Chapter 3: Existing Conditions Assessment

The Rosecrans Corridor extends from Camino Del Rio and Taylor Street to Kellogg Street. In total, the corridor is approximately four miles with approximately fifteen signalized and over 60 unsignalized intersections. Exhibit 3-1 illustrates the limits of the study area. Due to the length and variation in land uses along the corridor, Rosecrans Street was broken into four distinct study areas:

- **Area 1:** Old Town & North Bay – From the Transit Center & I-8 Freeway to Lytton Street. This area is highly congested and caters primarily to the auto with wide streets and connections to the freeway system. However, this is also a key link to the transit system as it serves the Old Town Transit Center and many key transit stops serving North Bay and Peninsula. Significant congestion was observed between Midway and Camino Del Rio during both the a.m. and p.m. peak periods. Multiple studies have been done over the past 10 years evaluating the potential for improvements in Area 1. These recommendations will be considered as short and long term improvement plans are developed for the project.

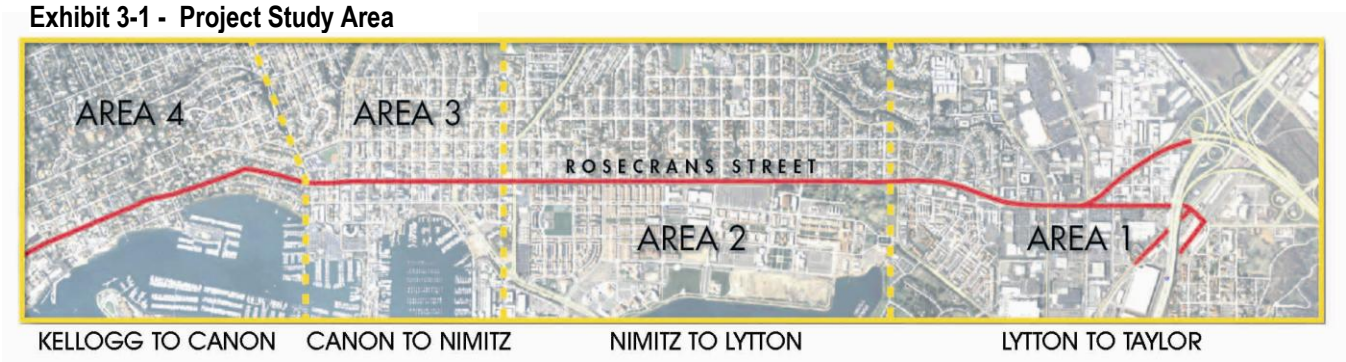
- **Area 2:** NTC/Liberty Station – Recently modified as part of the Liberty Station project, this area serves both the redeveloped NTC site and the historic neighborhoods west of Rosecrans Street. Signalized intersection are provided at Lytton Street, Roosevelt Road, Womble Road, Farragut Road and Laning Road-Russell Street. Sidewalks and bicycle lanes are provided on both sides of Rosecrans through this section. As part of the Liberty Station project, Rosecrans Street was converted from a four lane arterial to a five lane arterial with three lanes northbound and two lanes southbound. To accomplish this change, the parking on the west side of Rosecrans was eliminated and the bicycle lane was narrowed to between four and five feet. Intermittent raised medians were constructed along Rosecrans and a parkway was created on the east side of Rosecrans buffering the sidewalk from the travel lanes.

- **Area 3:** Peninsula Village – Through this area Rosecrans is four lanes with a two way left turn lane. Although storefronts line each side of the street on street parking is not permitted through most of the corridor. Signalized intersections are provided at Nimitz Boulevard, North Harbor Drive, Shelter Island Drive and Canon Street. Continuous sidewalks are provided through Section 3 on both sides of Rosecrans Street, but bicycle lanes are not provided. In many areas, curb ramps and sidewalk obstructions make traversing this area on foot difficult.

- **Area 4:** Residential Peninsula/Marina – South of Taylor Street, Rosecrans narrows to two lanes and continues as such to Kellogg Street, where Rosecrans enters the Naval Sub-base. Through this section, single family residential properties line both sides of Rosecrans Street. On-street parking is provided along with a bicycle lane through much of Area 4. Sidewalks are intermittent between Taylor Street and Kellogg Street. Where sidewalks are not provided, pedestrians have been observed walking in the parking and bicycle lanes.

This chapter of the Rosecrans Corridor Mobility Study will focus on an assessment of the existing state of mobility for all modes of transportation and identify areas where short term improvements should be considered. To complete this assessment, the corridor was evaluated to determine the existing traffic operating conditions, accessibility and performance of transit, pedestrian facilities and accessibility, and bicycle access and circulation. A parking inventory was also conducted to determine the adequacy of and location of parking along the corridor.

Exhibit 3-1 - Project Study Area



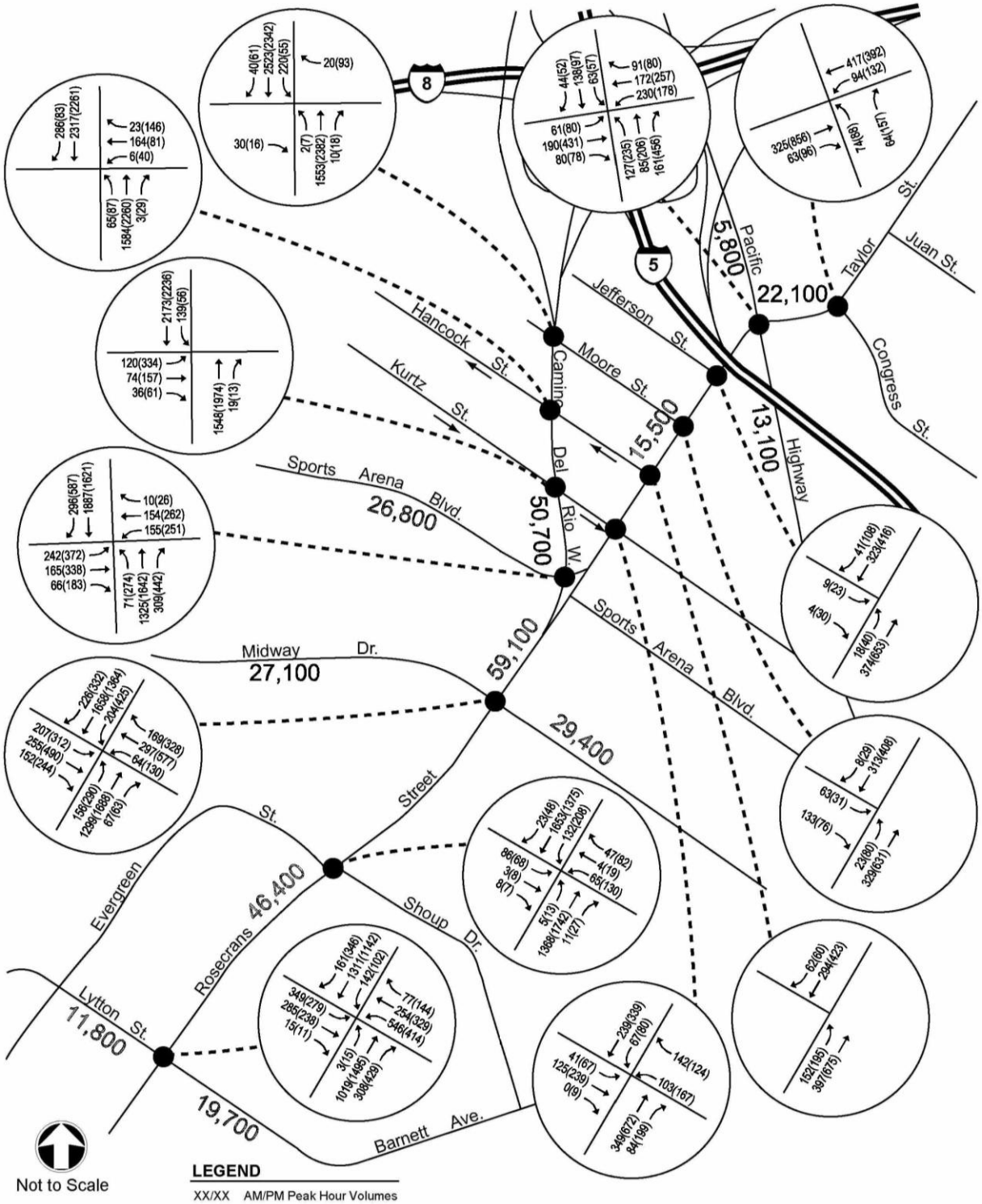
3.1 TRAFFIC DATA COLLECTION

The corridor was evaluated to determine the existing operating conditions and available facilities for transit users, pedestrians and bicycles. In addition, a parking inventory was conducted to determine the types, location and quantity of parking available within the study area.

Traffic count data was collected at 29 intersections along both Rosecrans Street and Camino Del Rio West. All signalized intersections and key unsignalized locations were included in the traffic count data collection. Peak hour traffic counts were collected mid-week between the hours of 7:00 and 9:00 a.m. and 4:00 and 6:00 p.m. In addition, daily traffic count data was collected for a period of one-week at a total of 23 locations along the corridor and along segments adjacent to the corridor. Exhibits 3-2 through 3-4 illustrate the peak hour intersection volumes and daily traffic volumes. Traffic count data, intersection inventory data and signal timing sheets for each intersection is provided as Appendix 3-A.

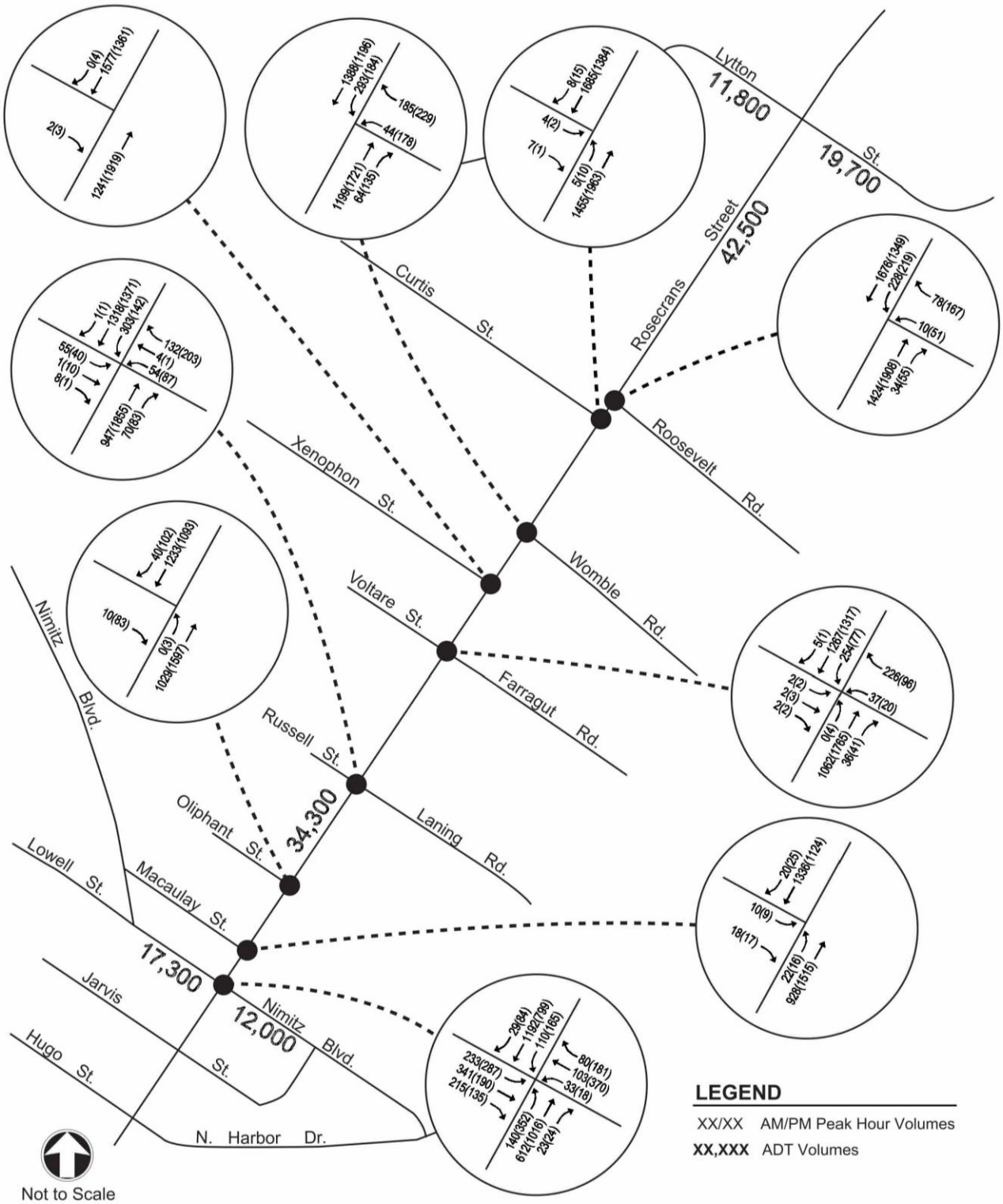
In addition, speed survey data was collected along the corridor at six locations. Speed survey data was collected during the morning and the afternoon by direction. In accordance with the California Vehicle Code, the speed survey data was reported for a minimum of 100 vehicles per direction over a period of not less than one hour. The surveys were conducted during non-peak hours to reflect the free-flow speed along the roadway. Exhibit 3-5 illustrates the results of the speed surveys. Speed survey summary sheets are provided as Appendix 3-B of this report.

To supplement the speed survey data and to validate the capacity of the roadway, floating car surveys were conducted to document the travel time along the corridor. Travel time runs were conducted both northbound and southbound during the a.m. and p.m. peak periods. Floating car survey data is provided in Appendix 3-C. The results of the travel time runs are provided in Exhibit 3-6.



EXISTING TRAFFIC VOLUMES (AREA 1)

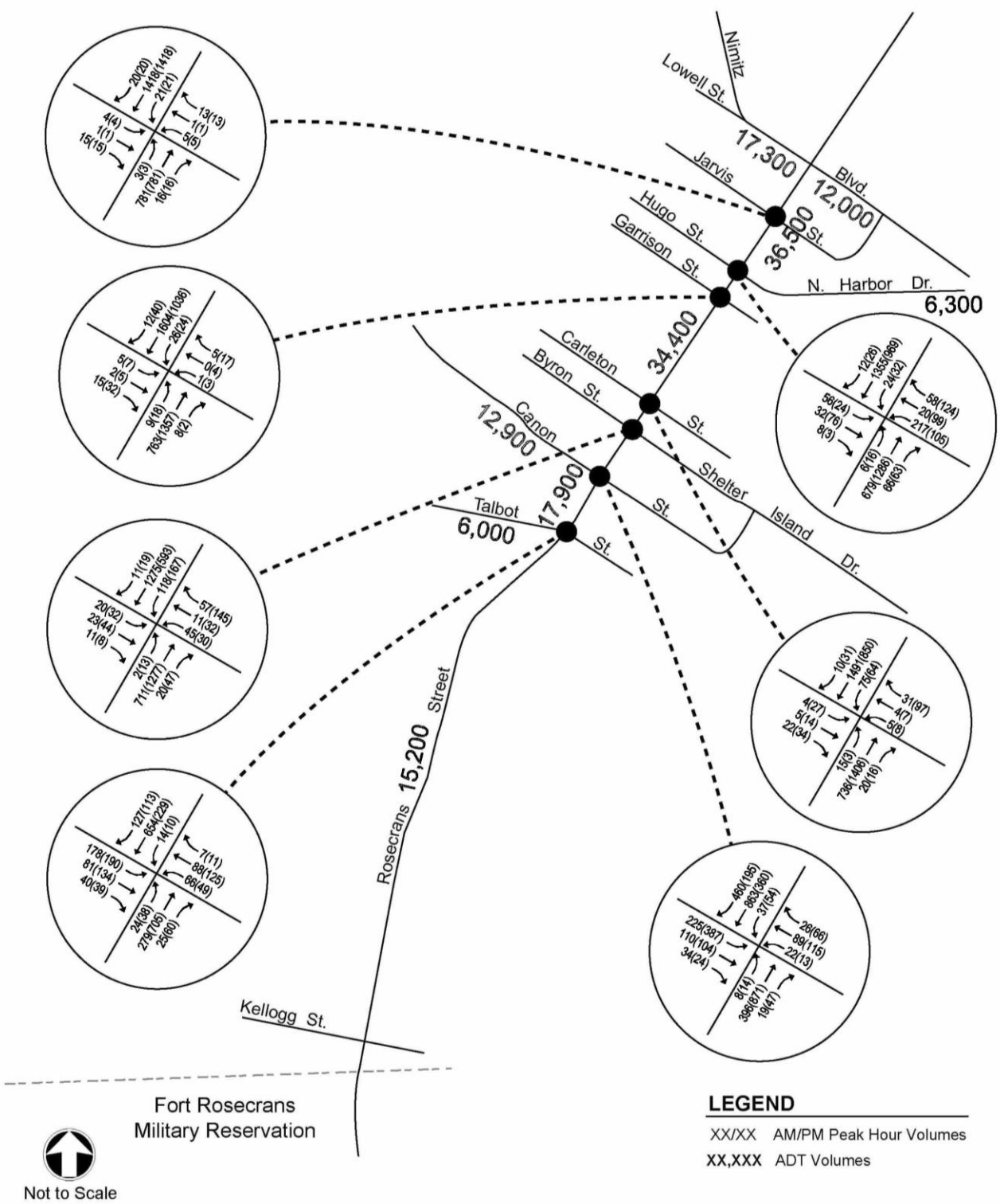
Exhibit 3-2



RBF

EXISTING TRAFFIC VOLUMES (AREA 2)

Exhibit 3-3



EXISTING TRAFFIC VOLUMES (AREA 3 & 4)

Exhibit 3-4

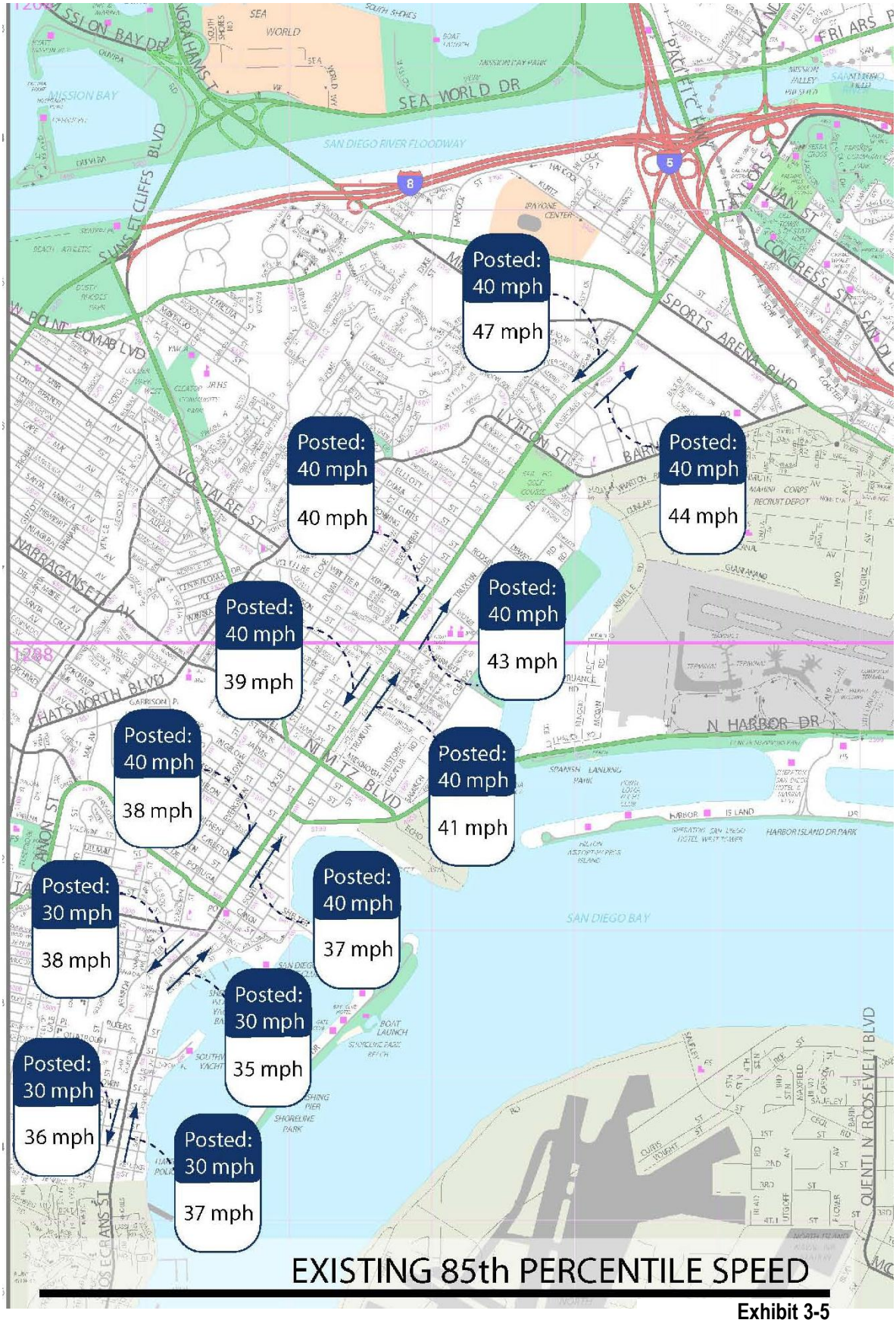

Posted: 40 mph
47 mph
Posted: 40 mph
40 mph
Posted: 40 mph
44 mph
Posted: 40 mph
39 mph
Posted: 40 mph
43 mph
Posted: 40 mph
38 mph
Posted: 40 mph
41 mph
Posted: 30 mph
38 mph
Posted: 40 mph
37 mph
Posted: 30 mph
35 mph
Posted: 30 mph
36 mph
Posted: 30 mph
37 mph
EXISTING 85th PERCENTILE SPEED

Exhibit 3-5

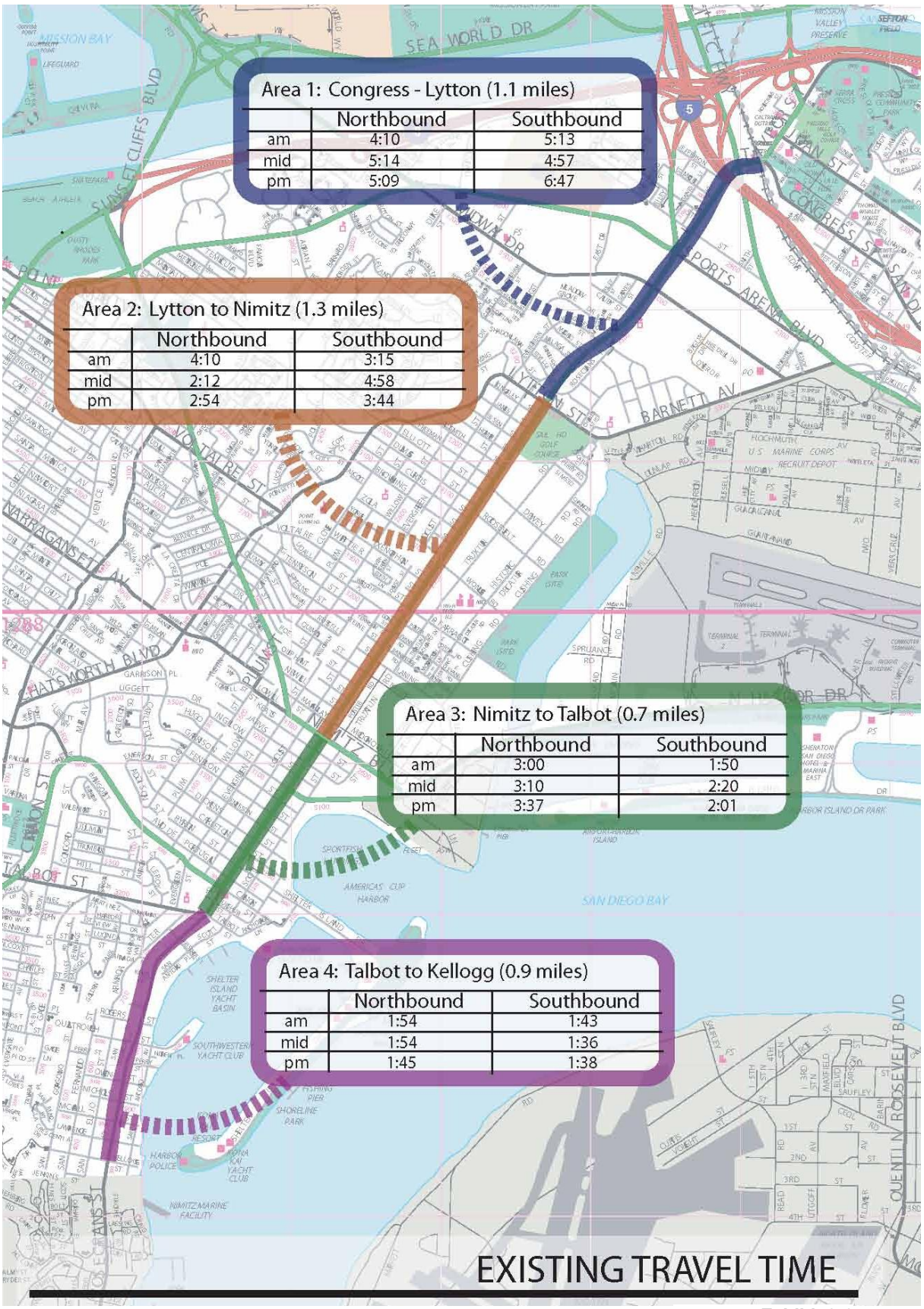

Area 1: Congress - Lytton (1.1 miles)
Northbound Southbound
am 4:10 5:13
mid 5:14 4:57
pm 5:09 6:47
Area 2: Lytton to Nimitz (1.3 miles)
Northbound Southbound
am 4:10 3:15
mid 2:12 4:58
pm 2:54 3:44
Area 3: Nimitz to Talbot (0.7 miles)
Northbound Southbound
am 3:00 1:50
mid 3:10 2:20
pm 3:37 2:01
Area 4: Talbot to Kellogg (0.9 miles)
Northbound Southbound
am 1:54 1:43
mid 1:54 1:36
pm 1:45 1:38
EXISTING TRAVEL TIME

Exhibit 3-6

3.2 TRAFFIC OPERATIONAL ANALYSIS

Intersection Level of Service Analysis

Level of service for both intersections and roadway segments were measured for the study corridor based upon the existing intersection geometry and roadway capacities. Level of service thresholds for intersections are based upon the 2000 Highway Capacity Manual operations methodology for both signalized and unsignalized intersections. For signalized intersections, the average intersection delay is report. For unsignalized intersections, the level of service reported reflects the movement with the highest delay (worst level of service). The results of the intersection level of service analysis is presented in Table 3-1 and graphically illustrated in Exhibit 3-7. Level of service worksheets are provided in Appendix 3-D.

As shown in Table 3-1, most intersections are currently operating at LOS D or better along the study corridor. Critical intersections, which operate at LOS E or F include Rosecrans Street / Midway Drive, Rosecrans Street / Nimitz Boulevard, Rosecrans Street / Garrison Street (unsignalized), and Rosecrans Street / Carleton Street (unsignalized).

Roadway Segment Level of Service Analysis

Roadway segment operations were measured based on the classification of the roadway, as defined by field observations, technical assessment and the current Community Plan Circulation Elements for the study area. Rosecrans Street is classified as a Major arterial with a capacity of 40,000 vehicles per day for the four lane sections, 45,000 vehicles per day for the five lane sections, and 50,000 vehicles per day for the six lane sections. Existing roadway classifications used in the analysis of the roadway segments are illustrated in Exhibit 3-8. The results of the roadway segment operating conditions are summarized in Table 3-2 and illustrated in Exhibit 3-9.

Through Area 4 of the study area, Rosecrans Street is defined as a two-lane Major arterial. This classification occurred in the 1995 Community Plan Update (previously classified as a two-lane collector). It is clearly stated in the 1995 Peninsula Community Plan Circulation Element that "Rosecrans Street, from Talbot to the Point Loma Naval Complex should be maintained in its present two-lane configuration to avoid disrupting adjacent residential areas. In order to increase capacity, traffic engineering techniques such as restriping, channelization, signalization and parking restrictions should be reviewed and, as appropriate, implemented." The City of San Diego does not currently have a standard two-lane Major arterial classification by which the operating conditions of this segment could be evaluated. Therefore, the peak hour travel time runs and off-peak speed survey data was used to determine an appropriate capacity for this section of Rosecrans Street.

As discuss in the Data Collection section of this report, the average travel speed through Area 4 (Talbot Street to the Point Loma Naval Complex) was measured at 30 to 33 mph during the off-peak period. Based on the Highway Capacity Manual Urban Street methodology, this segment operates at LOS B. Travel time runs during the peak hour show that average travel speeds meet or exceed the 30 to 33 mph range. Therefore, the operations of the corridor reflect the estimated level of service analysis.

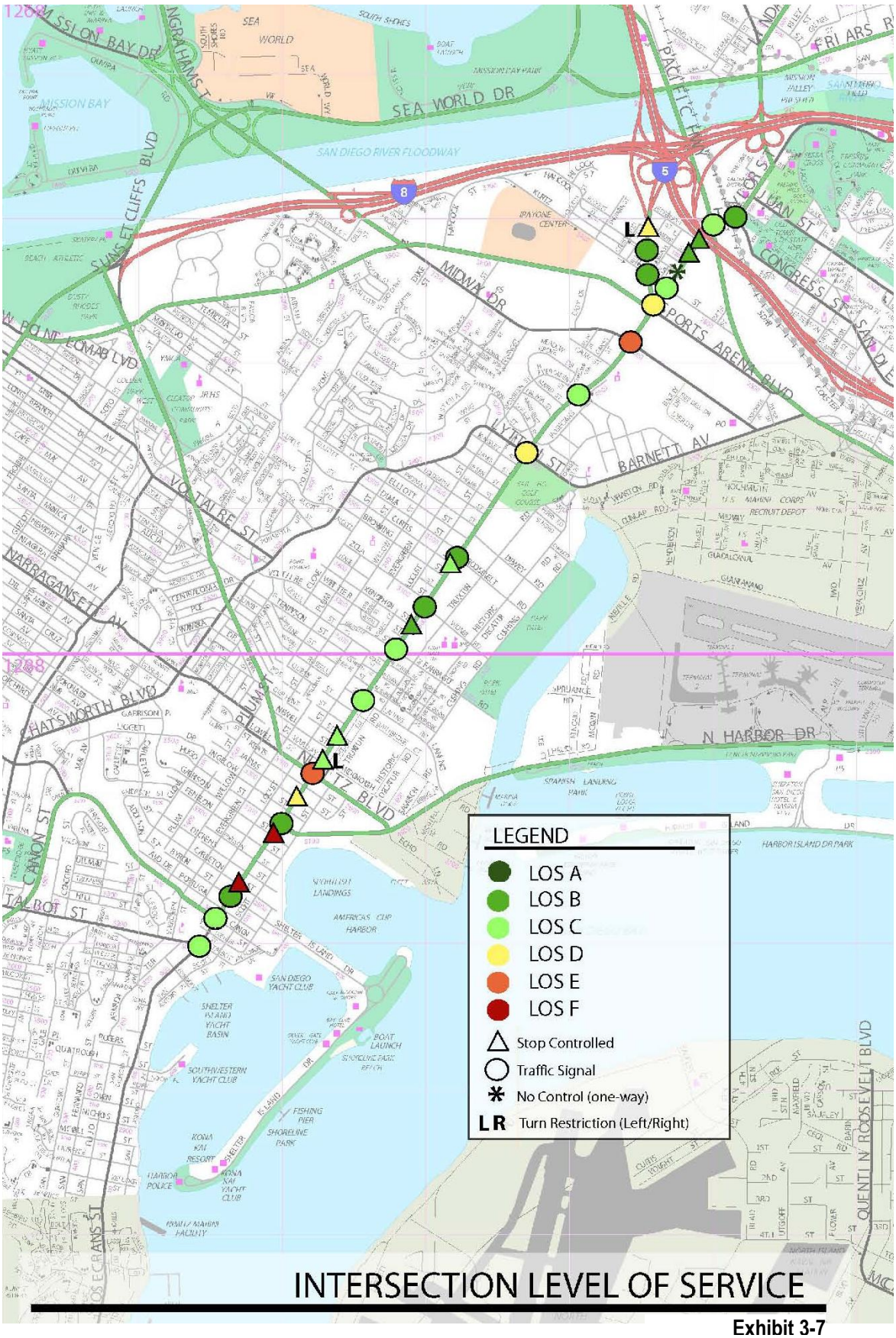

LEGEND
LOS A
LOS B
LOS C
LOS D
LOS E
LOS F
Stop Controlled
Traffic Signal
No Control (one-way)
L R Turn Restriction (Left/Right)
INTERSECTION LEVEL OF SERVICE

Exhibit 3-7

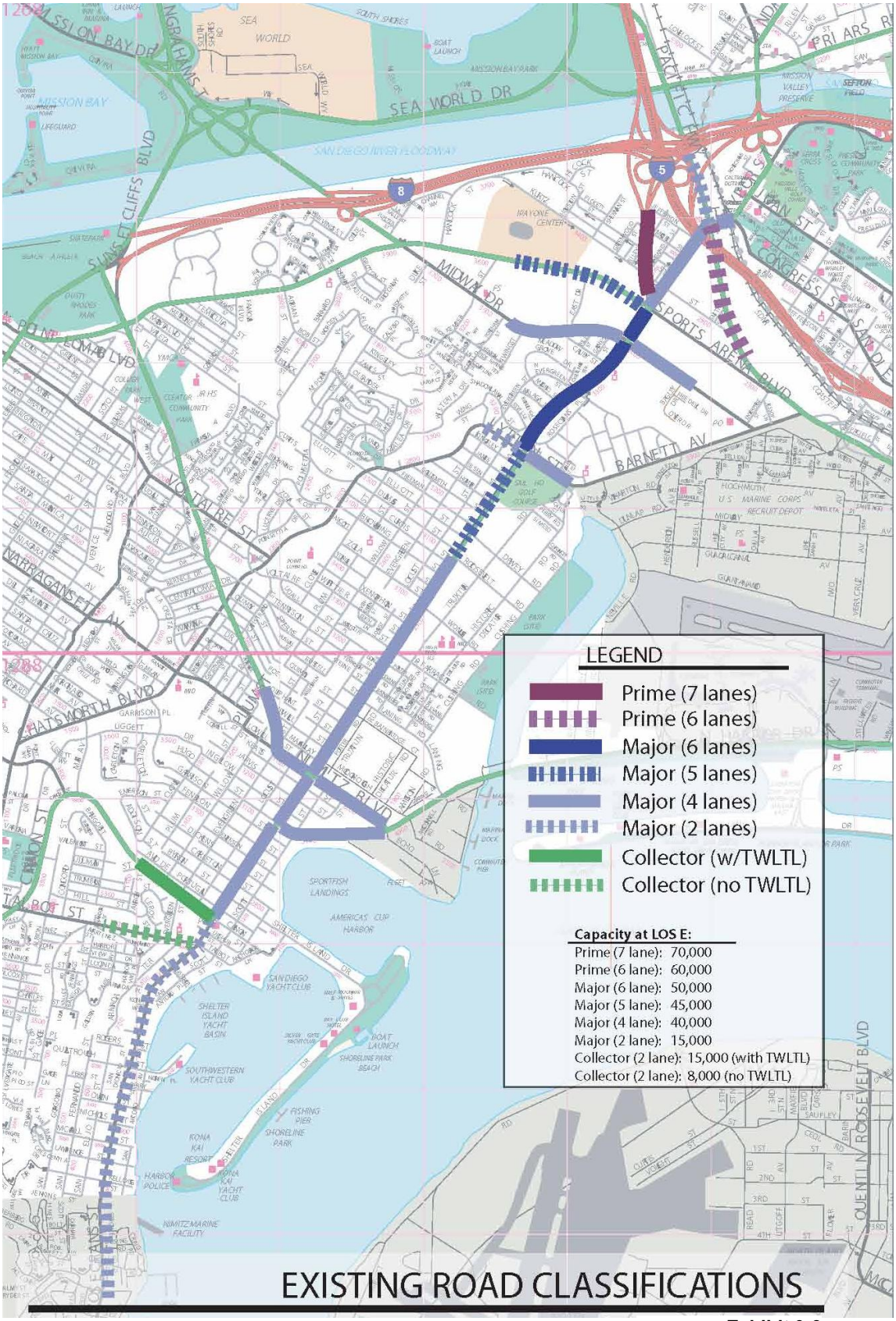

LEGEND
Prime (7 lanes)
Prime (6 lanes)
Major (6 lanes)
Major (5 lanes)
Major (4 lanes)
Major (2 lanes)
Collector (w/TWLTL)
Collector (no TWLTL)
Capacity at LOS E:
Prime (7 lane): 70,000
Prime (6 lane): 60,000
Major (6 lane): 50,000
Major (5 lane): 45,000
Major (4 lane): 40,000
Major (2 lane): 15,000
Collector (2 lane): 15,000 (with TWLTL)
Collector (2 lane): 8,000 (no TWLTL)
EXISTING ROAD CLASSIFICATIONS

Exhibit 3-8

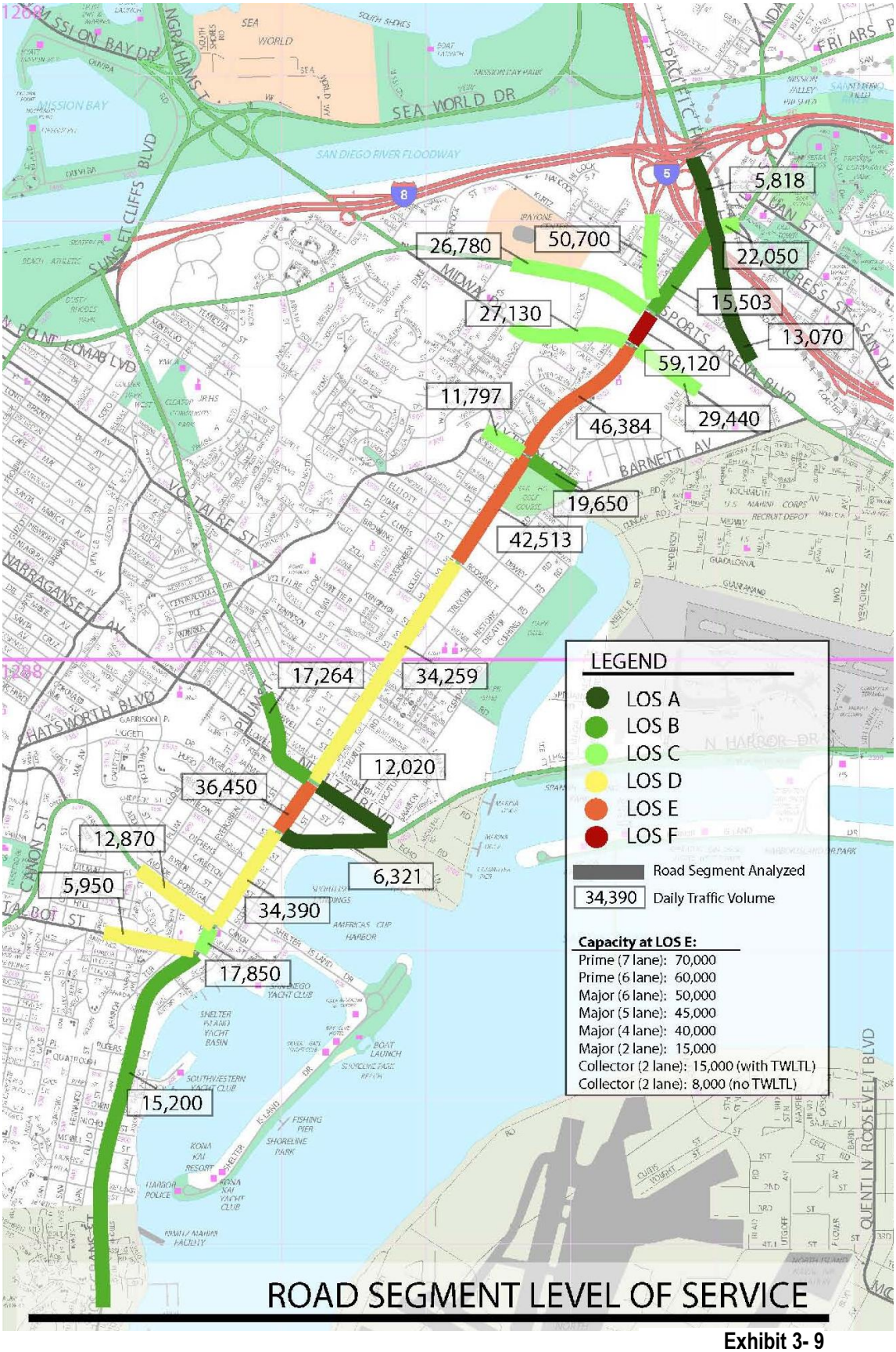

5,818
22,050
15,503
13,070
26,780
50,700
27,130
59,120
29,440
11,797
46,384
19,650
42,513
17,264
34,259
12,020
36,450
12,870
5,950
6,321
34,390
17,850
15,200
LEGEND
LOS A
LOS B
LOS C
LOS D
LOS E
LOS F
Road Segment Analyzed
34,390 Daily Traffic Volume
Capacity at LOS E:
Prime (7 lane): 70,000
Prime (6 lane): 60,000
Major (6 lane): 50,000
Major (5 lane): 45,000
Major (4 lane): 40,000
Major (2 lane): 15,000
Collector (2 lane): 15,000 (with TWLTL)
Collector (2 lane): 8,000 (no TWLTL)
ROAD SEGMENT LEVEL OF SERVICE

Exhibit 3- 9

Table 3-1. Intersection Level of Service
Existing Conditions

Intersection LOS		Traffic Control (1)	AM Peak		PM Peak	
			Delay	LOS	Delay	LOS
1)	Taylor St. / Congress St.	S	10.0	B	10.7	B
2)	Rosecrans St. - Taylor St. / Pacific Highway	S	22.8	C	25.1	C
3)	Rosecrans St. / Jefferson St.	O	10.9	B	12.1	B
4)	Rosecrans St. / Moore St.	O	11.7	B	11.9	B
5)	Rosecrans St. / Hancock St.	(2)	8.6	A	9.4	A
6)	Rosecrans St. / Kurtz St.	S	15.3	B	25.4	C
7)	Rosecrans St. - Sports Arena Blvd. / Camino Del Rio W.	S	23.3	C	35.5	D
8)	Rosecrans St. / Midway Dr.	S	37.0	D	60.0	E
9)	Rosecrans St. / N. Evergreen St.	S	15.9	B	30.3	C
10)	Rosecrans St. / Lytton St.	S	47.9	D	51.7	D
11)	Rosecrans St. / Roosevelt Rd.	S	10.3	B	13.3	B
12)	Rosecrans St. / Curtis St.	O	20.5	C	15.5	C
13)	Rosecrans St. / Womble Rd.	S	18.8	B	17.9	B
14)	Rosecrans St. / Xenophon St.	O	13.6	B	12.1	B
15)	Rosecrans St. / Farragut Rd. - Voltaire St.	S	20.7	C	18.1	B
16)	Rosecrans St. / Russell St. - Laning Rd.	S	17.0	B	23.2	C
17)	Rosecrans St. / Oliphant St.	O	22.6	C	14.1	B
18)	Rosecrans St. / Macaulay St.	O - R	12.0	B	13.0	B
19)	Rosecrans St. / Nimitz Blvd.	S	40.8	D	59.3	E
20)	Rosecrans St. / Jarvis St.	T	16.3	C	30.9	D
21)	Rosecrans St. / N. Harbor Dr. - Hugo St.	S	15.0	B	18.0	B
22)	Rosecrans St. / Garrison St.	T	79.6	F	133.6	F
23)	Rosecrans St. / Carleton St.	T	146.6	F	252.0	F
24)	Rosecrans St. / Shelter Island Dr. - Byron St.	S	13.3	B	16.7	B
25)	Rosecrans St. / Canon St.	S	23.0	C	20.1	C
26)	Rosecrans St. / Talbot St.	S	22.1	C	12.5	B
27)	Camino del Rio W. / Moore St.	T - R	31.5	D	30.6	D
28)	Camino del Rio W. / Hancock St.	S	10.9	B	13.2	B
29)	Camino del Rio W. / Kurtz St.	S	8.5	A	13.8	B

Table 3-2. Roadway Segment Level of Service
Existing Conditions

Roadway	Segment	Class	Lanes	LOS E Capacity	Existing		
					ADT	V/C	LOS
Rosecrans Street	From Pacific Highway to Sports Arena Blvd.	Major	4	40,000	15,503	0.39	B
	From Sports Arena Blvd. to Midway Dr.	Major	6	50,000	59,120	1.18	F
	From Midway Dr. to Lytton St.	Major	6	50,000	46,384	0.93	E
	From Lytton St. to Roosevelt Rd.	Major	5	45,000	42,513	0.94	E
	From Laning Rd. to Nimitz Blvd.	Major	4	40,000	34,259	0.86	D
	From Nimitz Blvd. to N. Harbor Dr.	Major	4	40,000	36,450	0.91	E
	From N. Harbor Dr. to Canon St.	Major	4	40,000	34,390	0.86	D
	From Canon St. to Talbot St.	Major (1)	2	27,000	17,850	0.66	C
	From Talbot St. to Kellogg St.	Major (1)	2	27,000	15,200	0.56	B
Camino Del Rio	North of Sports Arena Blvd.	Prime	7	70,000	50,700	0.72	C
Pacific Highway	North of Rosecrans St.	Major (2)	2	20,000	5,818	0.29	A
	South of Rosecrans St.	Prime	6	60,000	13,070	0.22	A
Sports Arena Blvd.	Northwest of Rosecrans St.	Major	5	45,000	26,780	0.60	C
Midway Drive	Northwest of Rosecrans St.	Major	4	40,000	27,130	0.68	C
	Southeast of Rosecrans St.	Major	4	40,000	29,440	0.74	C
Lytton Street	Northwest of Rosecrans St.	Major (2)	2	20,000	11,797	0.59	C
	Southeast of Rosecrans St.	Major	4	40,000	19,650	0.49	B
Nimitz Boulevard	Northwest of Rosecrans St.	Major	4	40,000	17,264	0.43	B
	Southeast of Rosecrans St.	Major	4	40,000	12,020	0.30	A
North Harbor Drive	Rosecrans St. to Scott Rd.	Major	4	40,000	6,321	0.16	A
Canon Street	Northwest of Rosecrans St.	Collector	2	15,000	12,870	0.86	D
Talbot Street	Northwest of Rosecrans St.	Collector	2	8,000	5,950	0.74	D

(1) LOS E Capacity has been estimated based on results of the Highway Capacity Manual Urban Street Methodology.
(2) Since a published standard capacity for a 2-Lane Major does not exist, capacity is assumed to be half of a 4-Lane Major.

Speed Survey Assessment

As shown previously in the Data Collection section of this report (Exhibit 3-5), the speeds along Rosecrans Street range from 34 to 37 mph. The speeds reported are 85th percentile speeds. The 85th percentile indicates the speed at which 85% of the vehicles surveyed traveled at or less than. This means that 15% of the vehicles surveyed traveled faster than the 85th percentile speed.

The California Vehicle Codes states that the posted speed limit shall be within 5 mph of the 85th percentile speed. According to the speeds surveyed, several segments have measured 85th percentile speeds that exceed this 5 mph threshold:

- Southbound Rosecrans: Midway to Lytton Street (47 mph in 40 mph zone)
- Northbound & Southbound Rosecrans: Talbot Street to Naval Complex (37 mph in 30 mph zone)

It should also be noted that through Area 3 (Nimitz Boulevard to Talbot Street), 85th percentile speeds were lower than the 40 mph speed limit posted through this section. It may be possible through this section to lower the speed limit to 35 mph to better match the existing conditions and provide for an improved walking environment.

Clearly, the traffic speeds in Area 4 will need to be addressed in the alternatives analysis. The high speeds are occurring along a portion of the corridor that lack sidewalks and have residential units fronting the street. Coordination with the Navy as well as potential traffic calming features should be considered to reduce the traffic speed through Area 4.

In Area 1, the traffic volumes report and the travel time runs conducted suggest that peak hour conditions have much lower speeds than those measured during the off-peak period. Traffic congestion and delay typically affect the speeds at which vehicles can travel through the majority of Area 1. With multiple driveways for commercial uses as well as pedestrian/bicycle activity in the area, increasing the speed through this section would encourage higher traffic speeds. Increasing the speed limit on the southbound approach is therefore not recommended.

Travel Time Assessment

Travel time runs were conducted to determine the stop time and travel time along the corridor. This information helps to validate the levels of service calculated for the roadway segments. It will also be used in developing a simulation model that can be used to further evaluate the alternatives in later stages of this project. The corridor is broken into four segments, which are relatively equal in length (ranging from 0.7 miles to 1.1 miles). The travel times however vary dramatically, as summarized in Exhibit 3-6 and summarized in Table 3-3.

Table 3-3. Travel Time Survey Results
Existing Conditions

Area	Segment	Peak Period	Northbound			
			CTT	CAS	Cstops	CStopD
1	Congress Street to Lytton Street	AM	04:10	16.5	3	01:55
		MID	05:14	13.3	4	02:46
		PM	05:09	14.2	3.5	02:27
2	Lytton Street to Nimitz Boulevard	AM	04:10	19.3	2.3	01:47
		MID	02:12	36.4	0	00:00
		PM	02:54	29.1	0.8	00:45
3	Nimitz Boulevard to Talbot Street	AM	03:00	14.4	2.3	01:20
		MID	03:10	13.9	2	01:29
		PM	03:37	12.7	25	01:44
4	Talbot Street to Kellogg Street	AM	01:54	29.2	0.3	00:13
		MID	01:54	28.8	0.7	00:14
		PM	01:45	31	0.3	00:03

Area	Segment	Peak Period	Southbound			
			CTT	CAS	Cstops	CStopD
1	Congress Street to Lytton Street	AM	04:10	16.5	3	01:55
		MID	05:14	13.3	4	02:46
		PM	05:09	14.2	3.5	02:27
2	Lytton Street to Nimitz Boulevard	AM	04:10	19.3	2.3	01:47
		MID	02:12	36.4	0	00:00
		PM	02:54	29.1	0.8	00:45
3	Nimitz Boulevard to Talbot Street	AM	03:00	14.4	2.3	01:20
		MID	03:10	13.9	2	01:29
		PM	03:37	12.7	25	01:44
4	Talbot Street to Kellogg Street	AM	01:54	29.2	0.3	00:13
		MID	01:54	28.8	0.7	00:14
		PM	01:45	31	0.3	00:03

CTT = Cumulative Travel Time (Minutes:Seconds)
CAS = Cumulative Actual Average Speed
CStops = Cumulative Number of Stops in Run
CStopD = Cumulative Stopped Delay (Seconds)

3.3 ACCIDENT ANALYSIS

Accident data was provided by City of San Diego for a period of ten (10) years. Raw accident data is provided in Appendix 3-E. Accident data was reported for both Rosecrans Street-Camino Del Rio and the intersecting streets. Table 3-4 summarizes the accidents by intersection over the ten year period for Rosecrans Street. As shown in the table, the highest number of accidents occurred at the intersection of Rosecrans Street & Midway Street with over 88 reported accidents over a 10 year period. It should be noted that the accidents reported in Table 3-4 are for those accidents reported to the police department. Accidents with little damage or accidents that go unreported are not documented and cannot be reflected in these totals.

Table 3-4. Accident Data by Intersection

Intersection of Rosecrans at…	Accidents at Intersection	Accidents on Approach/Depart	Accidents Occurring Midblock	TOTAL
Midway	31	34	23	88
Nimitz	17	23	8	48
Lytton	15	23	4	42
Kurtz	24	9	7	40
N. Evergreen	9	18	10	37
Sports Arena	16	7	9	32
Pacific Highway	9	11	3	23
N. Harbor Drive	9	11	2	22
Keats	16	1	3	20
Cauby	3	0	10	13
Newell	6	1	6	13
Garrison	6	4	2	12
Talbot	4	5	3	12
Fenelon	4	1	6	11
Ingelow	6	4	1	11
Jefferson	4	1	6	11
Bessemer	3	0	7	10
Canon	7	1	2	10
Shelter Island	6	2	2	10
Kona	1	0	8	9
Poe	5	1	3	9
Quimby	4	2	3	9
Avenida De Portugal	2	3	3	8
Emerson	5	1	2	8
Macaulay	2	1	5	8
Owen	3	1	4	8
Voltaire	3	2	3	8
Xenphon	4	1	3	8
Carleton	5	0	2	7

Table 3-4. Accident Data by Intersection

Intersection of Rosecrans at…	Accidents at Intersection	Accidents on Approach/Depart	Accidents Occurring Midblock	TOTAL
Hancock	3	3	1	7
Hugo	6	1	0	7
Roosevelt	4	3	0	7
Russell	1	3	3	7
Zola	2	3	2	7
Camino del Rio West	3	1	2	6
Ibsen	0	2	4	6
Jarvis	3	1	1	5
Moore	3	1	1	5
Oliphant	1	1	3	5
Qualtrough	0	0	5	5
Rosecrans Pl	2	0	3	5
Udall	1	1	3	5
Dickens	0	2	2	4
Dumas	0	0	4	4
Freeman	1	0	3	4
Goldsmith	2	1	1	4
McCall	1	1	2	4
Armada	0	0	3	3
Browning	1	0	2	3
Byron	1	2	0	3
Homer	2	1	0	3
Kingsley	0	1	2	3
Malaga	0	0	3	3
Nichols	1	1	1	3
Seville	0	1	2	3
Taylor	3	0	0	3
Yonge	3	0	0	3
Lawrence	1	1	0	2
Madrid	0	0	2	2
Sterne	1	1	0	2
Tennyson	0	1	1	2
Upshur	2	0	0	2
Womble	1	0	1	2
Alcott	0	1	0	1
Curtis	0	1	0	1
Dewey	1	0	0	1
Elliott	0	0	1	1
James	0	0	1	1
Kellogg	1	0	0	1

Table 3-5 summarizes the accidents along the corridor by type of accident. Based on the data provided by the City, the majority of the accidents along the corridor were rear-end accidents, which represent over 270 related accidents reported along the corridor. The second highest type of accident is right angle accident with 205 reported accidents. Area 1 clearly has the highest total number of accidents with 288 accidents reported over the 10 year period.

Table 3-5. Accident Data by Type of Accident

Accident Type	Area 1	Area 2	Area 3	Area 4	Total
Rear End Accident	106	77	64	23	270
Right Angle Accident	75	49	63	18	205
Side Swipe – Same Direction	41	11	14	11	77
Side Swipe – Opposing Direction	1	0	2	0	3
Pedestrian Involved	27	7	10	1	45
Hit Parked Vehicle	10	8	1	9	28
Hit Object	1	1	2	0	4
Hit Fixed Object – In Roadway	8	6	3	5	22
Hit Fixed Object - Ran Off the Road	3	6	4	7	20
Backed Into Fixed Object (Rear End)	8	0	0	0	8
Ran Off Road	1	1	2	2	6
Overturned Vehicle	4	0	3	1	8
Head On-Accident	3	2	1	1	7
Non-Collision Accident	0	0	1	0	1
TOTAL	**288**	**168**	**170**	**78**	**704**

In addition to the total number of accidents and types of accidents along the corridor, the City of San Diego provided information regarding accident rates for key segments along Rosecrans Street. It is difficult to compare the accident data between segments when segment lengths and volumes. Therefore, accident rates are used to normalize accident data for a corridor by calculating the average number of accidents per million vehicle miles traveled (MVM) per year.

Table 3-6 summarizes the results of the accident rates calculated by the City. As shown in Table 3-6, the accident rates along the corridor have gone down significantly in Area 1 (Rosecrans: Pacific Highway to Sports Arena Boulevard). In 2004 the accident rate on this segment was 5.22 accidents/mvm per year. By 2008, the rate had dropped 1.74. For most other segments evaluated, the annual changes in accident rates fluctuate within a few tenths indicating that there have not been significant change along the corridor that sparked significant changes in accident activity.

In 2006, the Liberty Station began development and continued to increase in activity through 2008. Although this has resulted in changes in traffic patterns over the four year period, the accident rates, particularly in Area 2, have not changed significantly. Through Area 2, the accident rates have ranged from 0.35 accidents/mvm per year to 0.901

accidents/mvm per year. Looking specifically at the segment information for the corridor, 2008 showed the highest accident rate at 0.701. This is an increase over the pre-Liberty Station rate of 0.550 in 2004 and 0.20 in 2005.

Table 3-6

Summary of Accident Rates for Rosecrans Corridor

Camino Del Rio W : I-5 SB off to Sports Arena Blvd (Area 1)					
	2004	**2005**	**2006**	**2007**	**2008**
Intersections & Segments	2.28	1.48	2.42	2.28	1.74
Segments	1.21	1.075	0.672	1.478	0.537
Rosecrans: Pacific Hwy – Sports Arena Blvd (Area 1)					
	2004	**2005**	**2006**	**2007**	**2008**
Intersections & Segments	5.22	1.74	2.08	3.82	1.74
Segments	2.08	1.39	1.74	1.39	0
Rosecrans: Sports Arena Blvd to Lytton St (Area 1)					
	2004	**2005**	**2006**	**2007**	**2008**
Intersections & Segments	1.214	0.857	0.857	1.00	1.50
Segments	0.857	0.714	0.50	0.714	0.642
Rosecrans: Lytton St to Nimitz Blvd (Area 2)					
	2004	**2005**	**2006**	**2007**	**2008**
Intersections & Segments	0.951	0.350	0.751	0.650	0.901
Segments	0.550	0.20	0.50	0.45	0.701
Rosecrans: Nimitz Blvd to Kellogg St (Area 2)					
	2004	**2005**	**2006**	**2007**	**2008**
Intersections & Segments	1.13	1.13	0.518	0.707	1.037
Segments	0.471	0.613	0.235	0.33	0.613

Source: **City of San Diego, August 2009 (Traffic Engineering Division)**

3.4 PARKING INVENTORY

A field inventory of all available parking was conducted and logged into a GIS database. Parking spaces were coded as either free parking or metered spaces. In addition, spaces were coded if they were time restricted. Exhibit 3-10 illustrates the parking inventory for the corridor by Area. Table 3-7 summarizes the total number of on-street parking spaces available along the study corridor by type.

Table 3-7
Summary of Available Parking Along Rosecrans Street

Parking Type	Area 1	Area 2	Area 3	Area 4	Total
Free (unrestricted) Spaces	71	0	4	289	364
Free (time restricted) Spaces	0	0	0	15	15
Metered (unrestricted) Spaces	0	0	0	0	0
Metered (time restricted) Spaces	0	0	0	0	0
TOTAL	71	0	4	304	379

Note: Parking summarized in this table does not include inventory of parking along side streets. Complete parking inventory diagrams are provided in Exhibit 3-10, which illustrates the side street parking.

In Area 1, speeds and traffic are the highest when compared to the speeds and volumes along the corridor. The majority of Rosecrans is five to six lanes with turn lanes. Between Sports Arena and Lytton Street, on-street parking is provided on both sides of Rosecrans Street. A total of 71 free, unrestricted parking spaces are provided to serve the commercial uses located within this portion of the study area.

In Area 2, no on-street parking spaces were observed between Lytton Street and Nimitz Street. When Rosecrans Street was realigned with the Liberty Station project, all on-street parking on the west side of the street was removed to allow for a center turn lane and intermittent raised medians as well as bicycle lanes on both sides of the street. From Hornet Way to Lytton Street, Rosecrans Street is five lanes with three northbound lanes and two southbound lanes. Free, unrestricted parking is provided on both sides of the streets intersecting Rosecrans. Parking is time restricted on Alcott Street, west of Rosecrans Street, as well as on Browning Street, Curtis Street, Dumas Street and Elliot Street west of Evergreen Street.

In Area 3, Rosecrans Street is striped as a four-lane arterial with a continuous left turn pocket. As a result, there is limited on-street parking despite the presence of retail uses along Rosecrans Street. A total of four (4) parking spaces are provided on-street (between Shelter Island and Carleton Street). Most parking for the commercial uses fronting Rosecrans is provided in off-street private parking lots. On-street parking is provided on all streets intersecting Rosecrans. Along Upshur Street, Canon Street, and Avenida de Portugal parking is free, but time restricted. Whereas most parking along the side streets and along Rosecrans Street is parallel to the curb, parking along both Canon Street and Upshur Street is diagonal head-in parking on the north side of the street.

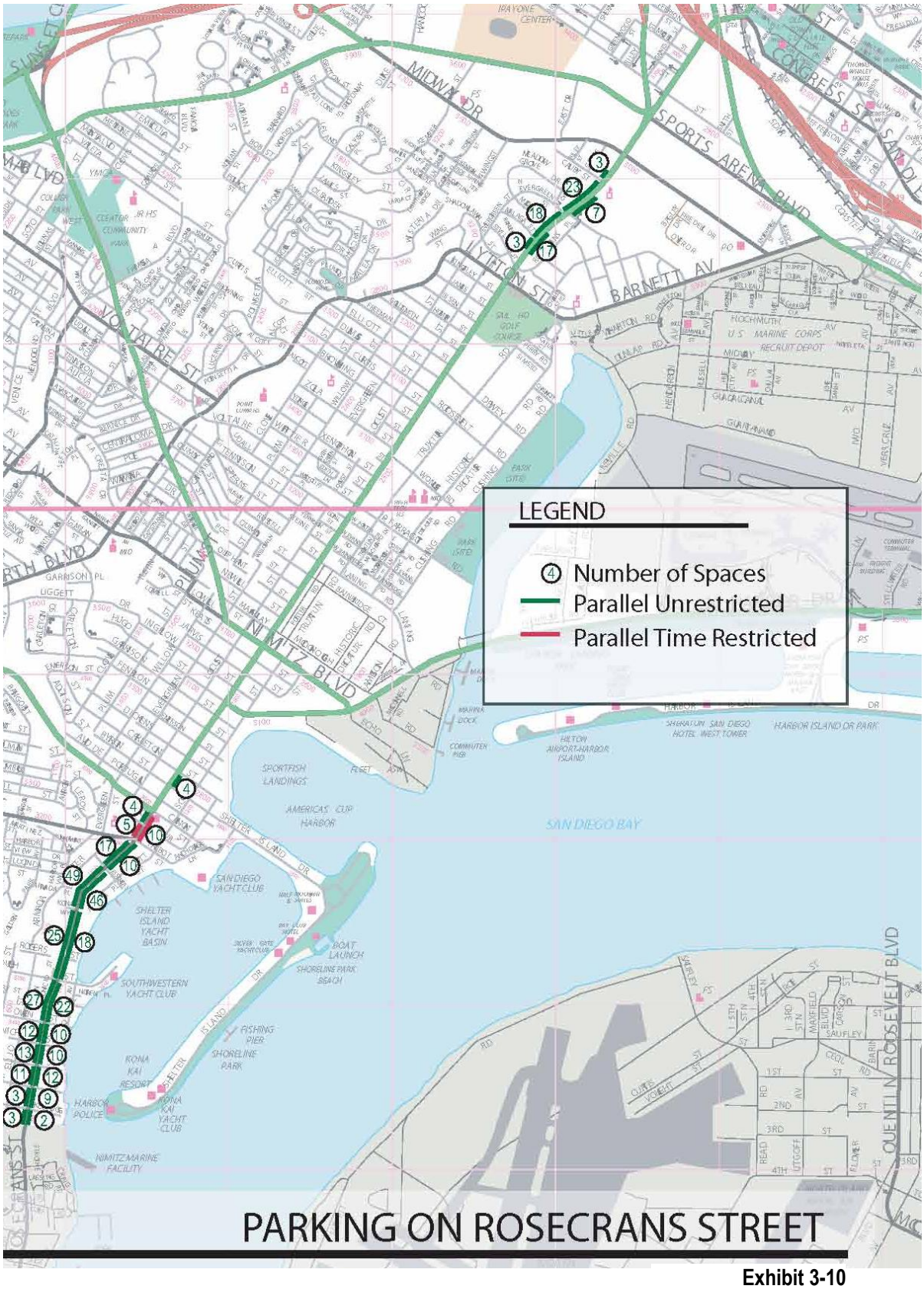

LEGEND
Number of Spaces
Parallel Unrestricted
Parallel Time Restricted
PARKING ON ROSECRANS STREET
MIDWAY DR
SPORTS ARENA BLVD
LYTTON ST
BARNETT AV
VOLTAIRE ST
NIMITZ BLVD
SAN DIEGO BAY
SPORTFISH LANDINGS
AMERICAS CUP HARBOR
SAN DIEGO YACHT CLUB
SHELTER ISLAND YACHT BASIN
SOUTHWESTERN YACHT CLUB
BOAT LAUNCH
SHORELINE PARK BEACH
FISHING PIER
SHORELINE PARK
KONA KAI RESORT
KONA KAI YACHT CLUB
HARBOR POLICE
NIMITZ MARINE FACILITY
HILTON AIRPORT-HARBOR ISLAND
SHERATON SAN DIEGO HOTEL WEST TOWER
HARBOR ISLAND DR PARK
U.S. MARINE CORPS RECRUIT DEPOT
QUENTIN ROOSEVELT BLVD

Exhibit 3-10

In Area 4, most parking spaces are located immediate in front of residential and commercial uses between signalized and unsignalized intersections. The majority of the parking spaces are unrestricted free parking spaces. Near the intersection of Canon Street, 15 time restricted parking spaces are provided.

3.5 PEDESTRIAN ASSESSMENT

A detailed pedestrian study was prepared by ALTA Planning & Design in July 2009. The study focuses on evaluating the existing pedestrian activity along the corridor, conditions of sidewalks, locations of curb ramps and condition of pedestrian facilities along the corridor. In addition, the City of San Diego Pedestrian Model was used to determine the areas along the corridor with the highest potential for pedestrian activity and the areas of focus for future pedestrian improvements. The complete study prepared by ALTA Planning & Design is provided in Appendix 3-F of this report.

Existing Pedestrian Activity

Pedestrian counts were collected at 29 intersections during two-hour AM and PM peak periods on April 22, April 23, April 28 and April 29, 2009 in order to gauge relative activity levels along the corridor. Tables 3-8 and 3-9 summarize the aggregated pedestrian count data by intersection leg. As shown, the highest morning and evening counts, 245 and 235 respectively, were recorded at the intersection of Rosecrans Street-Taylor Street and Pacific Highway. During both peak periods most of the demand is crossing Taylor Street on the north leg of the intersection.

The second highest morning peak period counts were recorded at Taylor Street / Congress Street which, like Rosecrans Street-Taylor Street and Pacific Highway activity, is a function of Old Town Transit Center demand. The third highest morning peak period counts were collected at Rosecrans Street / Sports Arena Boulevard-Camino del Rio, a major retail center for the Sports Arena area.

High pedestrian morning activity levels were also recorded at the intersection of Rosecrans Street and Womble Road due to High Tech Middle and High School students crossing Rosecrans Street eastbound after alighting the southbound Route 28 bus stop.

The evening peak period counts are comparable to the morning peak period counts, with the strongest demand found at intersections surrounding the Old Town Transit Center, and secondarily, the major Sports Arena intersections of Rosecrans Street / Sports Arena Boulevard-Camino del Rio and Rosecrans Street/Midway Drive. Pedestrian counts at Rosecrans Street / Womble Drive were significantly lower during the evening peak because the evening peak period does not overlap with the High Tech Middle and High School release period.

Table 3-8.
Existing A.M. Peak Period Pedestrian Volumes

Intersection	West Leg	North Leg	East Leg	South Leg	Total
Taylor Street / Congress Street	61	82 *(Taylor St.)*	29 *(Congress St.)*	15 *(Taylor St.)*	187
Rosecrans Street-Taylor Street / Pacific Highway	34 *(PCH)*	129 *(Taylor St.)*	21 *(PCH)*	61 *(Rosecrans St.)*	245
Rosecrans Street / Jefferson Street	69 *(Jefferson St.)*	1 *(Rosecrans St.)*	0 *(Jefferson St.)*	0 *(Rosecrans St.)*	70
Rosecrans Street / Moore Street	37 *(Moore St.)*	4 *(Rosecrans St.)*	0 *(Moore St.)*	4 *(Rosecrans St.)*	45
Rosecrans Street / Hancock Street	30 *(Hancock St.)*	0 *(Rosecrans St.)*	0 *(Hancock St.)*	0 *(Rosecrans St.)*	30
Rosecrans Street / Kurtz Street	47 *(Kurtz St.)*	4 *(Rosecrans St.)*	21 *(Kurtz St.)*	2 *(Rosecrans St.)*	74
Rosecrans Street / Sports Arena Boulevard-Camino del Rio*	9 *(Sports Arena Blvd.)*	9 *(Rosecrans St.)*	45 *(Sports Arena Blvd.)*	18 *(Rosecrans St.)*	100
Rosecrans Street / Midway Drive	18 *(Midway Dr.)*	14 *(Rosecrans St.)*	27 *(Midway Dr.)*	25 *(Rosecrans St.)*	84
Rosecrans Street / N. Evergreen Street	8 *(Evergreen St.)*	6 *(Rosecrans St.)*	5 *(Evergreen St.)*	0 *(Rosecrans St.)*	19
Rosecrans Street / Lytton Street	8 *(Lytton St.)*	0 *(Rosecrans St.)*	0 *(Lytton St.)*	3 *(Rosecrans St.)*	11
Rosecrans Street / Roosevelt Road	0	15 *(Rosecrans St.)*	11 *(Roosevelt Rd.)*	2 *(Rosecrans St.)*	28
Rosecrans Street / Curtis Street	9 *(Curtis St.)*	0 *(Rosecrans St.)*	0	0 *(Rosecrans St.)*	9
Rosecrans Street / Womble Road		82 *(Rosecrans St.)*	12 *(Womble Rd.)*	0 *(Rosecrans St.)*	94
Rosecrans Street / Xenophon Street	17 *(Xenophon St.)*	0 *(Rosecrans St.)*		0 *(Rosecrans St.)*	17
Rosecrans Street / Farragut Road-Voltaire Street	4 *(Voltaire St.)*	5 *(Rosecrans St.)*	17 *(Farragut Rd.)*	12 *(Rosecrans St.)*	38
Rosecrans Street / Russell Street-Laning Road	0 *(Russell St.)*	0 *(Rosecrans St.)*	1 *(Laning Rd.)*	1 *(Rosecrans St.)*	2
Rosecrans Street / Oliphant Street	8 *(Oliphant St.)*	0 *(Rosecrans St.)*	8	0 *(Rosecrans St.)*	16
Rosecrans Street / Macaulay Street	18 *(Macaulay St.)*	1 *(Rosecrans St.)*	5 *(DW)*	3 *(Rosecrans St.)*	27
Rosecrans Street / Nimitz Boulevard	23 *(Nimitz Blvd.)*	14 *(Rosecrans St.)*	24 *(Nimitz Blvd.)*	19 *(Rosecrans St.)*	80
Rosecrans Street / Jarvis Street	23 *(Jarvis St.)*	8 *(Rosecrans St.)*	9 *(Jarvis St.)*	11 *(Rosecrans St.)*	51
Rosecrans Street / N. Harbor Drive-Hugo Street	14 *(Hugo St.)*	13 *(Rosecrans St.)*	16 *(Harbor Dr.)*	13 *(Rosecrans St.)*	56
Rosecrans Street / Garrison Street	11 *(Garrison St.)*	0 *(Rosecrans St.)*	0 *(Garrison St.)*	0 *(Rosecrans St.)*	11
Rosecrans Street / Carleton Street	25 *(Carleton St.)*	16 *(Rosecrans St.)*	11 *(Carleton St.)*	13 *(Rosecrans St.)*	65
Rosecrans Street / Shelter Island Drive-Byron Street	10 *(Byron St.)*	11 *(Rosecrans St.)*	14 *(Shelter Island Dr.)*	13 *(Rosecrans St.)*	48

Table 3-8.
Existing A.M. Peak Period Pedestrian Volumes

Intersection	West Leg	North Leg	East Leg	South Leg	Total
Rosecrans Street / Canon Street	15 *(Canon St.)*	23 *(Rosecrans St.)*	24 *(Canon St.)*	10 *(Rosecrans St.)*	72
Rosecrans Street / Talbot Street	10 *(Talbot St.)*	14 *(Rosecrans St.)*	5 *(Talbot St.)*	13 *(Rosecrans St.)*	42
Camino del Rio W. / Moore Street	1 *(Moore St.)*	0 *(Camino del Rio)*	0 *(Moore St.)*	3 *(Camino del Rio)*	4
Camino del Rio W. / Hancock Street	0 *(Hancock St.)*	0 *(Rosecrans St.)*	0 *(Hancock St.)*	0 *(Rosecrans St.)*	0
Camino del Rio W. / Kurtz Street	0 *(Kurtz St.)*	0 *(Rosecrans St.)*	0 *(Kurtz St.)*	0 *(Rosecrans St.)*	0
TOTAL	**509**	**451**	**305**	**241**	**1,525**

Table 3-9.
Existing P.M. Peak Period Pedestrian Volumes

Intersection	West Leg	North Leg	East Leg	South Leg	Total
Taylor Street / Congress Street	46	26 *(Taylor St.)*	81 *(Congress St.)*	53 *(Taylor St.)*	206
Rosecrans Street-Taylor Street / Pacific Highway	23 *(PCH)*	170 *(Taylor St.)*	15 *(PCH)*	27 *(Rosecrans St.)*	235
Rosecrans Street / Jefferson Street	86 *(Jefferson St.)*	0 *(Rosecrans St.)*	0 *(Jefferson St.)*	2 *(Rosecrans St.)*	88
Rosecrans Street / Moore Street	57 *(Moore St.)*	7 *(Rosecrans St.)*	2 *(Moore St.)*	0 *(Rosecrans St.)*	66
Rosecrans Street / Hancock Street	66 *(Hancock St.)*	0 *(Rosecrans St.)*	145 *(Hancock St.)*	0 *(Rosecrans St.)*	211
Rosecrans Street / Kurtz Street	51 *(Kurtz St.)*	17 *(Rosecrans St.)*	43 *(Kurtz St.)*	3 *(Rosecrans St.)*	114
Rosecrans Street / Sports Arena Boulevard-Camino del Rio*	31 *(Sports Arena Blvd.)*	10 *(Rosecrans St.)*	29 *(Sports Arena Blvd.)*	63 *(Rosecrans St.)*	156
Rosecrans Street / Midway Drive	48 *(Midway Dr.)*	40 *(Rosecrans St.)*	65 *(Midway Dr.)*	42 *(Rosecrans St.)*	195
Rosecrans Street / N. Evergreen Street	11 *(Evergreen St.)*	11 *(Rosecrans St.)*	8 *(Evergreen St.)*	1 *(Rosecrans St.)*	31
Rosecrans Street / Lytton Street	6 *(Lytton St.)*	6 *(Rosecrans St.)*	1 *(Lytton St.)*	0 *(Rosecrans St.)*	13
Rosecrans Street / Roosevelt Road	0	7 *(Rosecrans St.)*	4 *(Roosevelt Rd.)*	0 *(Rosecrans St.)*	11
Rosecrans Street / Curtis Street	5 *(Curtis St.)*	0 *(Rosecrans St.)*		0 *(Rosecrans St.)*	5
Rosecrans Street / Womble Road		32 *(Rosecrans St.)*	7 *(Womble Rd.)*	0 *(Rosecrans St.)*	39
Rosecrans Street / Xenophon Street	6 *(Xenophon St.)*	0 *(Rosecrans St.)*		0 *(Rosecrans St.)*	6
Rosecrans Street / Farragut Road-Voltaire Street	1 *(Voltaire St.)*	5 *(Rosecrans St.)*	13 *(Farragut Rd.)*	20 *(Rosecrans St.)*	39
Rosecrans Street / Russell Street-Laning Road	0 *(Russell St.)*	0 *(Rosecrans St.)*	3 *(Laning Rd.)*	0 *(Rosecrans St.)*	3
Rosecrans Street / Oliphant Street	34 *(Oliphant St.)*	0 *(Rosecrans St.)*	47	0 *(Rosecrans St.)*	81
Rosecrans Street / Macaulay Street	8 *(Macaulay St.)*	0 *(Rosecrans St.)*	12 *(DW)*	1 *(Rosecrans St.)*	21
Rosecrans Street / Nimitz Boulevard	26 *(Nimitz Blvd.)*	25 *(Rosecrans St.)*	26 *(Nimitz Blvd.)*	41 *(Rosecrans St.)*	118
Rosecrans Street / Jarvis Street	19 *(Jarvis St.)*	2 *(Rosecrans St.)*	20 *(Jarvis St.)*	5 *(Rosecrans St.)*	46
Rosecrans Street / N. Harbor Drive-Hugo Street	4 *(Hugo St.)*	5 *(Rosecrans St.)*	3 *(Harbor Dr.)*	6 *(Rosecrans St.)*	18
Rosecrans Street / Garrison Street	34 *(Garrison St.)*	0 *(Rosecrans St.)*	47 *(Garrison St.)*	0 *(Rosecrans St.)*	81
Rosecrans Street / Carleton Street	15 *(Carleton St.)*	22 *(Rosecrans St.)*	10 *(Carleton St.)*	11 *(Rosecrans St.)*	58
Rosecrans Street / Shelter Island Drive-Byron Street	9 *(Byron St.)*	8 *(Rosecrans St.)*	15 *(Shelter Island Dr.)*	19 *(Rosecrans St.)*	51

Table 3-9.
Existing P.M. Peak Period Pedestrian Volumes

Intersection	West Leg	North Leg	East Leg	South Leg	Total
Rosecrans Street / Canon Street	11 *(Canon St.)*	25 *(Rosecrans St.)*	28 *(Canon St.)*	11 *(Rosecrans St.)*	75
Rosecrans Street / Talbot Street	9 *(Talbot St.)*	20 *(Rosecrans St.)*	13 *(Talbot St.)*	19 *(Rosecrans St.)*	61
Camino del Rio W. / Moore Street	0 *(Moore St.)*	0 *(Camino del Rio)*	1 *(Moore St.)*	0 *(Camino del Rio)*	1
Camino del Rio W. / Hancock Street	15 *(Hancock St.)*	20 *(Rosecrans St.)*	2 *(Hancock St.)*	1 *(Rosecrans St.)*	38
Camino del Rio W. / Kurtz Street	15 *(Kurtz St.)*	20 *(Rosecrans St.)*	2 *(Kurtz St.)*	1 *(Rosecrans St.)*	38
TOTAL	**636**	**478**	**642**	**326**	**2,105**

Existing Pedestrian Facilities

The most basic elements of the pedestrian network are sidewalks, crosswalks, and curb ramps. Sidewalks provide a space for pedestrian activity separated from motor vehicle traffic. Crosswalks delineate a space for pedestrians to traverse the roadway. Curb ramps provide a transition between the raised sidewalk and the crosswalk for persons using mobility assistance devices. These elements should form a connected network that is safe, accessible to all people and encourages people to walk. Corridor sidewalks, crosswalks and curb ramps were inventoried to document existing facilities and identify deficiencies that impede pedestrian safety and accessibility.

Crosswalks

All Corridor intersections were inventoried for the presence and types of crosswalks. Exhibit 3-11 displays the distribution of crosswalks along the Corridor, along with missing infrastructure and sidewalk obstructions. Table 3-10 summarizes the quantity and types of crosswalks found along the Corridor by study area. As shown, there are a total of 57 crosswalks in the Corridor, the majority of which are standard white traverse crosswalks. Two intersections in Area 2 have standard yellow traverse crosswalks. The only ladder crosswalks in the Corridor are located along three legs of the Rosecrans Street / North Evergreen Street intersection. These ladder crosswalks facilitate pedestrian travel between Dewey Elementary School on the east side of Rosecrans Street, a church on the west side of Rosecrans Street, and the surrounding mix of commercial and residential land uses.

Missing Sidewalk

Exhibit 3-11 also displays locations of missing sidewalks along the study Corridor. As shown, there is a significant concentration of missing sidewalk in Area 4 near the residential area beginning south of Bessemer Street and continuing to the southern terminus of the Corridor at Kellogg Street. Lack of continuous, passable sidewalks forces pedestrians to travel outside of the public right-of-way on private property or in the travel way presenting a safety issue for pedestrians, particularly people with disabilities. Americans with Disabilities Act (ADA) of 1990 standards require cities to provide continuous, maintained sidewalks to accommodate persons with disabilities. Table 3-11 summarizes the approximate length of missing sidewalk by study area.

Missing Curb Ramps

ADA regulation also requires that cities install curb ramps so that the transition between sidewalks and crosswalks is navigable for people with disabilities. The City of San Diego administers a program to install missing curb ramps and retrofit non-compliant curb ramps. This program is primarily public complaint driven. An inventory of the Corridor curb ramps revealed that there are a total of 34 missing curb ramps at 21 intersections. Again, a significant majority of these missing curb ramps are located in the largely residential Area 4. Exhibit 3-11 displays missing curb ramps along the Rosecrans Corridor. Table 3-12 reports the number of missing curb ramps by study area.

Sidewalk Obstructions

Like missing sidewalk and missing curb ramps, objects that obstruct the sidewalk are a hazard because they can force pedestrians to walk in the travel way in order to pass the barrier. For pedestrians who use wheelchairs, a sidewalk obstruction can make an entire sidewalk segment inaccessible. Obstructions were identified via field review, with the reviewer measuring the width of sidewalks in all suspect cases to confirm the availability of 36 inches of passage along the sidewalk. In total, twenty-three obstructions were found. Table 3-13 displays the results of the obstruction inventory by study area. As shown, the majority of sidewalk obstructions are found in Area 3 and Area 4.

Exhibit 3-11 – Inventory of Existing Sidewalk, Curb Ramp and Sidewalk Obstructions

Source: ALTA Planning & Design, Pedestrian & Bicycle Study (Appendix F)

Table 3-10.
Existing Crosswalks

Study Area	Traverse Crosswalks	Ladder Crosswalks	Total
Area 1	25	3	28
Area 2	16	0	16
Area 3	13	0	13
Area 4	0	0	0
TOTAL	**54**	**3**	**57**

Source: Alta Planning + Design (June 30, 2009

Table 3-11.
Missing Sidewalks

Study Area	Feet of Missing Sidewalk	Percent of Total
Area 1	961.6	23.4%
Area 2	9.1	0.2%
Area 3	103.0	2.5%
Area 4	3,035.3	73.9%
TOTAL	**4,109.0**	**100%**

Source: **Alta Planning + Design (June 30, 2009)**

Table 3-12.
Missing Curb Ramps

Area	Total Missing Curb Ramps	Percent of Total
Area 1	9	26.5%
Area 2	0	0%
Area 3	8	23.5%
Area 4	17	50%
TOTAL	**34**	**100%**

Source: Alta Planning + Design (June 30, 2009)

Table 3-13.
Sidewalks Obstructions by Area

Area	Total Obstructions	Percent of Total
Area 1	3	13.0%
Area 2	0	0.0%
Area 3	10	43.5%
Area 4	10	43.5%
TOTAL	**23**	**100%**

The types of sidewalk obstructions found along the corridor include:

- Street warning and street name signage;
- Utility boxes and street light poles;
- Sidewalk amenities, such as benches, tree planters, trash cans, newspaper dispensers and;
- Sidewalk that is so uplifted it is impassable for persons using assistive devices.

Pedestrian Accidents

High speeds and traffic volumes are generally indicators of low levels of pedestrian safety, while high pedestrian crash rates are strong indicators of unsafe conditions. Table 3-14 summarizes the number of pedestrian crashes along the Corridor between 2002 and 2007.

As shown, a total of 50 pedestrian crashes were reported. Several intersections had five or more crashes over the five year period, including:

- Rosecrans Street-Taylor Street / Pacific Highway
- Rosecrans Street / Kurtz Street
- Rosecrans Street / Sports Arena Boulevard-Camino del Rio
- Rosecrans Street / Midway Drive

Table 3-14.
Pedestrian Involved Accidents Along Rosecrans Street (2002 – 2007)

Intersection	Number of Crashes
Rosecrans Street-Taylor Street / Pacific Highway	6
Rosecrans Street / Jefferson Street	2
Rosecrans Street / Kurtz Street	6
Rosecrans Street / Sports Arena Boulevard-Camino del Rio	6
Rosecrans Street / Midway Drive	5
Rosecrans Street / Cauby Street	1
Rosecrans Street / Shoup Street	1
Rosecrans Street / Xenophon Street	2
Rosecrans Street / Macaulay Street	1
Rosecrans Street / Nimitz Boulevard	2
Rosecrans Street / Keats Street	1
Rosecrans Street / N. Harbor Drive-Hugo Street	3
Rosecrans Street / Garrison Street	1
Rosecrans Street / Emerson Street	1
Rosecrans Street / Dickens Street	1
Rosecrans Street / Canon Street	1
Rosecrans Street / Talbot Street	1
Rosecrans Street / Owen Street	1
Camino del Rio W. / Moore Street	3
Camino del Rio W. / Hancock Street	4
Camino del Rio W. / Kurtz Street	1
TOTAL	**50**

Source: SWITRS (2008)

Pedestrian Model Analysis

The San Diego Pedestrian Model is used to determine areas where high pedestrian activity is likely to occur based on land use (future or existing), available pedestrian and traffic infrastructure (roads and sidewalks) and factors that may affect a person's decision to wtalk (traffic volume, safety, etc). There are three elements of the pedestrian model: demand/generation, attractors and detractors. Pedestrian modeling and analysis was conducted by ALTA Planning & Designs. The following section discusses the general findings of each of the three models run by ALTA for the Rosecrans corridor. Detailed analysis is provided in their report provided in Appendix 3-FG of this study.

Demand modeling was conducted to understand the propensity for pedestrian activity based on population characteristics correlated with higher pedestrian activity. Population density is typically considered a strong indicator of potential pedestrian activity with higher population densities being associated with higher levels of pedestrian travel. Certain subpopulations are also associated with higher levels of walking, including youth, elderly, physically disabled, and low median household income.

GIS-based demand modeling was also employed to identify areas of high pedestrian activity based on proximity to land uses typically associated with attracting relatively higher levels of pedestrian trips. These land uses include schools, transit stops, parks, beaches, retail, and civic facilities (libraries, post offices, and government buildings).

A detractor model was also used to analyze the distribution of various factors along the Corridor which tend to discourage people from walking. Pedestrian detractors include pedestrian/vehicle collisions, high traffic volumes, high posted speed limits, steep slopes, and untraversable infrastructure, specifically freeway and rail Corridors. These detractors generally undermine broadly accepted pedestrian related goals of safety, connectivity, and walkability. the pedestrian detractor composite map identifies several high-detractor areas along the Corridor, especially the entire segment of Camino Del Rio West, the Rosecrans Street / Sports Arena Boulevard intersection and the Rosecrans Street / Midway Drive intersection.

Recommended Pedestrian Improvement Locations

The observational data, pedestrian count data and analysis conducted using the Pedestrian Model illuminate locations of high demand and deficiency along the corridor. These locations warrant relatively higher consideration for pedestrian improvement projects. Exhibit 3-12 displays the results of the pedestrian priority composite, which is a synthesis of the pedestrian attractor, pedestrian generator and pedestrian detractor models, as well as identifies five locations as high priority areas to be the focus of pedestrian improvement project development in the subsequent stages of this study.

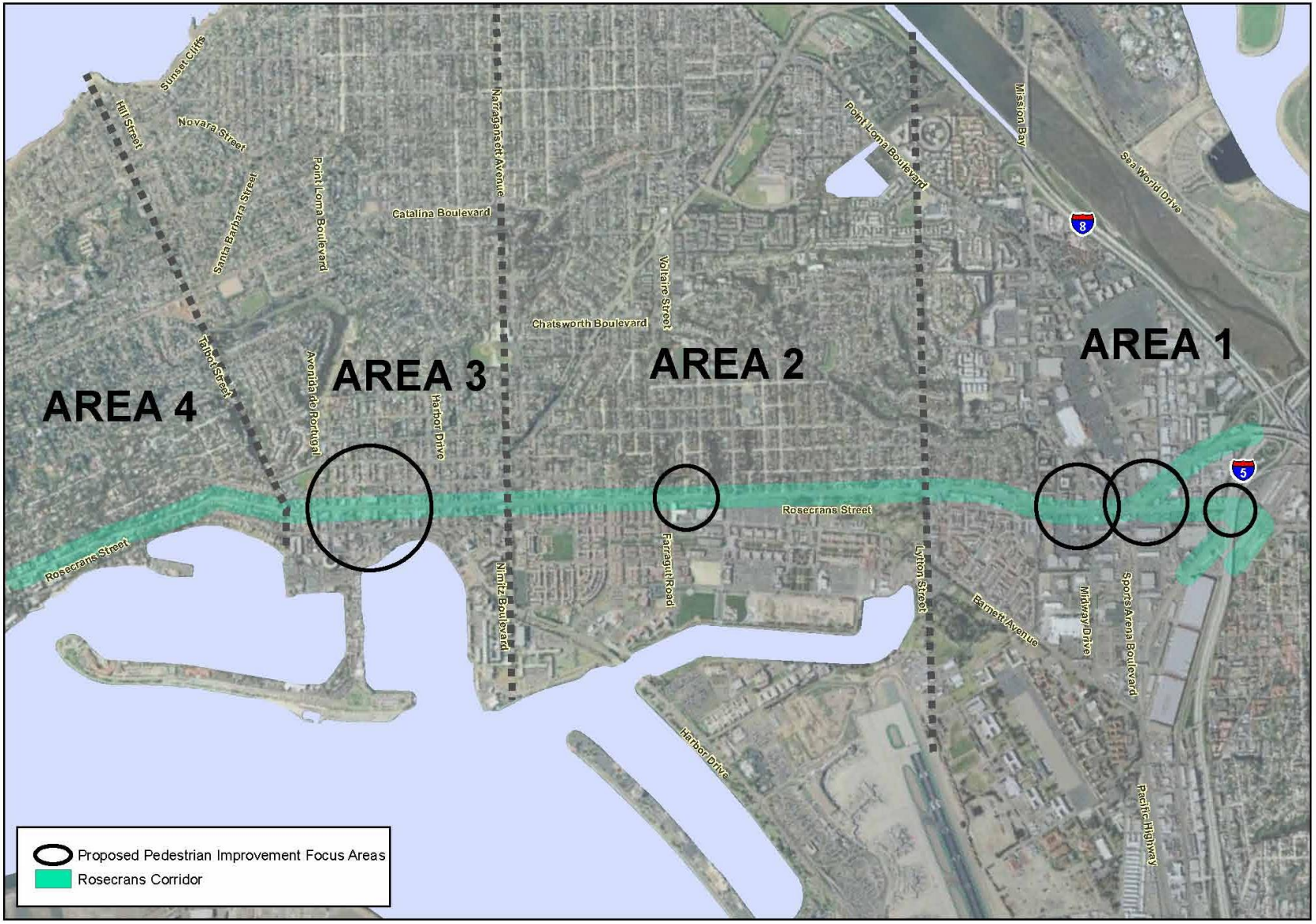


Exhibit 3-12 - Proposed Pedestrian Improvement Areas

Source: ALTA Planning & Design, Pedestrian & Bicycle Study (Appendix F)

The five locations identified and highlighted in Exhibit 3-12 are:

1) Rosecrans Street from Jefferson Street through the Congress Street / Taylor Street intersection. This focus area demonstrates very high demand, transit access issues, inter-community connectivity issues and deficiencies.

2) The Sports Arena Boulevard / Rosecrans Street-Camino del Rio West intersection. This intersection was identified due to a combination of high demand (transit, priority model results and count data), safety and observational data.

*3) The Midway Drive / Rosecrans Street intersectio*n, due to high demand identified by pedestrian counts, priority model results and transit ridership rates.

4) The Rosecrans Street / Womble Road intersection through the Rosecrans Street / Farragut Road intersection. This location is a priority because it encompasses key access points between the High Tech High campuses and transit. The mixture and concentration of pedestrian attracting land uses at this location also indicates that there is an opportunity to increase pedestrian activity by making improvements to the pedestrian environment.

5) Rosecrans Street from Avenida de Portugal through the Rosecrans Street /Harbor Drive. This location is identified due to high demand exhibited by high pedestrian counts, priority model results and transit ridership rates, coupled with insufficient pedestrian infrastructure.

3.6 BICYCLE ASSESSMENT

A detailed bicycle study was prepared by ALTA Planning & Design in July 2009. The study focuses on evaluating the existing bicycle activity along the corridor, existing bicycle storage facilities, locations of bicycle routes, paths and lanes, and long term plans for bicycle improvements in the study area. In addition, the City of San Diego Bicycle Model was used to determine the areas along the corridor with the highest potential for bicycle activity and the areas of focus for future bicycle improvements. The complete study prepared by ALTA Planning & Design is provided in Appendix 3-~~H~~F of this report.

Bicycle Activity

Bicycle counts were collected at 29 intersections during peak travel periods on April 22, April 23, April 28 and April 29, 2009 in order to understand relative activity levels along the Corridor. Tables 3-15 and 3-16 summarize bicycle count data collected in 15 minute intervals during two-hour morning and evening peak periods, respectively. The tables include the number of bicyclists per intersection leg, the direction of movements, and the sum of bicyclists traveling through the intersection. The highest morning count (38 bicyclists) was recorded at the intersection of Rosecrans Street and Russell Street-Laning Road. This intersection is located in a predominately residential area with newer multifamily housing located on the east side of Rosecrans Street.

The second highest morning count was also recorded in the NTC/Liberty Station area at Rosecrans Street and Nimitz Boulevard. The highest evening 2-hour count of 72 was recorded at the Taylor Street / Pacific Coast Highway intersection, followed by the Rosecrans Street / Kurtz Street intersection (56) and the Taylor Street / Congress Street intersection (47). The high activity levels recorded at Taylor Street and Pacific Highway parallels the high pedestrian count levels. High activity levels at this location are largely explained by this location's proximity to the Old Town Transit Station where many bicyclists connect to transit to continue their commutes. This is also a thoroughfare for bicycle commuters traveling from downtown to the communities northwest and northeast of Old Town.

[

Table 3-15.
A.M. Peak Hour Bicycle Volumes

Intersection	West Leg (NB/SB)	North Leg (WB/EB)	East Leg (NB/SB)	South Leg (WB/EB)	Total
Taylor Street / Congress Street	3/9	0/0 *(Taylor St.)*	7/0 *(Congress St.)*	0/0 *(Taylor St.)*	19
Rosecrans Street - Taylor Street / Pacific Coast Highway	3/10 *(PCH)*	5/0 *(Taylor St.)*	7/0 *(PCH)*	0/5 *(Rosecrans St.)*	30
Rosecrans Street / Jefferson Street	2/13 *(Jefferson St.)*	0/0 *(Rosecrans St.)*	0/0 *(Jefferson St.)*	0/0 *(Rosecrans St.)*	15
Rosecrans Street / Moore Street	4/12 *(Moore St.)*	0/0 *(Rosecrans St.)*	10/2 *(Moore St.)*	0/0 *(Rosecrans St.)*	28
Rosecrans Street / Hancock Street	4/12 *(Hancock St.)*	0/0 *(Rosecrans St.)*	10/2 *(Hancock St.)*	0/0 *(Rosecrans St.)*	28
Rosecrans Street / Kurtz Street	1/8 *(Kurtz St.)*	2/0 *(Rosecrans St.)*	14/0 *(Kurtz St.)*	0/1 *(Rosecrans St.)*	26
Rosecrans Street / Sports Arena Boulevard-Camino del Rio*	0/0 *(Sports Arena Blvd.)*	0/1 *(Rosecrans St.)*	7/3 *(Sports Arena Blvd.)*	0/6 *(Rosecrans St.)*	20
Rosecrans Street / Midway Drive	0/7 *(Midway Dr.)*	3/1 *(Rosecrans St.)*	6/3 *(Midway Dr.)*	2/3 *(Rosecrans St.)*	25
Rosecrans Street / N. Evergreen Street	0/6 *(Evergreen St.)*	1/2 *(Rosecrans St.)*	6/2 *(Evergreen St.)*	0/0 *(Rosecrans St.)*	17
Rosecrans Street / Lytton Street	0/5 *(Lytton St.)*	2/1 *(Rosecrans St.)*	1/0 *(Lytton St.)*	0/0 *(Rosecrans St.)*	9
Rosecrans Street / Roosevelt Road	1/6	0/1 *(Rosecrans St.)*	7/1 *(Roosevelt Rd.)*	0/0 *(Rosecrans St.)*	16
Rosecrans Street / Curtis Street	1/6 *(Curtis St.)*	3/0 *(Rosecrans St.)*	0/0	1/3 *(Rosecrans St.)*	14
Rosecrans Street / Womble Road		2/4 *(Rosecrans St.)*	9/1 *(Womble Rd.)*	0/0 *(Rosecrans St.)*	16
Rosecrans Street / Xenophon Street	0/2 *(Xenophon St.)*	0/0 *(Rosecrans St.)*		0/0 *(Rosecrans St.)*	2
Rosecrans Street / Farragut Road-Voltaire Street	0/5 *(Voltaire St.)*	0/0 *(Rosecrans St.)*	3/0 *(Farragut Rd.)*	0/0 *(Rosecrans St.)*	8
Rosecrans Street / Russell Street-Laning Road	0/4 *(Russell St.)*	5/0 *(Rosecrans St.)*	17/0 *(Laning Rd.)*	0/12 *(Rosecrans St.)*	38
Rosecrans Street / Oliphant Street	0/4 *(Oliphant St.)*	0/0 *(Rosecrans St.)*	8/0	0/0 *(Rosecrans St.)*	12
Rosecrans Street / Macaulay Street	1/4 *(Macaulay St.)*	0/0 *(Rosecrans St.)*	7/1 *(DW)*	0/0 *(Rosecrans St.)*	13
Rosecrans Street / Nimitz Boulevard	1/4 *(Nimitz Blvd.)*	12/0 *(Rosecrans St.)*	8/1 *(Nimitz Blvd.)*	0/6 *(Rosecrans St.)*	32
Rosecrans Street / Jarvis Street	0/13 *(Jarvis St.)*	0/0 *(Rosecrans St.)*	5/0 *(Jarvis St.)*	1/0 *(Rosecrans St.)*	19
Rosecrans Street / N. Harbor Drive-Hugo Street	0/3 *(Hugo St.)*	0/0 *(Rosecrans St.)*	3/0 *(Harbor Dr.)*	0/1 *(Rosecrans St.)*	7
Rosecrans Street / Garrison Street	0/4 *(Garrison St.)*	0/0	8/0 *(Garrison St.)*	0/0 *(Rosecrans St.)*	12
Rosecrans Street / Carleton Street	1/3 *(Carleton St.)*	1/0 *(Rosecrans St.)*	3/0 *(Carleton St.)*	1/0 *(Rosecrans St.)*	9

Intersection	West Leg (NB/SB)	North Leg (WB/EB)	East Leg (NB/SB)	South Leg (WB/EB)	Total
Rosecrans Street / Shelter Island Drive-Byron Street	0/4 *(Byron St.)*	2/1 *(Rosecrans St.)*	2/0 *(Shelter Island Dr.)*	0/0 *(Rosecrans St.)*	9
Rosecrans Street / Canon Street	0/5 *(Canon St.)*	10/0 *(Rosecrans St.)*	2/0 *(Canon St.)*	0/12 *(Rosecrans St.)*	29
Rosecrans Street / Talbot Street	0/4 *(Talbot St.)*	0/0 *(Rosecrans St.)*	2/0 *(Talbot St.)*	0/0 *(Rosecrans St.)*	6
Camino del Rio W. / Moore Street	0/6 *(Moore St.)*	0/0 *(Camino del Rio)*	0/0 *(Moore St.)*	3/0 *(Camino del Rio)*	9
Camino del Rio W. / Hancock Street	0/1 *(Hancock St.)*	2/0 *(Rosecrans St.)*	1/0 *(Hancock St.)*	0/0 *(Rosecrans St.)*	4
Camino del Rio W. / Kurtz Street	0/1 *(Kurtz St.)*	2/0 *(Rosecrans St.)*	1/0 *(Kurtz St.)*	0/0 *(Rosecrans St.)*	4
TOTAL	**183**	**63**	**170**	**57**	**476**

Source: RBF Consulting; Alta Planning + Design (June 30, 2009)
Note: The Rosecrans Street / Sports Arena Boulevard-Camino del Rio intersection is a six-legged intersection. Counts for two of the six legs are reported here. They were 0 bicyclists northeast bound and 1 bicyclist southwest bound along the northwest leg of the intersection (Camino del Rio) and 0 west bound and 2 east bound along the south leg (Rosecrans St.).

[

Table 3-16.
P.M. Peak Hour Bicycle Volumes

Intersection	West Leg (NB/SB)	North Leg (WB/EB)	East Leg (NB/SB)	South Leg (WB/EB)	Total
Taylor Street / Congress Street	9/12	4/0 *(Taylor St.)*	18/2 *(Congress St.)*	1/1 *(Taylor St.)*	47
Rosecrans Street-Taylor Street / Pacific Coast Highway	9/12 *(PCH)*	21/2 *(Taylor St.)*	15/3 *(PCH)*	1/9 *(Rosecrans St.)*	72
Rosecrans Street / Jefferson Street	7/28 *(Jefferson St.)*	0/0 *(Rosecrans St.)*	4/1 *(Jefferson St.)*	0/0 *(Rosecrans St.)*	40
Rosecrans Street / Moore Street	4/20 *(Moore St.)*	0/0 *(Rosecrans St.)*	20/2 *(Moore St.)*	0/0 *(Rosecrans St.)*	46
Rosecrans Street / Hancock Street	1/1 *(Hancock St.)*	0/0 *(Rosecrans St.)*	20/5 *(Hancock St.)*	0/0 *(Rosecrans St.)*	27
Rosecrans Street / Kurtz Street	2/3 *(Kurtz St.)*	29/1 *(Rosecrans St.)*	3/0 *(Kurtz St.)*	3/15 *(Rosecrans St.)*	56
Rosecrans Street / Sports Arena Boulevard-Camino del Rio*	2/3 *(Sports Arena Blvd.)*	2/2 *(Rosecrans St.)*	6/4 *(Sports Arena Blvd.)*	6/13 *(Rosecrans St.)*	43
Rosecrans Street / Midway Drive	3/7 *(Midway Dr.)*	5/4 *(Rosecrans St.)*	8/3 *(Midway Dr.)*	0/7 *(Rosecrans St.)*	37
Rosecrans Street / N. Evergreen Street	2/5 *(Evergreen St.)*	0/2 *(Rosecrans St.)*	3/1 *(Evergreen St.)*	0/1 *(Rosecrans St.)*	14
Rosecrans Street / Lytton Street	0/3 *(Lytton St.)*	1/0 *(Rosecrans St.)*	2/0 *(Lytton St.)*	1/3 *(Rosecrans St.)*	10
Rosecrans Street / Roosevelt Road	2/1	0/2 *(Rosecrans St.)*	7/2 *(Roosevelt Rd.)*	0/0 *(Rosecrans St.)*	14
Rosecrans Street / Curtis Street	0/1 *(Curtis St.)*	0/0 *(Rosecrans St.)*	0/0	0/0 *(Rosecrans St.)*	1
Rosecrans Street / Womble Road		2/2 *(Rosecrans St.)*	6/1 *(Womble Rd.)*	0/0 *(Rosecrans St.)*	11
Rosecrans Street / Xenophon Street	0/6 *(Xenophon St.)*	0/0 *(Rosecrans St.)*		0/0 *(Rosecrans St.)*	6
Rosecrans Street / Farragut Road-Voltaire Street	0/9 *(Voltaire St.)*	0/0 *(Rosecrans St.)*	10/0 *(Farragut Rd.)*	0/0 *(Rosecrans St.)*	19
Rosecrans Street / Russell Street-Laning Road	0/1 *(Russell St.)*	5/0 *(Rosecrans St.)*	11/0 *(Laning Rd.)*	0/20 *(Rosecrans St.)*	37
Rosecrans Street / Oliphant Street	0/3 *(Oliphant St.)*	0/0 *(Rosecrans St.)*	11/0	0/0 *(Rosecrans St.)*	14
Rosecrans Street / Macaulay Street	1/4 *(Macaulay St.)*	0/0 *(Rosecrans St.)*	6/2 *(DW)*	0/1 *(Rosecrans St.)*	14
Rosecrans Street / Nimitz Boulevard	0/2 *(Nimitz Blvd.)*	12/1 *(Rosecrans St.)*	6/2 *(Nimitz Blvd.)*	0/8 *(Rosecrans St.)*	31
Rosecrans Street / Jarvis Street	0/0 *(Jarvis St.)*	9/0 *(Rosecrans St.)*	0/0 *(Jarvis St.)*	0/1 *(Rosecrans St.)*	10
Rosecrans Street / N. Harbor Drive-Hugo Street	0/2 *(Hugo St.)*	0/0 *(Rosecrans St.)*	3/0 *(Harbor Dr.)*	0/4 *(Rosecrans St.)*	9
Rosecrans Street / Garrison Street	0/3 *(Garrison St.)*	0/0 *(Rosecrans St.)*	11/0 *(Garrison St.)*	0/0 *(Rosecrans St.)*	14
Rosecrans Street / Carleton Street	1/1 *(Carleton St.)*	1/0 *(Rosecrans St.)*	5/4 *(Carleton St.)*	1/0 *(Rosecrans St.)*	13

Intersection	West Leg (NB/SB)	North Leg (WB/EB)	East Leg (NB/SB)	South Leg (WB/EB)	Total
Rosecrans Street / Shelter Island Drive-Byron Street	0/2 *(Byron St.)*	5/0 *(Rosecrans St.)*	4/1 *(Shelter Island Dr.)*	1/0 *(Rosecrans St.)*	13
Rosecrans Street / Canon Street	1/5 *(Canon St.)*	12/0 *(Rosecrans St.)*	8/1 *(Canon St.)*	0/6 *(Rosecrans St.)*	33
Rosecrans Street / Talbot Street	1/4 *(Talbot St.)*	0/0 *(Rosecrans St.)*	6/1 *(Talbot St.)*	0/0 *(Rosecrans St.)*	12
Camino del Rio W. / Moore Street	0/0 *(Moore St.)*	0/0 *(Camino del Rio)*	0/0 *(Moore St.)*	0/0 *(Camino del Rio)*	0
Camino del Rio W. / Hancock Street	0/12 *(Hancock St.)*	8/0 *(Rosecrans St.)*	0/0 *(Hancock St.)*	0/2 *(Rosecrans St.)*	22
Camino del Rio W. / Kurtz Street	0/12 *(Kurtz St.)*	8/0 *(Rosecrans St.)*	0/0 *(Kurtz St.)*	0/2 *(Rosecrans St.)*	22
TOTAL	**207**	**140**	**228**	**107**	**687**

Source: RBF Consulting; Alta Planning + Design (June 30, 2009)
Note: *The Rosecrans Street / Sports Arena Boulevard-Camino del Rio intersection is a six-legged intersection. Counts for two of the six legs are reported here. They were 0 bicyclists northeast bound and 2 bicyclists southwest bound along the northwest leg of the intersection (Camino del Rio) and 2 bicyclists west bound and 1 bicyclist east bound along the south leg (Rosecrans St.).

[

Existing Bicycle Facilities

This Section describes the Corridor's existing bicycle facilities, including bikeways and bike parking, while Section 5 evaluates these facilities in terms of their functionality and safety.

Bike Lanes, Bike Routes and Multi-Use Paths (Bikeways)

There are currently 2.48 miles of bike lanes along the Corridor, with no bike routes or bike paths. Table 3-17 summarizes study area bike lanes in feet, while Exhibit 3-13 shows the location of these facilities. As shown, the majority of bike lanes is found in Areas 2 and 4. In Area 2, bike lanes run from Lytton Street to Oliphant Street, and in Area 4 from Talbot Street to the southern terminus of the Corridor at Kellogg Street. There is a gap in bicycle facility between Oliphant Street and Talbot Street.

Table 3-17.
Rosecrans Corridor Bicycle Facilities by Study Area

Study Area	Feet of Bike Lane	Percent of Total
Area 1	2,115.7	16.2%
Area 2	6,202.5	47.3%
Area 3	0	0%
Area 4	4,787.5	36.5%
TOTAL	**13,105.7**	**100%**

Bike Parking

The Corridor was inventoried for the presence of bike parking in the public right-of-way. No bike parking was found in the public right-of-way. There are regional bike lockers and a large bike rack located at the northwest corner of the Old Town Transit Center. There are also a few bike racks located along the Corridor on private property.

Bicycle Model

Similar to the Pedestrian Model discussed previously, the bicycle model evaluates the locations along the corridor with the potential for high bicycle activity both under existing conditions and in the future. Three models are combined to identify locations along the corridor where bicycle improvements would likely have the greatest benefit to the bicycling environment.

The bicycle trip generator model highlights locations along the Corridor with a greater likelihood of generating a bicycle trip, such as areas with high population or employment densities, or high concentrations of sub-populations known to depend on bicycling, such as bicycle commuters or zero-vehicle households. The results of the generator model show that Area 1has the highest level of bicycle generation with Areas 3 and 4 displaying moderate levels of bicycle generation. Liberty Station does not score high in the generator model because the model relies on 2000 US Census data thus it reflects conditions pre-redevelopment of the NTC.

The bicycle trip attractor model input variables reflect land use types with relatively higher propensity to attract a bicycle trip, such as schools, parks, transit, civic facilities and retail. Areas 1 and 3 show high levels of bicycle trip

attraction. Liberty Station scores are not as high as might be expected due to the models point and weight system. In the model retail and high, middle and elementary schools are assigned one point out of four possible.

The bicycle trip detractor model reflects indications of "bicycle barriers" or "problem areas" such as roadways with high vehicular traffic volumes and speeds, freeway on/off ramps, steep slopes, and especially, high bicycle crash locations. Table 3-18 summarizes the results of the bicycle crash analysis for the year 2002 through 2007.

Table 3-18.
Bicycle Involved Accidents (2002 – 2007)

Intersection	Number of Crashes
Taylor Street / Congress Street	1
Rosecrans Street-Taylor Street / Pacific Highway	6
Rosecrans Street / Jefferson Street	1
Rosecrans Street / Moore Street	1
Rosecrans Street / Kurtz Street	1
Rosecrans Street / Sports Arena Boulevard-Camino del Rio	6
Rosecrans Street / Midway Drive	2
Rosecrans Street / N. Evergreen Street	3
Rosecrans Street / Lytton Street	2
Rosecrans Street / Poe Street	1
Rosecrans Street / N. Harbor Drive-Hugo Street	1
Rosecrans Street / Emerson Street	2
Rosecrans Street / Avenida de Portugal	2
Rosecrans Street / Upshur Street	1
Rosecrans Street / Owen Street	1
TOTAL	**31**

Source: SWITRS (2008)

As shown, a total of 31 bicycle crashes were reported. Several intersections had three or more crashes over the five year period, including:

- Rosecrans Street - Taylor Street / Pacific Highway
- Rosecrans Street / Sports Arena Boulevard - Camino del Rio
- Rosecrans Street / N. Evergreen Street

[

Bicycle Constraints Analysis

The majority of the Corridor is a highly intimidating bicycling environment that lacks safe and continuous bicycle facilities and fails to connect to the proposed regional bicycle network and to key activity centers. Areas 1, 2 and 3 are particularly intimidating to bicyclists due to multiple travel lanes, traffic volumes, speeds and large intersections. A striking amount of sidewalk riding was observed, most commonly throughout Area 1 and around NTC/Liberty Station, which is a clear indication that bicyclists are uncomfortable riding in the roadway. This condition was encountered in the NTC area where numerous bicyclists were observed riding on the sidewalk despite the presences of bike lanes. The narrow bike lanes along Rosecrans do not appear to provide adequate separation from the high traffic volume present on this roadway. Area 1 and 4 consistently demonstrate high bicycling demands and high detractor characteristics.

Exhibit 3-13 shows that existing bicycle facility gaps within the Corridor occur at points of potential connectivity to the existing and proposed regional bicycle network, in particular to the proposed Central Coast Corridor and the Coastal Rail Trail, both of which provide key north-south regional bicycle connections. Based on observation of the Corridor, left turns are particularly challenging for bicyclists as they often have to cross multiple lanes of traffic in order to access left turn lanes. This challenge is particularly prevalent throughout Area 1 and was observed for bicyclist traveling northbound on Rosecrans Street and attempting to make a left-turn onto Nimitz Boulevard, which is part of the proposed Central Coast regional corridor. Bicycles were also found locked to various objects in commercial areas along the Corridor, indicating a need for bicycle parking to facilitate multi-modal trip taking.

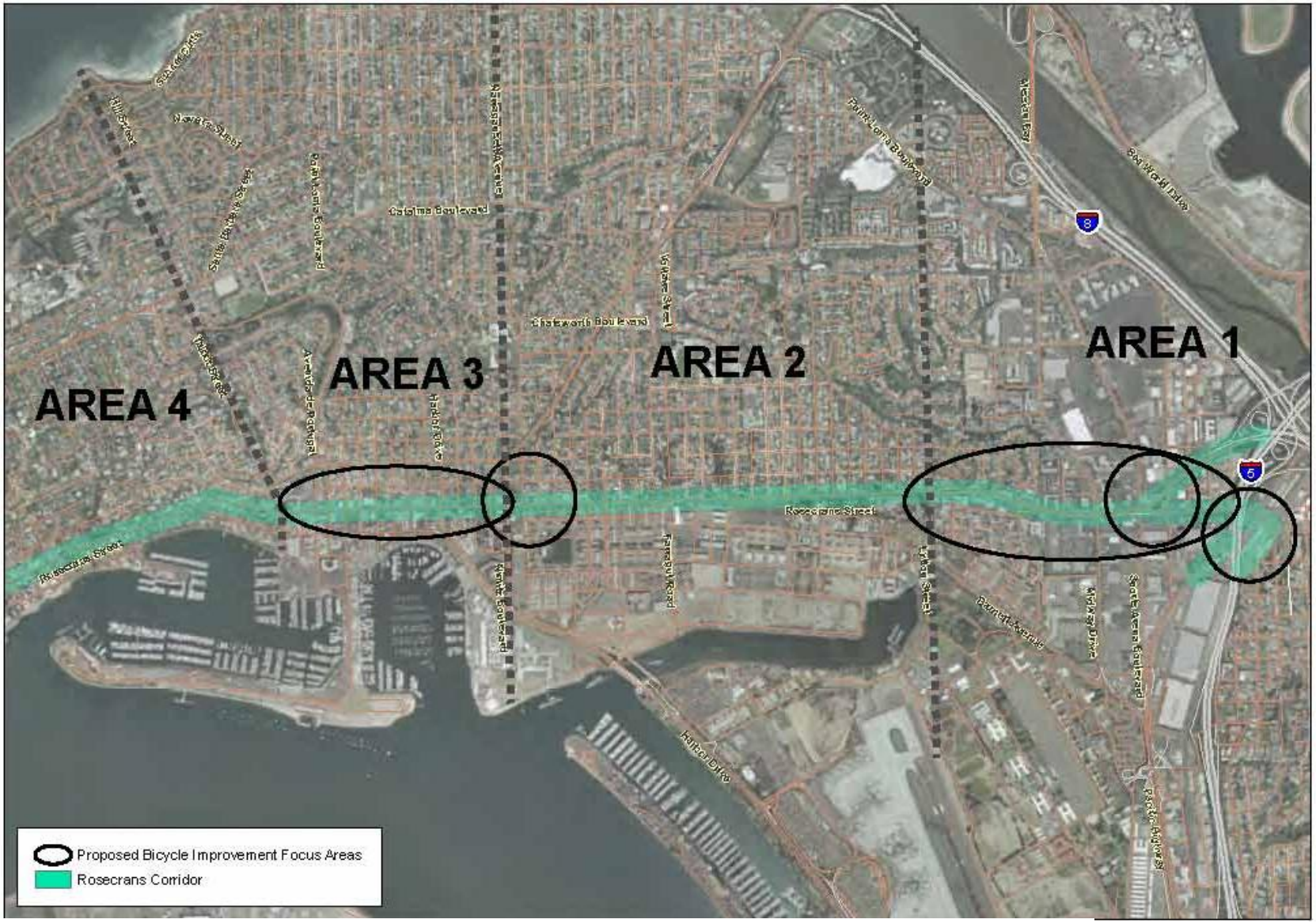


Exhibit 3-13 - Proposed Bicycle Improvement Areas

Source: ALTA Planning & Design, Pedestrian & Bicycle Study (Appendix F)

3.7 TRANSIT ASSESSMENT

The IBI Group prepared a technical analysis of existing transit service and facilities within the project study area. The complete report prepared by the IBI Group is provided in Appendix 3-G~~I~~ of this report. The report includes an assessment of transit services and operational characteristics, including routes operating short segments within the corridor and those explicitly serving it, ridership and frequency, and span of service information. In addition, the report details existing issues and concerns from the transit operator's standpoint, including potential congestion points, stop improvement needs, and on-time performance.

Fieldwork was conducted in May, June, and July of 2009, and transit route and stop information is current as of July 2009. Ridership data was obtained from SANDAG FY 09 Daily Ridership reports. Information on transit operating issues was obtained through field observations and conversations with MTS, San Diego Trolley, Inc., and city of San Diego staff.

Existing Transit Services

As a major access path to the busiest transit center in San Diego County (Old Town Transit Center), the Rosecrans Corridor has a large number of buses operating in it, especially near the Old Town Transit Center. MTS Routes 28 and 84 run in the corridor itself and are discussed in detail below. Several other routes use the corridor for short segments and are summarized in this section. Exhibit 3-14 illustrates the transit routes serving the Rosecrans Corridor study area.

Route 28 - Route 28 is the primary route along Rosecrans Street, connecting the Old Town Transit Center and Shelter Island. The three-mile route can be effectively broken into three segments. The eastern segment is comprised of dense commercial and retail developments; the central segment is a mix of single family residential, commercial, and the mixed-use Liberty Station development; and the western segment is a mix of residential and small-scale commercial uses.

Route 84 - Route 84 connects the Naval Facilities at the end of Point Loma to a number of different attractions. Beginning at the intersection of Shelter Island Drive and Rosecrans Street, the service features two different alignments. The one-mile segment along Rosecrans Street was the focus of data gathering efforts, but the route also operates along the bayside of the Naval Submarine Base, and serves the Cabrillo National Monument, which runs along the spine of Point Loma. The area served is primarily residential in nature, with some commercial developments near its eastern terminus, and governmental facilities along the western and southern edges of the route.

Route 8/9 - Route 8/9 connects Old Town Transit Center and Mission Bay, Mission Beach, and Pacific Beach. Route 8 completes the route in a clockwise direction, and Route 9 mirrors Route 8 in a counter clockwise direction. The route has two stops in each direction along Rosecrans Street between Sports Arena Boulevard and the Old Town Transit Center. The service is one of the most popular local routes in the city of San Diego, and features 15-minute frequency 7 days a week.

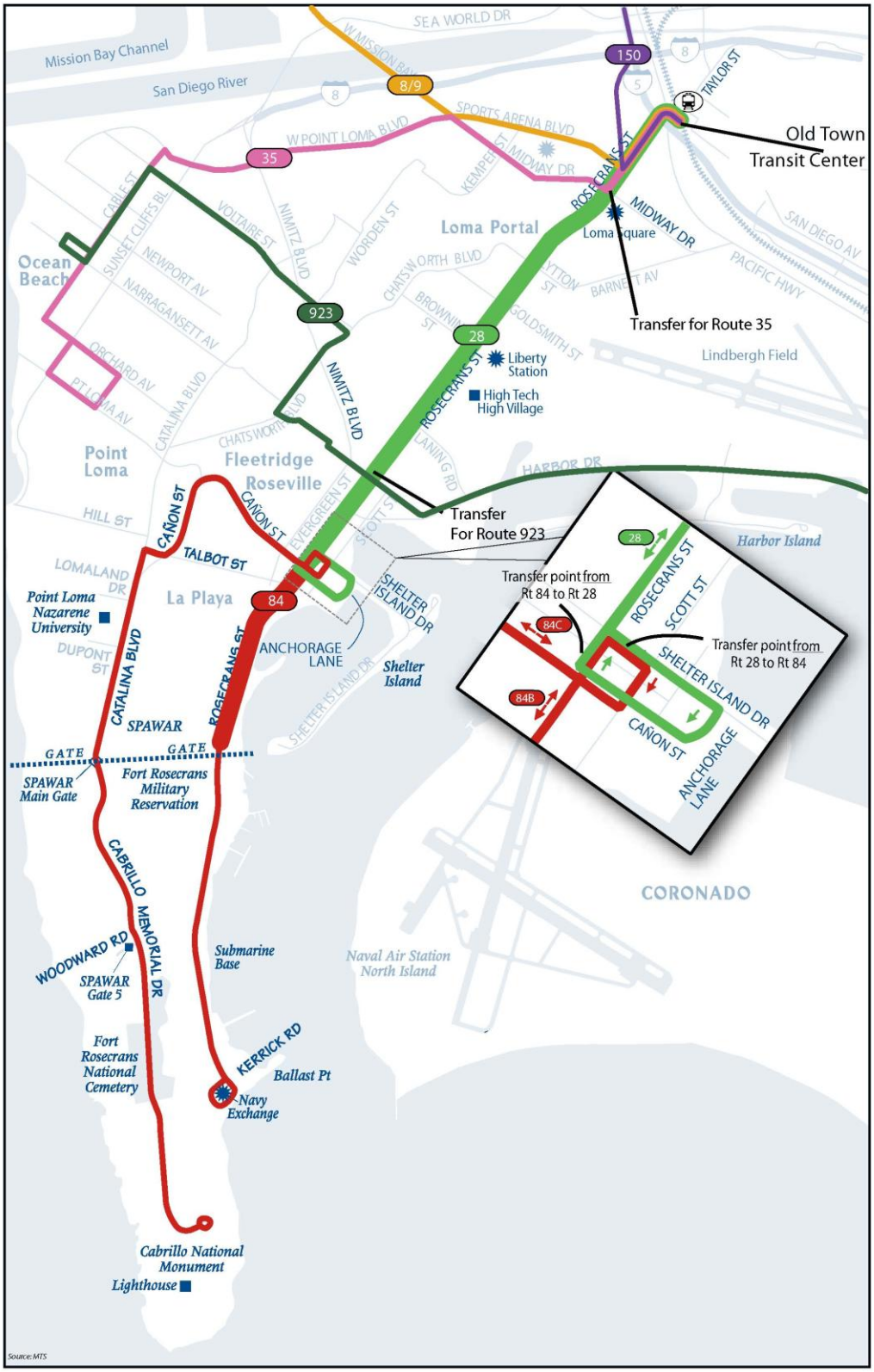


Exhibit 3-14 – Existing Transit Routes in the Rosecrans Corridor

Source: IBI Group, Transit Study (Appendix G)

Route 35 - Route 35 connects the Old Town Transit Center to Ocean Beach, primarily along Midway Drive and West Point Loma Blvd., with three stops along Rosecrans Street between Midway Drive and the Old Town Transit Center. The route serves several commercial developments, including Loma Square, Point Loma Plaza, and the Midway Town Square, and features 30-minute frequency 7 days a week.

Route 150 - Route 150 connects Downtown San Diego and University Town Centre via UC San Diego and the Old Town Transit Center, primarily along surface streets. The only stop in the study area is at the Old Town Transit Center. Service is provided on weekdays only, with 15-minute frequency, plus additional peak service that adds an additional four southbound arrivals to Old Town and one northbound departure from Old Town Transit Center each UCSD school day. The service runs 5:00 am-12:00 am weekdays.

Route 923 - Route 923 connects Downtown San Diego and Ocean Beach along North Harbor Drive. The route is heavily traveled, and intersects the Rosecrans Corridor at Nimitz Boulevard, near Liberty Station. It has 30-minute frequency on weekdays and 60-minute frequency on Saturdays and Sundays.

Rosecrans Corridor Ridership Patterns

Based on SANDAG FY 09 data, the corridor has 2,571 daily trip ends. The breakdown by route is shown in 3-19. The most heavily used route in the corridor, with nearly two-thirds of the total, is Route 28 with 64.3 % of the daily trip ends. Due to the high demand to the corridor in the am and from the corridor in the pm, Route 28 has high numbers of westbound alightings and eastbound boardings.

Route 84 is the second highest used route, with 14.4 % of the trip ends. Route 35 has 10.1 % of the corridors trip ends, even though it has only a few stops on the northern end of the corridor. Route 923's east west service has 7.2 % of the trip ends, served by one stop in each direction at Nimitz Boulevard. The remainder of the trip ends (4.0 %) take place on Route 8/9 in the northern end of the corridor.

Existing Transit Stops

There are currently 52 stops in the Rosecrans Corridor, with three basic stop types: sign only, bench, and shelter. A description of each type of stop is discussed in the IBI Transit Report provided as Appendix 3-~~H~~G to this report. Exhibit 3-15 shows the location and types of stops in the corridor. Pictures and description of adjacent land uses for each stop is also provided in Appendix 3-~~H~~G.

Table 3-19.
Rosecrans Corridor FY 09 Daily Ridership

Route/Direction	Boardings	Alightings	Trip Ends	Percent of Corridor Total
8/9				
Clockwise (8)	26	29	55	
Counterclockwise (9)	22	26	48	
Route Total			103	4.0
28				
Eastbound	736	86	822	
Westbound	103	729	832	
Route Total			1,654	64.3
35				
Eastbound	91	57	148	
Westbound	55	57	112	
Route Total			260	10.1
84				
Inbound (EB)	15	73	88	
Outbound (WB)	122	159	281	
Route Total			369	14.4
923				
Eastbound	57	49	106	
Westbound	27	52	79	
Route Total			185	7.2
Corridor Totals			**2,571**	**100.0**

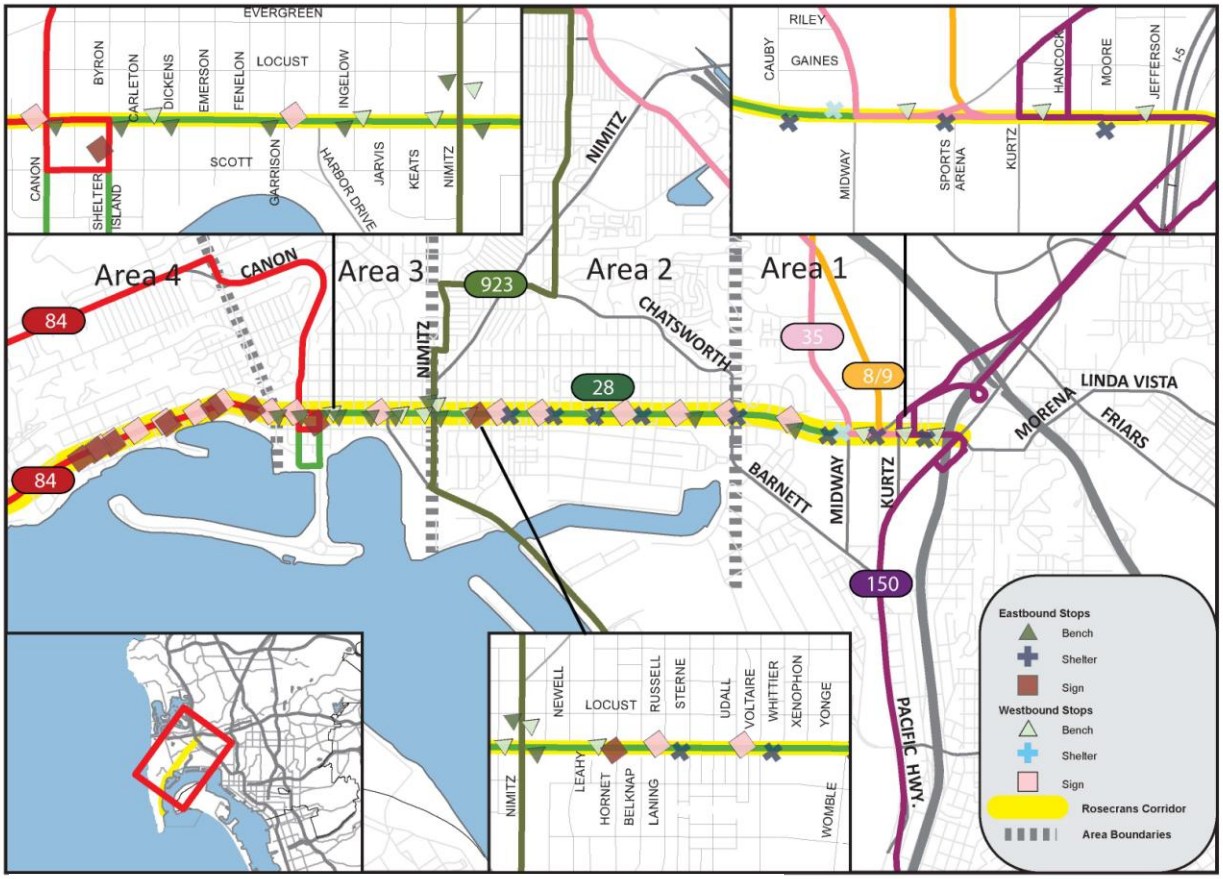


Exhibit 3-15 – Stops by Direction

Source: IBI Group, Transit Study (Appendix G)

Stop Ridership Analysis

Based on field observations, riders generally have a pleasant waiting environment at the bus stops. The stop inventory in Table 3-20 provides FY 2009 boarding and alighting figures, along with the amenities provided at each stop. As expected, ridership levels are highest in the commercial areas of the corridor, with the area around Shelter Island Drive and Canon Street having the highest level of activity. Stops at High Tech High, the Rosecrans Street & Nimitz Boulevard intersection, Sports Arena Boulevard, Midway Drive, and Pacific Highway also have high levels of ridership.

Most of the 16 high volume stops (more than 50 trip ends per day) have benches and trash cans. Three of the stops (Nimitz Boulevard west of Rosecrans Street, Shelter Island Drive west of Rosecrans Street, and westbound Udall Street) do not have benches, due largely to the lack of available space on the sidewalk. A large number of the high volume stops (13 of 16 or 81%) have benches, and riders seemed comfortable using them. Only five of the 16 high

volume stops have shelters. It would be desirable to provide shelters at most of the high volume stops that do not currently have them.

Most of the medium volume stops (between 50 and 26 trip ends) have benches (6 of 9 or 67%). Many of them are a unique design consistently deployed throughout the southern end of the corridor. Two medium volume stops have shelters (eastbound stops at Lanning Road and Moore Street).

Seven of the lower volume stops (25 trip ends or less) have a bench (7 of 27 or 26%). Two lower volume bus stops adjacent to or near Liberty Station (eastbound stops at Roosevelt Road and Lytton Street) have shelters that were provided as part of the Liberty Station development.

Table 3-20.
Corridor Stops by Trip Ends

Rosecrans Corridor Existing Stop	Dir	Ons	Offs	Total Trip Ends	Shelter	Bench	Lighting	Trash	Concrete Pad	Stop Location on Block	Route(s) Served
Cañon	EB	160	67	227		X		X		Far	28, 84
Shelter Island Drive (on SI Dr. east of Rosecrans)	EB	62	161	223						Mid	28, 84
Sports Arena	EB	104	73	177	X	X	X	X	X	Near	28, 35
Farragut/Voltaire	EB	135	4	139	X	X	X	X	X	Far	28
Midway	WB	38	80	118	X	X	X	X	X	Far	28
Zola	WB	5	113	118		X				Near`	28
Womble	EB	107	6	113	X	X	X	X	X	Far	28
Nimitz (on Nimitz west of Rosecrans)	EB	57	49	106						Mid	923
Udall	WB	4	101	105						Near	28
Kurtz/Hancock	WB	35	54	89		X		X		Mid	8/9, 28, 35
Sports Arena	WB	41	44	85		XX				Mid	28, 35
Moore	WB	63	19	82		X		X		Mid	8/9, 28, 35
Nimitz (on Nimitz west of Rosecrans)	WB	27	52	79		X		X	X	Far	923
Nimitz (on Rosecrans)	WB	5	72	77		X		X		Far	28
Nimitz (on Rosecrans)	EB	49	12	61		X		X		Far	28

Table 3-20.
Corridor Stops by Trip Ends

Rosecrans Corridor Existing Stop	Dir	Ons	Offs	Total Trip Ends	Shelter	Bench	Lighting	Trash	Concrete Pad	Stop Location on Block	Route(s) Served
Loma Square	EB	44	13	57	X	X	X	X		Mid	28
Carleton	WB	0	50	50		X		X		Mid	28
Lanning	EB	39	0	39	X	X	X	X	X	Far	28
Moore/Pac Hwy	EB	26	12	38	X	X	X	X		Mid	8/9, 28, 35
Ingelow	EB	32	3	35		X			X	Near	28
Shelter Island (on Rosecrans)	EB	34	0	34		X		X		Far	28
Dickens	EB	31	1	32						Near	28
Garrison	WB	0	30	30						Near	28
Garrison	EB	29	0	29		X		X		Near	28
Russell	WB	1	25	26				X		Far	28
Browning/Curtis	WB	1	24	25						Mid	28
Oliphant	WB	2	19	21		X		X	X	Near	28
Ingelow	WB	2	19	21		X		X		Near	28
Lytton	EB	17	4	21	X	X	X	X		Far	28
Evergreen	EB	12	8	20		X		X		Far	28
Evergreen	WB	6	11	17						Far	28
Roosevelt	EB	14	3	17	X	X	X	X	X	Far	28
Poe/Hornet	EB	12	2	14						Mid	28
Goldsmith	WB	1	12	13						Mid	28
Lytton	WB	3	8	11						Far	28
Ibsen	EB	8	0	8		X		X	X	Mid	28
Bessemer	EB	0	8	8						Far	84
McCall	WB	1	6	7						Near	84

Table 3-20.
Corridor Stops by Trip Ends

Rosecrans Corridor Existing Stop	Dir	Ons	Offs	Total Trip Ends	Shelter	Bench	Lighting	Trash	Concrete Pad	Stop Location on Block	Route(s) Served
McCall	EB	5	0	5						Far	84
Lawrence	WB	0	4	4						Near	84
Lawrence	EB	3	0	3						Near	84
Talbot	EB	3	0	3		X			X	Far	84
Cañon	WB	2	0	2						Far	84
Talbot	WB	2	0	2						Far	84
Qualtrough	WB	0	1	1						Far	84
Kellogg	EB	1	0	1			X			Mid	84
Owen	WB	0	1	1						Far	84
Owen	EB	1	0	1						Near	84
Qualtrough	EB	1	0	1						Far	84
Kona	EB	1	0	1						Near	84
Kona	WB	0	0	0						Mid	84
Armada	WB	0	0	0						Mid	84

Existing Transit Operational Issues

The consultant team observed bus operations along Rosecrans Street and at the Old Town Transit Center, and discussed operational issues with MTS staff. Comments from MTS staff and the consultant observations are summarized below.

Rosecrans Corridor Issues

The basic route structure in the Rosecrans Corridor, implemented as part of the Comprehensive Operations Assessment, appears to be working well. Route 28, which used to serve the Sub Base and Cabrillo Monument, now focuses on the higher volume, longer distance travel north of Shelter Island Drive, while Route 84 provides the local access service to Point Loma south of Shelter Island Drive.

High levels of demand are experienced on weekdays at High Tech High School in Liberty Station. Tripper buses (additional trips added to serve peak ridership) have been added to Route 28 in both directions (westbound am and eastbound pm) to provide additional capacity for the high school.

Demand on Sundays to the shopping opportunities at Liberty Station is high.

The timing of transfers between Routes 28 and 923 at Rosecrans Street/Nimitz Boulevard has been a concern. While some connections in the morning have minimal wait times for the Route 923 connections in both directions to eastbound Route 28, the scheduled connecting times for most of the day is approximately 20 minutes. Timed meets at other locations on both routes make it difficult to more closely time this connection. For the southbound Route 28 connections to either direction of Route 923, the connections can be made with minimal wait times.

There has been interest in extending Route 28 to serve Shelter Island. At this time, the funds needed to operate the extension to the vicinity of Humphrey's Resort (approximately $67,000 annually) are not available.
Due to budget constraints, it is expected that Route 84 service to the Sub Base and the Cabrillo National Monument will be deleted in the future. The majority of riders are civilian employees on the base; members of the military do not use transit in large numbers to reach the sub base. The elimination of this service could increase traffic in the Rosecrans Corridor.

Extending the existing queue jump lane on eastbound Rosecrans Street at Pacific Highway approximately 200 feet might be desirable due to the queuing of through vehicles that occurs at certain times of day.

On time performance (defined as the bus leaving the stop less than five minutes after its scheduled departure time) is an important measure of transit performance. The standard for Urban routes like the ones in the Rosecrans Corridor is for 85% of trips to be on time. The time checks take place at specific time points on each route. The time points for Route 28 are Midway Drive and Nimitz Boulevard, while the time point for Route 84 is at Canon. The time point for Route 923 is Nimitz Boulevard.

Based on data obtained from SANDAG, Route 28 is 77% on time for eastbound trips and 90% on time for westbound trips. Route 84 is on time 73% for westbound trips and 91% for eastbound trips. These figures reflect the general

congestion at key points in the corridor. Route 923 is on time 91% for eastbound trips and 65% for westbound trips.

To help improve on time performance, transit signal priority and/or queue jumps at Midway Drive (both directions), Lytton Street (westbound), Nimitz Boulevard (both directions), and North Harbor Drive (both directions) would be desirable to reduce bus waiting time at these intersections.

Old Town Transit Center Issues

The Old Town Transit Center is one of the busiest transit centers in the MTS system. Two of the key issues relate to pedestrian circulation and parking. The at-grade pedestrian crossing of the LRT and Amtrak/Coaster/freight tracks on the south side of Taylor Street near the northern end of the transit center has been a concern. SANDAG is about to undertake a capital improvement project to relocate the eastbound bus entrance to the station west to be closer to Pacific Highway. This change will enable fencing to be installed along Taylor Street between the new driveway and the tracks to discourage pedestrians from crossing the tracks. They will be redirected to use the tunnel under the tracks at the south end of the LRT platform. This new arrangement will reduce the number of at-grade pedestrian crossings of the tracks.

Parking has been a concern for the transit center for some time. There are approximately 450 spaces on the west side of the transit center. These spaces are used by both transit riders and state park visitors. They are in high demand, especially during special events in Old Town, or stadium events at Qualcomm Stadium and Petco Park. Standby buses that were staged on the west side have been moved to the east side bus platform to free up parking spaces.

Overflow parking has been available on nights and weekends at the County Mental Health lot across Pacific Highway from the transit center. This agreement is no longer in place and overflow parking is now available at the Caltrans building parking lot north of the transit center. While closer than the County Mental Health lot, it is less visible to drivers and requires active direction and signing to direct motorists to it. Transit riders are encouraged to use other stations in Mission Valley such as Morena/Linda Vista, Hazard Center, or Qualcomm Stadium for special events. New structured parking or parking on the lot north of the transit center has not been considered recently.

Bus circulation within the transit center is working well and no changes are anticipated. Access to the transit center works well for eastbound buses on Rosecrans Street. However, buses coming from the south or north on Pacific Highway experience delays getting through the Pacific Highway/Rosecrans Street/Taylor Street intersection. While FY 08 data provided by SANDAG show that buses in the Rosecrans Corridor arrive and depart the Old Town Transit Center on time a significant majority of the time, queue jumps and transit signal priority would decrease wait times at the intersection and enhance operations.

As part of the field review, the consultant team spoke with off-duty drivers to gain their perspective, and two main issues emerged. Chief among them was the lack of restrooms for drivers along Routes 28 and 84. Drivers have familiarized themselves with places along the respective routes to utilize restroom facilities.

Another issue identified by drivers is the presence of duplicate signs at the Old Town Transit Center bus bay for Route 28. As seen in the picture below, there are currently two separate waiting areas for Route 28, which requires drivers to assist in directing passengers to the correct location.

Recommended Transit Focus Areas:

Based on the data reviewed, field observations, and discussions with MTS and city staff, here are the key issues that should be addressed in the development of project alternatives:

- Improved amenities should be provided at selected high volume stops.
- There is a concern regarding some transit passengers crossing Rosecrans Street near Liberty Station at the unsignalized intersection at Udall Street. Additional analysis is being conducted as part of the development of improvement proposals to determine if the stop should be moved to address this issue.
- Buses get caught in queues at key intersections. Queue jumps should be considered at Midway Drive, Lytton Street, Nimitz Boulevard, and North Harbor Drive to enhance bus operations and improve on-time performance.
- Pedestrian crossings on Taylor Street at the Old Town Transit Center need to be addressed. An improvement project is underway by SANDAG to reduce the number of pedestrians crossing the railroad tracks at-grade by directing them to the underpass at the south end of the platform.
- Extending the eastbound transit lane on Rosecrans Street at Pacific Highway should be considered to help minimize the time needed to pass through this intersection.
- Stop consolidation should be considered on Rosecrans Street south of Canon due to low passenger volumes and the close proximity of some stops.

3.8 SUMMARY AND RECOMMENDATIONS

Based on the analysis conducted, the critical circulation locations are:

- **Area 1:** Intersection delays and queuing, particularly in the northbound direction (eastbound direction) through the Camino del Rio-Rosecrans triangle from Midway to I-8 and Taylor Street, are the highest for the corridor. Traffic patterns indicate that this section serves primarily commercial trips from the residential areas as well as commuter trips accessing the freeway. Based on the high traffic volumes and speeds, there is a correlation to the accident data reports. As discussed previously, the highest number of accidents along the corridor occur through Area 1 with 288 accidents reported over a 10-year period. The majority of the accidents in this section are right-angle accidents and rear-end accidents. On-street parking is provided along sections of Rosecrans Street that have speeds

measured at over 45 mph. Consideration should be made to remove the parking spaces along this portion of Rosecrans Street. By removing the parking through Area 1, bicycle lanes could be accommodated that would connect to the existing Class II bicycle lanes in Section 2.

- **Area 2:** Observations through Area 2 show that traffic maintains free flow speeds during the off-peak period. However, the operational analysis shows that during the p.m. peak hour the intersection of Rosecrans Street/Nimitz Boulevard operates at LOS E. The acceptable operating conditions could be attributed to the improvements installed with the NTC project. However, the roadway improvements that have benefited the east side (NTC) of Rosecrans Street have created circulation and access issues for the west side of the Rosecrans Street. For many of the side streets, access onto Rosecrans can be challenging. No signalized access is provided onto Rosecrans between Lytton Street and Womble Road. Although left turns can be made from many streets, peak hour observations have shown that it is difficult due to the width of the road, speeds of traffic and volumes of traffic through Area 2. Traffic circulation improvements along Rosecrans should consider modifying the existing medians to restrict some left turn access and modify traffic signals to accommodate both the east and west sides of Rosecrans Streets. Relative to non-motorized transportation modes, improvements through this area should focus on the east side of Rosecrans Street. Improvement considered should include widening the existing southbound Class II bicycle lane to a minimum of 6 feet with an adjacent travel lane of 13 feet. This will help to create a buffer between the travel lanes and pedestrians along the east side of Rosecrans.

- **Area 3:** Through Area 3, the measured 85th percentile traffic speeds support a reduction in posted speed limit, which would result in speeds more appropriately suited to a walking environment. Side street levels of service measured through Area 3 indicate that delays to left turning traffic can exceed the acceptable thresholds. To enhance the village environment and improve the aesthetic quality of this section of the corridor, cross-section modifications should be considered. This may include reducing the travel lanes from four to two lanes. Detailed analysis of the potential for diversion should be conducted to determine the impact of potential capacity reduction strategies. However, reducing the number of travel lanes would provide ample space to provide on-street parking along Rosecrans as well as a Class II bicycle lane. Reducing traffic speeds to create pedestrian compatible environment, reducing capacity to improve parking and proving traffic calming features such as curb extensions will help enhance the walkability through the Village.

- **Area 4:** Measured 85th percentile speeds through Area 4 exceed the posted speed limit by more than 5 mph. Rosecrans is two lanes through this section with Class II bicycle lanes. As this is a residential neighborhood with fronting properties, physical measures to reduce speeds are recommended to address the high rates of speed. A traffic calming plan that compliments the classification of this road and the surrounding land uses should be developed to address the speeding through this section.