appendix M
Mitigated Intersection LOS Worksheets



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	845	115	10	55	70	105	5	905	35	20	765	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	10	12	10	10	12	12	10	12	10
Total Lost time (s)	4.9	4.9		4.9	4.9	4.9	5.5	5.5		5.4	5.4	5.4
Lane Util. Factor	0.95	0.95		1.00	1.00	1.00	1.00	1.00		1.00	1.00	0.88
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00		1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	0.96		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1569	1529		1652	1863	1291	1652	1666		1652	1863	2360
Flt Permitted	0.95	0.96		0.95	1.00	1.00	0.12	1.00		0.04	1.00	1.00
Satd. Flow (perm)	1569	1529		1652	1863	1291	206	1666		71	1863	2360
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	918	125	11	60	76	114	5	984	38	22	832	201
RTOR Reduction (vph)	0	1	0	0	0	52	0	1	0	0	0	49
Lane Group Flow (vph)	523	530	0	60	76	62	5	1021	0	22	832	152
Confl. Peds. (#/hr)			5			6	6					6
Confl. Bikes (#/hr)			1			1			4			1
Parking (#/hr)		0				0		0				0
Turn Type	Split			Split		Perm	Perm			Perm		Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases						8	2			6		6
Actuated Green, G (s)	52.1	52.1		14.7	14.7	14.7	97.9	97.9		98.0	98.0	98.0
Effective Green, g (s)	52.1	52.1		14.7	14.7	14.7	97.9	97.9		98.0	98.0	98.0
Actuated g/C Ratio	0.29	0.29		0.08	0.08	0.08	0.54	0.54		0.54	0.54	0.54
Clearance Time (s)	4.9	4.9		4.9	4.9	4.9	5.5	5.5		5.4	5.4	5.4
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	454	443		135	152	105	112	906		39	1014	1285
v/s Ratio Prot	0.33	c0.35		0.04	0.04			c0.61			0.45	
v/s Ratio Perm						c0.05	0.02			0.31		0.06
v/c Ratio	1.15	1.20		0.44	0.50	0.59	0.04	1.13		0.56	0.82	0.12
Uniform Delay, d1	64.0	64.0		78.8	79.1	79.7	19.2	41.0		27.0	33.8	20.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.82	0.83		1.00	1.00	1.00
Incremental Delay, d2	91.0	108.8		0.9	0.9	5.3	0.5	66.7		48.0	7.4	0.2
Delay (s)	154.9	172.7		79.6	80.1	85.0	16.2	100.6		74.9	41.2	20.2
Level of Service	F	F		E	F	F	B	F		E	D	C
Approach Delay (s)		163.9			82.2			100.2			37.9	
Approach LOS		F			F			F			D	

Intersection Summary			
HCM Average Control Delay	99.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	15.3
Intersection Capacity Utilization	98.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

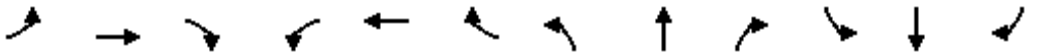
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	455	285	120	235	180	325	60	1535	115	100	1375	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	10	10	12	10	10	12	10	10	12	10
Total Lost time (s)	4.4	4.9	4.0	4.4	5.5	5.5	4.4	6.0	4.0	4.4	6.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3204	3539	1455	3204	1863	1444	1652	3539	1459	1652	3515	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3204	3539	1455	3204	1863	1444	1652	3539	1459	1652	3515	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	495	310	130	255	196	353	65	1668	125	109	1495	60
RTOR Reduction (vph)	0	0	0	0	0	74	0	0	0	0	2	0
Lane Group Flow (vph)	495	310	130	255	196	279	65	1668	125	109	1553	0
Confl. Peds. (#/hr)			10			6			1			2
Confl. Bikes (#/hr)			3			1			1			2
Parking (#/hr)												0
Turn Type	Prot		Free	Prot		Perm	Prot		Free	Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			Free			8			Free			
Actuated Green, G (s)	23.0	35.2	150.0	15.9	27.5	27.5	7.2	68.8	150.0	10.4	72.0	
Effective Green, g (s)	23.0	35.2	150.0	15.9	27.5	27.5	7.2	68.8	150.0	10.4	72.0	
Actuated g/C Ratio	0.15	0.23	1.00	0.11	0.18	0.18	0.05	0.46	1.00	0.07	0.48	
Clearance Time (s)	4.4	4.9		4.4	5.5	5.5	4.4	6.0		4.4	6.0	
Vehicle Extension (s)	2.0	4.9		2.0	3.7	3.7	2.0	3.7		2.0	5.8	
Lane Grp Cap (vph)	491	830	1455	340	342	265	79	1623	1459	115	1687	
v/s Ratio Prot	c0.15	0.09		0.08	0.11		0.04	c0.47		c0.07	c0.44	
v/s Ratio Perm			0.09			c0.19			0.09			
v/c Ratio	1.01	0.37	0.09	0.75	0.57	1.05	0.82	1.03	0.09	0.95	0.92	
Uniform Delay, d1	63.5	48.2	0.0	65.1	55.9	61.2	70.8	40.6	0.0	69.5	36.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	42.7	0.6	0.1	8.0	2.6	69.5	45.5	29.7	0.1	66.3	9.7	
Delay (s)	106.2	48.7	0.1	73.1	58.5	130.7	116.3	70.3	0.1	135.8	46.1	
Level of Service	F	D	A	E	E	F	F	E	A	F	D	
Approach Delay (s)		72.4			94.9			67.2			51.9	
Approach LOS		E			F			E			D	

Intersection Summary			
HCM Average Control Delay	67.5	HCM Level of Service	E
HCM Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.3
Intersection Capacity Utilization	89.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	25	280	5	5	5	100	90	15	15	195	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0		4.0	
Lane Util. Factor		1.00			1.00			1.00	1.00		1.00	
Frpb, ped/bikes		0.98			0.99			1.00	0.98		1.00	
Flpb, ped/bikes		1.00			1.00			1.00	1.00		1.00	
Frt		0.90			0.95			1.00	0.85		0.99	
Flt Protected		0.99			0.98			0.97	1.00		1.00	
Satd. Flow (prot)		1621			1735			1815	1549		1838	
Flt Permitted		0.95			0.87			0.75	1.00		0.97	
Satd. Flow (perm)		1548			1539			1399	1549		1793	
Peak-hour factor, PHF	0.85	0.85	0.85	0.69	0.69	0.69	0.85	0.85	0.85	0.82	0.82	0.82
Adj. Flow (vph)	65	29	329	7	7	7	118	106	18	18	238	18
RTOR Reduction (vph)	0	225	0	0	5	0	0	0	11	0	7	0
Lane Group Flow (vph)	0	198	0	0	16	0	0	224	7	0	267	0
Confl. Peds. (#/hr)			7			7			2			2
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		8.6			8.6			10.6	10.6		10.6	
Effective Green, g (s)		8.6			8.6			10.6	10.6		10.6	
Actuated g/C Ratio		0.32			0.32			0.39	0.39		0.39	
Clearance Time (s)		4.0			4.0			4.0	4.0		4.0	
Vehicle Extension (s)		3.0			3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		489			487			545	604		699	
v/s Ratio Prot												
v/s Ratio Perm		c0.13			0.01			c0.16	0.00		0.15	
v/c Ratio		0.40			0.03			0.41	0.01		0.38	
Uniform Delay, d1		7.3			6.4			6.0	5.1		6.0	
Progression Factor		1.00			1.00			1.00	1.00		1.00	
Incremental Delay, d2		0.5			0.0			0.5	0.0		0.4	
Delay (s)		7.8			6.5			6.5	5.1		6.3	
Level of Service		A			A			A	A		A	
Approach Delay (s)		7.8			6.5			6.4			6.3	
Approach LOS		A			A			A			A	

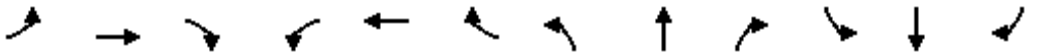
Intersection Summary			
HCM Average Control Delay	7.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	27.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



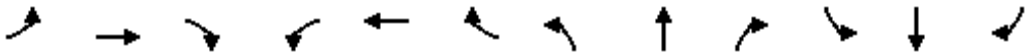
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	195	10	130	210	50	10	580	80	40	875	970
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	10	12	10	10	12	12	10	12	10
Total Lost time (s)	4.9	4.9		4.9	4.9	4.9	5.5	5.5		5.4	5.4	5.4
Lane Util. Factor	0.95	0.95		1.00	1.00	1.00	1.00	1.00		1.00	1.00	0.88
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	0.98		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1569	1553		1652	1863	1299	1652	1641		1652	1863	2471
Flt Permitted	0.95	0.98		0.95	1.00	1.00	0.07	1.00		0.17	1.00	1.00
Satd. Flow (perm)	1569	1553		1652	1863	1299	115	1641		299	1863	2471
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	511	212	11	141	228	54	11	630	87	43	951	1054
RTOR Reduction (vph)	0	1	0	0	0	42	0	4	0	0	0	344
Lane Group Flow (vph)	363	370	0	141	228	12	11	713	0	43	951	710
Confl. Peds. (#/hr)			5			6	6					6
Confl. Bikes (#/hr)			1			1			4			1
Parking (#/hr)		0				0		0				0
Turn Type	Split			Split		Perm	Perm			Perm		Prot
Protected Phases	4	4		3	3			2			6	6
Permitted Phases						3	2			6		
Actuated Green, G (s)	26.1	26.1		18.2	18.2	18.2	60.4	60.4		60.5	60.5	60.5
Effective Green, g (s)	26.1	26.1		18.2	18.2	18.2	60.4	60.4		60.5	60.5	60.5
Actuated g/C Ratio	0.22	0.22		0.15	0.15	0.15	0.50	0.50		0.50	0.50	0.50
Clearance Time (s)	4.9	4.9		4.9	4.9	4.9	5.5	5.5		5.4	5.4	5.4
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	341	338		251	283	197	58	826		151	939	1246
v/s Ratio Prot	0.23	c0.24		0.09	c0.12			0.43			c0.51	0.29
v/s Ratio Perm						0.01	0.10			0.14		
v/c Ratio	1.06	1.10		0.56	0.81	0.06	0.19	0.86		0.28	1.01	0.57
Uniform Delay, d1	46.9	46.9		47.2	49.2	43.6	16.4	26.2		17.2	29.8	20.7
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.83	0.75		1.00	1.00	1.00
Incremental Delay, d2	66.9	77.0		1.7	14.5	0.0	4.2	7.2		4.7	32.6	1.9
Delay (s)	113.8	123.9		48.9	63.7	43.6	17.9	27.0		21.9	62.3	22.6
Level of Service	F	F		D	E	D	B	C		C	E	C
Approach Delay (s)		118.9			56.2			26.8			41.0	
Approach LOS		F			E			C			D	

Intersection Summary			
HCM Average Control Delay	54.6	HCM Level of Service	D
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.2
Intersection Capacity Utilization	89.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	185	395	105	190	460	210	140	1530	250	300	1115	330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	10	10	12	10	10	12	10	10	12	10
Total Lost time (s)	4.4	4.9	4.0	4.4	5.5	5.5	4.4	6.0	4.0	4.4	6.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.99	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3204	3539	1455	3204	1863	1444	1652	3539	1459	1652	3396	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3204	3539	1455	3204	1863	1444	1652	3539	1459	1652	3396	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	201	429	114	207	500	228	152	1663	272	326	1212	359
RTOR Reduction (vph)	0	0	0	0	0	121	0	0	0	0	19	0
Lane Group Flow (vph)	201	429	114	207	500	107	152	1663	272	326	1552	0
Confl. Peds. (#/hr)			10			6			1			2
Confl. Bikes (#/hr)			3			1			1			2
Parking (#/hr)												0
Turn Type	Prot		Free	Prot		Perm	Prot		Free	Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			Free			8			Free			
Actuated Green, G (s)	8.6	31.1	150.0	13.6	35.5	35.5	15.0	61.0	150.0	24.6	70.6	
Effective Green, g (s)	8.6	31.1	150.0	13.6	35.5	35.5	15.0	61.0	150.0	24.6	70.6	
Actuated g/C Ratio	0.06	0.21	1.00	0.09	0.24	0.24	0.10	0.41	1.00	0.16	0.47	
Clearance Time (s)	4.4	4.9		4.4	5.5	5.5	4.4	6.0		4.4	6.0	
Vehicle Extension (s)	2.0	4.9		2.0	3.7	3.7	2.0	3.7		2.0	5.8	
Lane Grp Cap (vph)	184	734	1455	290	441	342	165	1439	1459	271	1598	
v/s Ratio Prot	c0.06	0.12		0.06	c0.27		0.09	c0.47		c0.20	0.46	
v/s Ratio Perm			0.08			0.07			0.19			
v/c Ratio	1.09	0.58	0.08	0.71	1.13	0.31	0.92	1.16	0.19	1.20	0.97	
Uniform Delay, d1	70.7	53.6	0.0	66.3	57.2	47.2	66.9	44.5	0.0	62.7	38.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	93.2	1.8	0.1	6.8	84.8	0.7	47.0	78.4	0.3	121.0	16.7	
Delay (s)	163.9	55.4	0.1	73.1	142.0	47.9	113.9	122.9	0.3	183.7	55.4	
Level of Service	F	E	A	E	F	D	F	F	A	F	E	
Approach Delay (s)		76.2			103.8			106.2			77.5	
Approach LOS		E			F			F			E	

Intersection Summary			
HCM Average Control Delay	92.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	20.3
Intersection Capacity Utilization	105.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

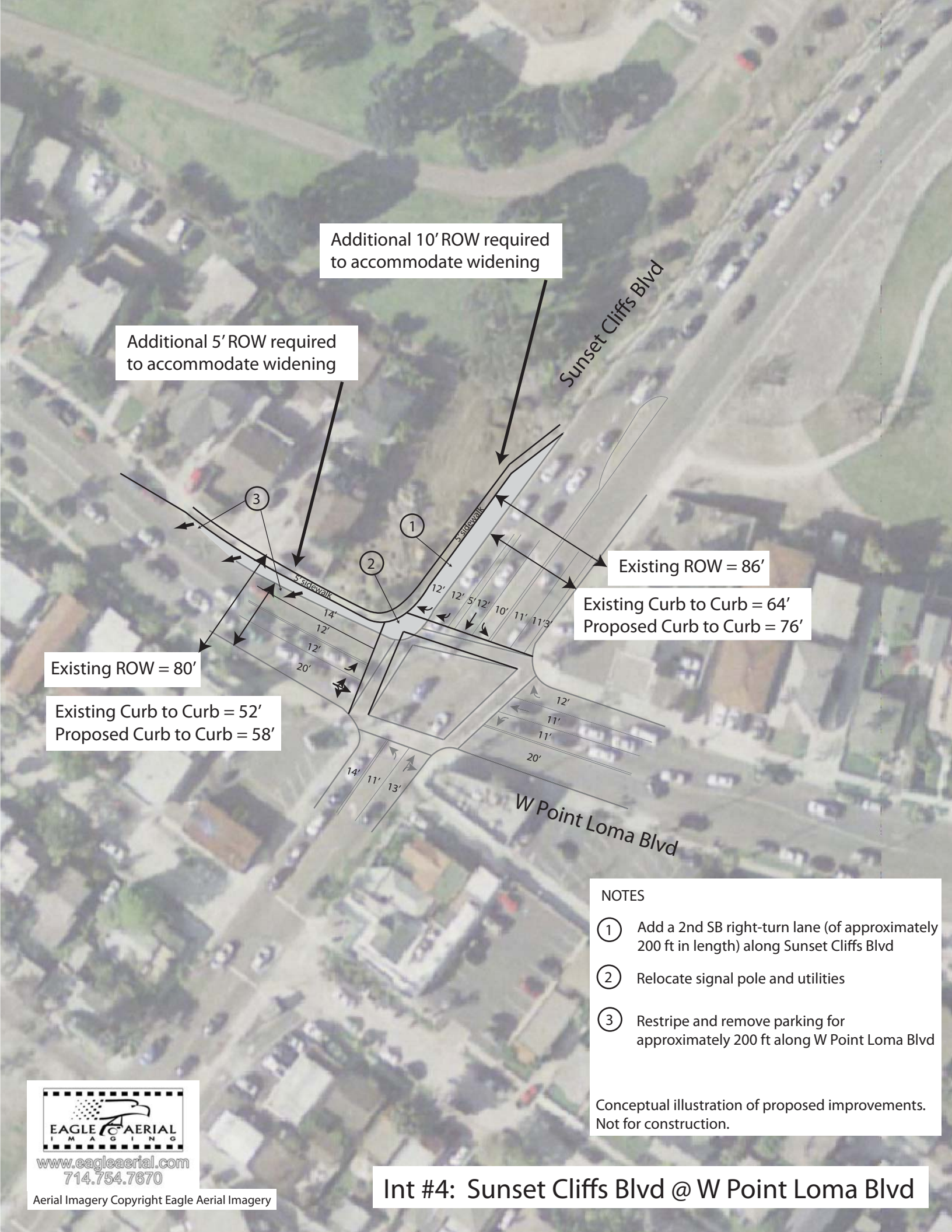


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	110	165	70	75	5	245	215	150	20	160	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0		4.0	
Lane Util. Factor		1.00			1.00			1.00	1.00		1.00	
Frpb, ped/bikes		0.98			1.00			1.00	0.97		1.00	
Flpb, ped/bikes		1.00			1.00			1.00	1.00		1.00	
Frt		0.93			1.00			1.00	0.85		0.98	
Flt Protected		0.99			0.98			0.97	1.00		1.00	
Satd. Flow (prot)		1682			1809			1814	1537		1814	
Flt Permitted		0.94			0.61			0.75	1.00		0.94	
Satd. Flow (perm)		1585			1130			1400	1537		1718	
Peak-hour factor, PHF	0.73	0.73	0.73	0.61	0.61	0.61	0.84	0.84	0.84	0.98	0.98	0.98
Adj. Flow (vph)	55	151	226	115	123	8	292	256	179	20	163	26
RTOR Reduction (vph)	0	79	0	0	3	0	0	0	90	0	11	0
Lane Group Flow (vph)	0	353	0	0	243	0	0	548	89	0	198	0
Confl. Peds. (#/hr)			17			23			7			14
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		13.5			13.5			21.2	21.2		21.2	
Effective Green, g (s)		13.5			13.5			21.2	21.2		21.2	
Actuated g/C Ratio		0.32			0.32			0.50	0.50		0.50	
Clearance Time (s)		4.0			4.0			4.0	4.0		4.0	
Vehicle Extension (s)		3.0			3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		501			357			695	763		853	
v/s Ratio Prot												
v/s Ratio Perm		c0.22			0.22			c0.39	0.06		0.12	
v/c Ratio		0.70			0.68			0.79	0.12		0.23	
Uniform Delay, d1		12.8			12.7			8.9	5.7		6.1	
Progression Factor		1.00			1.00			1.00	1.00		1.00	
Incremental Delay, d2		4.5			5.3			5.9	0.1		0.1	
Delay (s)		17.3			18.0			14.8	5.8		6.3	
Level of Service		B			B			B	A		A	
Approach Delay (s)		17.3			18.0			12.6			6.3	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM Average Control Delay	13.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	42.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Appendix N
Conceptual Illustrations of Proposed Mitigation at Intersections



NOTES

1. Add a 2nd SB right-turn lane (of approximately 200 ft in length) along Sunset Cliffs Blvd
2. Relocate signal pole and utilities
3. Restripe and remove parking for approximately 200 ft along W Point Loma Blvd

Conceptual illustration of proposed improvements. Not for construction.

EAGLE AERIAL IMAGING
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714.754.7670

Int #4: Sunset Cliffs Blvd @ W Point Loma Blvd

MITIGATION:
Add a 2nd left-turn lane for the eastbound and westbound approaches of W Point Loma Blvd.
Widening to the south (~10 feet) within City right-of-way would be required.

Note:
Conceptual illustration of proposed improvements. Not for construction.

Int #9: Nimitz Blvd @ W Point Loma Blvd

Appendix O
Conceptual Illustrations of Proposed Mitigation Along Roadway Segments

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Ocean Beach Buildout Conditions

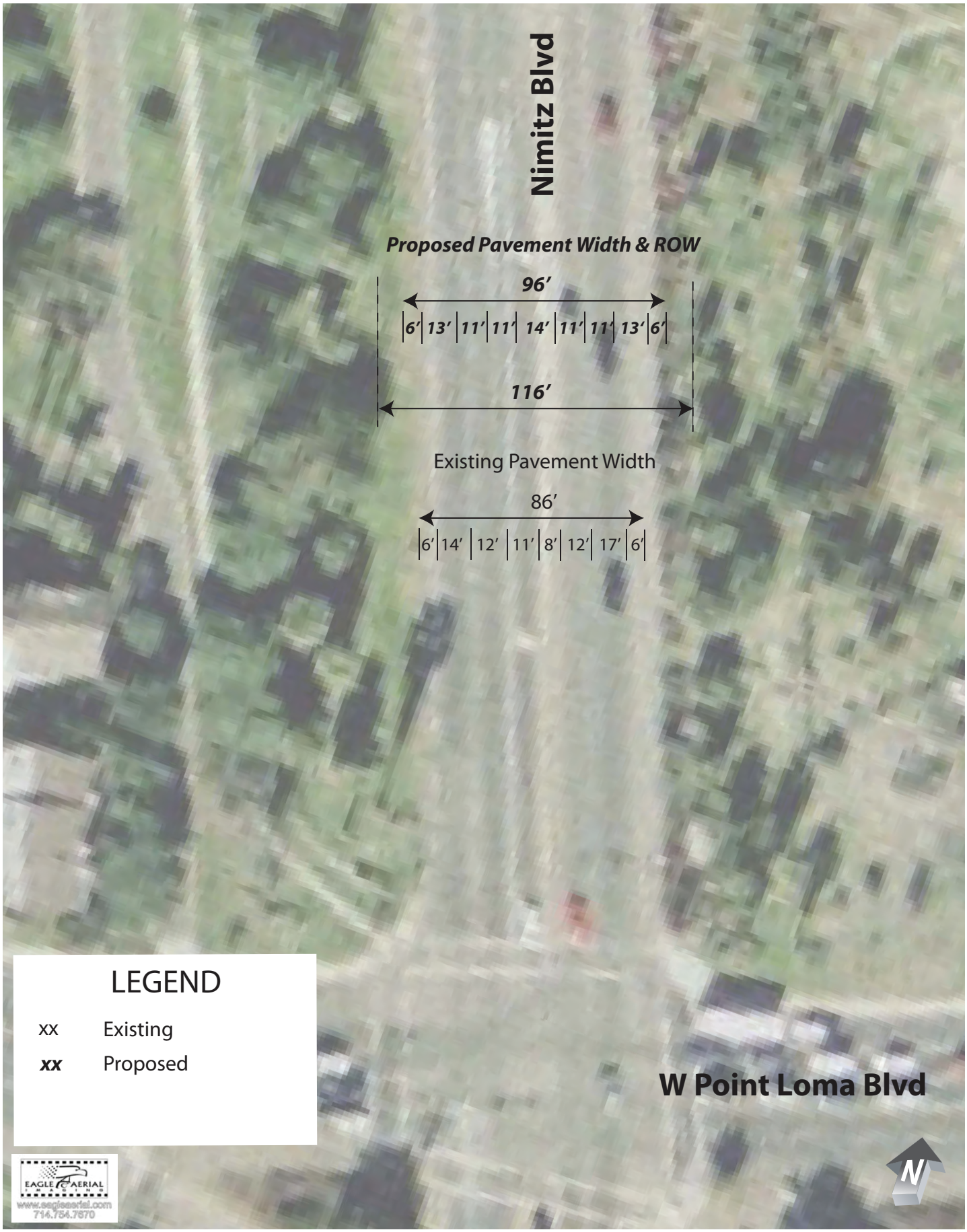
WILSON & COMPANY ENGINEERS & ARCHITECTS

Appendix O
Proposed Striping (Typical Section)
Along Voltaire St

Ocean Beach Buildout Conditions

WILSON & COMPANY ENGINEERS & ARCHITECTS

Appendix O
Proposed Striping (Typical Section)
Along W Point Loma Blvd



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Ocean Beach Buildout Conditions

WILSON & COMPANY ENGINEERS & ARCHITECTS

Appendix O
Feasibility of Widening Nimitz Blvd to a 6-lane Primary Arterial

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Ocean Beach Buildout Conditions

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Appendix O
Proposed Striping (Typical Section)
Along Voltaire St

Ocean Beach Buildout Conditions

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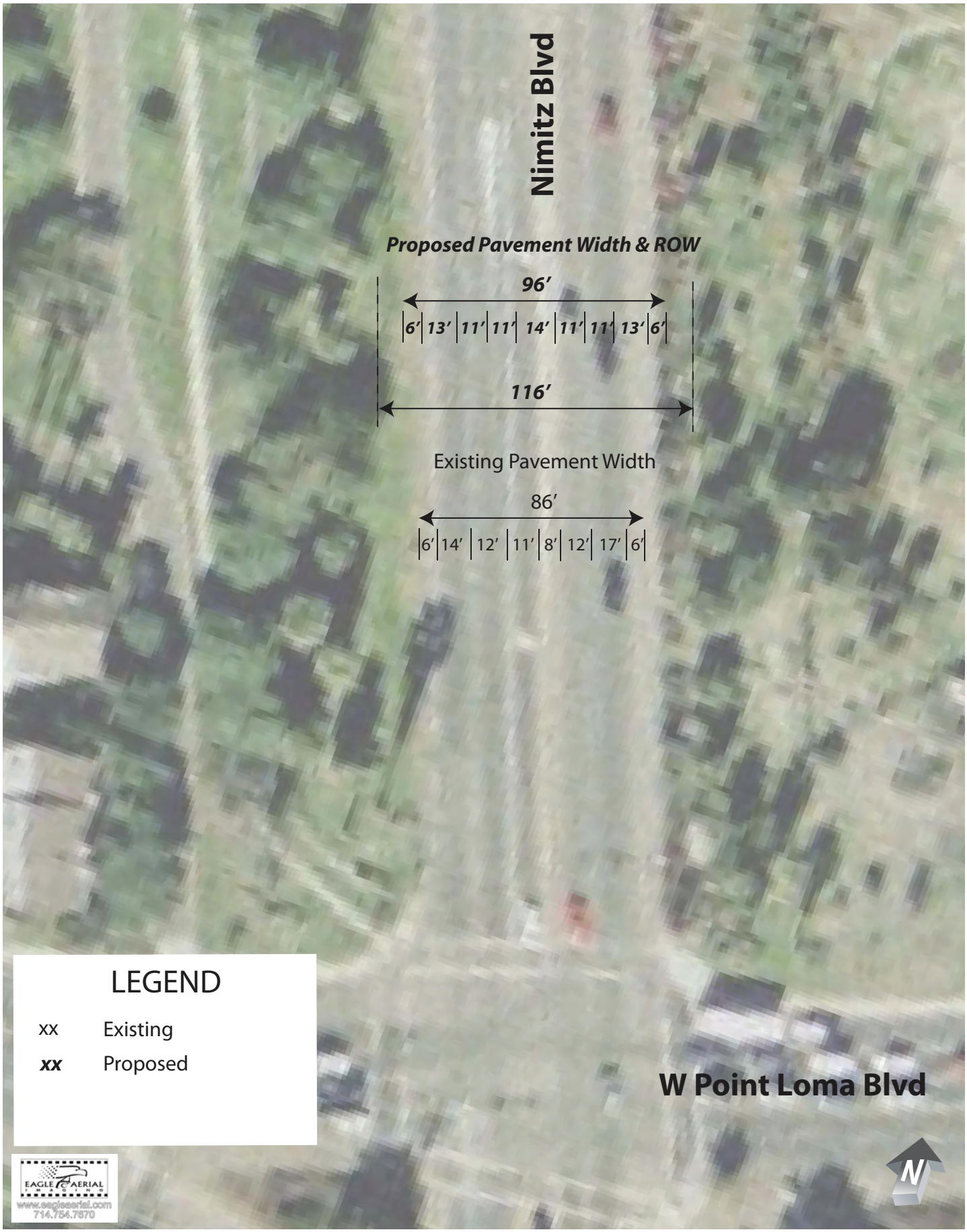
Appendix O
Proposed Striping (Typical Section)
Along W Point Loma Blvd



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Appendix O
Feasibility of Widening Nimitz Blvd to a 6-lane Primary Arterial