Appendix C

Mobility Study

Mobility Report

Midway-Pacific Highway and Old Town Communities

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City of San Diego

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1.0 Introduction

1.1 Study Background and Purpose

This Mobility Report summarizes the physical and operational conditions of the Midway-Pacific Highway and Old Town communities' mobility systems as part of the City of San Diego's community plan update process. The evaluation culminates with an analysis of all travel modes under the horizon year 2035 Preferred Plan conditions. The report also describes key terms and methodologies utilized for conducting the analyses presented.

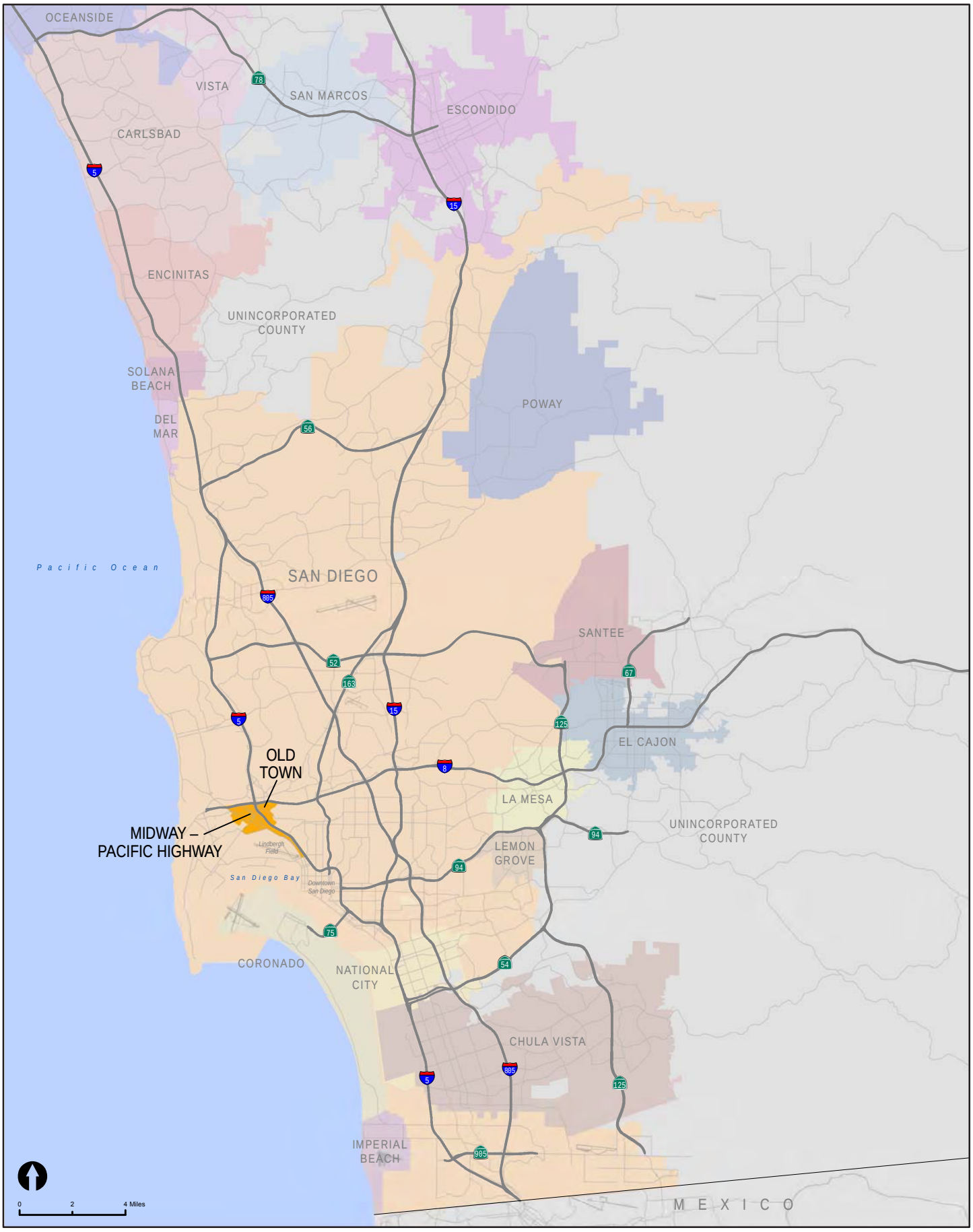
This Mobility Report is an update to the Midway-Pacific Highway Corridor Community Plan and Local Coastal Program Land Use Plan which was adopted by City Council in 1991, and the Old Town San Diego Community Plan, adopted in 1987.

The Preferred Plan is a strategy to address existing and forecast deficiencies related to mobility systems within the Midway-Pacific Highway and Old Town communities. The mobility networks are comprised of roadway and freeway systems, pedestrian and bicycle infrastructure, and public transit. Each of these transportation modes is discussed in the following chapters.

1.2 Study Location

The Midway-Pacific Highway and Old Town communities are located north of Downtown San Diego. The communities are both bound by Interstate 8 along the northern edge. Interstate 5 divides the communities, forming a north-south running boundary for each community. The Midway-Pacific Highway Community is bound by the Peninsula community and Barnett Avenue to west; and the Marine Corps Recruit Depot San Diego, the San Diego International Airport, and Laurel Street to the south. The Old Town Community is bound by Uptown and Mission Hills to the south and east.

Figure 1-1 displays the Midway-Pacific Highway and Old Town communities within the region.



Midway-Pacific Highway and Old Town Community Plan Update

CHEN RYAN

Figure 1-1
Midway-Pacific Highway and Old Town within the Region

Midway-Pacific Highway Community

The Midway-Pacific Highway community is situated north of Downtown San Diego and between the Old Town and Peninsula communities. The community encompasses approximately 800 acres of mostly flatland and is comprised of two basic elements: the central Midway area and the narrow, linear-shaped Pacific Highway Corridor.

Central Midway has an urbanized commercial core containing numerous shopping centers and institutional facilities which cater to the commercial needs of nearby residential and visitor populations. The area is characterized by wide streets, flat topography, and a varied mixture of flat-roofed large and small commercial buildings. The Pacific Highway Corridor, between Interstate 5 and Lindbergh Field, contains some of the City's oldest industrial areas. The corridor is defined by large scale buildings and unscreened commercial parking lots in the southern portion, and a group of smaller scale, low lying industrial buildings located between Witherby Street and Washington Street in the northern portion.

There are a few multifamily residential complexes located in the western portion of the community, adjacent to the Point Loma area. The planning area is generally characterized by a variety of commercial retail activities, and wide, multi-directional traffic intersections.

Since the 1960s, the Midway area has experienced an irregular development pattern, resulting in a lack of clear visual form both in terms of orientation and community legibility. The resulting diversity in development patterns, architectural styles, setbacks, and other development criteria has contributed to a disjointed and sporadic community image, where few buildings have compatibility or any functional relationship to each other and the surrounding neighborhood. Due to the area's low land valuations, high traffic utilization and inadequate zoning and development regulation, many auto-oriented commercial uses have located throughout the industrially zoned portions of the community. Much of the commercial development, including retail oriented auto sales and services, adult entertainment, and drive-thru restaurants, now exhibit a general lack of adequate parking, landscaping, and other commercial development amenities.

Old Town

The Old Town community covers 230 acres and is bound on the north by Interstate 8 and Mission Valley, on the west by Interstate 5 and Midway, and on the south and east by the Uptown/ Mission Hills hillsides.

Old Town San Diego, considered the "birthplace" of California, is the site of the first permanent Spanish Mission and settlement in California. The first Spanish Mission and Presidio were built on a hillside overlooking what is currently known as Old Town San Diego. At the base of the hill in the 1820's, a small Mexican community of adobe buildings was formed and by 1835 had attained the status of El Pueblo de San Diego.

In 1968, the State of California Department of Parks and Recreation established Old Town State Historic Park to preserve the rich heritage that characterized San Diego during the 1821 to 1872 period. The park includes a main plaza, exhibits, museums and living history demonstrations. Due to the historical nature and attractions within the community, Old Town San Diego is currently one of the region's largest tourist attractions. Within the community's central core (San Diego Avenue & Congress Street, between Twiggs Street and Ampudia Street) there are currently more than 150 shops, several restaurants, 17 museums, and historical sites.

There is a small number of residential neighborhoods located along the eastern, western and southern boundaries of the community.

1.3 Organization of the Report

The remainder of this Mobility Report is organized into the following chapters:

- *Chapter 2* describes the methodologies used to determine the study area and assess the pedestrian, transit, bicycle and vehicular systems.
- *Chapter 3* presents the Preferred Plan for the Midway-Pacific Highway community, including the development process, identification of existing community needs, and recommended improvements.
- *Chapter 4* presents the Preferred Plan for the Old Town community, including the development process, identification of existing community needs, and recommended improvements.
- *Chapter 5* provides an overview of the Transportation Demand Model Forecasting process utilized to project future travel patters under implementation of the Preferred Plan.
- *Chapter 6* concludes this document with the Preferred Plan analysis results for each mode. Additionally, Intelligent Transportation Systems (ITS), Transportation Demand Management (TDM) Systems, and Parking Management are described in this chapter.

2.0 Analysis Methodology

This chapter describes the methodologies used to determine the study area and assess the pedestrian, transit, bicycle and vehicular systems within the Midway-Pacific Highway and Old Town communities.

2.1 Selection of the Study Area

This section describes the process used to identify roadway segments and intersections for analysis.

2.1.1 Roadway Segments

Roadway segments were evaluated if one or more of the following circumstances applied:

- The roadway segment is an existing or planned circulation element roadway as identified in the Midway-Pacific Highway Corridor Community Plan and Local Coastal Program Land Use Plan (1991), or the Old Town San Diego Community Plan (1987).
- The roadway segment provides freeway access to/from the Midway-Pacific Highway or Old Town communities.
- The roadway segment is located outside of either study community, however, it may influence or impact the flow of transportation within either of the communities.

Based on the criteria listed above, Table 2.1 displays the roadway segments selected for analysis.

Table 2.1 Study Area Roadway Segments

ID	Roadway	From	To
North-South			
Midway Pacific Highway			
1	Lytton Street / Barnett Ave	Rosecrans St	Midway Dr
2	Midway Dr	W. Point Loma Blvd/Sports Arena Blvd	Kemper St
3		Kemper St	East Dr
4		East Dr	Rosecrans St
5		Rosecrans St	Barnett Ave
6	Sports Arena Blvd	I-8 WB Ramps	I-8 EB Ramps
7		I-8 EB Ramps	W. Point Loma Blvd
8		W. Point Loma Blvd/Midway Dr	Kemper St
9		Kemper St	East Dr
10		East Dr	Rosecrans St
11		Rosecrans St	Pacific Hwy
12	Kurtz St	Hancock St	Rosecrans St

Table 2.1 Study Area Roadway Segments

ID	Roadway	From	To
13	Kurtz St	Rosecrans St	Pacific Hwy
14	Hancock St	Sports Arena Blvd	Kurtz St
15		Kurtz St	Camino Del Rio West
16		Camino Del Rio West	Rosecrans St
17		Old Town Ave	Witherby St
18		Witherby St	Washington St
19	Kettner Blvd	Washington St	Vine St
20		Vine St	Sassafras St
21		Sassafras St	Laurel St
22	Pacific Hwy	Interstate-8	Taylor St
23		Taylor St	Kurtz St
24		Kurtz St	Sports Arena Blvd
25		Sports Arena Blvd	Barnett Ave
26		Barnett Ave	Washington St
27		Washington St	Sassafras St
28		Sassafras St	Laurel St
Old Town			
29	Congress St	Taylor St	Twiggs St
30		Twiggs St	Harney St
31		Harney St	San Diego Ave/ Ampudia St
32	San Diego Ave	Twiggs St	Conde St
33		Conde St	Ampudia St
34		Ampudia St	Old Town Ave
35		Old Town Ave	Hortensia St
36	Juan St	Taylor St	Twiggs St
37		Twiggs St	Harney St
38		Harney St	San Juan Rd
East-West			
Midway Pacific Highway			
39	Channel Wy	W. Mission Bay Dr	Hancock St
40	Kemper St	Kenyon St	Midway Dr
41		Midway Dr	Sports Arena Blvd
42		Sports Arena Blvd	Hancock St
43	Frontier Dr	Sports Arena Blvd	Kurtz St
44	Greenwood St	Sports Arena Blvd	Kurtz St
45	Camino Del Rio West	Rosecrans St	I-5/I-8 Ramps
46	Rosecrans St	Lytton St	Midway Dr
47		Midway Dr	Sports Arena Blvd
48	Rosecrans St	Sports Arena Blvd	Pacific Hwy/Taylor St

Table 2.1 Study Area Roadway Segments

ID	Roadway	From	To
49	Charles Lindbergh Pkwy	Midway Dr	Sports Arena Blvd
50		Sports Arena Blvd	Kurtz Street
51	Dutch Flats Pkwy	Barnett Avenue	Midway Dr
52		Midway Dr	Sports Arena Blvd
53	Barnett Ave	Midway Dr	Pacific Hwy
54	Washington St	Frontage Rd	Pacific St
55		Pacific St	Hancock St
56	Vine St	California St	Kettner Blvd
57	Sassafras St	Pacific Hwy	Kettner Blvd
58	Laurel St	Pacific Hwy	Kettner Blvd
Old Town			
59	Taylor St	Pacific Hwy/ Rosecrans St	Congress St
60		Congress St	Juan St
61		Juan St	Morena Blvd
62		Morena Blvd	I-8 EB Ramps
63	Twiggs St	Congress St	San Diego Ave
64		San Diego Ave	Juan St
65	Harney St	Congress St	San Diego Ave
66		San Diego Ave	Juan St
67	Old Town Ave	Hancock St	Moore St
68		Moore St	San Diego Ave

Source: Chen Ryan Associates (2016)

2.1.2 Intersections

Intersections were evaluated if one or more of the following circumstances applied:

- The intersection is comprised of a circulation element roadway intersecting with another circulation element roadway. This includes existing and future/planned circulation element roadways as identified in the Midway-Pacific Highway Corridor Community Plan and Local Coastal Program Land Use Plan (1991), or the Old Town San Diego Community Plan (1987).
- The intersection is at a freeway ramp interchange located within the Midway-Pacific Highway or Old Town communities or is a major gateway to either community.
- The intersection is a major intersection located outside of either community, however, it may influence or impact the flow of transportation within the communities.
- The intersection meets criteria used in previous studies, whereby both streets meet one of the following:
    - 4 lanes or greater

- 3 lanes and carries over 15,000 ADT
- 2 lanes and carries over 10,000 ADT

- Intersections at freeway access ramps.
- Significant intersections where travel time analysis is performed.

A total of 59 intersections were identified based on the criteria listed above, which include 11 intersections located outside the study communities. These intersections were added to the study area because of their proximity to the communities, and the likelihood that changes within the communities could directly affect traffic in/out of the communities. The 59 intersections include the following:

Midway-Pacific Highway

1. Lytton Street and Rosecrans Street
2. W. Mission Bay Drive and I-8 WB Off-Ramp
3. Sports Arena Boulevard and Channel Way
4. Midway Drive and Sports Arena/W. Point Loma Boulevard
5. Midway Drive and Kemper Street
6. Midway Drive and East Drive
7. Midway Drive and Rosecrans Street
8. Midway Drive and Charles Lindbergh Parkway
9. Midway Drive and Enterprise Street
10. Midway Drive and Barnett Avenue
11. Sports Arena Boulevard and Hancock Street
12. Sports Arena Boulevard and Kemper Street
13. Sports Arena Boulevard and Sports Arena Driveway
14. Sports Arena Boulevard and East Drive
15. Sports Arena Boulevard and Rosecrans Street
16. Sports Arena Boulevard and Charles Lindbergh Parkway
17. Sports Arena Boulevard and Pacific Highway
18. Kurtz Street and Hancock Street
19. Kurtz Street and Camino Del Rio West
20. Kurtz Street and Rosecrans Street
21. Kurtz Street and Pacific Highway
22. Hancock Street and Channel Way
23. Hancock Street and Camino Del Rio West
24. Hancock Street and Rosecrans Street
25. Hancock Street and Old Town Avenue
26. Hancock Street and Witherby Street
27. Hancock Street and Washington Street
28. Kettner Boulevard and Vine Street
29. Kettner Boulevard and Sassafras Street

30. Kettner Boulevard and West Laurel Street
31. Pacific Highway and Barnett Avenue
32. Pacific Highway and Washington Street @ Frontage Road
33. Pacific Highway and Washington Street
34. Pacific Highway and Sassafras Street
35. Pacific Highway and West Laurel Street

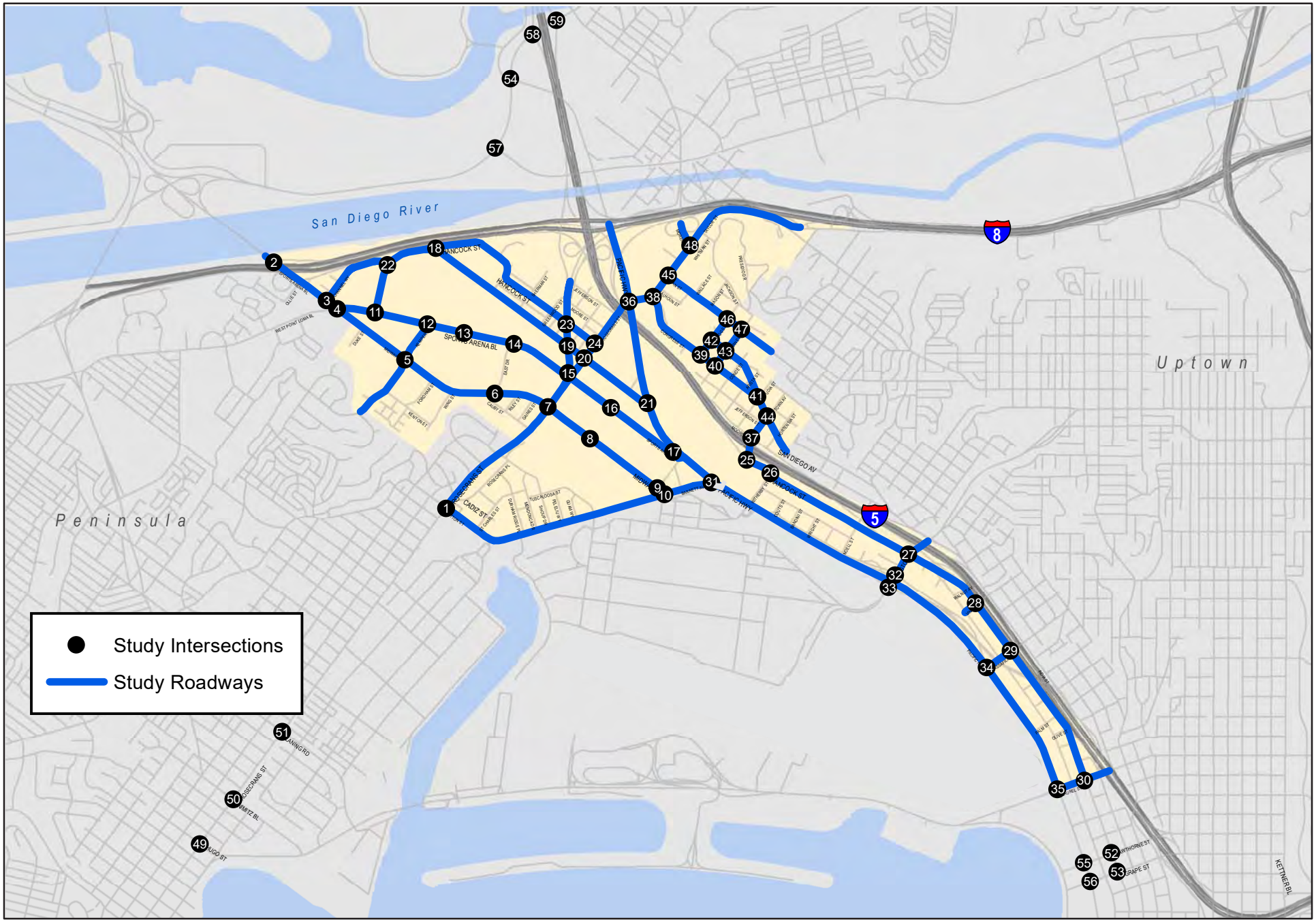
Old Town

36. Pacific Highway and Taylor Street
37. Moore Street and Old Town Avenue
38. Congress Street and Taylor Street
39. Congress Street and Twiggs Street
40. Congress Street and Harney Street
41. Congress Street and San Diego Avenue/Ampudia Street
42. San Diego Avenue and Twiggs Street
43. San Diego Avenue and Harney Street
44. San Diego Avenue and Old Town Avenue
45. Juan Street and Taylor Street
46. Juan Street and Twiggs Street
47. Juan Street and Harney Street
48. Morena Boulevard and Taylor Street

Intersections Outside of Study Communities

49. Hugo Street/N Harbor Drive and Rosecrans Street
50. Lowell Street/Nimitz Boulevard and Rosecrans Street
51. Kettner Boulevard and W Hawthorn Street
52. Kettner Boulevard and W Grape Street
53. Laning Road and Rosecrans Street
54. Pacific Highway and Sea World Drive
55. Pacific Highway and W Hawthorn Street
56. Pacific Highway and W Grape Street
57. Friars Road and Sea World Drive
58. I-5 SB Ramps and Sea World Drive
59. I-5 NB Ramps and Sea World Drive

Figure 2-1 displays the location of the 59 study intersections. As shown, this includes the 11 intersections located outside of the study communities.



Midway-Pacific Highway and
Old Town Community Plan Update

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Figure 2-1
Project Study Area

2.2 Vehicular Analysis

Analysis of the vehicular systems – roadways, intersections, and freeways – were prepared for this report in accordance with the City of San Diego and SANTEC/ITE Guidelines. Vehicular level of service (LOS) is a quantitative measure that represents the quality of service – or how well a transportation facility operates – as experienced by vehicular drivers. These conditions are generally described in terms of factors such as speed, travel time, freedom to maneuver, comfort, convenience, and safety. LOS A represents the best operating conditions from a driver's perspective, while LOS F represents the worst. Table 2.2 describes generalized definitions of vehicular LOS A through F as identified by the Highway Capacity Manual (2000).

Table 2.2 Vehicular Level of Service Definitions

LOS	Definition
A	Primarily free-flow operation. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Controlled delay at the boundary intersections is minimal. The travel speed exceeds 85% of the base free-flow speed.
B	Reasonably unimpeded operation. The ability to maneuver within the traffic stream is only slightly restricted and control delay at the boundary intersections is not significant. The travel speed is between 67% and 85% of the base free-flow speed.
C	Stable operation. The ability to maneuver and change lanes at mid-segment locations may be more restricted than at LOS B. Longer queues at the boundary intersections may contribute to lower travel speeds. The travel speed is between 50% and 67% of the base free-flow speed.
D	Less stable condition in which small increases in flow may cause substantial increases in delay and decreases in travel speed. This operation may be due to adverse signal progression, high volume, or inappropriate signal timing at the boundary intersections. The travel speed is between 40% and 50% of the base free-flow speed.
E	Unstable operation and significant delay. Such operations may be due to some combination of adverse signal progression, high volume, and inappropriate signal timing at the boundary intersections. The travel speed is between 30% and 40% of the base free-flow speed.
F	Flow at extremely low speed. Congestion is likely occurring at the boundary intersections, as indicated by high delay and extensive queuing. The travel speed is 30% or less of the base free-flow speed. Also, LOS F is assigned to the subject direction of travel if the through movement at one or more boundary intersections have a volume-to-capacity ratio greater than 1.0.

Source: Highway Capacity Manual (2000)

2.2.1 Roadway Segment

Roadway segment level of service standards and thresholds provided the basis for analysis of arterial roadway segment performance. The analysis of roadway segment level of service is based on the functional classification of the roadway, the maximum capacity, roadway geometrics, and existing or forecast Average Daily Traffic (ADT) volumes.

Table 2.3 presents the roadway segment capacity and LOS standards utilized to analyze roadways evaluated in this report. These standards are generally used as long-range planning guidelines to determine the functional classification of roadways. The actual capacity of a roadway varies according to its physical and operational attributes. LOS D is considered acceptable for Mobility Element roadway segments in the City of San Diego. Often, a roadway segment operating at LOS

E or F based on theoretical capacity is found to operate acceptably in practice. In such cases, HCM arterial analysis may be conducted and utilized (or intersection analysis, if arterial analysis is not applicable) to provide a more accurate indication of LOS.

Table 2.3 City of San Diego Roadway Segment Daily Capacity and Level of Service Standards

Roadway Functional Classification	Level of Service				
	A	B	C	D	E
Expressway (6-lane)	< 30,000	< 42,000	< 60,000	< 70,000	< 80,000
Prime Arterial (6-lane)	< 25,000	< 35,000	< 50,000	< 55,000	< 60,000
Major Arterial (6-lane, divided)	< 20,000	< 28,000	< 40,000	< 45,000	< 50,000
Major Arterial (4-lane, divided)	< 15,000	< 21,000	< 30,000	< 35,000	< 40,000
Collector (4-lane w/ center left-turn lane)	< 10,000	< 14,000	< 20,000	< 25,000	< 30,000
Collector (3-lane w/ center left-turn lane)	< 7,500	< 10,500	< 15,000	< 19,000	< 22,500
Collector (4-lane w/o center lane)	< 5,000	< 7,000	< 10,000	< 13,000	< 15,000
Collector (2-lane w/ center left-turn lane)					
Collector (2-lane no fronting property)	< 4,000	< 5,500	< 7,500	< 9,000	< 10,000
Collector (2-lane w/ commercial fronting)	< 2,500	< 3,500	< 5,000	< 6,500	< 8,000
Collector (2-lane multi-family fronting)					
Sub-Collector (2-lane single-family)	-	-	< 2,200	-	-

Source: City of San Diego Traffic Impact Study Manual (1998)

Note: Bold numbers indicate the ADT thresholds for acceptable LOS.

2.2.2 Peak Hour Intersection

This section presents the methodologies used to perform peak hour intersection capacity analysis, for both signalized and unsignalized intersections. The following assumptions were utilized in conducting all intersection level of service analyses:

- Pedestrian Calls per Hour: Based on existing pedestrian counts.
- Heavy Vehicle Factor: A 2% heavy vehicle factor was assumed for all intersections within the study area.
- Peak Hour Factor: Based on existing peak hour counts.
- Signal Timing: Based on existing signal timing plans (as of November 2012).

Signalized Intersection Analysis

The signalized intersection analysis utilized in this study conforms to the operational analysis methodology outlined in 2000 Highway Capacity Manual (HCM), Transportation Research Board Special Report 209. This method defines LOS in terms of delay, or more specifically, average control delay per vehicle (sec/veh). The 2000 HCM methodology sets 1,900 passenger-cars per hour per lane (pcphpl) as the ideal saturation flow rate at signalized intersections based upon the minimum headway that can be sustained between departing vehicles at a signalized intersection. The service saturation flow rate, which reflects the saturation flow rate specific to the study facility, is determined by adjusting the ideal saturation flow rate for lane width, on-street parking, bus stops, pedestrian volume, traffic composition (or percentage of heavy vehicles), and shared

lane movements (e.g. through and right-turn movements sharing the same lane). The level of service criteria used for this technique are described in Table 2.4. The computerized analysis of intersection operations was performed utilizing the Synchro 8.0 (2000 HCM methodology) traffic analysis software (by Trafficware, 2011).

Table 2.4 Signalized intersection LOS – HCM Operational Analysis Method

Average Control Delay Per Vehicle (seconds)	Level of Service (LOS) Characteristics
≤10.0	*LOS A* occurs when the volume-to-capacity ratio is low and either progression is exceptionally favorable or the cycle length is very short. If it is due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.
10.1 – 20.0	*LOS B* occurs when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.
20.1 – 35.0	*LOS C* occurs when progression is favorable or the cycle length is moderate. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.
35.1 – 55.0	*LOS D* occurs when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.
55.1 – 80.0	*LOS E* occurs when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.
>80.0	*LOS F* occurs when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.

Source: Highway Capacity Manual, Transportation Research Board Special Report 209 (2000)

Unsignalized Intersection Analysis

Unsignalized intersections, including two-way and all-way stop controlled intersections were analyzed using the *2000 HCM* unsignalized intersection analysis methodology. The Synchro 8.0 software supports this methodology and was utilized to produce LOS results. The LOS for a two-way stop controlled (TWSC) intersection is determined by the computed or measured control delay and is defined for each minor movement. The LOS for an all-way stop controlled (AWSC) intersection is determined by the computed or measured average control delay of all movements. Table 2.5 summarizes the level of service criteria for unsignalized intersections.

Table 2.5 Level of Service Criteria for Stop Controlled Unsignalized Intersections

Average Control Delay (sec/veh)	Level of Service
≤10.0	A
10.1 – 15.0	B
15.1 – 25.0	C
25.1 – 35.0	D
35.1 – 50.0	E
>50.0	F

Source: Highway Capacity Manual (2000)

The City of San Diego considers LOS D or better during the AM and PM peak hours to be an acceptable intersection level of service.

2.2.3 Freeway

The freeway level of service analysis followed procedures developed by Caltrans District 11. The procedure involves estimating a peak hour volume to capacity ratio (V/C). Peak hour volumes are estimated from the application of design hour ("K"), directional ("D"), and truck ("T") factors to average daily traffic (ADT) volumes). The base capacities were assumed to be 2,350 passenger-cars per hour per main lane (pc/h/ln) and 1,410 pc/h/ln for auxiliary lane. A 0.95 peak hour factor (PHF) was utilized for this analysis. The resulting V/C ratio was then compared to acceptable ranges of V/C values corresponding to the various levels of service for each facility classification, as shown in Table 2.6. The corresponding level of service represents an approximation of anticipated future freeway operating conditions in the peak direction of travel during the peak hour. LOS D or better was used in this study as the threshold for acceptable freeway operations based upon Caltrans and the SANDAG Regional Growth Management Strategy (RGMS) requirements.

Table 2.6 Caltrans District 11 Freeway Segment Level of Service Definitions

LOS	V/C	Congestion/Delay	Traffic Description
Used for freeways, expressways and conventional highways			
"A"	<0.41	None	Free flow.
"B"	0.42-0.62	None	Free to stable flow, light to moderate volumes.
"C"	0.63-0.79	None to minimal	Stable flow, moderate volumes, freedom to maneuver noticeably restricted.
"D"	0.80-0.92	Minimal to substantial	Approaches unstable flow, heavy volumes, very limited freedom to maneuver.
"E"	0.93-1.00	Significant	Extremely unstable flow, maneuverability and psychological comfort extremely poor.
Used for conventional highways			
"F"	>1.00	Considerable	Forced or breakdown flow. Delay measured in average travel speed (MPH). Signalized segments experience delays >60.0 seconds/vehicle.
Used for freeways and expressways			
"F0"	1.01–1.25	Considerable (0-1 hour delay)	Forced flow, heavy congestion, long queues form behind breakdown points, stop and go.
"F1"	1.26-1.35	Severe (1-2 hour delay)	Very heavy congestion, very long queues.
"F2"	1.36-1.45	Very severe (2-3 hour delay)	Extremely heavy congestion, longer queues, more numerous breakdown points, longer stop periods.
"F3"	>1.46	Extremely severe (3+ hours of delay)	Gridlock.

Source: SANTEC/ITE Guidelines for TIS in the San Diego Region

2.2.4 Ramp Metering Analysis

Ramp metering is a means of controlling the volume of traffic entering the freeway with the goal of improving freeway main lane traffic operations and flow. Freeway ramp meter analyses estimate peak hour queues and delays at freeway ramps by comparing existing volumes to the meter rate at the given location.

Meter rates, which represent the amount of vehicles permitted through the signal, onto the ramp and freeway, were obtained from Caltrans for use in the analysis. Ramp metering analyses to calculate delays at study area freeway ramps were conducted following the procedures outlined in the *City of San Diego Traffic Impact Study Manual (1998)*.

2.3 Multimodal Analysis

Recent planning efforts and legislative actions have redefined the way community transportation planning is carried out. An important unifying theme is to achieve a more balanced, multimodal transportation system that allows people of varying physical and economic conditions to accomplish daily activities without making a single-occupant vehicle trip. A balanced system will address many complex transportation issues such as traffic congestion, greenhouse gas emissions, community health, and economic vitality of a community.

Multimodal analyses are gaining attention among local and regional jurisdictions as one method of supporting progress toward these issues. This section describes the pedestrian, bicycle, and transit analysis methodologies used in this report.

2.3.1 Pedestrian Assessment

Three analyses were utilized to assess overall pedestrian mobility: 1) network connectivity; 2) facility quality; and 3) combined network connectivity and quality.

Pedestrian Connectivity Ratio

A pedestrian travelshed analysis was used to assess the level of connectivity provided from each Traffic Analysis Zone (TAZ) with pedestrian friendly land uses (residential, commercial, office or recreational). A 0.5 mile pedestrian network buffer was drawn around each TAZ within the community containing pedestrian friendly land uses. That area was then compared to the area of a 0.5 mile as-the-crow-flies buffer (502.7 acres) to develop a Pedestrian Connectivity Ratio for the intersection. The higher the Pedestrian Connectivity Ratio, the better the overall walking connectivity from the TAZ.

Pedestrian Environment Quality Evaluation (PEQE)

The quality of all roadway segments, intersections, and mid-block crossings within the Midway-Pacific Highway and Old Town communities were evaluated under Preferred Plan conditions using the Pedestrian Environmental Quality Evaluation (PEQE) tool. Table 2.7 outlines the evaluation system used to develop the PEQE scoring metric.

Table 2.7 Pedestrian Environment Quality Ranking System

Facility Type	Measure	Description/Feature	Scoring
Segment *(between two intersections)*	Horizontal Buffer	Between the edge of auto travel way and the edge of clear pedestrian zone	0 point: < 6 feet 1 point: 6 – 14 feet 2 points: > 14 feet
	Lighting	--	0 point: below standard/requirement 1 point: meet standard/requirement 2 points: exceed standard/requirement
	Clear Pedestrian Zone	5' minimum	0 point: has obstructions 2 points: no obstructions
	Posted Speed Limit	--	0 point: > 40 mph 1 point: 30 – 40 mph 2 points: < 30 mph
		Maximum Points	8 points
Intersection	Physical Feature	• Enhanced/High Visibility Crosswalk • Raised Crosswalk/Speed Table • Advanced Stop Bar • Bulb out/Curb Extension	0 point: < 1 feature per ped crossing 1 point: 1 – 2 features per ped crossing 2 points: > 2 features per ped crossing
	Operational Feature	• Pedestrian Countdown Signal • Pedestrian Lead Interval • No-Turn On Red Sign/Signal • Additional Pedestrian Signage	0 point: < 1 feature per ped crossing 1 point: 1 – 2 features per ped crossing 2 points: > 2 features per ped crossing
Intersection (Continued)	ADA Curb Ramp	--	0 point: below standard/requirement 2 points: meet standard/requirement
	Traffic Control	--	0 point: No control 1 point: Stop sign controlled 2 points: Signal/Roundabout/Traffic Circle
		Maximum Points	8 points
Mid-block Crossing	Visibility	--	0 point: w/o high visibility crosswalk 2 points: with high visibility crosswalk
	Crossing Distance	--	0 point: no treatment 2 points: with bulb out or pedestrian refuge
	ADA Curb Ramp	--	0 point: below standard/requirement 2 points: meet standard/requirement
	Traffic Control	--	0 point: No control 1 point: Flashing Beacon 2 points: Signal/Pedestrian Hybrid Beacon
		Maximum Points	8 points
Final PEQE Scoring:			
Low: < 4 points Medium: 4-6 points High: > 7 points			

Combined Pedestrian Network Connectivity and Quality Assessment

This evaluation involves assessing the connectivity and quality of the walking environment within each community. Pedestrian network connectivity and quality is assessed using a combination of the pedestrian travelshed and quality assessment previously described. The following steps outline the evaluation process used:

a. *Total Walking Distance* – a 0.5 mile pedestrian network buffer is drawn around each study intersection, regardless of PEQE score.

b. *Quality Walking Distance* – a 0.5 mile pedestrian network buffer is drawn around each study intersection, using only pedestrian facilities with a PEQE ranking of Medium or High (including roadway links and intersections, and not including mid-block crossings). PEQE scores on each side of the roadway segment are added together and assigned a quality rating using the following scale (Low: 0-7, Medium: 8-12, High: 13+), to get a single quality measure for the roadway segment. Segments with a "High" rating are considered quality segments.

c. *Quality Walk Ratio* – The ratio of high quality connectivity to overall connectivity along all pedestrian facilities is determined using the following equation:

$$\text{Quality Walk Ratio} = \frac{\textit{Quality Walking Distance}}{\textit{Total Walking Distance (Existing Conditions)}}$$

2.3.2 Bicycle Assessment

Three analyses were utilized to assess overall bicycle mobility: 1) network connectivity; 2) facility quality; and 3) combined network connectivity and quality.

Bicycle Connectivity Ratio – Travelshed Analysis

A bicycle travelshed analysis was used to assess the level of connectivity provided from each study intersection. A 1.0 mile bicycle network buffer (using all bikeable roadways plus multi-use paths) is drawn around each intersection. That area is then compared to the area of a 1.0 mile as-the-crow-flies buffer (2,010.6 acres) to develop a Bicycle Connectivity Ratio for the intersection. The higher the Connectivity Ratio, the better the overall connectivity from the intersection.

Bicycle Facility Quality

The bicycle environment is assessed using the Bicycle Level of Traffic Stress (LTS) methodology, as developed by Mekuria, et al. (2012) of the Mineta Transportation Institute and reported in *Low-Stress Bicycle and Network Connectivity*. LTS classifies the street network into categories according to the level of stress it causes cyclists, taking into consideration a cyclist's physical separation from vehicular traffic, vehicular traffic speeds along the roadway segment, number of travel lanes, and factors related to intersection approaches with right-turn lanes and unsignalized crossings. LTS scores range from 1 (lowest stress) to 4 (highest stress).

Table 2.8 displays the four LTS categories with descriptions of traffic stress experienced by the cyclist and the cycling conditions associated with each category.

Combined Bicycle Network Connectivity and Quality Assessment

This assessment quantifies the connectivity of low stress bicycle facilities (LTS score 1 or 2) between TAZs within the study communities. This measure results in each TAZ being assigned a percentage reflecting the number of total TAZ reachable via low stress bicycle facilities within the study area.

Table 2.8 Level of Traffic Stress Classifications and Descriptions

LTS Category	LTS Description	Cycling Conditions Fitting LTS Category
LTS 1	Presenting little traffic stress and demanding little attention from cyclists; suitable for almost all cyclists, including children trained to safely cross intersections	• Facility that is physically separated from traffic or an exclusive cycling zone next to a slow traffic stream with no more than one lane per direction • A shared roadway where cyclists only interact with the occasional motor vehicle with a low speed differential • Ample space for cyclist when alongside a parking lane • Intersections are easy to approach and cross
LTS 2	Presenting little traffic stress but demanding more attention than might be expected from children	• Facility that is physically separated from traffic or an exclusive cycling zone next to a well-connected traffic stream with adequate clearance from parking lanes • A shared roadway where cyclists only interact with the occasional motor vehicle (as opposed to a stream of traffic) with a low speed differential • Unambiguous priority to the cyclist where cars must cross bike lanes (e.g. at dedicated right-turn lanes); design speed for right-turn lanes comparable to bicycling speeds • Crossings not difficult for most adults
LTS 3	Presenting enough traffic stress to deter riders not comfortable with sharing the roadway with traffic	• An exclusive cycling zone (lane) next to moderate-speed vehicular traffic • A shared roadway that is not multilane and has moderately low automobile travel speeds • Crossings may be longer or across higher-speed roadways than allowed by LTS 2, but area still considered acceptably safe to most adult pedestrians
LTS 4	Presenting enough traffic stress to deter all but the Strong & Fearless cycling demographic (estimated at <1% of the population)	• An exclusive cycling zone (lane) next to high-speed and multi-lane vehicular traffic • A shared roadway with multiple lanes per direction with high traffic speeds • Cyclist must maneuver through dedicated right-turn lanes containing no dedicated bicycling space and designed for turning speeds faster than bicycling speeds

Source: Mekuria, et al. (2012)

2.3.3 Transit Assessment

Two performance measures were used to analyze transit conditions, including station quality and arterial speed.

Station Quality – Presence of Amenities

Each transit station/stop was reviewed for the presence of the following amenities:

- Shelters
- Benches
- Trash Receptacles
- Station Signs
- Maps/Wayfinding
- Lighting
- ADA Compliancy

Table 2.9 displays the standard amenities that should be provided at transit stops/stations based on daily passenger boardings (across all routes).

Table 2.9 Transit Amenity Standards by Ridership Levels

Amenity	Daily Passenger Boardings by Stop/Station				
	< 50	50 – 100	101 – 200	201 – 500	> 500
Sign and Pole	X	X	X	X	
Built-in Sign					X
Expanded Sidewalk			X	X	X
Bench		X	X	X	X
Shelter			X	X	X
Route Designations	X	X	X	X	X
Time Table				X	X
Route Map			X	X	X
System Map					X
Trash Receptacle				X	X
Lighting			X	X	X
ADA Compliant	X	X	X	X	X

Source: MTS Design for Transit (1993)

Arterial Speed

On-time bus performance can be directly impacted by vehicular traffic congestion along roadways servicing bus routes. An HCM roadway arterial speed analysis was used to identify locations in which on-time performance is currently or may be impacted under future conditions by vehicular traffic congestion.

Arterial Level of Service (LOS) is based on the average peak hour travel speeds along a roadway segment. The average travel speed is computed from the running time on the arterial segment(s) and the intersection approach delay. Average speed is strongly influenced by the number of signals per mile and the average intersection delay. On a given facility, factors such as

inappropriate signal timing, poor progression, and increasing traffic flow can substantially degrade the arterial LOS.

Table 2.10 displays the LOS thresholds used for the arterial analysis. Arterial speed analyses should be performed utilizing the methodologies in the version of the Highway Capacity Manual (HCM) that is currently accepted by the City of San Diego

Table 2.10 Arterial Analysis Level of Service Thresholds

Arterial Class	I	II	III
Range of Free Flow Speed (mph)	45 to 35	35 to 30	30 to 25
Typical Free Flow Speed (mph)	40 mph	33 mph	27 mph
Level of Service Analysis	**Average Travel Speed**		
A	35	30	25
B	28	24	19
C	22	18	13
D	17	14	9
E	13	10	7
F	< 13	< 10	< 7

Source: Highway Capacity Manual (TRB 1997)

3.0 Midway-Pacific Highway Preferred Plan

This section documents the mobility related issues and needs of the Midway-Pacific Highway community and the process used to identify those issues. This section also outlines the mobility improvements recommended under buildout of Preferred Plan conditions and the process used to develop these improvements.

3.1 Development of the Preferred Plan

3.1.1 Identification of Issues and Needs

Existing mobility related issues and needs within the Midway-Pacific Highway community were identified in the *Community of Midway/Pacific Highway Corridor and Old Town Mobility Existing Conditions Report; September 2012 (Existing Conditions Report)*. The issues and needs identified in the Existing Conditions Report were used, in conjunction with the other planning efforts and the overall community vision, to develop the recommended mobility improvements incorporated into the Preferred Plan.

3.1.2 Development of Preferred Plan Improvements

Preferred Plan improvements were developed by first cross checking the mobility issues and needs, identified in the Existing Conditions Report, against the mobility issues and needs identified in several other on-going or recent planning efforts, including:

- Midway/Pacific Highway Urban Greening Plan (December 2016)
- I-8 Corridor Study (August 2016)
- San Diego Forward, The Regional Plan (October 2015)
- City of San Diego Bicycle Master Plan (December 2013)
- City of San Diego Pedestrian Master Plan – Phase 4 (December 2013)
- Rosecrans Corridor Mobility Study (February 2010)
- Destination Lindbergh Technical Report: San Diego International Airport (November 2008)
- San Diego International Airport Master Plan (November 2008)

Where possible, the Preferred Plan carried forward or maintained the relevant improvements from on-going or previous planning efforts which have been adopted or vetted by the community. New improvement strategies were then developed for the issues and needs, identified in the Existing Conditions Report, which were not addressed in other planning efforts. Additional mobility improvements were also developed to accommodate the anticipated future growth within the community. The following sections outline the mobility issues and needs identified in the Existing Conditions Report and the associated improvements recommended under the Preferred Plan to alleviate them.

3.2 Street and Freeway System

3.2.1 Identified Street and Freeway Needs

There is constrained regional access to/from the Midway-Pacific Highway Community and to adjacent communities. A significant amount of regional traffic traverses the local roadway system within the community since there are limited regional access points, missing freeway-to-freeway connectors between I-8 and I-5, as well as major employment centers and trip generators within and adjacent to the community. Figure 3-1 displays regional access issues in the Midway-Pacific Highway community.

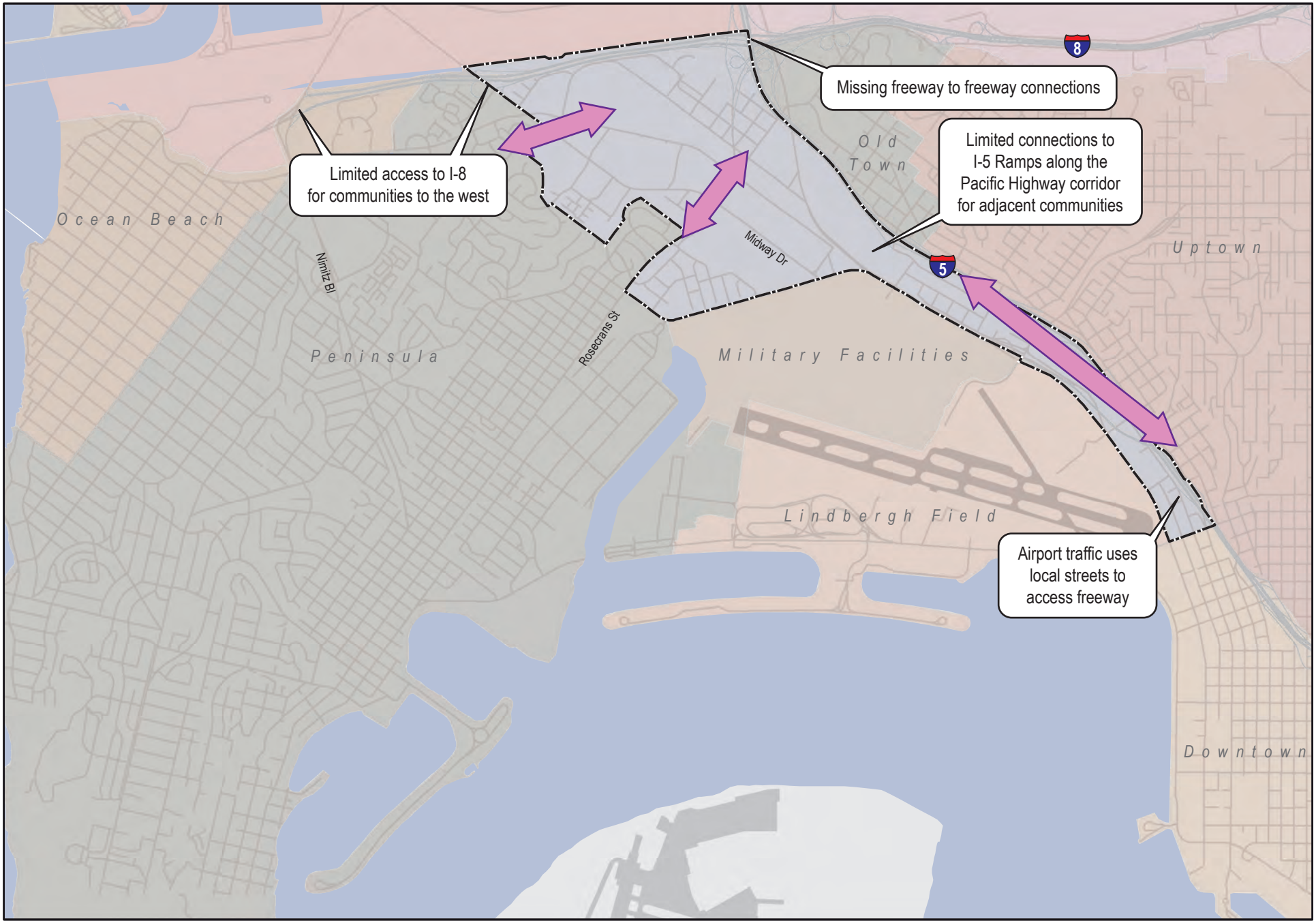
Constrained regional access, large trip generators, and limited circulation created by large blocks within and adjacent to the community, result in highly concentrated traffic volumes along study roadways providing freeway access. This concentration of traffic volumes creates congestion, low traffic speeds and delays on both the Rosecrans Street and Camino Del Rio West. Figure 3-2 displays the location of identified issues/needs within the Midway-Pacific Highway community.

3.2.2 Street and Freeway Improvements

A list of Preferred Plan proposed roadway improvements, new roadways, intersection improvements, new intersections, and freeway improvements are presented throughout this section. These improvements are predominantly based on the future year traffic volumes that are projected under buildout of the Preferred Plan, as displayed in Figure 5-1. Full analysis of all Preferred Plan roadways is provided in Chapter 6.

Roadways

- *Lytton Street/Barnett Avenue, between Rosecrans Street and Midway Drive* – Construct a raised median along these portions of Lytton Street / Barnett Avenue. This will improve Lytton Street to a four-lane major configuration.
- *Sports Arena Boulevard, between Interstate 8 and Rosecrans Street* – Improve this section of Sports Arena Boulevard to a six-lane major arterial. *(Note: Conceptual drawings of the improvements along Sports Arena Boulevard are provided in Figures 3-8 and 3-10).*
- *Sports Arena Boulevard, between Rosecrans Street and Pacific Highway* – Improve this section of Sports Arena Boulevard from a sub-collector to a two-lane collector with a continuous left-turn lane.
- *Kurtz Street, between Rosecrans Street and Pacific Highway* – Restripe this section of Kurtz Street from a two-lane collector to a two-lane collector with center left turn lane.
- *Rosecrans Street, between Lytton Street and Sports Arena Boulevard* – Improve this section of Rosecrans Street from a six-lane major to a six-lane prime arterial, which would require limiting driveway access. *(Note: A conceptual drawing of the improvements along Rosecrans Street are provided as Figure 3-6).*



Midway-Pacific Highway and
Old Town Community Plan Update

CHEN RYAN

Figure 3-1
Regional Access -
Midway-Pacific Highway Community

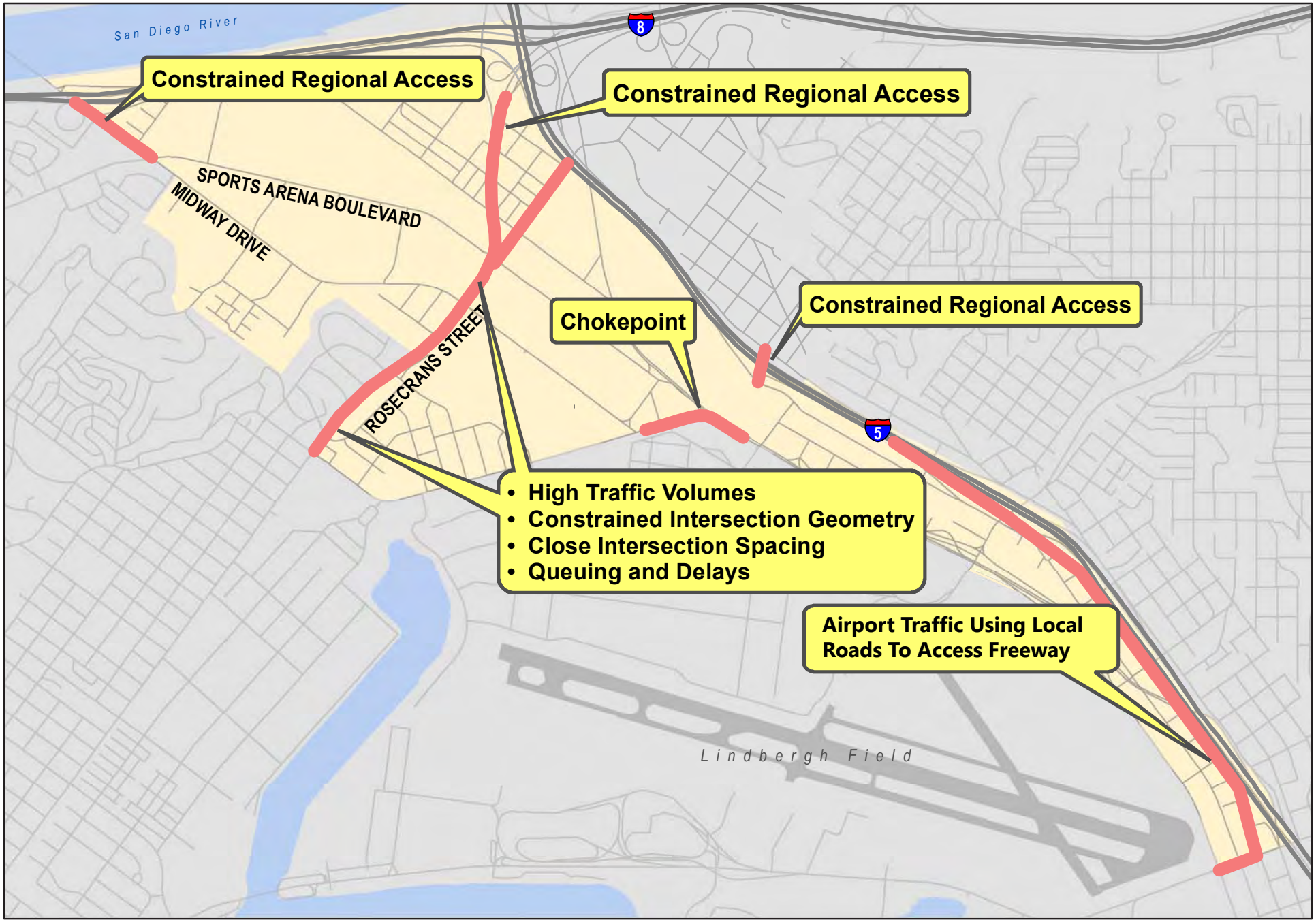


Figure 3-2
Identified Vehicular Issues and Needs -
Midway-Pacific Highway Community

Roadways (continued)

- *Rosecrans Street, between Sports Arena Boulevard and Taylor Street* – Construct a landscaped median along this section of Rosecrans Street. This will improve this section of Rosecrans Street to a four-lane major configuration. *(Note: A conceptual drawing of the improvements along this segment of Rosecrans Street is provided as Figure 3-7)*.
- *Hancock Street, between Kurtz Street and Rosecrans Street* – Widen this section of Hancock Street from a two-lane collector (one-way) to a three-lane major (one-way).
- *Hancock Street, between Old Town Avenue and Witherby Street* – Widen this section of Hancock Street from a two-lane collector to a four-lane collector.
- *Barnett Avenue, between Midway Drive and Pacific Highway* – Widen this section of Barnett Avenue from a four-lane major to a six-lane prime arterial.
- *W. Mission Bay Drive, between I-8 WB Ramps and I-8 EB Ramps* – Widen this section of W. Mission Bay Drive from a five-lane prime arterial to a six-lane prime arterial.
- *Camino Del Rio, Moore Street/Greenwood Street* – Extend the existing median to close the southbound left turn pocket along Camino Del Rio W at the intersection of Moore Street / Greenwood Street to reduce vehicular conflicts.

New Roadways

To provide better east/west connectivity throughout the Midway-Pacific Highway community and provide additional access to potential new developments within the existing "super blocks," the Preferred Plan proposes the following new roadways segments:

1. *Kemper Street Extension* – Kemper Street will be extended between Sports Arena Boulevard and Kurtz Street, connecting as the southwest leg of the Kurtz Street / Hancock Street intersection. The Kemper Street extension will be constructed as a two-lane collector with a continuous left-turn lane.
2. *Frontier Drive* – Frontier Drive will be a new roadway connecting between Sports Arena Boulevard and Kurtz Street. Frontier Drive will be located between the new Kemper Street extension and the Greenwood Street extension. Frontier Drive will be constructed as a two-lane collector with a continuous left-turn lane.
3. *Greenwood Street Extension* – Greenwood Street will be extended between Kurtz Street and Sports Arena Boulevard. Greenwood Street between Sports Arena Boulevard and Midway Drive will follow the alignment of the existing East Drive private street. Greenwood Street will be constructed as a two-lane collector.
4. *Charles Lindbergh Parkway* – Charles Lindbergh Parkway will be a new street connecting between Kurtz Street and Midway Drive. Charles Lindbergh Parkway will be located halfway between Rosecrans Street and the new Dutch Flats Parkway. Charles Lindbergh Parkway will be constructed as a two-lane collector with a continuous left-turn lane.
5. *Dutch Flats Parkway* – Dutch Flats Parkway will be a new roadway connecting between Sports Arena Boulevard and Barnett Avenue. Dutch Flats Parkway will be located between

the new Charles Lindbergh Parkway and Enterprise Street. Dutch Flats Parkway will be constructed as a two-lane collector with a continuous left-turn lane.

It should be noted that implementation of these new roadway segments would necessitate additional right-of-way and most likely require the redevelopment of adjacent properties. All roadways will be designed in accordance with the *City of San Diego Street Design Manual* and their corresponding classification. A summary of the roadway improvements in the Midway-Pacific Highway community is presented in Table 3.1.

Table 3.1 Summary of Roadway Improvements

Roadway	Segment	Existing Configuration	Recommended Classification
Segment Modifications			
Lytton St / Barnett Ave	Rosecrans St and Midway Dr	4-Lane Collector W/ CLTL	4-Lane Major
Sports Arena Blvd	Interstate 8 and Rosecrans St	5-Lane Major	6-Lane Major
Sports Arena Blvd	Rosecrans St and Pacific Hwy	Sub-Collector	2-Lane Collector W/ CLTL
Kurtz St	Rosecrans St and Pacific Hwy	2-Lane Collector	2-Lane Collector W/ CLTL
Rosecrans St	Lytton St and Sports Arena Blvd	6-Lane Major	6-Lane Prime
Rosecrans St	Sports Arena Blvd and Taylor St	4-Lane Collector W/ CLTL	4-Lane Major
Hancock St	Kurtz St and Rosecrans St	2-Lane Collector (One-Way)	3-Lane Major (One-Way)
Hancock St	Old Town Ave and Witherby St	2-Lane Collector	4-Lane Collector
Barnett Ave	Midway Dr and Pacific Hwy	4-Lane Major	6-Lane Prime
W. Mission Bay Dr	I-8 WB Ramps and I-8 EB Ramps	5-Lane Prime	6-Lane Prime
New Roadways			
Kemper St	Sports Arena Blvd and Kurtz St	Does Not Exist	2-Lane Collector W/CLTL
Frontier Dr	Sports Arena Blvd and Kurtz St	Does Not Exist	2-Lane Collector W/ CLTL
Greenwood St	Kurtz St and Sports Arena Blvd	Does Not Exist	2-Lane Collector
Charles Lindbergh Pkwy	Kurtz St and Midway Dr	Does Not Exist	2-Lane Collector W/ CLTL
Dutch Flats Pkwy	Sports Arena Blvd and Barnett Ave	Does Not Exist	2-Lane Collector W/ CLTL

Source: Chen Ryan Associates (June 2016)

Intersections

Rosecrans Street / Sports Arena Boulevard / Camino Del Rio West:

- Remove the southbound free right-turn movement from Camino Del Rio West onto Sports Arena Boulevard and replace it with an exclusive right-turn lane.
- Allow southbound movements to continue on Sports Arena Boulevard through the intersection. It should be noted that vehicles would still not be able to access the southern leg of Sports Arena Boulevard from westbound Rosecrans Street or southwest bound Camino del Rio West.

Additional improvement concepts were also considered for the Rosecrans Street / Sports Arena Boulevard / Camino Del Rio West intersection, but ultimately not selected. These alternative concepts include the following:

Alternative 1: This alternative would allow full access to the southern leg of Sports Area Boulevard from all approaches of the intersection and remove the eastbound (Rosecrans Street) to northbound (Sports Arena Boulevard) left-turn movements. The eastbound left-turn movement was removed to limit the number of signal phases at the intersection and provide for more efficient signal timing patterns. The removal of the eastbound left-turn movement is consistent with the recommendations provided in the *Rosecrans Corridor Mobility Study (February 2010).*

With the implementation of this concept the Rosecrans Street / Sports Arena Boulevard / Camino Del Rio West intersection was projected to perform at acceptable levels (AM: LOS C / PM: LOS D) with minor queuing impacts. However, the community does not support the removal of the eastbound left-turn movement and therefore this alterative was removed.

Alternative 2: This alternative would allow full access to the southern leg of Sports Area Boulevard from all approaches, and keep the eastbound left-turn movement intact. Due to the additional intersection phases and cycle length required to allow full access to the southern leg of Sports Arena Boulevard, the intersection performed poorly under this alternative (AM: LOS D / PM: LOS E) with excessive queuing issues on both Rosecrans Street and Camino del Rio West. Due to the poor intersection performance and queuing issues this alternative was not selected.

Alternative 3: This alternative would remove traffic from the westbound approach of Rosecrans Street and reroute the traffic up Kurtz Street and then to Camino del Rio West. To accommodate this improvement Kurtz Street would be reconfigured from a one-way southbound roadway to a one-way northbound roadway, between Hancock Street and Rosecrans Street. Conversely, Hancock Street would need to be reconfigured as a one-way southbound roadway along the same section to complete the couplet. While this configuration does allow the Rosecrans Street / Sports Arena Boulevard / Camino Del Rio West intersection to operate at acceptable levels (AM: LOS C / PM: LOS D), it is projected to result in substantial queuing issues along the short segment of Kurtz Street between Camino del Rio West and Rosecrans Street (260 feet). This excessive queuing is projected to negatively impact the operations at the Kurtz Street / Camino del Rio West intersection as well as the Kurtz Street / Rosecrans Street intersection and cause significant congestion at these intersections. Due to these queuing issues this alterative was not selected.

Sports Arena Boulevard / Pacific Highway:

- Move intersection approximately 500 feet to the north.
- Re-align Sports Arena Boulevard to create a right-angle with Pacific Highway.
- Signalize the intersection.

- Provide an exclusive eastbound left-turn lane from Sports Arena Boulevard onto Pacific Highway.
- Provide an exclusive northbound left-turn lane from Pacific Highway onto Sports Arena Boulevard.

The proposed relocation of the Sports Arena Boulevard / Pacific Highway intersection meets the 500 feet minimum spacing requirements for intersections. An additional focus during the design phase needs to ensure the curved radii resulting from the intersection realignment will adhere to design standards.

Sports Arena Boulevard / West Point Loma Boulevard / Midway Drive

- Square up and control the westbound free right-turn movement from Sports Arena Boulevard onto Sports Arena Boulevard with the intersection.
- Remove the northbound free right-turn movement from Midway Drive onto Sports Arena Boulevard. The right-of-way will be used to extend the curb and create a curb bulb-out to reduce the pedestrian crossing distance. Right-turn movements will be permitted from the outside through lane.

Camino Del Rio and Moore Street / Greenwood Street

- Extend the existing median to close the southbound left turn pocket along Camino Del Rio W at the intersection of Moore Street / Greenwood Street to reduce vehicular conflicts. (This improvement is also noted in the "Roadway" subheading above.)

<u>Pacific Highway Corridor – Barnett Avenue /Witherby Street / Washington Street</u>

As part of this mobility study, downgrading the section between Barnett Avenue and Washington Street of Pacific Highway from an expressway to a 6-lane major arterial was discussed. The purpose of this downgrade would be to improve safety for vehicles, pedestrians, and cyclists, create a community gateway along Pacific Highway, and enhance the multimodal connections between the community and Downtown San Diego. Ultimately, the recommendation for the Preferred Plan is to carry forward the expressway classification between Barnett Avenue and Washington Street, and the other sections of Pacific Highway in this community, to remain or be developed as a 5-lane or 6-lane major arterial roadway.

One of the main challenges associated with downgrading the expressway is bringing the Barnett Avenue and Witherby Street intersections to grade in order to meet the standards of a 6-lane major arterial roadway. The at-grade approach was not considered as part of the Mobility Study analysis; however, to fully understand the feasibility of these improvements, from both an engineering and constructability standpoint, an Engineering Feasibility Study is recommended. The Engineering Feasibility Study should analyze and address the following:

- The feasibility of bringing both interchanges to grade

- Multi-modal facility alternatives that do not require at-grade intersections (pedestrian and bicycle bridges, alternative multi-use urban path alignments, etc.)
- Addressing the existing flooding issues at both interchanges

Since it is unknown at this time if these improvements are feasible, they were not included in the technical analysis of the Preferred Plan. It is recommended that the feasibility of these improvements be further assessed and incorporated into a future plan. The Preferred Plan identifies Witherby Street as a 2-lane collector with continuous left-turn lane, however, the additional feasibility analysis may determine a need to widen Witherby Street to a 4-lane collector. A potential concept of what these improvements could look like is displayed in Figure 3-3. Additionally, the feasibility analysis may determine a need for additional improvements at Pacific Highway at West Washington Street that are not identified in this mobility study.

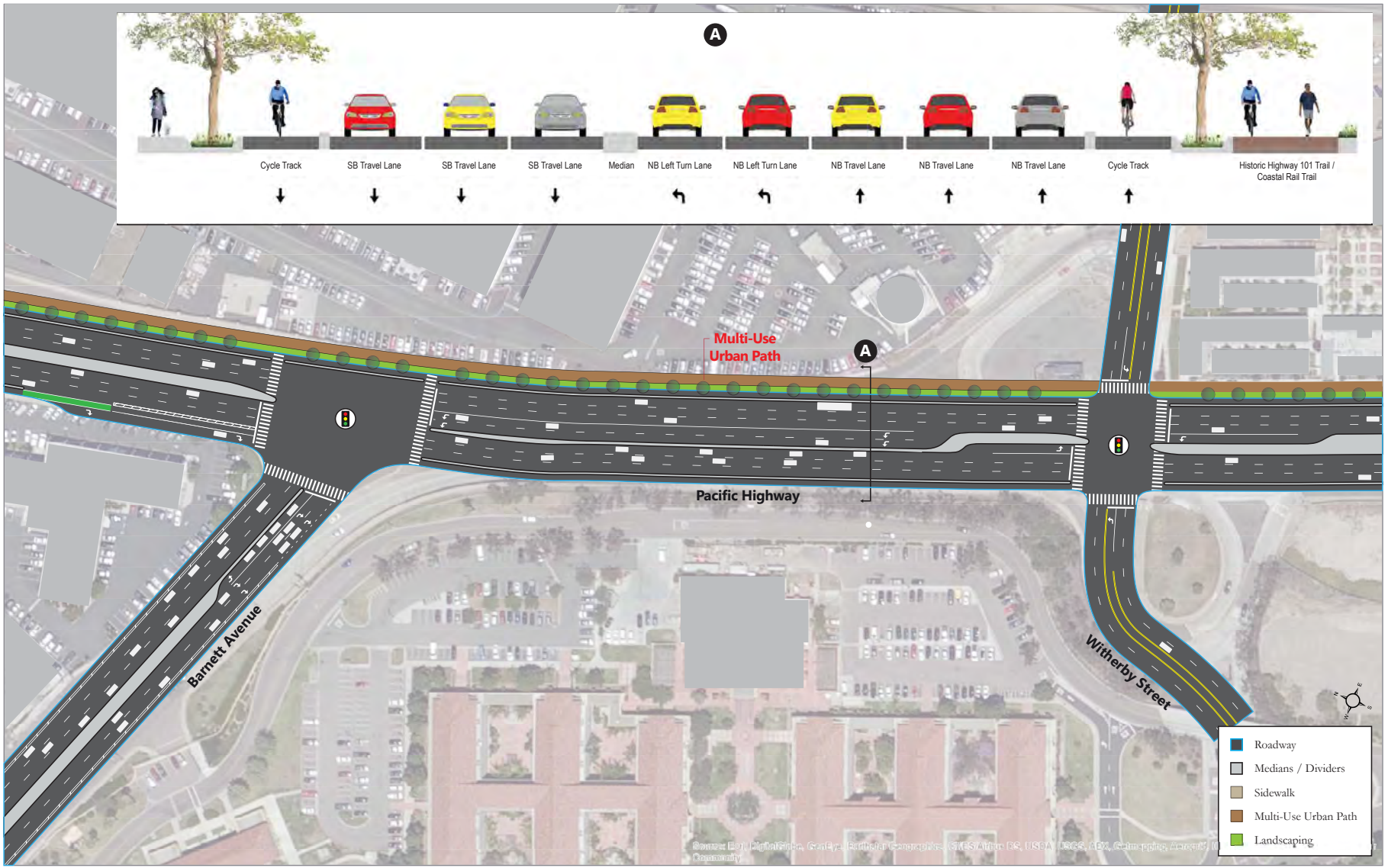
Based on the assumptions displayed in the Figure 3-3, the at-grade intersections would be anticipated to operate as follows:

- Barnett Avenue / Pacific Highway – AM: Delay 35.3 seconds, LOS D | PM: Delay 53.2 seconds, LOS D
- Witherby Street / Pacific Highway – AM: Delay 36.7 seconds, LOS D | PM: Delay 52.0 seconds, LOS D

Intersection Operations

Seven new intersections are recommended for the Midway-Pacific Highway community. Additionally, the roadway network was evaluated to identify intersection locations, both existing and new intersections, that would benefit from the implementation of a roundabout or signalization. A summary of recommended intersection improvements is displayed in Table 3.2. It is not known at this time if the implementation of a roundabout will be feasible at any or all intersections. A roundabout feasibility analysis will need to be performed once the new intersections and roadways are designed. Therefore, to be conservative, the analysis assumed that all new intersections would be signalized, unless otherwise noted. However, it is recommended that a roundabout be implemented in lieu of a signal at all new intersections, where feasible.

Traffic signal warrants were conducted at the intersections where signalization is recommended. Figure 4C-103 (CA) of the California Manual on Uniform Traffic Control Devices (MUTCD) 2012 Edition was utilized and all intersections would meet the warrants. Signal warrants worksheets are included in Appendix C.



This graphic is for conceptual purposes only. Further engineering study would be required at the project level prior to implementation.

Figure 3-3
Barnett Avenue and Witherby Street / Pacific Highway at-Grade Intersection Concepts

Table 3.2 Summary of Intersection Improvements

No.	Intersection	Improvement	Preferred Plan Control
8	Midway Drive / Charles Lindbergh Parkway	New intersection	Roundabout/Signalized
12	Kemper Street / Sports Arena Boulevard	Add north leg	Signalized
13	Sports Arena Boulevard / Frontier Drive	Add north leg	Signalized
14	Sports Arena Boulevard / Greenwood Street	Add north leg	Signalized
16	Sports Arena Boulevard / Charles Lindbergh Parkway	New intersection	Roundabout/Signalized
17	Sports Arena Boulevard / Pacific Highway	Relocate intersection and signalize	Signalized
18	Kurtz Street / Hancock Street / Kemper Street	Add south leg and signalize	Signalized
21	Kurtz Street / Pacific Highway	Signalize	Signalized
61	Kurtz Street / Frontier Drive	New intersection	Roundabout/SSSC
62	Kurtz Street / Greenwood Street	Add south leg and signalize	Signalized
63	Kurtz Street / Charles Lindbergh Parkway	New intersection	Roundabout/Signalized
64	Barnett Avenue / Dutch Flats Parkway	New intersection	Roundabout/Signalized
65	Midway Drive / Dutch Flats Parkway	New intersection	Roundabout/Signalized
66	Sports Arena Boulevard / Dutch Flats Parkway	New intersection	Roundabout/Signalized
N/A	Hancock Street / Greenwood Street	Signalize	Signalized

Source: Chen Ryan Associates (June 2016)

Freeway Improvements

There are no freeway improvements included in the Revenue Constrained alternative of *SANDAG's San Diego Forward, The Regional Plan (Adopted October 2015)* within the vicinity of the Midway-Pacific Highway community to be completed before this plan's horizon year (Year 2035).

I-8 / I-5 Ramp Connection – It should be noted that the missing I-8 East to I-5 North, and I-5 South to I-8 West ramps are included in the Unconstrained Revenue scenario of the Regional Transportation Plan (RTP); therefore, there is currently no funding mechanism for these ramps and they are not included in the Preferred Plan assessment. However, these ramps are needed to enhance the regional access for the community. A policy statement should be included in the Mobility Element recommending that the City of San Diego work with SANDAG and Caltrans to implement these ramps.

I-5 to Pacific Highway Ramps – Ramps connecting Interstate 5 to Pacific Highway are included in the RTP; however, since there is currently no funding mechanism for these ramps they are not included in the Preferred Plan assessment. These ramps are needed to enhance the regional access for the community. A policy should be included in the Mobility Element recommending that the City of San Diego work with SANDAG and Caltrans to implement these ramps.

3.3 Pedestrian Environment

3.3.1 Identified Pedestrian Needs

The Existing Conditions Report identified the following pedestrian issues/needs in the Midway-Pacific Highway community, as displayed in Figure 3-4:

Midway Drive / Sports Arena Boulevard / West Point Loma Boulevard Intersection – This is a major vehicular junction point within the community in which two major roadways (Sports Arena Boulevard and Midway Drive) intersect with two major regional access points (West Point Loma Boulevard connecting to both the Peninsula and Ocean Beach communities to the west, and West Mission Bay Drive and I-8 ramps). To accommodate the high intersecting traffic volumes there is currently a yield control northbound right-turn movement, a stop controlled southbound right-turn movement and a free westbound right-turn movement. The high traffic volumes and uncontrolled right-turn movements create an intimidating environment for pedestrians to cross.

East/West Connectivity – Due to the large block sizes within the community, there are currently few pedestrian corridors directly connecting the east and west sides of the community. Rosecrans Street is the only east/west corridor that currently spans the entire community from east to west.

Walkability Issues along Rosecrans Street and Camino Del Rio West – As mentioned above, Rosecrans Street is the only east/west pedestrian corridor that spans the entire length of the community and is the only corridor that connects to the Old Town Transit Center, located to the east. The retail and institutional uses along both Rosecrans Street and Camino Del Rio West are also major pedestrian attractions within the corridors. Currently both corridors have 5 - 7 foot sidewalks with no parkways or on-street parking to buffer pedestrians from vehicular traffic. The narrow sidewalks with a lack of buffer create an unfriendly pedestrian environment.

Rosecrans Street / I-5 Underpass – This is the only connection point for pedestrians between the Old Town Transit Center and the Midway-Pacific Highway community. The 200-foot wide underpass is poorly lit and has narrow sidewalks, with no parkways or on-street parking to buffer pedestrians from vehicular traffic, creating an unfriendly pedestrian environment.

Missing Sidewalk Facilities – There are currently no sidewalks provided along Sports Arena Boulevard from Rosecrans Street to Pacific Highway, with the exception of a small portion on its south side near the intersection of Rosecrans Street. This area currently predominantly serves industrial uses and attracts little pedestrian traffic; however, it is one of the few major north/south corridors that span the entire community.

Figure 3-4
Identified Pedestrian Issues and Needs -
Midway-Pacific Highway Community

Barnett Avenue / Pacific Highway – There is currently no pedestrian access to Pacific Highway from Barnett Avenue for pedestrians on the north side of Barnett Avenue. Pedestrians on the north side of the roadway heading east on Barnett Avenue hit a dead end and are forced to head north along Pacific Highway.

At-Grade Rail Crossings – Pedestrians accessing both the Washington Street and Middletown Trolley stations from Pacific Highway currently have to cross the rail right-of-way to access both stations. During gate down times, pedestrians may be delayed from accessing the station by on- coming trolleys or trains.

3.3.2 Pedestrian Improvements

Multi-Use Urban Paths

The Preferred Plan includes the implementation of several multi-use urban paths along key roadways, cumulatively creating an Urban Path system throughout the Midway-Pacific Highway community, which is consistent with recommendations in the Midway/Pacific Highway Urban Greening Plan. The individual multi-use urban paths are described below:

La Playa Trail – The La Playa Trail multi-use urban path will run along the south side of Rosecrans Street between Lytton Street and Pacific Highway. The path will be approximately 12 feet wide and replace the sidewalks on the southern side of the roadway. The ultimate right-of-way required along Rosecrans Street to implement this facility would be as follows:

- 127 feet between Lytton Street and Midway Drive.
- 116 feet between Midway Drive and Sports Arena Boulevard.
- 100 feet between Sports Arena Boulevard and Taylor Street.

It is recommended that pedestrian scale lighting be installed along the entire length of the path. The implementation of these improvements may necessitate acquiring additional right-of-way along the corridor.

Bay-to-Bay – The Bay-to-Bay multi-use urban path will be constructed along Sports Arena Boulevard, Lytton Street / Barnett Avenue, Kemper Street, and a connecting segment along the proposed Dutch Flats Parkway to mimic the previous Community Plan's Bay-to-Bay proposed canal alignment. The path will run along the southeast side of the Kemper Street extension between Kurtz Street and Sports Arena Boulevard, along the northeast side of Sports Arena Boulevard between Midway Drive and Dutch Flats Parkway, on the southern side of Dutch Flats Parkway between Barnett Avenue and Sports Arena Boulevard, and on the south side of Lytton Street / Barnett Avenue between Rosecrans Street and Pacific Highway. The segment of path on Sports Arena Boulevard between West Point Loma Boulevard and the I-8 should be further evaluated regarding its placement, whether on the southwest, or northeast side of the roadway. The path will be 12 feet wide and replace the sidewalks on the appropriate side of the roadway in each segment, as described.

The ultimate right-of-way required along each roadway segment to implement this facility is as follows:

- Kemper Street, between Kurtz Street and Sports Arena Boulevard: 90 feet
- Sports Arena Boulevard, between I-8 and Rosecrans Street: 117 feet
- Sports Arena Boulevard, between Rosecrans Street and Dutch Flats Parkway: 78 feet
- Lytton Street / Barnett Avenue, between Rosecrans Street and Pacific Highway: 90 feet
- Dutch Flats Parkway, between Barnett Avenue and Sports Arena Boulevard: 78 feet. An additional 30' of right-of-way will be required to provide for a linear park adjacent to Dutch Flats Parkway. This 30' may need to be obtained as public right-of-way or as an easement on privately held land.

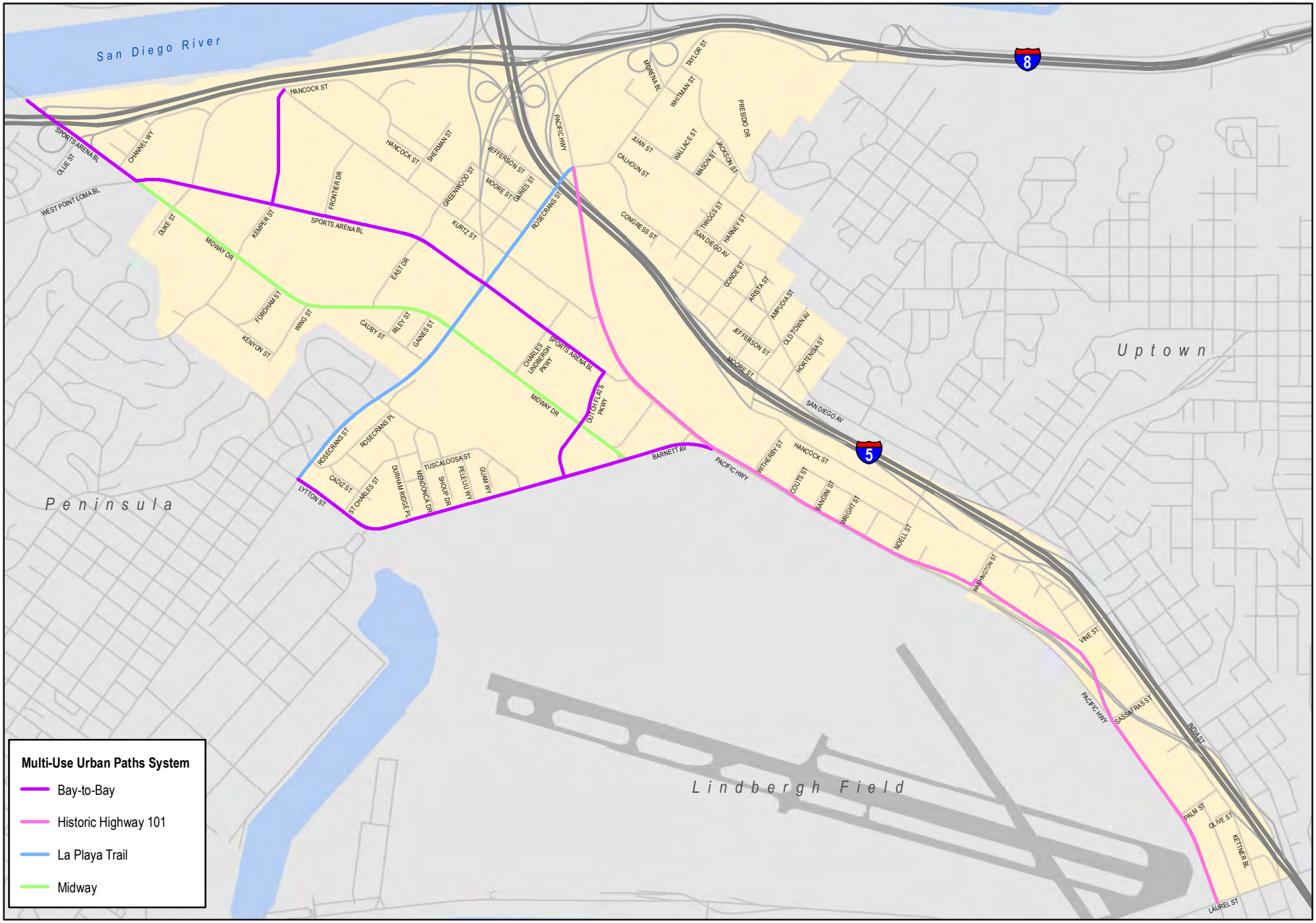
It is recommended that pedestrian scale lighting be installed along the entire length of the path. The implementation of these improvements may necessitate acquiring additional right-of-way along the corridor. *(Note: Figure 3-8 and Figure 3-10 provide conceptual drawings of the proposed Bay-to-Bay Path configuration along Sports Arena Boulevard)*.

Midway – The Midway multi-use urban path will run along the southwest side of Midway Drive between Sports Arena Boulevard and Barnett Avenue. The path will be approximately 12 feet and will replace the existing southwest sidewalk. The ultimate right-of-way required along Midway Drive to implement this facility would be 81 feet. It is recommended that pedestrian scale lighting be installed along the entire length of the path. The implementation of these improvements may necessitate acquiring additional right-of-way along the corridor.

Historic Highway 101 – The Historic Highway 101 multi-use urban path will run along the east side of Pacific Highway between Taylor Street and Laurel Street. The multi-use urban path will be 12 feet wide and will replace the existing sidewalk on the east side of the roadway. The ultimate right-of-way required along Pacific Highway to implement this facility would be 131 feet. It is recommended that pedestrian scale lighting be installed along the entire length of the path. The implementation of these improvements may necessitate acquiring additional right-of-way along the corridor.

Hancock Street Extension – Hancock Street will be extended between Midway Drive and Sports Arena Boulevard as a pedestrian and bicycle connection. This segment will not be open to vehicular traffic. *(Note: This pedestrian and bicycle connection, which is located just southeast of the W. Point Loma Boulevard / Sports Arena Boulevard / Midway Drive intersection, is illustrated in Figure 3-8 and Figure 3-10).*

The complete Multi-Use Urban Path system is displayed in Figure 3-5. Figure 3-6 and 3-7 provide concept drawings of the proposed La Playa Trail configuration along Rosecrans Street. Figure 3-8 displays a concept drawing of the Bay-to-Bay Path along Sports Arena Boulevard, north of Rosecrans Street. Figure 3-9 provides a concept drawing of the proposed Midway Path configuration along Midway Drive.



Midway-Pacific Highway and
Old Town Community Plan Update

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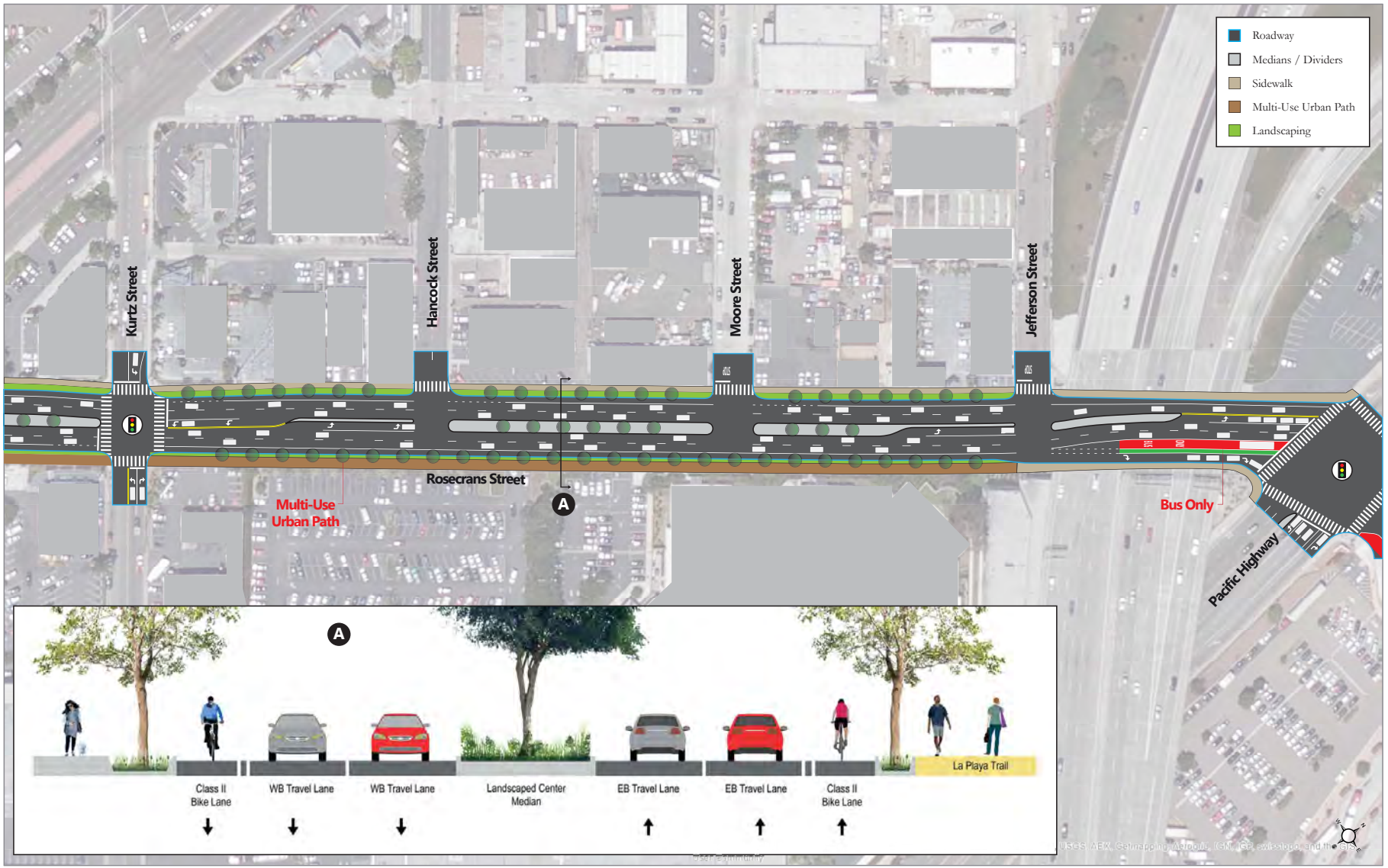
Figure 3-5
Multi-Use Urban Paths System

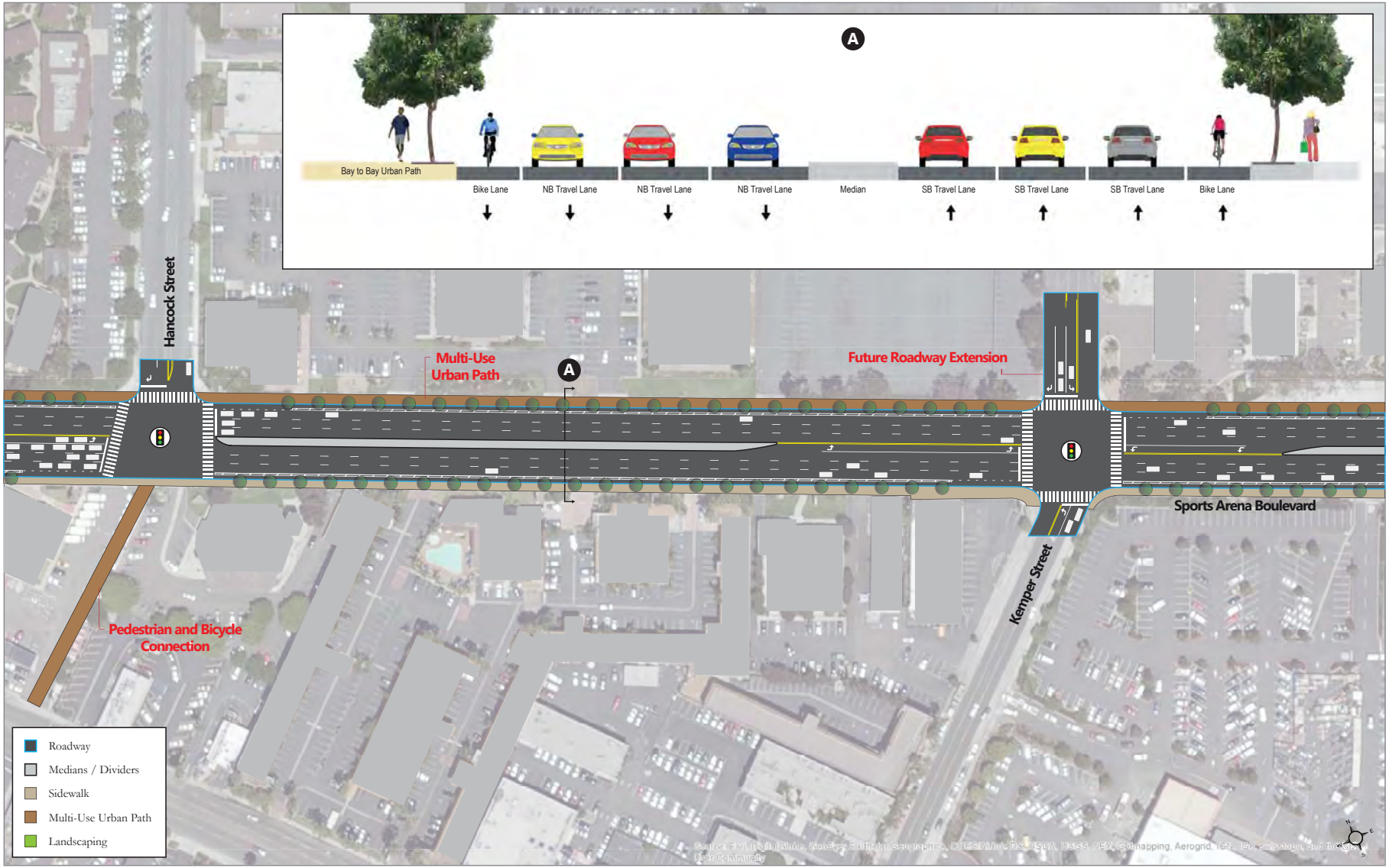
This graphic is for conceptual purposes only. Further engineering study would be required at the project level prior to implementation.

Figure 3-6
Rosecrans Street with La Playa Trail - West of Midway Drive



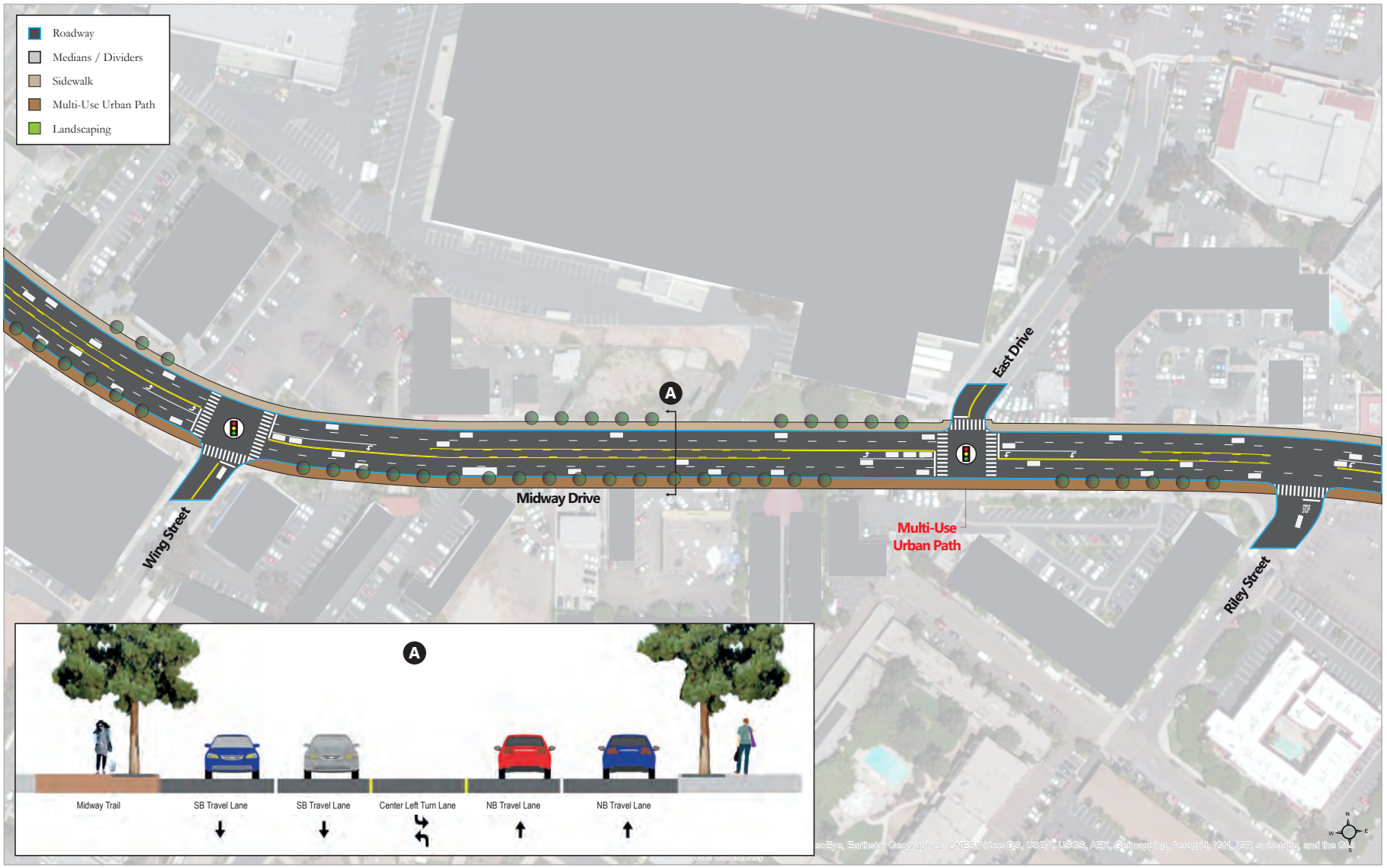
This graphic is for conceptual purposes only. Further engineering study would be required at the project level prior to implementation.

Figure 3-7
Rosecrans Street with La Playa Trail - East of Sports Arena Boulevard



This graphic is for conceptual purposes only. Further engineering study would be required at the project level prior to implementation.

Figure 3-8
Sports Arena Boulevard with Bay to Bay Trail - North of Rosecrans Street



This graphic is for conceptual purposes only. Further engineering study would be required at the project level prior to implementation.

Figure 3-9
Midway Drive with Midway Trail -
North of Rosecrans Street

Street Trees

The Preferred Plan includes the implementation of street trees along the following roadway corridors, which is consistent with the Midway/Pacific Highway Urban Greening Plan:

- Barnett Avenue, between Rosecrans Street and Pacific Highway
- Midway Drive, between Sports Arena Boulevard and Barnett Avenue
- Sports Arena Boulevard, between West Mission Bay Drive and Rosecrans Street
- Pacific Highway, between Taylor Street and Laurel Street
- Rosecrans Street, between Midway Drive and Taylor Street

Intersections

All crossing points at intersections should be upgraded to include the following:

- ADA compliant pedestrian ramps
- High visibility continental cross-walks
- Advanced stop bar placement
- Pedestrian count down signals

New Sidewalks

Sidewalk facilities will be implemented along the following roadways:

- Midway Drive, between Bogley Drive and Barnett Avenue
- Jessop Lane, between Enterprise Street and Barnett Avenue
- St. Charles Street, between Lytton Street and Cadiz Street
- Kemper Street, Kenyon Street to Midway Drive (south side)
- Sports Arena Boulevard, between Rosecrans Street and Pacific Highway (southwest side)
- Kurtz Street, between Rosecrans Street and Pacific Highway
- Pacific Highway, between Couts Street and Washington Street (southwest side)
- Witherby Street, between Hancock Street and Pacific Highway
- Hancock Street, between Witherby Street to 465 ft south of Witherby Street (south side)

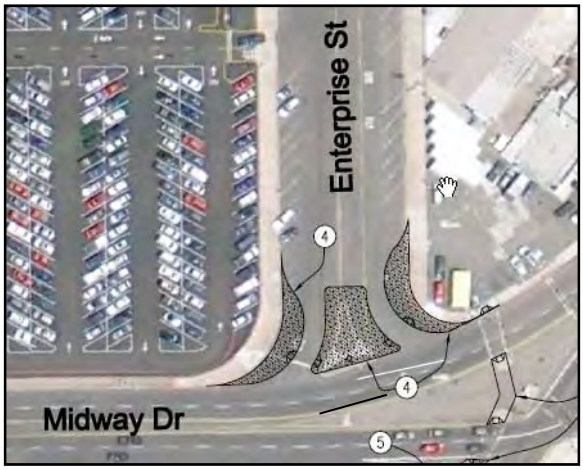
Specific Pedestrian-Related Intersection Improvements:

Midway Drive / Enterprise Street (Shown to the Right):

- Install bulb-outs and a pedestrian refuge island on the northeast leg of the intersection.

West Palm Street / Kettner Boulevard (intersection adjacent to the I-5 pedestrian bridge)

- Install bulb-outs on north leg of the intersection.
- Install continental cross-walk on the north leg of the intersection.
- Install a Pedestrian Hybrid Beacon on the north leg of the intersection (if warrants are met).



Conceptual Drawing from Phase IV of the City of San Diego Pedestrian Master Plan

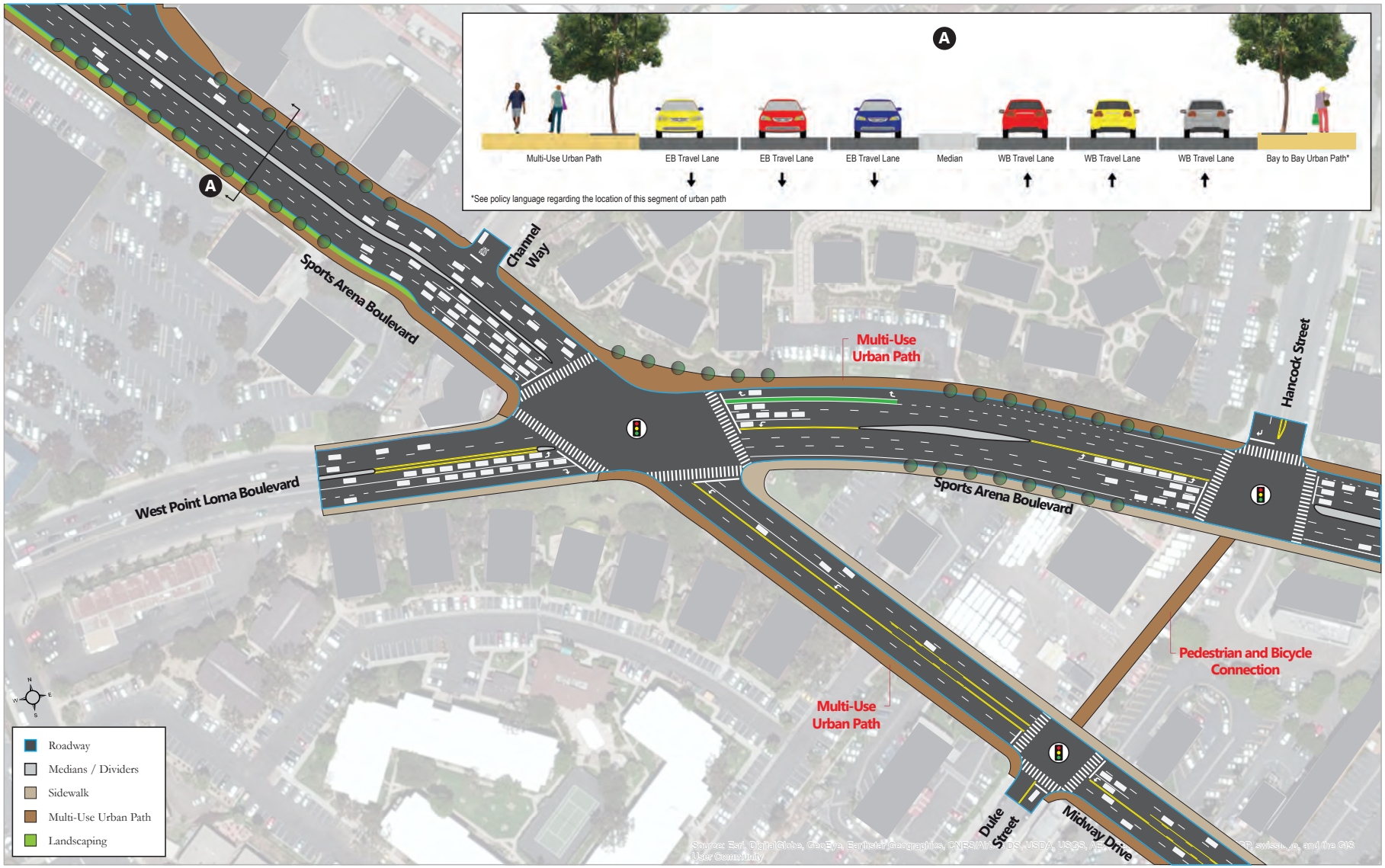
Sports Area Boulevard / West Point Loma Drive / Midway Drive

- Remove all free-right turn movements, which will decrease pedestrian crossing-distances.
- Improve the right-of-way with landscaping to improve the pedestrian environment.

Figure 3-10 displays a concept drawing of the proposed intersection improvements.

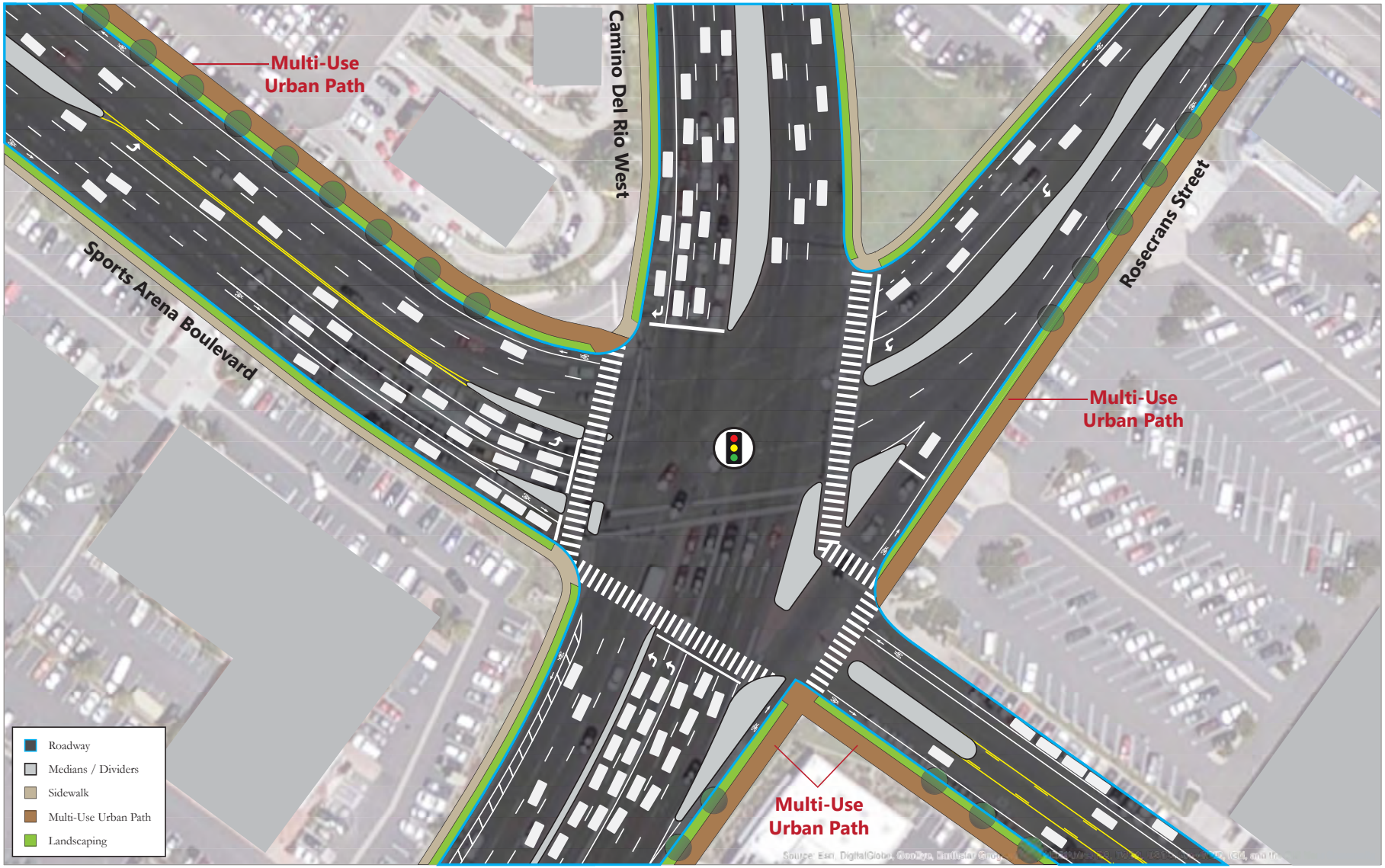
Sports Arena Boulevard / Rosecrans Street / Camino Del Rio West

- Remove the southbound free right-turn movement from Camino Del Rio West onto Sports Arena Boulevard and replace it with an exclusive right-turn lane, which will improve pedestrian safety while crossing the intersection. Figure 3-11 displays a concept drawing of the proposed intersection improvements.



This graphic is for conceptual purposes only. Further engineering study would be required at the project level prior to implementation.

Figure 3-10
Sports Arena Boulevard / West Point Loma Boulevard / Midway Drive - Proposed Pedestrian Improvements



This graphic is for conceptual purposes only. Further engineering study would be required at the project level prior to implementation.

Figure 3-11
Sports Arena Boulevard / Rosecrans Street / Camino Del Rio West - Proposed Pedestrian Improvements

3.4 Cycling Environment

3.4.1 Identified Bicycle Needs

The Midway-Pacific Highway Community is located at a junction point for several regional bicycle facilities including both the Coastal Rail Trail (along Pacific Highway) and the Ocean Beach Bike Path (along the San Diego River). Local bicycle connections to the surrounding neighborhoods are also provided, such as Class II Bike Lanes between Midway-Pacific Highway and the Peninsula communities along Rosecrans Street. A Class III Bike Route is provided along West Mission Bay Drive and terminates at its intersection with W. Point Loma Boulevard / Sports Arena Boulevard. These regional and local connections, along with strong transit service and high intensity commercial and institutional land uses, create high cycling demands within this community.

However, as shown in Figure 3-12 there are currently no bicycle facilities along the major corridors traversing the Midway-Pacific Highway Community (Midway Drive, Sports Arena Boulevard and Rosecrans Street) to accommodate the high bicycle demand. These corridors also have high vehicular traffic volumes and speeds as well as numerous conflict points (intersections, driveways, and alleyways) between motorists and cyclists, creating an uncomfortable environment for cyclists. Figure 3-5 displays the locations of issues/need, mainly defined as high cycling demand corridors that lack bicycle facilities and have high vehicular traffic volumes and speed.

3.4.2 Bicycle Improvements

The Bicycle Network under the Preferred Plan Conditions is shown in Figure 6-10 in this report. The recommended bicycle facilities proposed in this plan are consistent with and improve upon the recommendations outlined in The City of San Diego Bicycle Master Plan. The Preferred Plan proposes to implement the following bicycle facilities within the Midway-Pacific Highway Community:

<u>In Road Facilities</u>

- Class II Buffered Bike Lanes in both directions along Lytton Street / Barnett Avenue between Rosecrans Street and Pacific Highway.
- Class IV One-Way Cycle Tracks in both directions along Pacific Highway between Taylor Street and Laurel Street. This cycle track continues through the Old Town community, north to Sea World Drive.
- Class II Buffered Bike Lanes in both directions along Rosecrans Street between Lytton Street and Pacific Highway.
- Class II Buffered Bike Lanes in both directions along Sports Arena Boulevard between W. Point Loma Boulevard and Pacific Highway.
- Class II Bike Lanes in both directions along Hancock Street between Old Town Avenue and Noell Street.
- Class II Bike Lanes along the south side of Hancock Street/Kettner Boulevard between Noell Street and Laurel Street.

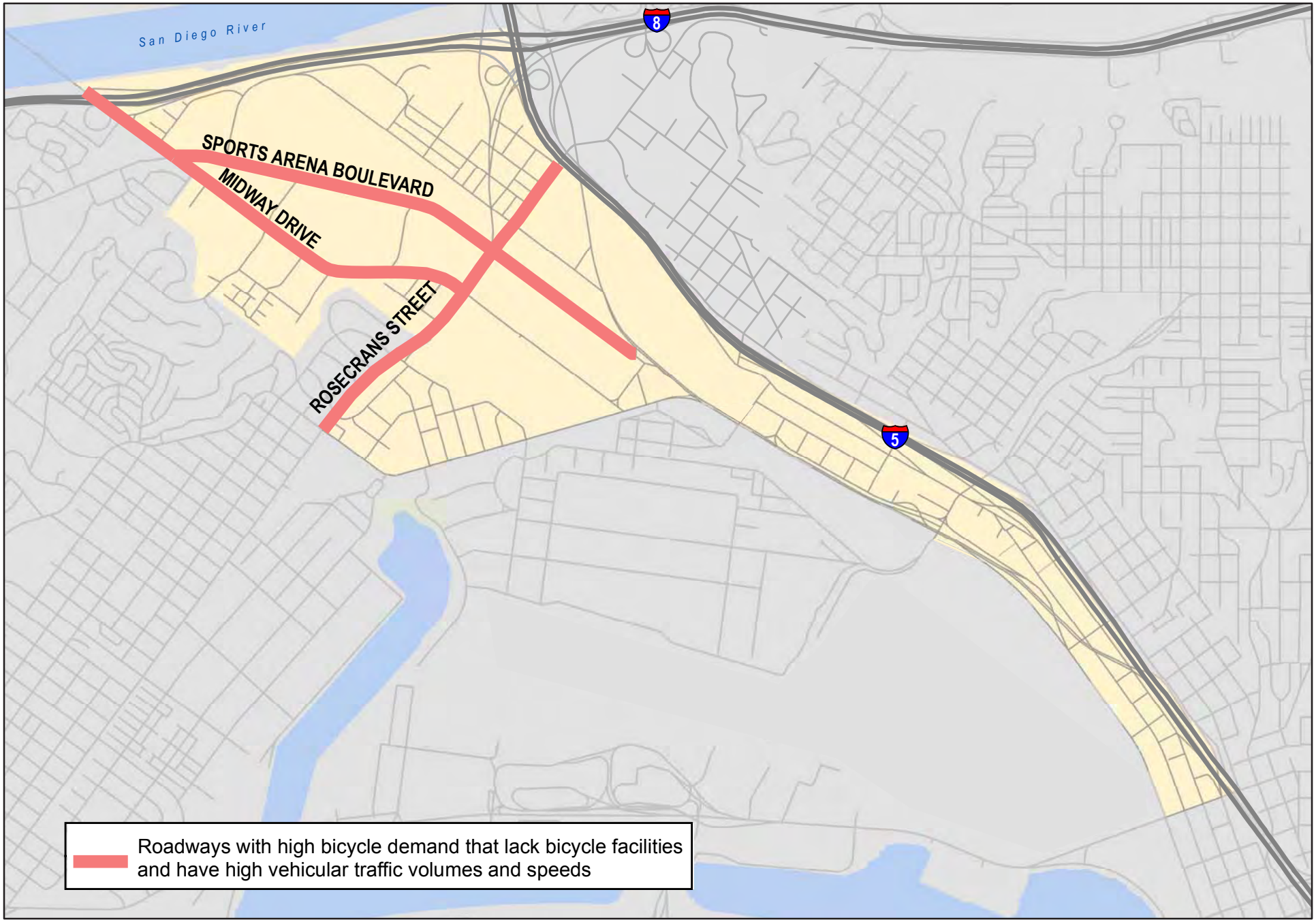


Figure 3-12
Bicycle Network Issues and Needs -
Midway-Pacific Highway Community

In Road Facilities (continued)

- Class II Buffered Bike Lanes in both directions along Kemper Street between Kenyon Street and Kurtz Street.
- Class IV Cycle Track on the north side of Washington Street between Pacific Highway and Interstate 5.
- Class II Bike Lanes in both directions along Old Town Avenue between Hancock Street and San Diego Avenue.
- Class II Buffered Bike lanes in both directions along Frontier Drive between Sports Arena Boulevard and Kurtz Street.
- Class II Buffered Bike lanes in both directions along Charles Lindbergh Parkway between Midway Drive and Kurtz Street.
- Class III Bicycle Route on Kurtz Street between Hancock Street and Rosecrans Street.
- Class III Bicycle Route on Noell Street between Pacific Highway and Hancock Street.
- Class III Bicycle Route on Hancock Street between Sports Arena Boulevard and Rosecrans Street.
- Class II Bike Lanes in both directions along Witherby Street between Pacific Highway and Hancock Street (The inclusion of bike lanes along this street would be determined by the available road width for these facilities; see section 3.2.2 for a discussion of a feasibility analysis to determine a need to widen Witherby Street)
- Class II Bike Lanes in both directions along Sassafras Street between Pacific Highway and Interstate 5.

Multi-Use Urban Paths

- Class I Multi-Use Urban Path connection, as an extension of Hancock Street between Sports Arena Boulevard and Midway Drive.
- Class I Multi-Use Urban Path along the south side of Rosecrans Street between Lytton Street and Pacific Highway.
- Class I Multi-Use Urban Path along the south side of Lytton Street / Barnett Avenue between Rosecrans Street and Pacific Highway.
- Class I Multi-Use Urban Path along the west side of Midway Drive between Sports Area Boulevard and Barnett Avenue.
- Class I Multi-Use Urban Path along the southwest or northeast side of Sports Arena Boulevard between I-8 and Midway Drive (to be determined by further study upon implementation), and on the northeast side of Sports Arena Boulevard between Midway Drive and Dutch Flats Parkway.
- Class I Multi-Use Urban Path along the south side of Dutch Flats Parkway between Barnett Avenue and Sports Arena Boulevard.
- Class I Multi-Use Urban Path along the east side of Pacific Highway between Taylor Street and Laurel Street.
- Class I Multi-Use Urban Path along the southeast side of Kemper Street between Sports Arena Boulevard and Kurtz Street.

3.5 Public Transit Service and Facilities

3.5.1 Identified Transit Needs

Underserved Areas – As shown in Figure 3-13, the following areas within the Midway-Pacific Highway Community are located beyond a quarter mile of a bus stop or transit station, indicating potentially poor levels of transit access:

- Barnett Avenue, between Truxtun Road and Midway Drive
- The northeast portion of the community (east of Kurtz Street and north of Sherman Street)
- Pacific Highway, between Wright Street and Noell Street
- Pacific Highway, between Vine Street and Sassafras Street

3.5.2 Transit Improvements

SANDAG's San Diego Forward, The Regional Plan (Adopted October 2015) indicates that a number of transit improvements are planned for the Midway-Pacific Highway Community, prior to this plan's Year 2035 horizon year, including:

Local Bus Service – Increase local bus service in key corridors to 10 minute headways programmed and scheduled for Year 2035.

Rapid Bus Route 28 – By the Year 2035, a new rapid bus route will be implemented providing service between Point Loma and Kearny Mesa via the Old Town Transit Center.

San Diego International Airport Intermodal Transit Center (ITC) – The ITC will act as an important hub connecting all modes of transportation accessing and departing from Lindbergh Field. The ITC is planned to be located on the north end of the airport, just south of Interstate 5 between Washington Street and Sassafras Street. The ITC is being planned as a major transit hub connecting all three existing trolley lines (Blue, Green and Orange), the COASTER, Amtrak, new MTS Express Bus routes directly serving the airport, several local MTS bus routes and the planned California High Speed Rail system. In addition to the transit connections, the ITC is planned to provide the following:

- 360 new parking spaces
- 126,000 SF of new retail uses
- Direct access to I-5 / via the Pacific Highway on/off-ramps
- Grade separation of the Washington Street and Sassafras at-grade rail crossings
- New grade separated crossing at Vine Street
- Raised bicycle lanes and cycle tracks on the street surrounding the ITC
- Wider sidewalks around both the ITC and new retail uses
- Curb extensions and planting/parking strips as well as provide new opportunities to employ green street strategies on impacted/new roadways.

The ITC is anticipated to be constructed and operational by the Year 2035.

Midway-Pacific Highway and
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Figure 3-13
Transit Coverage -
Midway-Pacific Highway Community

Transit Priority Improvements

Pacific Highway - Pacific Highway serves several express bus routes that link multiple communities. It is recommended that, as Pacific Highway is redeveloped, transit priority measures such as queue jumper lanes and transit priority signals be implemented at all signalized intersections along Pacific Highway between Taylor Street and Laurel Street.

Rosecrans Street – Rosecrans Street east of Camino Del Rio West currently serves four MTS bus Routes (8, 9, 28 and 35). A queue jumper lane and transit signal have already been implemented on the eastbound approach at the Taylor Street / Rosecrans Street and Pacific Highway intersection. Similar transit priority improvements should also be examined for feasibility at the Rosecrans Street / Camino Del Rio West / Sports Arena Boulevard intersection to allow westbound buses (Routes 8, 9 and 35) to turn right onto Sports Arena Boulevard and avoid congestion.

New Roadway Connections – The proposed new roadway connections can serve as alternative east/west routes for busses traveling through the community. Rerouting to these new facilities, if possible, may help avoid the congestion on Rosecrans Street. It is recommended that after the construction of any of the new roadways, the City of San Diego coordinate with MTS to examine opportunities for bus rerouting.

3.6 Currently Planned Improvements

The following section outlines the mobility improvements that are currently planned within the Midway-Pacific Highway community. Some improvements were too minor to incorporate at the community plan level, while others are mitigation measures from projects within the area and are not the responsibility of the community plan. Additionally, the pending improvements contained within the existing community Public Facilities Financing Plan are outlined and identified whether they are consistent with the Preferred Plan.

3.6.1 Auto

West Mission Bay Drive Bridge over San Diego River, CIP Project S00871 – the proposed City project will replace the existing bridge with a 6-lane bridge having a northbound and southbound Class I bicycle facility and pedestrian sidewalks. The project is in the final design phase and construction is estimated to start in July 2017. Improvements from this project were analyzed and its design was considered to develop recommendations in this study.

Midway/Pacific Highway Corridor Public Facilities Financing Plan, 2004 – this document contains several roadway improvements that have not yet been completed. It should be noted that all of these improvements are unfunded and currently not scheduled for implementation.

Signal Modifications:

- Barnett Avenue / Midway Drive (Project T7) – *Improvement has been completed and is consistent with the Preferred Plan.*

- Pacific Highway / West Washington Street (Project T29) – *Improvement is consistent the Preferred Plan.*

Extensions/New Streets:

- Extension of Barnett Avenue from Pacific Highway to Old Town Avenue (Project T8) – *Improvement is no longer recommended under the Preferred Plan.*
- Extension of Kemper Street as a four-lane collector from Sports Arena Boulevard to Hancock Street (Project T14) – *Improvement changed under the Preferred Plan.*
- New four-lane collector street connecting Sports Arena Boulevard and Midway Drive (Project T13) – *Improvement changed under the Preferred Plan.*

Street Widening:

- Improve Kurtz Street to a four-lane major between Rosecrans Street and Pacific Highway (Project T15) – *Improvement changed under the Preferred Plan.*
- Improve Sports Arena Boulevard to a four-lane collector between Rosecrans Street and Pacific Highway (Project T16) – *Improvement changed under the Preferred Plan.*
- *Add Project T23 and state whether improvement has changed under the Preferred Plan (we did not assumed it has in our cost estimating).*

Intersection Improvements

- Midway Drive / Sports Arena Boulevard (Project T17) – *Improvement changed under the Preferred Plan.*

Several roadway facility projects have been identified by the City of San Diego and are included on their Unfunded Transportation Needs List (8/5/2014). A list of the roadway related improvements located in the Midway-Pacific Highway Community is included in Appendix B. It should be noted that this list is updated on a regular basis and Appendix B only reflects a snapshot of the needs and planned improvements throughout the community at the time when this report was prepared.

3.6.2 Pedestrian

Public Facilities Financing Plans

The adopted Public Facilities Financing Plan for the Midway-Pacific Highway community currently contains planned pedestrian improvements that have not yet been completed, as follows:

- Install / upgrade 169 curb ramps to meet ADA standards (T25) – These improvements are currently not scheduled or funded. *Improvement is consistent with the Preferred Plan.*

Several pedestrian facility projects have been identified by the City of San Diego and are included on their Unfunded Transportation Needs List (8/5/2014). A list of the pedestrian improvements located in the Midway-Pacific Highway Community is included in Appendix B. It should be noted that this list is updated on a regular basis and Appendix B only reflects a snapshot of the needs and planned improvements throughout the community at the time when this report was prepared.

3.6.3 Bicycle

The City of San Diego's Transportation and Stormwater Department is currently resurfacing Barnett Avenue between Midway Drive and Pacific Coast Highway. The resurfaced pavement will include striping for a new Class II bicycle lane along the north side of Barnett Avenue between Pacific Highway and Midway Drive and green paint in areas of potential conflict zones between vehicular and bicycle traffic. The resurfacing project maintains the existing Class II bicycle facilities in this area on both sides of Barnett Avenue and enhances each facility with a 2' buffer on both sides of the roadway.

3.6.4 Transit

As noted in section 3.5.2 the Preferred Plan in consistent with *SANDAG's San Diego Forward, The Regional Plan* (Adopted October 2015).

4.0 Old Town Community Preferred Plan

4.1 Development of the Preferred Plan

4.1.1 Identification of Issues and Needs

Existing mobility related issues and needs within the Old Town Community were identified in the *Community of Midway/Pacific Highway Corridor and Old Town Mobility Existing Conditions Report; September 2012 (Existing Conditions Report)*. The issues and needs identified in the Existing Conditions Report were used, in conjunction with the other planning efforts and the overall community vision, to develop the recommended mobility improvements presented in the Preferred Plan.

4.1.2 Development of Preferred Plan Improvements

Preferred Plan improvements were developed by first cross checking the mobility issues and needs identified in the Existing Conditions Report against the mobility issues and needs identified in several other on-going or recent planning efforts, including:

- I-8 Corridor Study (August 2016)
- San Diego Forward, The Regional Plan (October 2015)
- Riding to 2050, The San Diego Regional Bike Plan (2010)
- City of San Diego Bicycle Master Plan (December 2013)
- Phase II Visitor Oriented Parking Facilities Study of the Old Town Community (May 2002)
- City of San Diego Pedestrian Master Plan - Phase 4 (Dec 2013)
- Mid-Coast Corridor Transit Project, Transportation Impacts and Mitigation Report (Sept 2014)

Where possible, the Preferred Plan carried forward or maintained the relevant improvements from on-going or previous planning efforts which have been adopted or vetted by the community. New improvement strategies were then developed to address the existing issues and needs, as identified in the Existing Conditions Report, which have not been addressed in other planning efforts. Additional mobility improvements were also developed to accommodate the anticipated future growth within the community. The following sections outline the mobility issues and needs identified in the Existing Conditions Report and the associated improvements recommended under the Preferred Plan to alleviate them.

4.2 Street and Freeway System

4.2.1 Identified Street and Freeway Issues and Needs

Taylor Street – Taylor Street provides connections to three major regional roadway facilities. To the east, Taylor Street provides a connection to I-8 and the regional freeway system. To the west, Taylor Street connects with both Rosecrans Street (which connects to communities to the west), and to Pacific Highway (which connects to communities to the north and the south). Taylor Street

accommodates a high volume of both regional and local traffic. There are currently two identified roadway related issues along Taylor Street, as described below:

At-Grade Rail Crossing – Currently the BNSF and MTS trolley right-of-way crosses Taylor Street at-grade between Pacific Highway and Congress Street. Gate down times at this crossing typically last between 30 seconds to 3 minutes, depending on the number of vehicles and train cars. During these gate down times, all other modes of transportation must stop, causing impacts to traffic operations at the adjacent intersections. Train crossings at this location typically cause additional intersection delay, queuing and congestion.

Taylor Street between Presidio Drive and I-8 Ramps – Taylor Street east of Presidio Drive reduces from four-lanes to two, with narrow lane widths (10 feet). Traffic volumes along this segment are high (13,140 ADT) since it leads to an I-8 interchange, and far exceeds the roadway LOS D maximum capacity of 9,000 ADT. The narrow lane widths and high traffic volumes result in congestion along this segment in the eastbound direction accessing the freeway ramps during the PM peak hour.

San Diego Avenue between Ampudia Street and Old Town Avenue – This segment of San Diego Avenue connects the commercial uses along both Congress Street and San Diego Avenue to the I-5 interchange located at Old Town Avenue. This segment of San Diego Avenue is currently a two-lane roadway with an average daily traffic volume of 10,160, which far exceeds the roadway LOS D maximum capacity of 6,500 ADT. This results in reduced speeds and congestion in the northbound direction during both the AM and PM peak hours.

*Old Town Avenue between Moore Street and San Diego Aven*ue – Old Town Avenue provides a regional connection point between the community and I-5. This segment of Old Town Avenue is currently two-lanes with an ADT of 11,750, which far exceeds the roadway LOS D maximum capacity of 6,500 ADT. This results in reduced speeds and congestion in the northbound direction during the PM peak hour.

The identified roadway issues and needs within the Old Town Community are displayed in Figure 4-1.

4.2.2 Street and Freeway Improvements

Due to the historic nature of the community, the Preferred Plan does not propose any roadway widenings or significant roadway capacity improvements.

Intersections

Congress Street / San Diego Avenue / Ampudia Street:

- Convert intersection to all-way stop control
- Implement bulb-outs on all legs of the intersection
- Widen the sidewalks along the north side of San Diego Avenue

Figure 4-2 displays a concept drawing of the proposed intersection improvements.

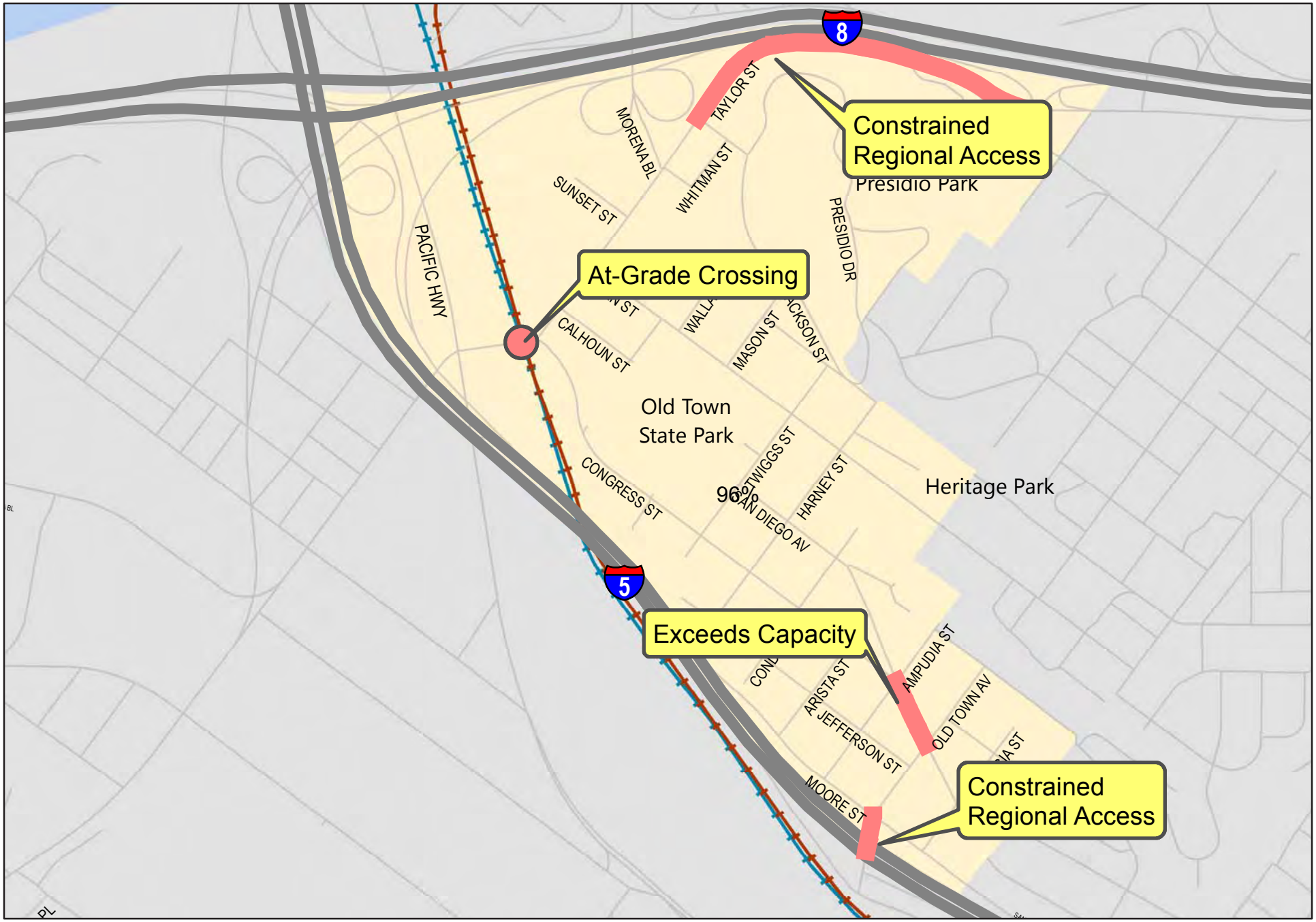


Figure 4-1
Identified Street and Freeway Related Issues and Needs - Old Town Community

This graphic is for conceptual purposes only. Further engineering study would be required at the project level prior to implementation.

Figure 4-2
Proposed Improvements - Congress Street / San Diego Avenue / Ampudia Street

Note: Converting the intersection control to a roundabout is also an option for this intersection. However, due to the tight spacing of the adjacent buildings there may not be enough right-of-way to accommodate a roundabout. Additional engineering study should be conducted to see if a roundabout is feasible at this intersection. If it is determined that a roundabout is feasible then it would become the preferred improvement.

Parking

San Diego Avenue between Twiggs Street and Conde Street has a large curb-to-curb width (50 feet) for a standard two-lane collector roadway (typically 40 feet wide). Therefore, in order to better utilize the curb-to-curb right-of-way, it is recommended that the parallel parking on the east side of the roadway be converted to angled parking, as shown in the figure below. The recommended improvement will not affect the capacity of the roadway and will increase the already constrained parking capacity within the Old Town community. Figure 4-3 displays a concept drawing of this improvement.

Freeway

There are no freeway improvements included in the Revenue Constrained alternative of *SANDAG's San Diego Forward, The Regional Plan (Adopted October 2015)* to be completed before this plan's Horizon Year (Year 2035). SANDAG prepared the Draft I-8 Corridor Study as a high level planning resource for potential improvements between Ocean Beach and Mission Valley. One of the identified improvements calls for the removal of all free movements from I-8 onto Morena Boulevard and "squaring up" each intersection. Since the plan has not yet been adopted and the improvements are not anticipated to be implemented until Year 2050, no improvements were assumed under Preferred Plan conditions.

This graphic is for conceptual purposes only. Further engineering study would be required at the project level prior to implementation.

Figure 4-3
Proposed San Diego Avenue Improvements between Twiggs Street and Conde Street

4.3 Pedestrian Environment

4.3.1 Identified Pedestrian Issues and Needs

The following pedestrian related issues and needs were identified in the Existing Conditions Report:

Taylor Street At-Grade Rail Crossing – Pedestrians accessing the Old Town Community or the Old Town Transit Center from Pacific Highway or Rosecrans Street currently have to cross the shared BNSF and MTS Trolley rail right-of-way. The Taylor Street at-grade rail crossing is over 100 feet wide, gate to gate, and pedestrians have to cross over four sets of rail tracks. During peak hours there are approximately 13 train crossing events lasting between 30 seconds and 3 minutes. During these times pedestrians are forced to wait until the train clears the crossing, causing excessive delays.

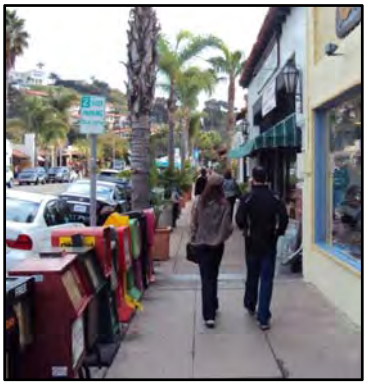
Old Town Transit Center Wayfinding – There is currently limited signage at the Old Town Transit Center directing pedestrians who are unfamiliar with the area, such as tourists, to the many restaurant, shops, historical monuments and structures, and parks in the community. Currently there is only a single map (identical to the map depicted in the picture below, which is located on San Diego Avenue) directing patrons to these various community features.

The Old Town San Diego Chamber of Commerce is implementing a wayfinding signage program that will install various signage types throughout the community to better inform patrons about how to access the various community features and help brand the community as a whole.

Missing Sidewalks – There are currently no sidewalks on Taylor Street, east of Presidio Drive and on the east side of San Diego Avenue, just north of Ampudia Street.

Connectivity between Community Features and Parks – There is currently no direct, convenient or identifiable path connecting the Old Town Transit Center, Old Town State Park and Presidio Park. Both parks are major community features attracting tourists and out of town guests who may not be familiar with the community or its amenities. The development of a clear, concise and well signed path connecting these three community assets would significantly improve pedestrian circulation within the community.

Sidewalk Capacity Issues – The retail and restaurant establishments along San Diego Avenue attract significant pedestrian traffic particularly during evenings and weekends. The sidewalks along San Diego Avenue are currently 7 to 8 feet wide with a limited parkway featuring street trees and planters. Retail shops and other merchants also take up part of the sidewalk with displays, racks and other attractions, as displayed in the photos to the right. During peak times, typical weekend evenings, pedestrian traffic along San Diego Avenue exceeds sidewalk capacity creating a congested pedestrian environment.



San Diego Avenue / Congress Street / Ampudia Street Intersection – This is currently a five legged intersection in which three of the approaches are stop-controlled (SB San Diego Avenue and EB & WB Ampudia Street) and the other two (NB San Diego Avenue and SB Congress Street) are free movements. There are also high vehicular traffic volumes crossing through the intersection along San Diego Avenue and Congress Street, which have no crosswalk facilities. This intersection is confusing and intimidating for pedestrians to cross due to the lack of traffic controls, high traffic volumes and missing crosswalk facilities.

The pedestrian related issues/needs within the Old Town Community, identified above, are displayed in Figure 4-4.

4.3.2 Pedestrian Improvements

Sidewalks

- Complete the sidewalks on the east side of San Diego Avenue, north of Ampudia Street.
- Complete sidewalks on Taylor Street, east of Presidio Drive.
- Implement sidewalks on the north side of Whitman Street.
- Complete sidewalks on Twiggs Street west of Congress Street.
- Implement sidewalks on Sunset Street between Juan Street and Mason Street.
- Implement a sidewalk on the west side of Mason Street between Juan Street and Jackson Street.
- Implement a sidewalk on the west side of Jackson Street between Presidio Drive and Mason Street

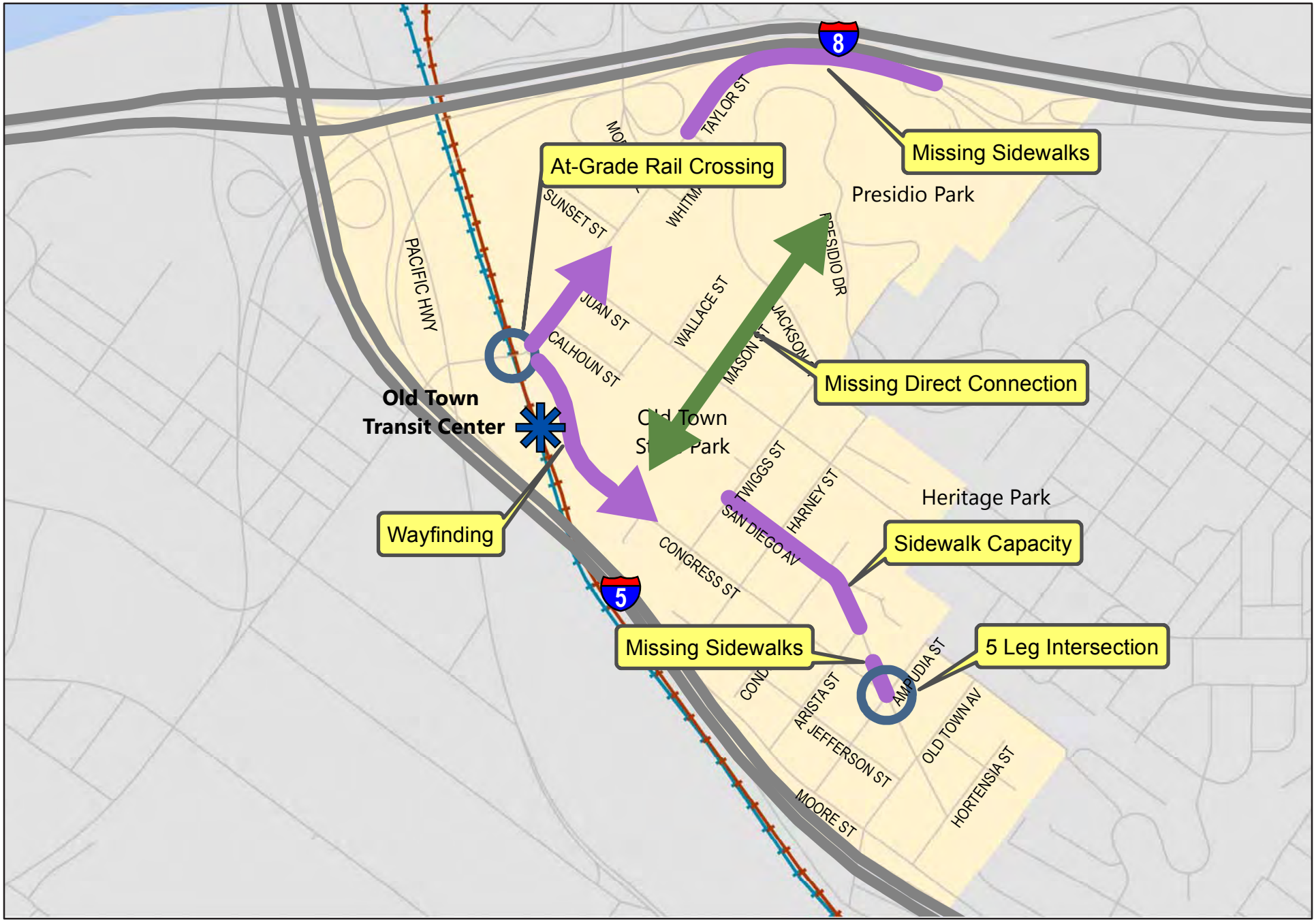
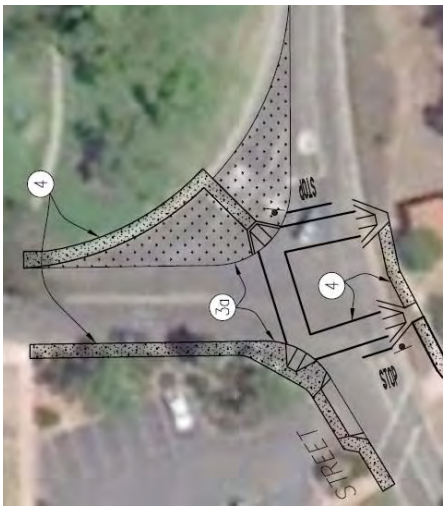


Figure 4-4
Identified Pedestrian Issues and Needs -
Old Town Community

Intersections

All crossing points at intersections should be upgraded to include the following:

- ADA compliant pedestrian ramps
- High visibility continental crosswalks
- Advanced stop bar placement
- Pedestrian count down signals



Proposed Improvements to Presidio Drive / Jackson Street intersection

Specific Intersection Improvements:

Presidio Drive / Jackson Street (Shown to the right):

- Implement bulb-outs on the west leg of the intersection
- Complete sidewalks on all sides of the intersection
- Square up intersection and remove southbound yielded right-turn movements
- Provide cross-walks across all legs of the intersection

Congress Street / Twiggs Street:

- Implement bulb-outs across all legs of the intersection

San Diego Avenue / Twiggs Street:

- Implement pavers or other high visible material in the center of the intersection to slow down and alert drivers to the heavy pedestrian presence, see example to the right.

Example of using bricks/pavers to create a highly visible intersection

Linwood Street / San Diego Avenue:

- Implement Pedestrian refuge island on the southern (Linwood Street) leg of the intersection.

Congress Street / San Diego Avenue / Ampudia Street (See figure 4-2):

- Convert intersection to all-way stop control
- Implement bulb-outs on all legs of the intersection
- Widen the sidewalks along the north side of San Diego Avenue

Note: As stated above, converting the intersection control to a roundabout is also an option for this intersection. However, due to the tight spacing of the adjacent buildings there may not be enough right-of-way to accommodate a roundabout. Additional engineering study should be conducted to see if a roundabout is feasible at this intersection. If it is determined that a roundabout is feasible then it would become the preferred improvement.

4.4 Cycling Environment

4.4.1 Identified Bicycle Issues and Needs

The following cycling related issues and needs were identified in the Existing Conditions Report:

Taylor Street – As mentioned previously, the Taylor Street corridor provides a significant regional east/west connection for vehicles as well as for cyclists. Taylor Street is currently classified as a Class III Bike Route within the Old Town Community; however, east of Presidio Drive, Taylor Street narrows to a two-lane roadway with narrow lane widths (10 feet) and no shoulders. Taylor Street is also a regional vehicular access point for the Old Town Community connecting the I-8 / Taylor Street interchange and Pacific Highway. The narrow lane widths, high vehicular traffic volumes and speeds along Taylor Street, east of Presidio Drive, create an uncomfortable environment for cyclists.

Congress Street / San Diego Avenue – Congress Street and San Diego Avenue (south of Ampudia Street) provide one of the few north/south connections for cyclists within the Old Town Community. Congress Street and San Diego Avenue (south of Ampudia Street) is currently classified as a Class III Bike Route designated by sharrow markings. Congress Street's proximity to the Old Town Transit Center and retail and restaurant uses make it a highly attractive route for cyclists. Both corridors currently have high traffic volumes, and on-street parking on both sides of the roadway which create an uncomfortable environment for cyclists.

The bicycle related issues/needs within the Old Town Community, identified above, are displayed in Figure 4-5.

4.4.2 Bicycle Improvements

The Preferred Plan proposes implementing the following bicycle facilities within the Old Town Community:

- Complete the Class II Bike Lanes in both directions along Taylor Street between Pacific Highway and the community boundary and bicycle boxes at appropriate intersections, as identified in the I-8 Corridor Study.
- Class III Bike Route in both directions along Juan Street between Taylor Street and community boundary.
- Class II Bike Lanes in both directions along Old Town Avenue between Hancock Street and San Diego Avenue.
- Class II Bike Lanes in both directions along Morena Boulevard between Taylor Street and the community boundary.

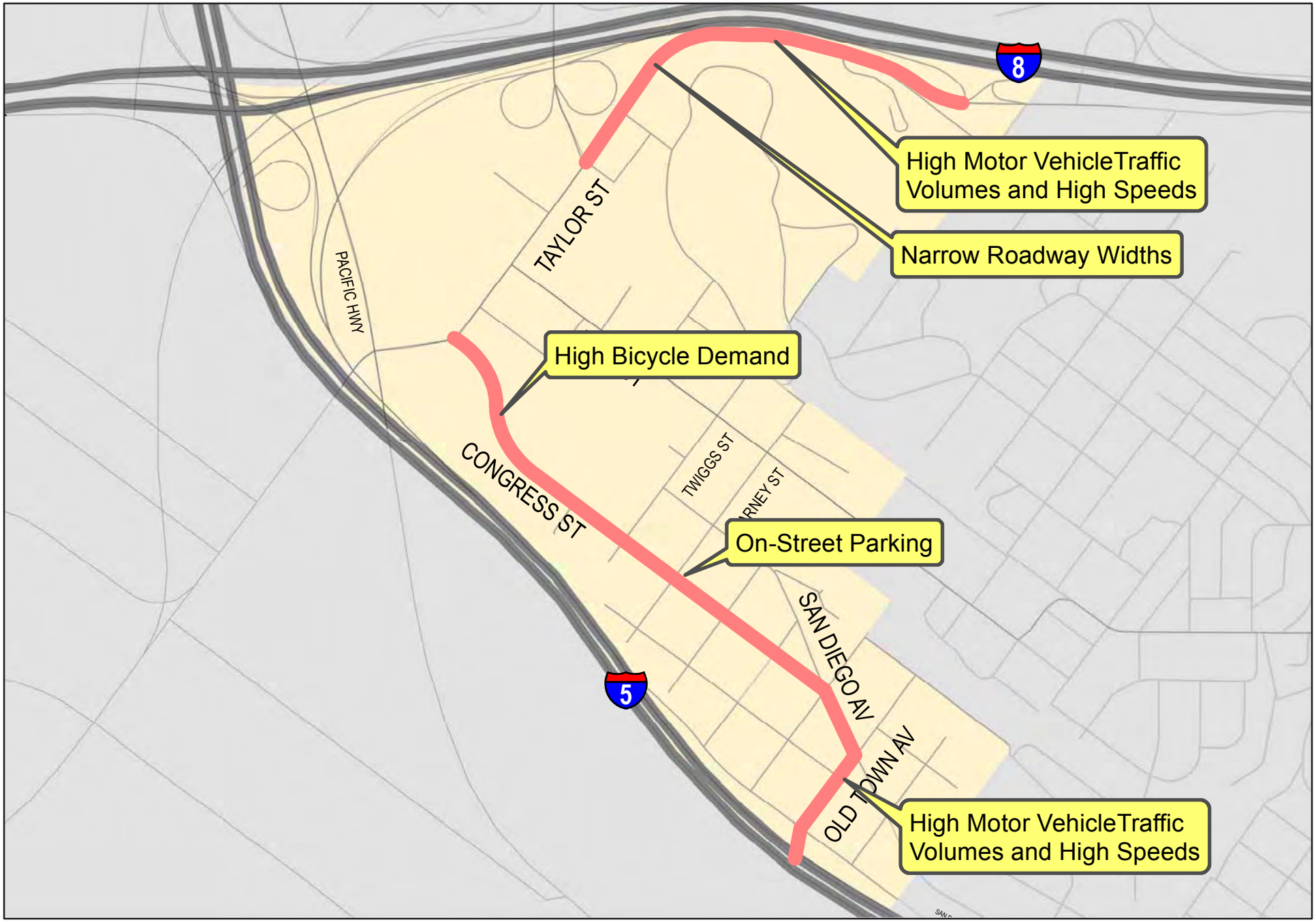


Figure 4-5
Bicycle Network Issues and Needs -
Old Town Community

A bicycle connection is currently lacking along Morena Boulevard between Taylor Street and Linda Vista Road. This is a critical connection that would link the Old Town and Linda Vista communities, as well as provide a connection to the Ocean Beach Bike Path. Unfortunately, the bridge along this segment of the roadway has a constrained right-of-way, and the current configuration of the I-8 Morena Boulevard ramps position four high-speed free-right turn movements on/off the bridge.

Due to these constraints there is not feasible bicycle facility that can be implemented along this segment without both widening the bridge and reconfiguring the I-8 / Morena Boulevard Ramps. However, it is recommended that the City work with both Caltrans and SANDAG to look for opportunities to implement bicycle facilities and better pedestrian facilities along this segment should any improvements be done to this segment. The I-8 Corridor Study identifies Class II bike lanes along Morena Boulevard, between W. Morena Boulevard and Taylor Street, as a high priority project. As described in section 4.2.2, the Corridor Study also proposes removing all free movements from I-8 onto Morena Boulevard and "squaring up" each intersection. Since the plan has not yet been adopted and the improvements are not anticipated to be implemented until Year 2050, no improvements were assumed under Preferred Plan conditions.

4.5 Public Transit Service and Facilities

4.5.1 Identified Transit Issues and Needs

The Old Town Community is served by 10 bus routes, a trolley line, a commuter rail service (The COASTER) and a regional rail line (Amtrak Surfliner), which all serve the Old Town Transit Center. Figure 4-6 displays the community's streets served by bus routes as well as the existing Trolley Lines.

This figure also shows the area within ½ mile of the Old Town Transit Center, which is considered a reasonable walking distance to a major transit center (as compared to a ¼ mile for bus stops). As depicted in this figure, nearly all of the commercial and recreational uses are within ½ mile of transit service.

Figure 4-6
Transit Coverage -
Old Town Community

4.5.2 Transit Improvements

SANDAG's *San Diego Forward, The Regional Plan* (Adopted October 2015), indicates that a number of transit improvements are planned for the Old Town Community, prior to this plan's Year 2035 Horizon Year, as described below.

COASTER – By the Year 2020, the frequency of the COASTER will be increased to every 20 minutes during peak periods and every 120 minutes during off-peak periods. The COASTER provides a commuter rail connection between the Old Town Transit Center and North County communities including Solana Beach, Encinitas and Oceanside.

COASTER – by the Year 2020, the COASTER line will be extended to the south and include stations at both Petco Park and the Convention Center.

Mid-Coast Trolley Line – The Mid-Coast Trolley will extend service from Santa Fe Depot in Downtown San Diego to the University City community, serving major activity centers such as Old Town, the University of California, San Diego (UCSD), and Westfield UTC. Construction of the Mid-Coast Trolley line is anticipated to be completed by the Year 2021.

Local Bus Service – Increase local bus service in key corridors to 10 minute headways programmed and scheduled for Year 2035.

Rapid Bus Route 28 – By the Year 2035, a new rapid bus route will be implemented providing service between Point Loma and Kearny Mesa via the Old Town Transit Center.

Rapid Bus Route 30 – By the Year 2035, a new rapid bus route will be implemented providing service between the Old Town Transit Center and Sorrento Mesa via Pacific Beach, La Jolla and UTC.

Rapid Bus Routes 640A – By the Year 2035, a new rapid bus route will be implemented providing service along I-5 between San Ysidro and the Old Town Transit Center, via City College downtown.

Transit Priority Treatments

Taylor Street serves several regional bus routes connecting multiple communities. Therefore, it is recommended that transit priority treatments be implemented along Taylor Street to help increase transit performance. It is recommended to implement queue jumper lanes and transit priority signals in either direction at both the Taylor Street / Juan Street and Taylor Street / Morena Boulevard intersections.

4.6 Currently Planned Improvements

The following section outlines the mobility improvements that are currently planned within the Old Town community. Some improvements were too minor to incorporate at the community plan level, while others are mitigation measures from projects within the area and are not the responsibility of the community plan. Additionally, the pending improvements contained within

the existing community Public Facilities Financing Plan are also outlined and identified if they are consistent with the Preferred Plan.

4.6.1 Auto

Mid-Coast Corridor Transit Project – The Mid-Coast Corridor and Transit Project Transportation Impacts and Mitigation Report; September 2014, identifies the following project related improvements at the Taylor Street / Rosecrans Street and Pacific Highway intersection:

- Provide second northbound right-turn lane
- Provide third eastbound through lane
- Provide second southbound left-turn lane

These improvements are designed to handle excess queuing at the intersection during gate down times. These improvements do not conflict with any improvements recommended by the Preferred Plan and have been incorporated into the future year analysis. However, since these improvements are mitigation measures for the Mid-Coast Corridor Transit Project they are not considered to be part of the Preferred Plan and should not be included in the IFS.

Old Town Public Facilities Financing Plan, 2004 – This plan identifies the widening of Presidio Drive to allow for a right-turn lane on Taylor Street (Project T10). This improvement is unfunded and is not currently scheduled for implementation. – *The Preferred Plan does not include this improvement as a recommendation.*

4.6.2 Pedestrian

Old Town Public Facilities Financing Plan, 2004 – Contains the following planned pedestrian improvements that have not yet been completed.

- Install / upgrade 20 curb ramps to meet ADA standards (Project T12) – These improvements are currently not scheduled or funded. – *Improvement is consistent with the Preferred Plan.*

Several pedestrian facility projects have been identified by the City of San Diego and are included on their Unfunded Transportation Needs List (8/5/2014). A list of the pedestrian improvements located in the Old Town Community are included in Appendix B. It should be noted that this list is updated on a regular basis and Appendix B only reflects a snapshot of the needs and planned improvements throughout the community at the time when this report was prepared.

SANDAG Uptown Bikeways Project – Phase 4 of the Uptown Bikeways project will include treatments to improve pedestrian safety (e.g., high visibility crosswalks, dual pedestrian ramps, bulb-outs). The project is located along Congress Street (from Taylor Street to San Diego Avenue) and San Diego Avenue (from Congress Street to south of Hortensia Avenue). The project is entering final design and is funded through construction. Since these improvements are funded through the Uptown Bikeways project, they should not be included in the IFS. *– Improvements are consistent with the Preferred Plan.*

Wayfinding Signage Program

The Old Town Chamber of Commerce is currently developing a wayfinding signage program in the Old Town Community. The wayfinding signage program will standardize and brand the various wayfinding signs currently within the community and highlight paths and links for pedestrians to access the various parks and attractions within the community.

4.6.3 Bicycle

SANDAG Uptown Bikeways Project – Phase 4 of the Uptown Bikeways project will include a mix of buffered bike lanes and shared lane markings along Congress Street (from Taylor Street to Mason Street) and shared lane markings, where not already marked (from Mason Street to San Diego Avenue). The project is currently in the design phase with specifications still being determined, therefore, it was not included as a recommendation in the Preferred Plan. Congress Street is currently designated as a Class III bicycle route, identifiable by vertical signage and shared lane markings. The Preferred Plan does not propose any modifications to the existing bicycle facility, nor does it include any recommendations that would prevent the Uptown Bikeways project from being implemented.

4.6.4 Transit

As noted in section 4.5.2 the Preferred Plan in consistent with *SANDAG's San Diego Forward, The Regional Plan (Adopted October 2015).*

5.0 Modeling and Forecasting

This chapter summarizes the future year travel demand model forecasting process utilized to project the future travel patterns within the Midway-Pacific Highway and Old Town communities, under buildout conditions. Future year traffic volumes were derived from a SANDAG Series 12 Transportation Forecast model run, which was verified per the City of San Diego's Small Study Area Traffic Modeling Process (April 2012) and calibrated for the Midway-Pacific Highway and Old Town communities.

5.1 Base Year (2012) Model Calibration

The base year model calibration process included verification and validation of base year model inputs (land uses and roadway network), as well as additional adjustments to the base year model (roadway speeds, centroid loadings, etc.) to calibrate the model to better represent existing travel patterns within the Midway-Pacific Highway and Old Town communities. Detailed descriptions of each validation step are provided in the following sections.

5.1.1 Base Year Land Use Verification/Validation

Existing land use data, as listed below, was collected for the Midway-Pacific Highway and Old Town communities and verified/adjusted in the Base Year model to correctly match actual conditions:

- Descriptions (land use type and code)
- Proper measurement unit types (square feet, units, acres)
- Quantity
- Vehicular trip generation rates

Land use types, descriptions and quantities were crosschecked with ground conditions using Google Earth imagery, as well as field verification, as necessary. Trip generation rates for individual land uses were coded based on the driveway rates provided in the *City of San Diego Land Development Code – Trip Generation Manual* (May 2003). Base year land use inputs for the project study area are provided in Appendix D.

5.1.2 Base Year Roadway Network Verification/Validation

The SANDAG Series 12 Base Year roadway network was compared to actual conditions to ensure an accurate model network. The following variables were compared and adjusted to match actual conditions:

- TAZ loading points
- Number of lanes for roadways
- Traffic controls
- Signalized intersection geometrics
- Street classification
- Roadway speed limits

5.1.3 Base Year Ground Count Validation & Adjustment

Historical ADT volumes over the past 11 years were compiled from the City of San Diego's Traffic Count Database and other recent studies for major roadway segments throughout the Midway-Pacific Highway and Old Town communities. The most recent historic counts along with counts from the past five (5) years were selected to establish a Base Year ground count database. This database included multiple counts from the same location on numerous segments, as well as the counts already included in the model. The final count was selected based upon nearby trip generators and traffic patterns along each roadway segment. Abnormally high or low traffic volumes were assumed to be outliers, and thus were not selected as model inputs.

5.1.4 Model Sensitivity Adjustment

Model calibration was performed by running a Base Year model estimate and comparing the results to the selected ground counts discussed above. Roadway segments that did not meet the model calibration targets established by the City of San Diego were identified for additional adjustments. These adjustments included the relocation of TAZ connectors and centroids, TAZ splitting, adjustments of roadway speed (to represent congestion), and in rare cases, ground count adjustments using historic counts older than three years.

5.2 Future Year Traffic Forecast Volume

The Future Year model was developed by inputting the future year land uses and roadway network into the calibrated Base Year model, described in the previous sections, with the following adjustments/assumptions:

- Implementation of the Preferred Plan land uses within the project study area (land use assumptions are provided in Appendix D).
- Existing roadway network within the study area with the following improvement projects:
    - Extension of Kemper Street between Sports Arena Boulevard and Kurtz Street
    - Implementation of Frontier Drive between Sports Arena Boulevard and Kurtz Street
    - Extension of Greenwood Street between Kurtz Street and Sports Arena Boulevard
    - Implementation of Charles Lindbergh Parkway between Sports Arena Boulevard and Midway Drive
    - Implementation of Dutch Flats Parkway between Sports Arena Boulevard and Barnett Avenue
- Year 2035 land uses outside of the study area
- Year 2035 roadway/transit network outside of the study area
- Year 2035 transit network both inside and outside of the study area

The model inputs described above were reviewed and approved by City staff prior to running the model forecasts.

Final SANDAG Series 12 Future Year Forecast Model results are provided in Appendix D. Figure 5-1 shows the final projected average daily traffic volumes that were used to develop and analyze the Preferred Plan mobility network, as described in the next chapter.

5.2.1 Vehicle Miles Traveled

The vehicle miles traveled (VMT) generated within the community was estimated using the SANDAG Series 12 Preferred Plan Future Year 2035 and Base Year models. VMT is the total number of miles driven by all vehicle trips within the Midway-Pacific Highway and Old Town communities, including trips to, from, and within the community. Table 5.1A and 5.1B display the total VMT generated within each community and the average trip length under both the Preferred Plan and Base Year conditions. VMT calculations are provided in Appendix D.

Table 5.1A Vehicle Miles Traveled (VMT) Comparison – Midway-Pacific Highway Community

Measure	Community Planning Area				San Diego Region			
	Base Year	Preferred Plan	Δ in Value	Δ in %	Base Year	Year 2035	Δ in Value	Δ in %
Total VMT (miles)	730,121	835,997	105,876	14.5%	85,331,631	108,992,533	23,660,902	27.7%
Total # of Auto Trips	294,796	313,558	18,762	6.4%	16,458,692	20,183,171	3,724,479	22.6%
Average Trip Length[1] (miles)	2.5	2.7	0.2	7.6%	5.2	5.4	0.2	3.7%
Population	4,672	27,070	22,398	479.4%	3,130,717	4,035,834	905,117	28.9%
Daily VMT by Population (miles)	156	31	-125	-80.2%	27	27	0	-1.5%

Source: Chen Ryan Associates (March 2017)

Note:
1. Average trip length is estimated by dividing the total VMT by the total # of auto trips.

As shown, under implementation of the Preferred Plan the number of new auto trips and total VMT generated within the Midway-Pacific Highway community is only anticipated to experience minimal growth (based on the regional averages). With the implementation of the Preferred Plan infrastructure and land uses, the average vehicular trip length is anticipated to increase by 7.6%. However, with the significant population increase anticipated within the community, the daily VMT by population is anticipated to drop dramatically (-80.2%).

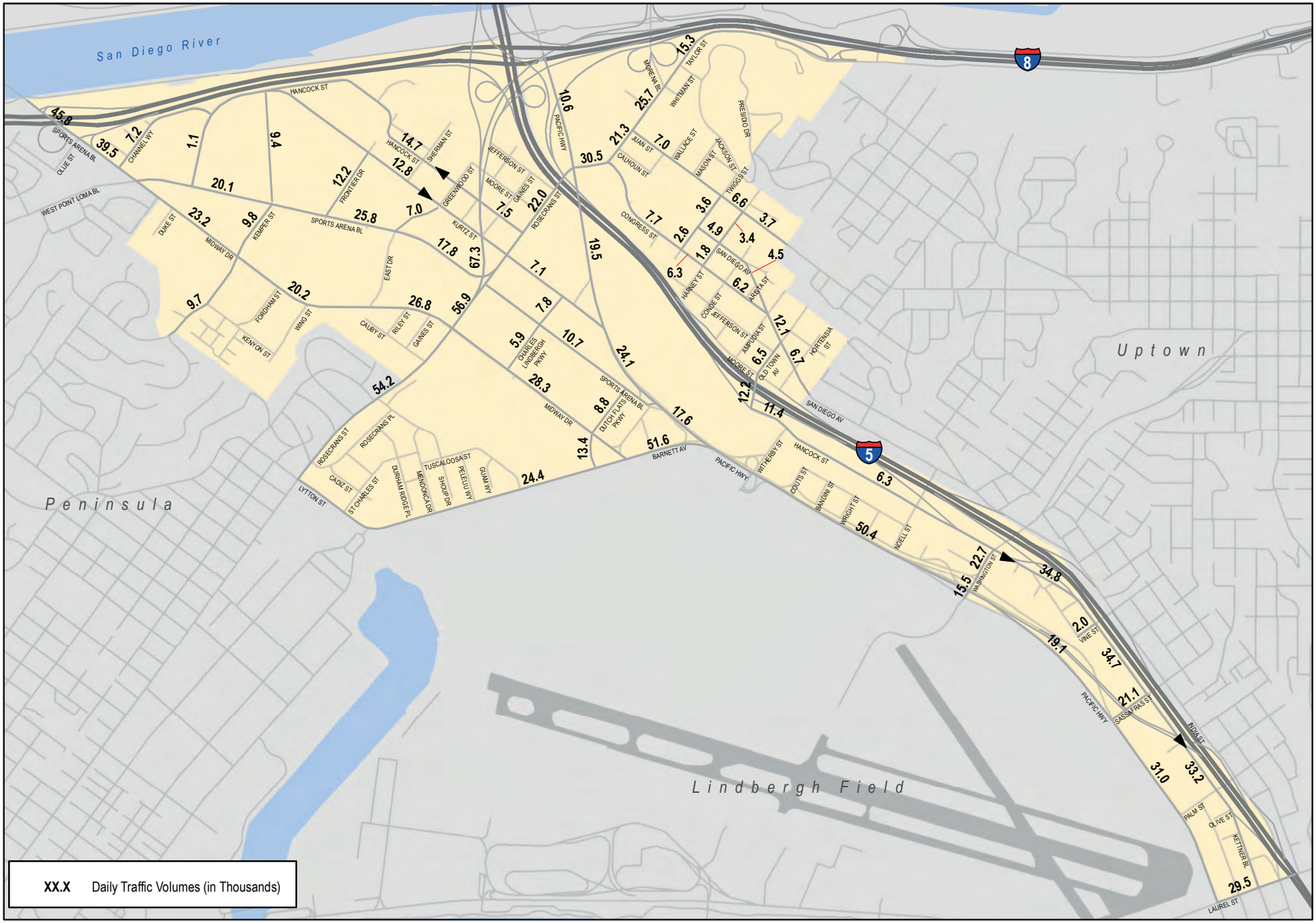


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Figure 5-1
Daily Roadway Segment Traffic Volumes - Preferred Plan Conditions

Table 5.1B Vehicle Miles Traveled (VMT) Comparison – Old Town Community

Measure	Community Planning Area				San Diego Region			
	Base Year	Preferred Plan	Δ in Value	Δ in %	Base Year	Year 2035	Δ in Value	Δ in %
Total VMT (miles)	151,300	175,097	23,797	15.7%	85,331,631	108,992,533	23,660,902	27.7%
Total # of Auto Trips	57,989	61,622	3,633	6.3%	16,458,692	20,183,171	3,724,479	22.6%
Average Trip Length[1] (miles)	2.6	2.8	0.2	8.9%	5.2	5.4	0.2	3.7%
Population	834	2,430	1,596	191.4%	3,130,717	4,035,834	905,117	28.9%
Daily VMT by Population (miles)	181	72	-109	-60.3%	27	27	0	-1.5%

Source: Chen Ryan Associates (March 2017)

Note:
1. Average trip length is estimated by dividing the total VMT by the total # of auto trips.

As shown, under implementation of the Preferred Plan the number of new auto trips and total VMT generated within the Old Town community is only anticipated to experience average growth (based on the region. With the implementation of the Preferred Plan infrastructure and land uses the average vehicular trip length is anticipated to increase by 8.9%. However, the anticipated population increase within the community results in an overall decrease in the daily VMT by population (-60.3%).

5.2.2 Community Mode Choice

The Mode Choice Model used in the SANDAG Series 12 Transportation Forecast is not sensitive to changes in bicycle and pedestrian facilities. In other words, the model does not accurately adjust travel behaviors in response to implementation of multimodal facilities, such as bicycle lanes or separated multi-use paths, or reflect land use changes that create more mixed use environments. Due to these constraints, the SANDAG Series 12 Model was not utilized to project the demands of future year non-motorized travel.

SANDAG is currently in the process of developing Series 13, an Activity Based Model (ABM) which will more accurately account for shifts in transportation modes based on the implementation of pedestrian and bicycle facilities. However, SANDAG modeling staff has indicated that this model is currently under development and will not be ready for public release until later in 2016.

Since the ABM model is not ready for use at this time, a subsequent mode choice analysis will be prepared by the City as a separate document. The mode choice analysis will use the methods outlined in both the California Air Pollution Control Officers Association (CAPCOA) Quantifying Green House Gas Measures manual, as well as the Urban Land Institute's (ULI) Growing Cooler to post process the Series 12 model results and develop a more accurate mode split for each community.

6.0 Preferred Plan Analysis

6.1 Street and Freeway System Assessment and Results

The following section provides a summary of vehicular analysis results along key study roadways, including the projected daily roadway LOS, and the peak hour intersection LOS analysis under implementation of the Preferred Plan.

6.1.1 Roadway Segment Analysis

This analysis assumes implementation of the roadway segment-related improvements outlined in Sections 3.2.2 and 4.2.2 under the Preferred Plan. The associated roadway classifications under implementation of the Preferred Plan, within both communities, is displayed in Figure 6-1.

Table 6.1 and Figure 6-2 display the projected ADT volume and associated roadway LOS under implementation of the Preferred Plan. Section 5.2 describes the process used to develop projected ADT volume estimations.

As shown, all Mobility Element roadways are projected to operate at LOS D or better under Preferred Plan conditions, with the exception of the following:

Midway-Pacific Highway Community

- Midway Drive, between East Drive and Rosecrans Street (LOS E)
- Midway Drive, between Rosecrans Street and Barnett Avenue (LOS E)
- Kurtz Street, between Hancock Street and Rosecrans Street (LOS E)
- Kettner Boulevard, between Washington Street and Vine Street (LOS F)
- Kettner Boulevard, between Vine Street and Sassafras Street (LOS F)
- Kettner Boulevard, between Sassafras Street and Laurel Street (LOS F)
- Greenwood Street, between Sports Arena Boulevard and Kurtz Street (LOS E)
- Camino Del Rio West, between Rosecrans Street and the I-5/I-8 Ramps (LOS F)
- Rosecrans Street, between Midway Drive and Sports Arena Boulevard (LOS E)
- Dutch Flats Parkway, between Barnett Avenue and Midway Drive (LOS E)
- Sassafras Street, between Pacific Highway and Kettner Boulevard (LOS F)

Old Town Community

- Congress Street between Taylor Street and Twiggs Street (LOS E)
- San Diego Avenue, between Ampudia St and Old Town Avenue (LOS F)
- San Diego Avenue, between Old Town Avenue and Hortensia Street (LOS E)
- Juan Street, between Taylor Street and Twiggs Street (LOS E)
- Juan Street, between Twiggs Street and Harney Street (LOS E)
- Taylor Street, between Morena Boulevard and I-8 Ramps (LOS F)
- Old Town Avenue, between Hancock Street and Moore Street (LOS F)
- Old Town Avenue, between Moore Street and San Diego Avenue (LOS E)

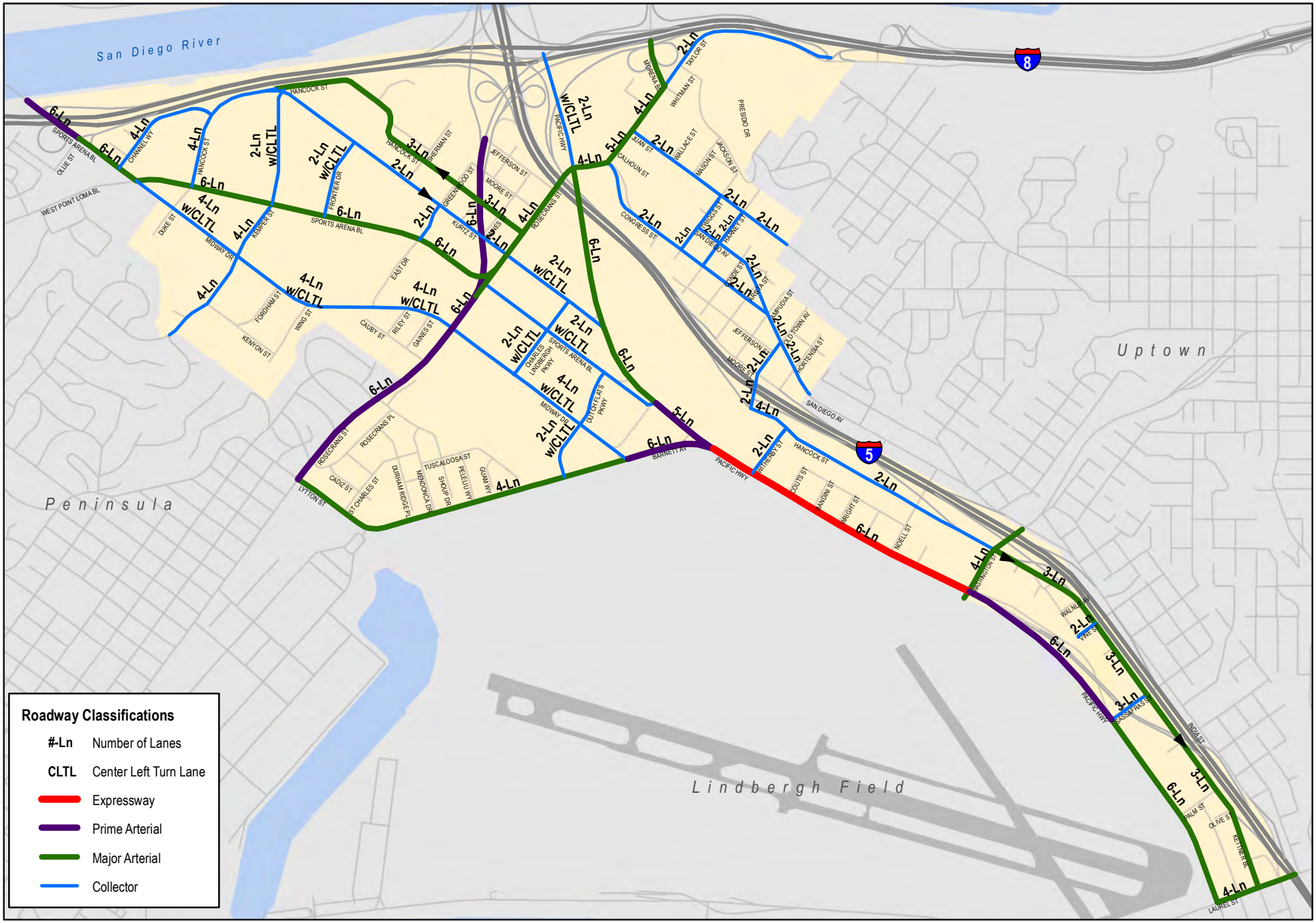

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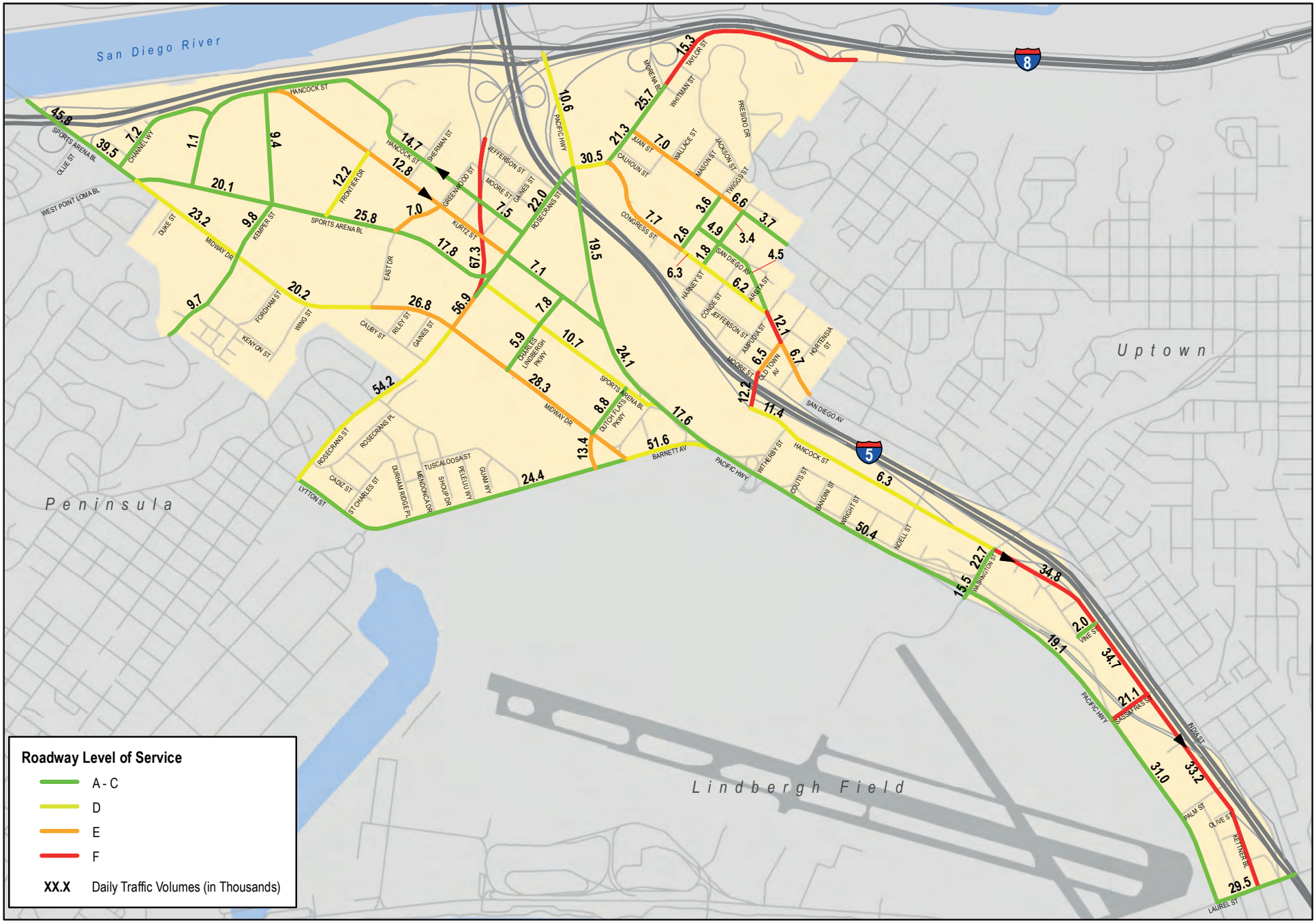
Figure 6-1
Roadway Classifications -
Preferred Plan Conditions



Midway-Pacific Highway and
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Figure 6-2
Daily Roadway Segment Traffic Volumes and LOS - Preferred Plan Conditions

Table 6.1 Daily Roadway Segment Analysis - Preferred Plan Conditions

Roadway	From	To	Classification	Maximum Capacity at LOS E	ADT	V/C	LOS
North-South							
Midway Pacific Highway							
Lytton Street/ Barnett Ave	Rosecrans St	Midway Dr	4-Lane Major Arterial	40,000	24,400	0.61	C
Midway Dr	W. Point Loma Blvd/ Sports Arena Blvd	Kemper St	4-Lane Collector (CLTL)	30,000	23,200	0.77	D
	Kemper St	East Dr	4-Lane Collector (CLTL)	30,000	20,200	0.67	D
	East Dr	Rosecrans St	4-Lane Collector (CLTL)	30,000	26,800	0.89	E
	Rosecrans St	Barnett Ave	4-Lane Collector (CLTL)	30,000	28,300	0.94	E
Sports Arena Blvd	I-8 WB Ramps	I-8 EB Ramps	6-Lane Prime Arterial	60,000	45,800	0.76	C
	I-8 EB Ramps	W. Point Loma Blvd	6-Lane Major Arterial	50,000	39,500	0.79	C
	W. Point Loma Blvd/Midway Dr	Kemper St	6-Lane Major Arterial	50,000	20,100	0.4	B
	Kemper St	East Dr	6-Lane Major Arterial	50,000	25,800	0.52	B
	East Dr	Rosecrans St	6-Lane Major Arterial	50,000	17,800	0.36	A
	Rosecrans St	Pacific Hwy	2-Lane Collector (CLTL)	15,000	10,700	0.71	D
Kurtz St	Hancock St	Rosecrans St	2-Lane Collector (One-Way)	15,000	12,800	0.85	E
	Rosecrans St	Pacific Hwy	2-Lane Collector (CLTL)	15,000	7,100	0.47	C
Hancock St	Sports Arena Blvd	Kurtz St	4-Lane Collector	15,000	1,100	0.07	A
	Kurtz St	Camino Del Rio West	3-Lane Major (One-Way)	30,000	14,700	0.49	B
	Camino Del Rio West	Rosecrans St	3-Lane Major (One-Way)	30,000	7,500	0.25	A
	Old Town Ave	Witherby St	4-Lane Collector	15,000	11,400	0.76	D
	Witherby St	Washington St	2-Lane Collector	8,000	6,300	0.79	D
Kettner Blvd	Washington St	Vine St	3-Lane Major (One-Way)	30,000	34,800	1.16	F
	Vine St	Sassafras St	3-Lane Major (One-Way)	30,000	34,700	1.16	F
	Sassafras St	Laurel St	3-Lane Major (One-Way)	30,000	33,200	1.11	F
Pacific Hwy	Sea World Dr	Taylor St	2-Lane Collector (CLTL)	15,000	10,600	0.71	D

Table 6.1 Daily Roadway Segment Analysis - Preferred Plan Conditions

Roadway	From	To	Classification	Maximum Capacity at LOS E	ADT	V/C	LOS
Pacific Hwy	Taylor St	Kurtz St	6-Lane Major Arterial	50,000	19,500	0.39	A
	Kurtz St	Sports Arena Blvd	6-Lane Major Arterial	50,000	24,100	0.48	B
	Sports Arena Blvd	Barnett Ave	5-Lane Major Arterial	50,000	17,600	0.35	A
	Barnett Ave	Washington St	Expressway	80,000	50,400	0.63	C
	Washington St	Sassafras St	6-Lane Prime Arterial	60,000	19,100	0.38	A
	Sassafras St	Laurel St	6-Lane Major Arterial	50,000	31,000	0.62	C
Old Town							
Congress St[1]	Taylor St	Twiggs St	2-Lane Collector	8,000	7,700	0.96	E
	Twiggs St	Harney St	2-Lane Collector	8,000	6,300	0.79	D
	Harney St	San Diego Ave/ Ampudia St	2-Lane Collector	8,000	6,200	0.78	D
San Diego Ave[1]	Twiggs St	Harney St	2-Lane Collector	8,000	4,900	0.61	C
	Conde St	Arista Ave	2-Lane Collector	8,000	4,500	0.56	C
	Ampudia St	Old Town Ave	2-Lane Collector	8,000	12,100	1.51	F
	Old Town Ave	Hortensia St	2-Lane Collector	8,000	6,700	0.84	E
Juan St[1]	Taylor St	Twiggs St	2-Lane Collector	8,000	7,000	0.88	E
	Twiggs St	Harney St	2-Lane Collector	8,000	6,600	0.83	E
	Harney St	San Juan Rd	2-Lane Collector	8,000	3,700	0.46	C
East-West							
Midway Pacific Highway							
Channel Wy	W. Mission Bay Dr	Hancock St	4-Lane Collector	15,000	7,200	0.48	C
Kemper St	Kenyon St	Midway Dr	4-Lane Collector	15,000	9,700	0.65	C
	Midway Dr	Sports Arena Blvd	4-Lane Collector	15,000	9,800	0.65	C
	Sports Arena Blvd	Hancock St	2-Lane Collector (CLTL)	15,000	9,400	0.63	C
Frontier St	Sports Arena Blvd	Kurtz St	2-Lane Collector (CLTL)	15,000	12,200	0.81	D

Table 6.1 Daily Roadway Segment Analysis - Preferred Plan Conditions

Roadway	From	To	Classification	Maximum Capacity at LOS E	ADT	V/C	LOS
Greenwood St	Sports Arena Blvd	Kurtz St	2-Lane Collector	8,000	7,000	0.88	E
Camino Del Rio West	Rosecrans St	I-5/I-8 Ramps	6-Lane Prime Arterial	60,000	67,300	1.12	F
Rosecrans St	Lytton St	Midway Dr	6-Lane Prime Arterial	60,000	54,200	0.9	D
	Midway Dr	Sports Arena Blvd	6-Lane Prime Arterial	60,000	56,900	0.95	E
	Sports Arena Blvd	Pacific Hwy/Taylor St	4- Lane Major Arterial	40,000	22,000	0.55	C
Charles Lindbergh Pkwy	Midway Dr	Sports Arena Blvd	2-Lane Collector (CLTL)	15,000	5,900	0.39	B
	Sports Arena Blvd	Kurtz Street	2-Lane Collector (CLTL)	15,000	7,800	0.52	C
Dutch Flats Pkwy	Barnett Avenue	Midway Dr	2-Lane Collector (CLTL)	15,000	13,400	0.89	E
	Midway Dr	Sports Arena Blvd	2-Lane Collector (CLTL)	15,000	8,800	0.59	C
Barnett Ave	Midway Dr	Pacific Hwy	6-Lane Prime Arterial	60,000	51,600	0.86	D
Washington St	Frontage Rd	Pacific St	4- Lane Major Arterial	40,000	15,500	0.39	B
	Pacific St	Hancock St	4- Lane Major Arterial	40,000	22,700	0.57	C
Vine St	California St	Kettner Blvd	2-Lane Collector	8,000	2,000	0.25	A
Sassafras St	Pacific Hwy	Kettner Blvd	3-Lane Collector	11,500	21,100	1.83	F
Laurel St	Pacific Hwy	Kettner Blvd	4- Lane Major Arterial	40,000	29,500	0.74	C
Old Town							
Taylor St[1]	Pacific Hwy/ Rosecrans St	Congress St	4- Lane Major Arterial	40,000	30,500	0.76	D
	Congress St	Juan St	5-Lane Major Arterial	45,000	21,300	0.47	B
	Juan St	Morena Blvd	4- Lane Major Arterial	40,000	25,700	0.64	C
	Morena Blvd	I-8 EB Ramps	2-Lane Collector	8,000	15,300	1.91	F
Twiggs St[1]	Congress St	San Diego Ave	2-Lane Collector	8,000	2,600	0.33	B
	San Diego Ave	Juan St	2-Lane Collector	8,000	3,600	0.45	C
Harney St[1]	Congress St	San Diego Ave	2-Lane Collector	8,000	1,800	0.23	A
	San Diego Ave	Juan St	2-Lane Collector	8,000	3,400	0.43	B

Table 6.1 Daily Roadway Segment Analysis - Preferred Plan Conditions

Roadway	From	To	Classification	Maximum Capacity at LOS E	ADT	V/C	LOS
Old Town Ave[1]	Hancock St	Moore St	2-Lane Collector	8,000	12,200	1.53	**F**
	Moore St	San Diego Ave	2-Lane Collector	8,000	6,500	0.81	**E**

Source: Chen Ryan Associates (May 2017)

Note: **Bold** letter indicates LOS E or F

The following mitigation measures were identified for the two communities:

Midway-Pacific Highway Community

Midway Drive, between Rosecrans Street and Barnett Avenue (LOS E) – Improving the roadway way from a 4-Lane Collector with Center Left-Turn Lane to a 4-Lane Major Arterial would improve the operations to LOS C. The identified significant traffic related impact to this roadway segment would be fully mitigated with the implementation of this mitigation measure.

Kurtz Street, between Hancock Street and Rosecrans Street (LOS E) – Widening the roadway from a 2-Lane Collector (One-Way) Arterial to a 3-Lane - Lane Major (One-Way) Arterial would improve the operations to LOS B. The identified significant traffic related impact to this roadway segment would be fully mitigated with the implementation of this improvement.

Kettner Boulevard, between Washington Street and Vine Street (LOS F) – Widening the roadway from a 3-Lane Major (One-Way) Arterial to a 4-Lane - Lane Major (One-Way) Arterial would improve the operations to LOS D. The identified significant traffic related impact to this roadway segment would be fully mitigated with the implementation of this mitigation measure.

Kettner Boulevard, between Vine Street and Sassafras Street (LOS F) – Widening the roadway from a 3-Lane Major (One-Way) Arterial to a 4-Lane - Lane Major (One-Way) Arterial would improve the operations to LOS D. The identified significant traffic related impact to this roadway segment would be fully mitigated with the implementation of this mitigation measure.

Kettner Boulevard, between Sassafras Street and Laurel Street (LOS F) – Widening the roadway from a 3-Lane Major (One-Way) Arterial to a 4-Lane - Lane Major (One-Way) Arterial would improve the operations to LOS D. The identified significant traffic related impact to this roadway segment would be fully mitigated with the implementation of this mitigation measure.

Greenwood Street, between Sports Arena Boulevard and Kurtz Street (LOS E) – Improving from a 2-Lane Collector to a 2-Lane Collector with a Center Left Turn-Lane would improve the operations to LOS C. The identified significant traffic related impact to this roadway segment would be fully mitigated with the implementation of this mitigation measure. However, due to the neighborhood character and potential impacts to both bicycle and pedestrian travel, it is recommended that Greenwood Street be built as a 2-Lane Collector.

Camino Del Rio West, between Rosecrans Street and the I-5/I-8 Ramps (LOS F) – Improving this roadway from a 6-Lane Prime Arterial to a 6-Lane Expressway would improve the operations to LOS D. The identified significant traffic related impact to this roadway segment would be fully mitigated with the implementation of this improvement.

Dutch Flats Parkway, between Barnett Avenue and Midway Drive (LOS E) – Improving from a 2-Lane Collector with a Center Left Turn-Lane to a 4-Lane Collector with a Center Left Turn-Lane would improve the operations to LOS B. The identified significant traffic related impact to this roadway segment would be fully mitigated with the implementation of this improvement. However, due to the neighborhood character and potential impacts to both bicycle and pedestrian travel, it is recommended that Dutch Flats Parkway be built as a 2-Lane Collector with a Center Left Turn-Lane.

Sassafras Street, between Pacific Highway and Kettner Boulevard (LOS F) - Widening the roadway from a 3-Lane Collector to a 4-Lane Collector with Center Left-Turn Lane would improve the operations to LOS D. The identified significant traffic related impact to this roadway segment would be fully mitigated with the implementation of this improvement.

Old Town Community

Congress Street between Taylor Street and Twiggs Street (LOS E) - Widening the roadway from a 2-Lane Collector to a 2-Lane Collector with Center Left-Turn Lane would improve the operations to LOS C. The identified significant traffic related impact to this roadway segment would be fully mitigated with the implementation of this improvement.

San Diego Avenue, between Ampudia St and Old Town Avenue (LOS F) - Widening the roadway from a 2-Lane Collector to a 2-Lane Collector with Center Left-Turn Lane would improve the operations to LOS D. The identified significant traffic related impact to this roadway segment would be fully mitigated with the implementation of this improvement.

San Diego Avenue, between Old Town Avenue and Hortensia Street (LOS E) - Widening the roadway from a 2-Lane Collector to a 2-Lane Collector with Center Left-Turn Lane would improve the operations to LOS B. The identified significant traffic related impact to this roadway segment would be fully mitigated with the implementation of this improvement.

Juan Street, between Taylor Street and Twiggs Street (LOS E) - Widening the roadway from a 2-Lane Collector to a 2-Lane Collector with Center Left-Turn Lane would improve the operations to LOS B. The identified significant traffic related impact to this roadway segment would be fully mitigated with the implementation of this mitigation measure.

Juan Street, between Twiggs Street and Harney Street (LOS E) - Widening the roadway from a 2-Lane Collector to a 2-Lane Collector with Center Left-Turn Lane would improve the operations to LOS B. The identified significant traffic related impact to this roadway segment would be fully mitigated with the implementation of this improvement.

Taylor Street, between Morena Boulevard and I-8 Ramps (LOS F) - Widening the roadway from a 2-Lane Collector to a 4-Lane Collector with Center Left-Turn Lane would improve the operations to LOS C. The identified significant traffic related impact to this roadway segment would be fully mitigated with the implementation of this improvement.

Old Town Avenue, between Hancock Street and Moore Street (LOS F) - Widening the roadway from a 2-Lane Collector to a 2-Lane Collector with Center Left-Turn Lane would improve the operations to LOS D. The identified significant traffic related impact to this roadway segment would be fully mitigated with the implementation of this mitigation measure.

Old Town Avenue, between Moore Street and San Diego Avenue (LOS E) - Widening the roadway from a 2-Lane Collector to a 2-Lane Collector with Center Left-Turn Lane would improve the operations to LOS B. The identified significant traffic related impact to this roadway segment would be fully mitigated with the implementation of this mitigation measure.

6.1.2 Intersection Geometry and LOS Analysis

AM and PM peak hour intersection LOS analyses were conducted for Preferred Plan conditions. It was assumed under implementation of the Preferred Plan that the proposed intersection improvements outlined in Sections 3.2.2 and 4.2.2 would be in place. Figure 6-3 and Figure 6-4 display the proposed intersection geometrics and forecast AM and PM peak hour turning movements under implementation of the Preferred Plan, respectively.

Table 6.2 and Figure 6-5 display the LOS results for the key study intersections located within both communities under Preferred Plan conditions. LOS analyses were conducted using the methodologies described in Chapter 2.0. Intersection LOS calculation worksheets are provided in Appendix E. Signal timing were assumed to be optimized under implementation of Preferred Plan conditions, therefore some signal operations may be projected to operate better than under existing conditions.

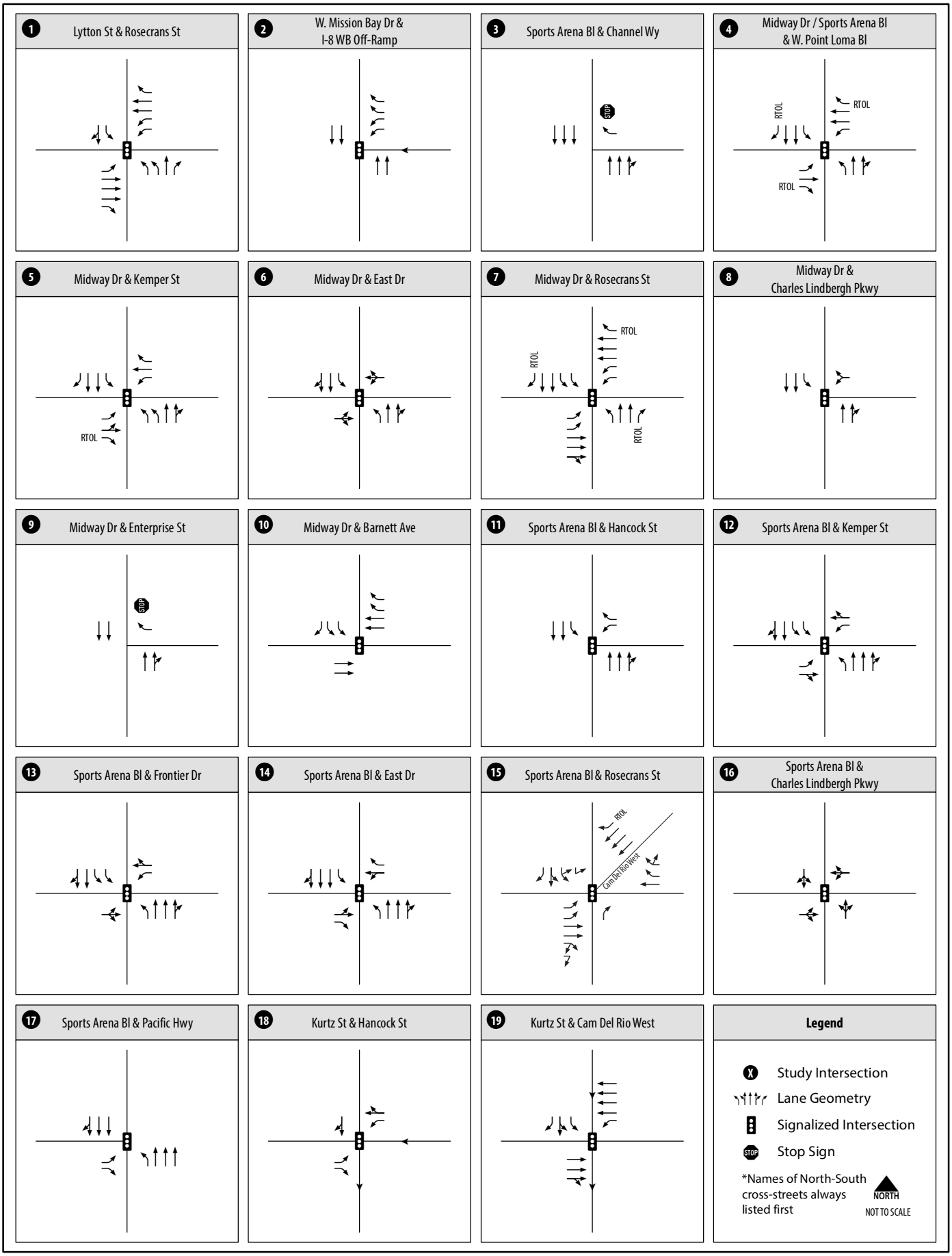

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Figure 6-3
Intersection Geometrics - Preferred Plan (Intersections 1-19)

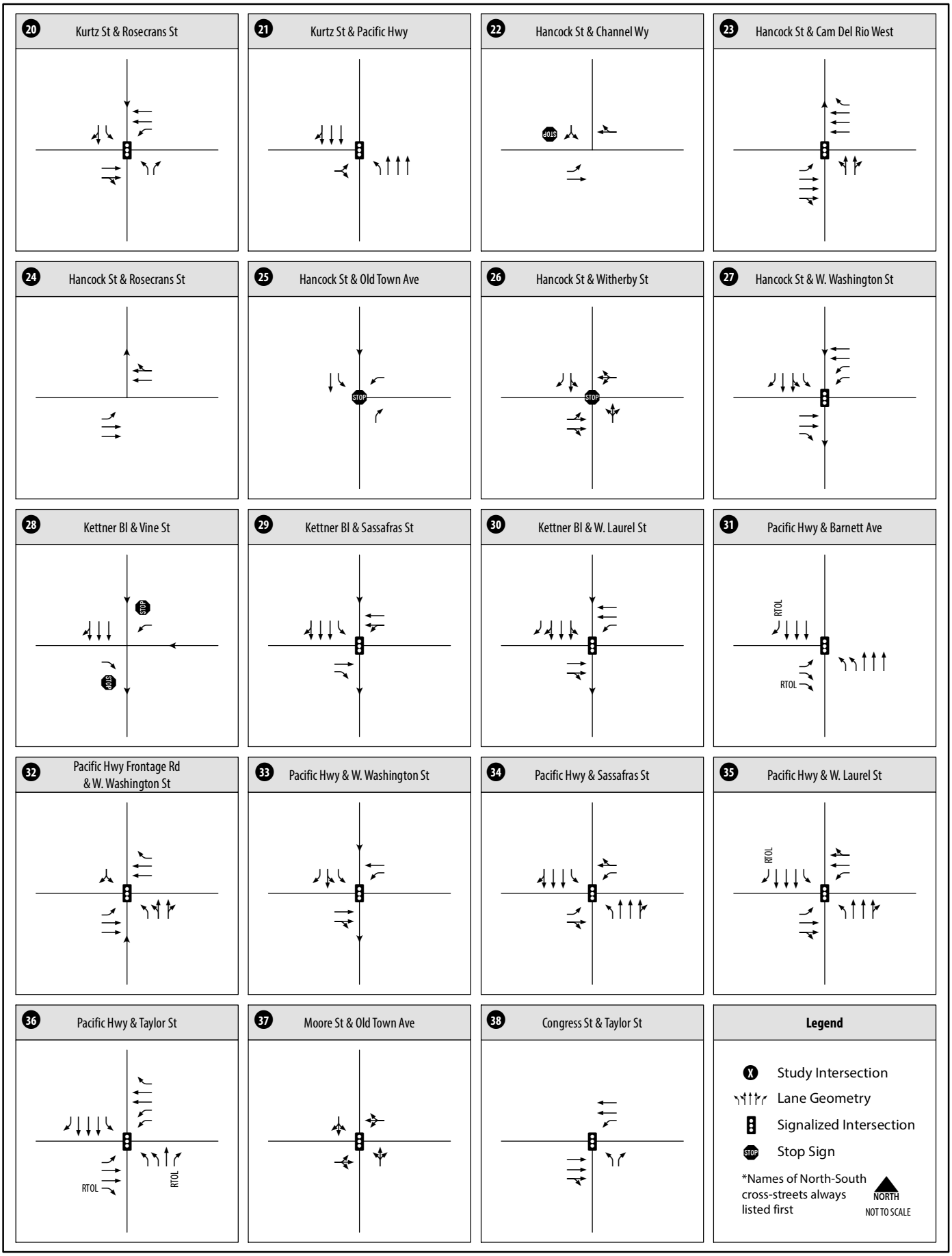

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Figure 6-3
Intersection Geometrics - Preferred Plan (Intersections 20-38)

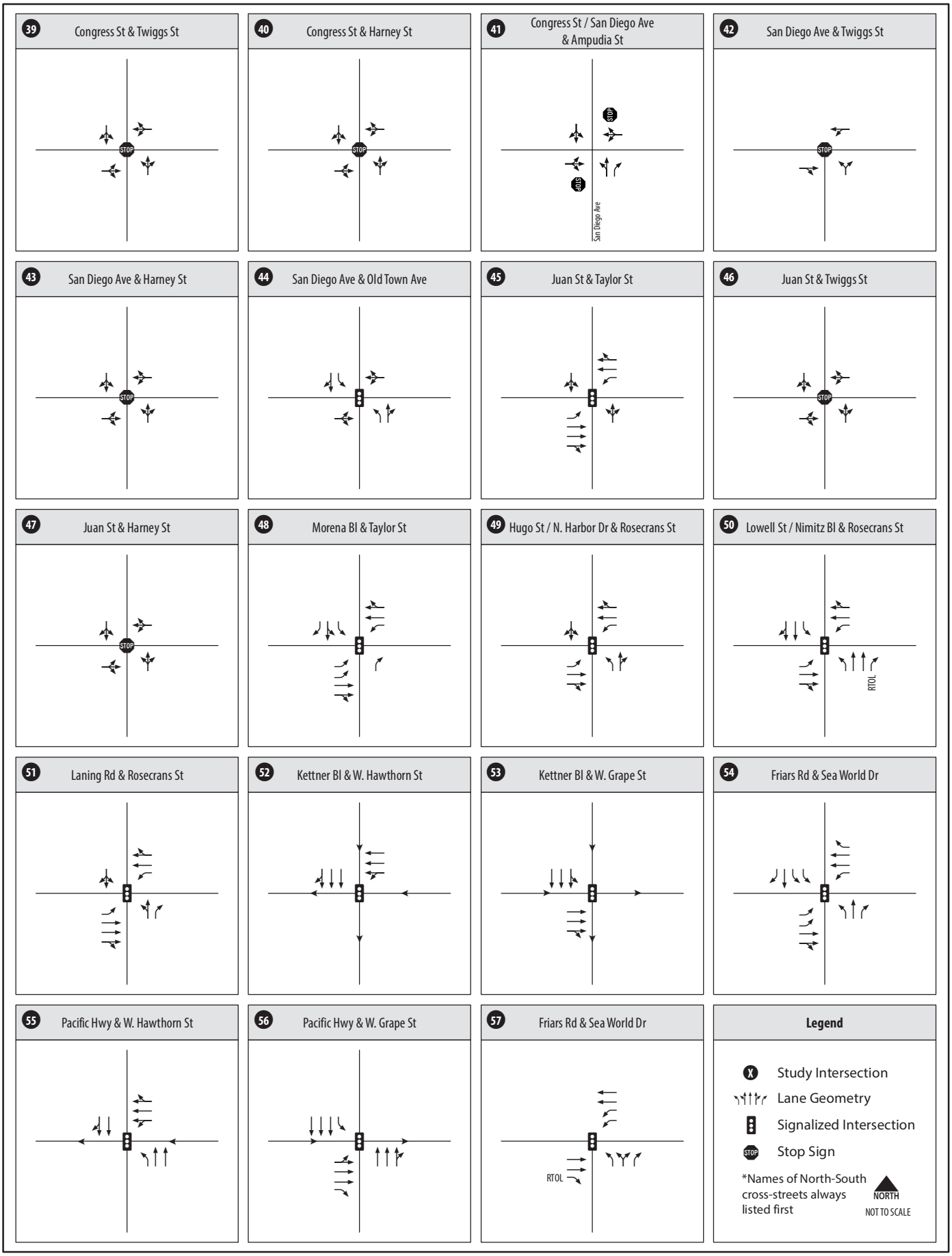

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Figure 6-3
Intersection Geometrics - Preferred Plan (Intersections 39-57)

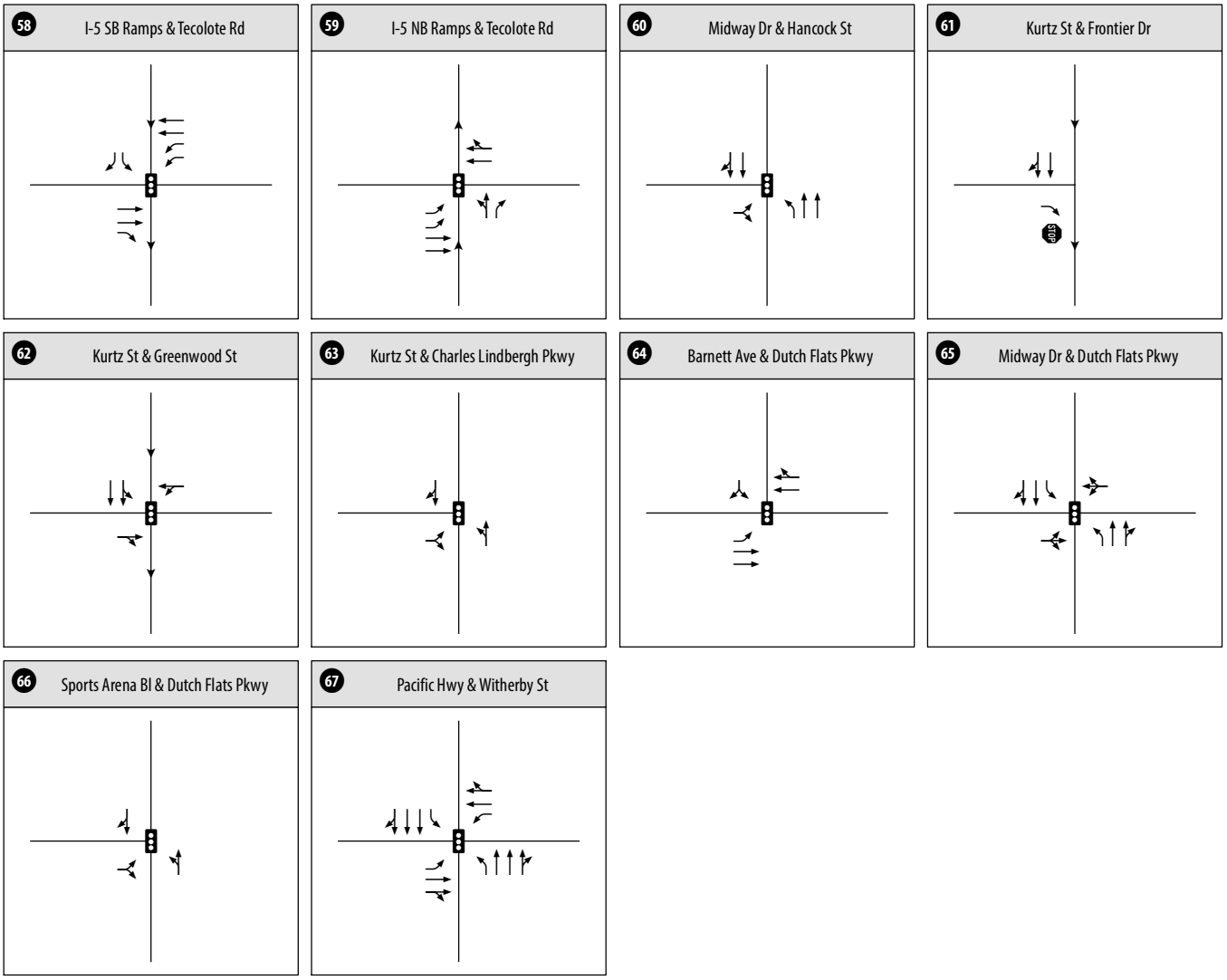

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Figure 6-3
Intersection Geometrics - Preferred Plan (Intersections 58-67)

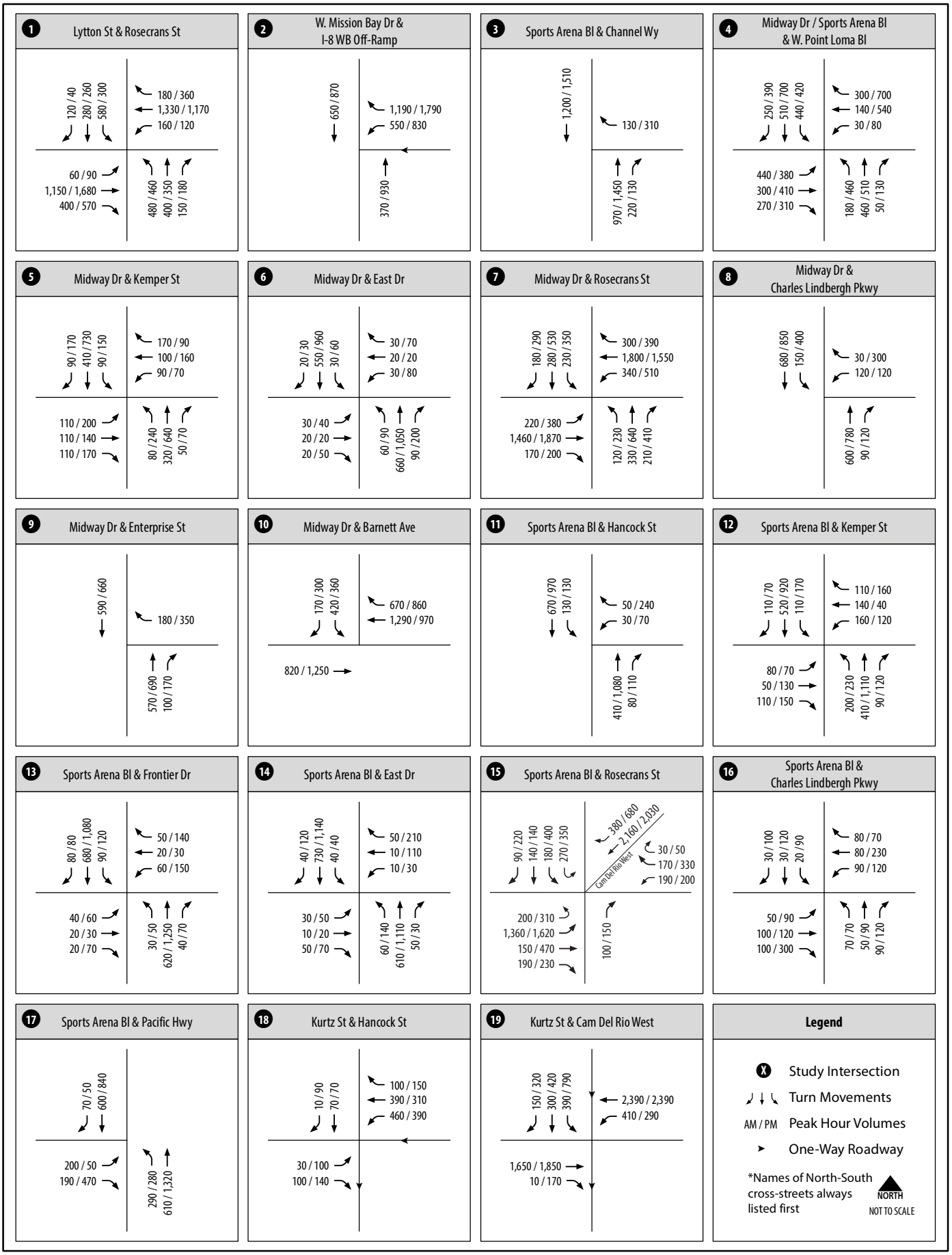

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Figure 6-4

Peak Hour Turning Movement Volumes - Preferred Plan Conditions (Intersections 1-19)

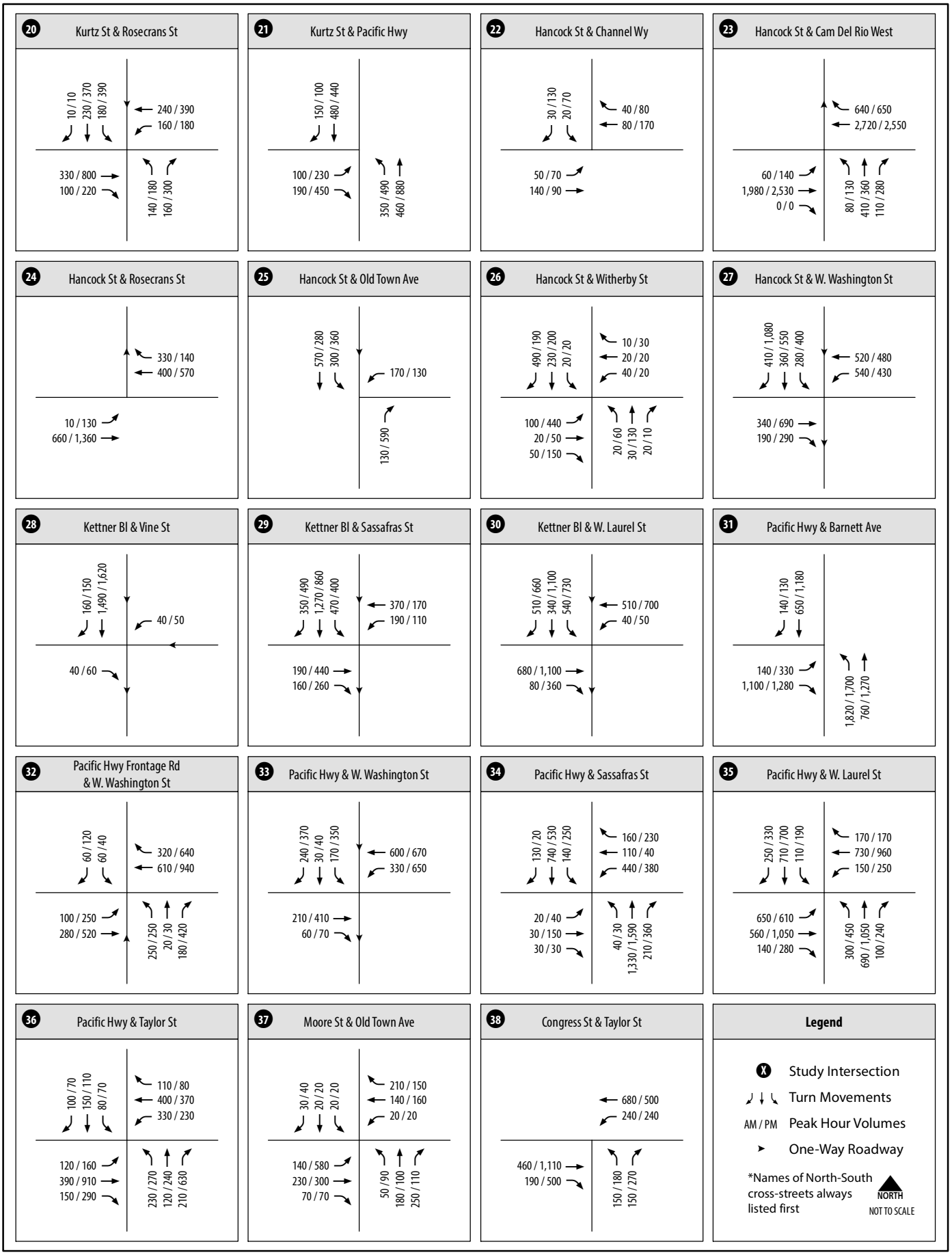

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Figure 6-4
Peak Hour Turning Movement Volumes - Preferred Plan Conditions (Intersections 20-38)

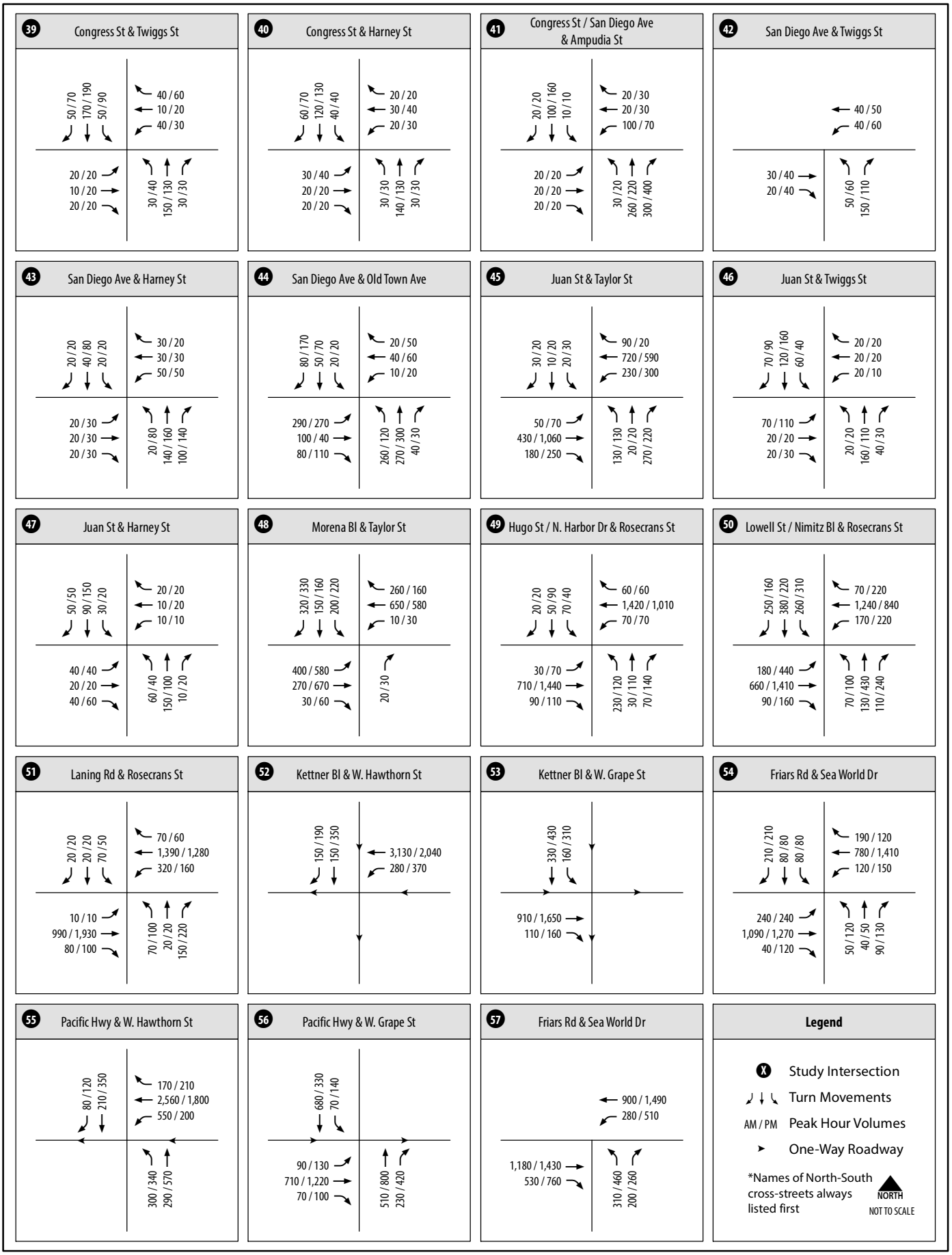

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Figure 6-4
Peak Hour Turning Movement Volumes - Preferred Plan Conditions (Intersections 39-57)

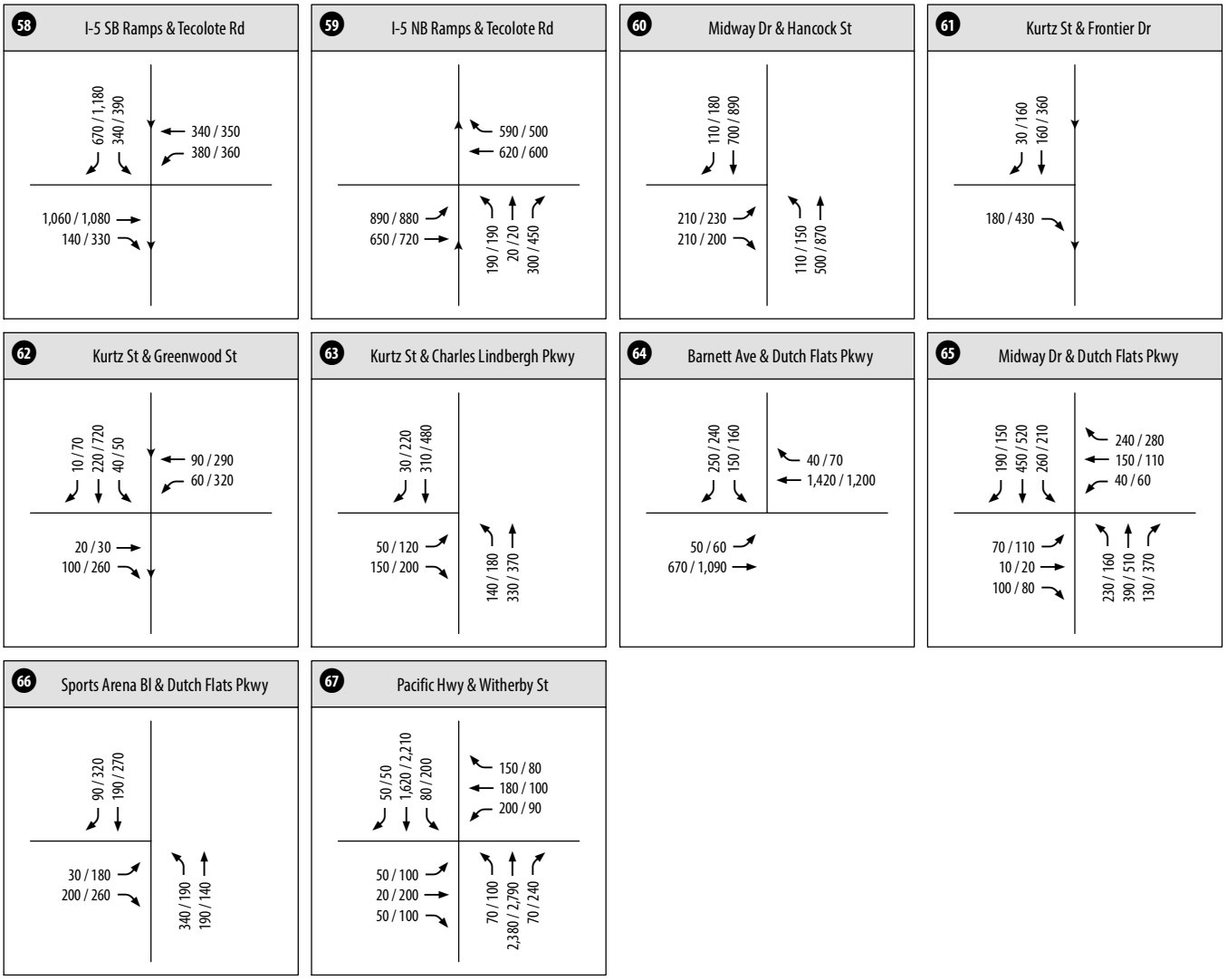

Figure 6-4
Peak Hour Turning Movement Volumes - Preferred Plan Conditions (Intersections 58-67)

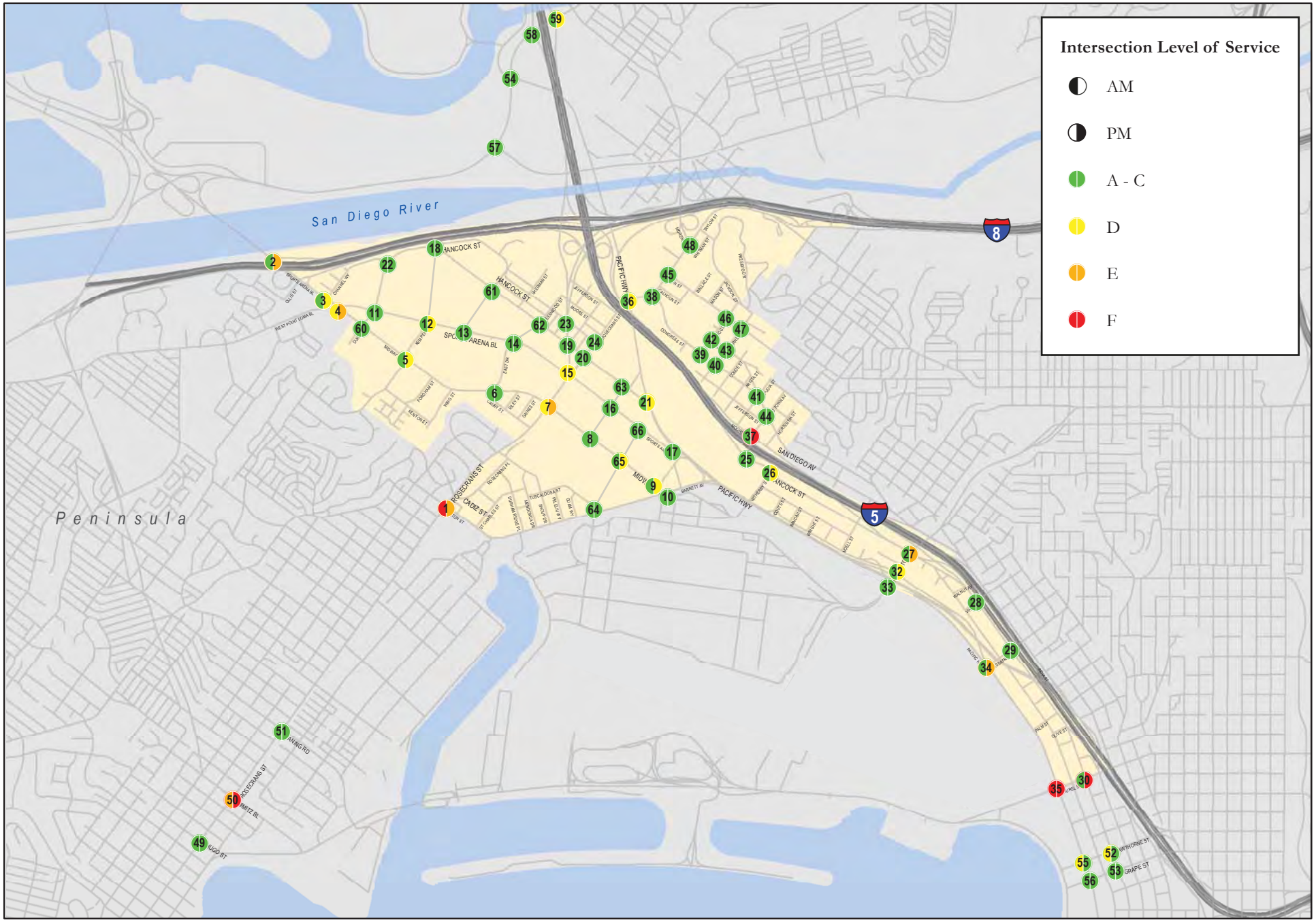

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Figure 6-5
Peak Hour Intersection LOS
Preferred Plan Conditions

Table 6.2 Peak Hour Intersection LOS and Delay Results – Preferred Plan Conditions

No.	Intersection	Control	AM			PM		
			Delay (Sec)	LOS	Existing LOS	Delay (Sec)	LOS	Existing LOS
Midway-Pacific Highway								
1	Lytton St and Rosecrans St	Signal	96.9	F	E	55.2	E	D
2	W Mission Bay Dr and I-8 WB Off-Ramp	Signal	15.4	B	B	70.2	E	E
3	Sports Arena Blvd and Channel Way	SSSC	12.3	B	B	30.6	D	B
4	Midway Dr and Sports Arena/W Point Loma Blvd	Signal	52.2	D	D	75.8	E	D
5	Midway Dr and Kemper St	Signal	31.6	C	C	39.1	D	D
6	Midway Dr and East Dr	Signal	7.0	A	A	17.8	B	B
7	Midway Dr and Rosecrans St	Signal	40.5	D	C	76.0	E	D
8	Midway Dr and Charles Lindbergh Pkwy	Signal	11.2	B	(1)	28.7	C	(1)
9	Midway Dr and Enterprise St	SSSC	13.4	B	B	26.5	D	C
10	Midway Dr and Barnett Ave	Signal	13.7	B	B	12.3	B	B
11	Sports Arena Blvd and Hancock St	Signal	14.4	B	A	17.4	B	B
12	Sports Arena Blvd and Kemper St	Signal	37.6	D	B	43.9	D	B
13	Sports Arena Blvd and Sports Arena Driveway	Signal	18.4	B	B	27.0	C	C
14	Sports Arena Blvd and East Dr	Signal	7.8	A	C	25.6	C	B
15	Sports Arena Blvd and Rosecrans St	Signal	37.6	D	D	53.5	D	D
16	Sports Arena Blvd and Charles Lindbergh Pkwy	Signal	13.9	B	(1)	17.8	B	(1)
17	Sports Arena Blvd and Pacific Hwy	Signal	25.8	C	B	17.9	B	B
18	Kurtz St and Hancock St	Signal	12.3	B	(2)	12.0	B	(2)
19	Kurtz St and Camino Del Rio West	Signal	26.6	C	A	43.5	D	C
20	Kurtz St and Rosecrans St	Signal	29.8	C	B	37.0	D	C
21	Kurtz St and Pacific Hwy	Signal	31.0	C	B	48.3	D	B
22	Hancock St and Channel Wy	SSSC	10.0	B	A	12.9	B	B
23	Hancock St and Camino Del Rio West	Signal	35.3	D	C	39.5	D	C
24	Hancock St and Rosecrans St	*No Conflicting Movements*						
25	Hancock St and Old Town Ave	AWSC	24.8	C	C	20.9	C	B
26	Hancock St and Witherby St	AWSC	13.9	B	C	34.9	D	C
27	Hancock St and Washington St	Signal	23.1	C	C	77.8	E	C
28	Kettner Blvd and Vine St	SSSC	16.5	C	B	19.9	C	C
29	Kettner Blvd and Sassafras St	Signal	15.0	B	B	15.3	B	B
30	Kettner Blvd and West Laurel St	Signal	19.3	B	B	96.5	F	C
31	Pacific Hwy and Barnett Ave	*No Conflicting Movements*						
32	Pacific Hwy and Washington St @ Frontage Rd	Signal	20.4	C	B	47.5	D	D
33	Pacific Hwy and Washington St	Signal	20.5	C	B	27.7	C	C

Table 6.2 Peak Hour Intersection LOS and Delay Results – Preferred Plan Conditions

No.	Intersection	Control	AM			PM		
			Delay (Sec)	LOS	Existing LOS	Delay (Sec)	LOS	Existing LOS
34	Pacific Hwy and Sassafras St	Signal	32.9	C	B	75.9	E	C
35	Pacific Hwy and West Laurel St	Signal	91.3	F	D	141.3	F	D
Old Town								
36	Pacific Hwy and Taylor St	Signal	31.1	C	E	51.2	D	C
37	Moore St and Old Town Ave	Signal	23.2	C	B	96.5	F	B
38	Congress St and Taylor St	Signal	13.8	B	B	19.2	B	C
39	Congress St and Twiggs St	AWSC	9.7	A	A	10.8	B	A
40	Congress St and Harney St	AWSC	9.1	A	A	9.4	A	A
41	Congress St and San Diego Ave/Ampudia St	SSSC	16.7	C	B	15.8	C	B
42	San Diego Ave and Twiggs St	AWSC	8.0	A	A	8.1	A	A
43	San Diego Ave and Harney St	AWSC	9.0	A	A	10.8	B	A
44	San Diego Ave and Old Town Ave	Signal	17.4	B	B	13.7	B	B
45	Juan St and Taylor St	Signal	14.6	B	B	18.6	B	B
46	Juan St and Twiggs St	AWSC	9.7	A	A	10.1	B	A
47	Juan St and Harney St	AWSC	9.0	A	A	8.9	A	A
48	Morena Blvd and Taylor St	Signal	21.9	C	C	24.8	C	B
Intersections Outside of Study Communities								
49	Hugo St/N. Harbor Dr and Rosecrans St	Signal	29.0	C	B	31.6	C	C
50	Lowell St/Nimitz Blvd and Rosecrans St	Signal	60.4	E	D	111.6	F	E
51	Laning Rd and Rosecrans St	Signal	25.5	C	B	23.2	C	B
52	Kettner Blvd and West Hawthorn St	Signal	34.7	C	B	13.3	B	B
53	Kettner Blvd and West Grape St	Signal	10.1	B	A	9.4	A	A
54	Pacific Hwy and Sea World Dr	Signal	24.0	C	B	34.1	C	C
55	Pacific Hwy and West Hawthorn St	Signal	34.4	C	D	31.7	C	C
56	Pacific Hwy and West Grape St	Signal	17.9	B	B	31.4	C	C
57	Friars Rd and Sea World Dr	Signal	15.4	B	B	26.0	C	B
58	I-5 SB Ramps and Sea World Dr	Signal	17.8	B	B	20.0	C	E
59	I-5 NB Ramps and Sea World Dr	Signal	29.3	C	C	43.3	D	C
New Intersections (Midway-Pacific Highway Community)								
60	Midway Dr & Duke Street / Hancock St	Signal	27.0	C	(1)	32.1	C	(1)
61	Kurtz St & Frontier Dr	SSSC	9.9	A	(1)	19.0	C	(1)
62	Kurtz St & Greenwood St	Signal	11.9	B	(1)	16.9	B	(1)
63	Kurtz St & Charles Lindbergh Pkwy	Signal	8.3	A	(1)	22.1	C	(1)
64	Barnett Ave & Dutch Flats Pkwy	Signal	24.6	C	(1)	14.5	B	(1)

Table 6.2 Peak Hour Intersection LOS and Delay Results – Preferred Plan Conditions

No.	Intersection	Control	AM Delay (Sec)	AM LOS	AM Existing LOS	PM Delay (Sec)	PM LOS	PM Existing LOS
65	Midway Dr & Dutch Flats Pkwy	Signal	48.5	D	(1)	53.7	D	(1)
66	Dutch Flats Pkwy & Sports Arena Bl	Signal	10.9	B	(1)	21.5	C	(1)

Source: Chen Ryan Associates (May 2017)

Notes:
Bold letter indicates LOS E or F.
[1] Significant Impact
[2] Single Side Stop Controlled
[3] All Way Stop Controlled

The following mitigation measures were identified for the two communities:

Midway-Pacific Highway Community

1. *Lytton Street and Rosecrans Street (LOS F: AM Peak Hour and LOS E PM Peak Hour)* – The westbound through movement, as well as the southbound left-turn and through movements are projected to be over capacity, under implementation of the Preferred Plan. Implementing the following improvements would allow the intersection to operate at LOS D or better during both peak hours.

    - Add a second southbound left-turn lane
    - Add an additional westbound through movement lane on Rosecrans Street (three total)
    - Implement right-turn overlap (RTOL) phases at all legs of the intersection

    The identified significant traffic related impact to this intersection would be fully mitigated with the implementation of this improvement.

    Partial Mitigation: If the second southbound left-turn and RTOL phase are implemented (feasible improvements) the overall intersection delay would be reduced to the following:

    AM: LOS E
    PM: LOS D

    Implementation of this improvement will partially mitigate the traffic related impact at the intersection.

2. *Sports Arena Boulevard / West Mission Bay and I-8 WB Off-Ramp (LOS E: PM Peak Hour)* – The westbound right-turn movement at this intersection is projected to be over capacity during the PM peak hour, under the implementation of the Preferred Plan. Providing a third exclusive westbound right-turn lane or converting the movement to free-right-turn movement would improve the intersection operations to LOS D. The identified significant traffic related impact to this intersection would be fully mitigated with the implementation of this improvement.

Partial Mitigation: None recommended.

4. *Midway Drive / West Point Loma Drive and Sports Arena Boulevard (LOS E: PM Peak Hour)* – All four left-turn movements at this intersection are projected to be over capacity during the PM Peak Hour. Providing dual-left turn lanes in the northbound, southbound and eastbound directions would improve intersection operations to LOS D during the PM peak hour. The identified significant traffic related impact to this intersection would be fully mitigated with the implementation of this improvement.

   Partial Mitigation: None recommended.

7. *Midway Drive and Rosecrans Street* (LOS E: PM Peak Hour) – Rosecrans Street is projected to operate at LOS E during the PM peak hours, under implementation of the Preferred Plan. Widening the eastbound and westbound approaches of the intersection to include a fourth through lane would improve the intersection operations to LOS D. The identified significant traffic related impact to this intersection would be fully mitigated with the implementation of this improvement.

   Partial Mitigation: None recommended, limited to no right-of-way is anticipated to be available with proposed Multi-Use Urban Path improvements.

27. *Hancock Street and Washington Street (LOS E: PM Peak Hour)* – The southbound right-turn movement of the intersection is projected to be over capacity during the PM peak hour, under the implementation of the Preferred Plan. Restriping the southbound approach to include a second southbound right-turn lane would allow the intersection to operate at LOS C during the PM Peak Hour. This improvement is feasible but may require additional engineering study. The identified significant traffic related impact to this intersection would be fully mitigated with the implementation of this improvement.

    Partial Mitigation: None recommended.

30. *Kettner Boulevard and Laurel Street (LOS F: PM Peak Hour)* – The eastbound through movement at the intersection is projected to be over capacity during the PM peak hour, under implementation of the Preferred Plan. Widening the eastbound approach of the intersection to include a third through lane would improve the intersection operations to LOS D. The identified significant traffic related impact to this intersection would be fully mitigated with the implementation of this improvement.

    Partial Mitigation: None recommended.

34. *Pacific Highway and Sassafras Street (LOS E: PM Peak Hour)* – The southbound left-turn movement of the intersection is projected to be over capacity during the PM peak hour, under the implementation of the Preferred Plan. Adding a second southbound left-turn lane would allow the intersection to operate at LOS D during the PM peak hour. The

identified significant traffic related impact to this intersection would be fully mitigated with the implementation of this improvement.

Partial Mitigation: None recommended.

35. *Pacific Highway and Laurel Street (LOS F: AM and PM Peak Hours)* – Laurel Street is projected to be over capacity during both peak hours, under implementation of the Preferred Plan. Widening the eastbound, westbound and northbound approaches of the intersection to include a third through lane and a second eastbound left-turn lane, as well as a second northbound left-turn lane and exclusive right-turn lane would improve the intersection operations to LOS D. The identified significant traffic related impact to this intersection would be fully mitigated with the implementation of this improvement.

    Partial Mitigation: None recommended.

Old Town Community

37. *Moore Street and Old Town Street (LOS F: PM Peak Hour)* – The eastbound and westbound movements of the intersection are projected to be over capacity during the PM peak hour, under implementation of the Preferred Plan. Implementation of the following improvements would allow the intersection to operate at LOS D during the PM peak hour.

    - Implement exclusive eastbound and westbound left-turn lanes.
    - Convert the eastbound/westbound signal phasing from permitted to protected phasing.

    The identified significant traffic related impact to this intersection would be fully mitigated with the implementation of this improvement.

    Partial Mitigation: None recommended.

Outside of the Community

50. *Nimitz Boulevard / Lowell Street and Rosecrans Street (LOS E: AM Peak Hour and LOS F: PM Peak Hour*) – Both the southbound through movement and eastbound left-turn movement are anticipated to be over capacity during both peak hours, under implementation of Preferred Plan. Widening the northbound and southbound approaches of the intersection to include a third through lane and a second southbound left-turn lane would improve the intersection operations to LOS D or better during both the AM and PM peak hours. Implementation of the following improvements would allow the intersection to operate at LOS D or better during both the AM and PM peak hours.

    The identified significant traffic related impact to this intersection would be fully mitigated with the implementation of this improvement.

    Partial Mitigation: None recommended.

6.1.3 Intersection Queuing Analysis

A queuing analysis was conducted under Preferred Plan conditions, at each of the study intersections to assess potential overflowing issues at exclusive turn-lanes and closely spaced intersections. Closely spaced intersections include all ramp intersections and intersections within close proximity (less than 500 feet) to one another. The limitations in turn-lane storage capacity could result in turning vehicles overflow into adjacent lanes, while excessive queuing (queue length exceeds distance to upstream intersection) at closely spaced intersection could negatively affect the operations of the upstream intersection. When either situation occurs, traffic operations could deteriorate, resulting in additional levels of congestion.

Table 6.3 displays the average (50th percentile) and maximum (95th percentile) queue lengths at closely spaced intersections (500 feet apart), for relevant movements. Synchro intersection queuing reports are provided in Appendix E following the intersection LOS worksheets.

Table 6.3 Queue Lengths at Closely Spaced Intersections – Preferred Plan Conditions

#	Impacted Intersection	Peak Hour	Upstream Intersection	Spacing (Feet)	Turning Movement	95th% Queue Length (Feet)	50th% Queue Length (Feet)
7	Midway Dr and Rosecrans St	AM	15. Sports Arena Blvd and Rosecrans St	665	EBT	315	268
		PM				798	719
15	Sports Arena Blvd and Rosecrans St	AM	19. Kurtz St and Camino Del Rio West	380	EBT	594	526
		PM				910	823
19	Kurtz St and Camino Del Rio West	AM	23. Hancock St and Camino Del Rio West	315	NET	308	245
		PM				491	405
20	Kurtz St and Rosecrans St	AM	15. Sports Arena Blvd and Rosecrans St	310	WBT	700	565
		PM				912	815
N/A	I-5 SB Off-Ramp and Camino Del Rio West	AM	23. Hancock St and Camino Del Rio West	490	WBT	1,246	1,166
		PM				1,218	1,141

Source: Chen Ryan Associates (May 2017)

Midway-Pacific Highway Community

As shown, the maximum (95th percentile) and average (50th percentile) queue lengths at all closely spaced intersections are anticipated to exceed the spacing between intersections under implementation of Preferred Plan conditions. Queuing spillovers could degrade traffic operations at the upstream intersections.

Old Town

There are no signalized intersections within 500 feet of each other within the Old Town Community.

Table 6.4 displays the average (50th percentile) and maximum (95th percentile) queue lengths for intersection movements where the maximum peak hour queue length is projected to exceed the current storage length under Preferred Plan conditions. Synchro intersection queuing reports are provided in Appendix E following the intersection LOS worksheets.

Table 6.4 Queue Lengths at Closely Spaced Intersections – Preferred Plan Conditions

No.	Intersection	Movement	Peak	95th % Queue Length (Feet)	50th % Queue Length (Feet)	Pocket Length (Feet)	Excess 95th % Queue (Feet)	Excess 50th % Queue (feet)
Midway-Pacific Highway								
1	Lytton St and Rosecrans St	EBL	AM	166	66	105	61	0
			PM	223	98	105	118	0
		NBL	AM	309	215	230	79	0
			PM	384	267	230	154	37
		SBL	AM	976	741	185	791	556
			PM	551	350	185	366	165
4	Midway Dr and Sports Arena/W Point Loma Blvd	EBL	AM	781	381	380	401	1
			PM	694	479	380	314	99
		NBL	AM	259	140	230	29	0
			PM	823	595	230	593	365
5	Midway Dr and Kemper St	EBL	AM	127	93	100	27	0
			PM	196	146	100	96	46
7	Midway Dr and Rosecrans St	WBL	AM	241	146	340	0	0
			PM	436	317	340	96	0
		SBL	AM	164	87	90	74	0
			PM	299	189	90	209	99
		NBL	AM	198	88	190	8	0
			PM	472	291	190	282	101
		NBR	AM	93	42	190	0	0
			PM	405	278	190	215	88
12	Sports Arena Blvd and Kemper Street	EBL	AM	88	59	50	38	9
			PM	108	63	50	58	13
		NBL	AM	269	146	160	109	0
			PM	359	253	160	199	93
14	Sports Arena Blvd and East Drive	NBL	AM	47	26	130	0	0
			PM	165	132	130	35	2
15	Sports Arena Blvd and Rosecrans St	EBL	AM	131	78	220	0	0
			PM	248	169	220	28	0
		NBL	AM	298	148	130	168	18
			PM	385	215	130	255	85

Table 6.4 Queue Lengths at Closely Spaced Intersections – Preferred Plan Conditions

No.	Intersection	Movement	Peak	95th % Queue Length (Feet)	50th % Queue Length (Feet)	Pocket Length (Feet)	Excess 95th % Queue (Feet)	Excess 50th % Queue (feet)
19	Kurtz St and Camino Del Rio West	SBL	AM	397	300	210	187	90
			PM	1054	798	210	844	588
		WBL	AM	473	429	110	363	319
			PM	321	364	110	211	254
20	Kurtz St and Rosecrans St	NBL	AM	189	124	60	129	64
			PM	220	109	60	160	49
		WBL	AM	130	64	85	45	0
			PM	193	62	85	108	0
23	Hancock St and Camino Del Rio West	WBR	AM	518	334	140	378	194
			PM	678	463	140	538	323
		EBL	AM	57	44	110	0	0
			PM	124	132	110	14	22
27	Hancock St and Washington St	WBL	AM	229	140	140	89	0
			PM	312	205	140	172	65
		SBR	AM	146	58	270	0	0
			PM	1329	1065	270	1059	795
29	Kettner Blvd and Sassafras Street	SBL	AM	214	130	80	134	50
			PM	199	120	80	119	40
34	Pacific Highway and Sassafras Street	WBL	AM	453	256	100	353	156
			PM	570	372	100	470	272
		SBL	AM	184	85	250	0	0
			PM	411	239	250	161	0
35	Pacific Hwy and West Laurel St	EBL	AM	987	749	375	612	374
			PM	1124	878	375	749	503
		WBL	AM	209	134	70	139	64
			PM	470	281	70	400	211
		NBL	AM	533	344	90	443	254
			PM	870	645	90	780	555
		SBL	AM	225	102	250	0	0
			PM	483	312	250	233	62
Old Town								
36	Pacific Hwy and Taylor St	EBL	AM	172	64	150	22	0
			PM	245	95	150	95	0
		WBL	AM	221	93	160	61	0
			PM	140	69	160	0	0

Table 6.4 Queue Lengths at Closely Spaced Intersections – Preferred Plan Conditions

No.	Intersection	Movement	Peak	95th % Queue Length (Feet)	50th % Queue Length (Feet)	Pocket Length (Feet)	Excess 95th % Queue (Feet)	Excess 50th % Queue (feet)
36	Pacific Hwy and Taylor St	NBL	AM	168	65	100	68	0
			PM	201	85	100	101	0
		NBR	AM	43	0	200	0	0
			PM	578	357	200	378	157
38	Congress St and Taylor St	WBL	AM	246	81	100	146	0
			PM	254	101	100	154	1
44	San Diego Avenue and Old Town Street	NBL	AM	166	66	75	91	0
			PM	81	23	75	6	0
45	Juan Street and Taylor Street	WBL	AM	105	42	95	10	0
			PM	203	66	95	108	0
48	Morena Blvd and Taylor St	EBL	AM	186	86	180	6	0
			PM	282	130	180	102	0
Intersections Outside of Study Communities								
49	Hugo St and Rosecrans St	NBL	AM	294	183	115	179	68
			PM	188	119	115	73	4
50	Nimitz Blvd and Rosecrans St	EBL	AM	345	173	300	45	0
			PM	787	547	300	487	247
		WBL	AM	194	118	300	0	0
			PM	466	277	300	166	0
		NBL	AM	110	57	75	35	0
			PM	168	101	75	93	26
		SBL	AM	421	246	285	136	0
			PM	583	385	285	298	100
54	Pacific Highway and Seaworld Drive	WBL	AM	185	58	170	15	0
			PM	241	87	170	71	0
		NBL	AM	81	24	150	0	0
			PM	210	70	150	60	0
56	Pacific Highway and Grape St	SBL	AM	75	34	130	0	0
			PM	139	79	130	9	0
57	Friars Road and Seaworld Dr	EBR	AM	101	62	180	0	0
			PM	340	216	180	160	36
		WBL	AM	151	61	205	0	0
			PM	301	167	205	96	0
		NBL	AM	101	66	150	0	0
			PM	185	135	150	35	0

Table 6.4 Queue Lengths at Closely Spaced Intersections – Preferred Plan Conditions

No.	Intersection	Movement	Peak	95th % Queue Length (Feet)	50th % Queue Length (Feet)	Pocket Length (Feet)	Excess 95th % Queue (Feet)	Excess 50th % Queue (feet)
58	I-5 SB Ramps and Tecolote Road	WBL	AM	144	82	120	24	0
			PM	132	89	120	12	0
59	I-5 NB Ramps and Tecolote Road	EBL	AM	350	236	170	180	66
			PM	308	221	170	138	51

Source: Chen Ryan Associates (May 2017)

Midway-Pacific Highway Community

As shown, under implementation of the Preferred Plan, 29 different movements within the Midway-Pacific Highway Community are projected to have queue lengths exceeding their storage capacity at the most congested point of the peak hour (95th Percentile). The spillovers could degrade traffic operations within the intersection or adjacent closely spaced, upstream intersections for approximately one to two cycles during the peak hour. However, only 25 movements are anticipated to have queues that exceed their storage capacity on an average during either peak hour (50th Percentile).

Old Town

As shown, under implementation of the Preferred Plan, 8 different movements within the Old Town Community are projected to have queue lengths exceeding their storage capacity at the most congested point of the peak hour (95th Percentile). The spillovers could degrade traffic operations within the intersection or adjacent closely spaced, upstream intersections for approximately one to two cycles during the peak hour. However, only 2 movements are anticipated to have queues that exceed their storage capacity on an average during either peak hour (50th Percentile).

Other Communities

As shown, under implementation of the Preferred Plan, 13 different movements within other communities are projected to have queue lengths that exceed their storage capacity at the most congested point of the peak hour (95th Percentile). The spillovers could degrade traffic operations within the intersection or adjacent closely spaced, upstream intersections for approximately one to two cycles during the peak hour. However, only 6 movements are anticipated to have queues that exceed their storage capacity on an average during either peak hour (50th Percentile).

6.1.4 Freeway Segments and LOS Analysis

Neither the Revenue Constrained Alternative of SANDAG's *San Diego Forward Plan* (October 2015) nor the Preferred Plan include freeway improvements, as noted in Sections 3.2.2 and 4.2.2. Table 6.5 displays the freeway segment LOS in the vicinity of the Midway-Pacific Highway and Old Town communities. Forecast freeway volumes were obtained from the modeling process described in Section 5.0.

Table 6.5 Freeway Segment LOS Results – Preferred Plan Conditions

								AM					PM				
Freeway	To	From	Dir	Daily Volume	HVF	Lanes	Aux	K	D	Peak Volume	V/C	LOS	K	D	Peak Volume	V/C	LOS
I-8	Beginning of Freeway	Sports Arena Boulevard	EB	61,200	1.2%	2	0	6.3%	61%	2,600	0.55	B	8.6%	71%	3,100	0.66	C
			WB			2	0		39%	1,700	0.36	A		29%	2,800	0.60	B
	Sports Arena Boulevard	I-5	EB	122,400	2.8%	3	1	6.4%	61%	5,400	0.64	C	7.8%	62%	5,500	0.65	C
			WB			3	1		39%	3,500	0.41	B		38%	5,400	0.64	C
	I-5	Morena Boulevard	EB	183,300	2.8%	4	1	6.4%	42%	5,500	0.51	B	7.2%	50%	6,600	0.61	B
			WB			5	0		58%	7,700	0.66	C		50%	8,300	0.71	C
	Morena Boulevard	Hotel Circle	EB	217,200	2.8%	4	1	6.5%	47%	7,600	0.70	C	8.2%	55%	11,000	1.02	F
			WB			5	0		53%	8,400	0.71	C		45%	9,000	0.77	C
I-5	Clairemont Drive	Sea World Drive	NB	241,500	4.5%	5	0	6.4%	61%	11,000	0.94	E	8.3%	51%	11,700	1.00	E
			SB			5	0		39%	6,900	0.59	B		49%	11,300	0.96	E
	Sea World Drive	I-8	NB	231,800	4.5%	4	1	6.4%	62%	10,500	0.97	E	8.4%	52%	11,600	1.07	F
			SB			4	2		38%	6,400	0.52	B		48%	10,700	0.88	D
	I-8	Old Town Avenue	NB	243,000	4.1%	4	1	6.9%	49%	9,400	0.87	D	8.2%	39%	8,900	0.82	D
			SB			5	0		51%	9,700	0.83	D		61%	13,900	1.18	F
	Old Town Avenue	Washington Avenue	NB	227,800	4.1%	4	0	6.9%	49%	8,800	0.94	E	8.0%	51%	10,700	1.14	F
			SB			5	0		51%	9,300	0.79	D		49%	10,200	0.87	D
	Washington Avenue	Pacific Highway	NB	171,500	4.1%	4	0	6.9%	53%	7,100	0.76	C	8.1%	36%	5,700	0.61	B
			SB			4	0		47%	6,400	0.68	C		64%	10,200	1.09	F
	Pacific Highway	Laurel Street	NB	216,500	4.1%	4	1	6.8%	57%	9,600	0.89	D	7.1%	50%	8,400	0.78	C
			SB			4	1		43%	7,200	0.67	C		50%	9,300	0.86	D
	Laurel Street	Hawthorne Avenue	NB	222,200	4.1%	4	1	6.9%	57%	9,900	0.92	D	7.3%	47%	8,300	0.77	C
			SB			4	1		43%	7,600	0.70	C		53%	10,400	0.96	E

Source: Chen Ryan Associates (May 2017)

Note:
Bold letter indicates LOS E or F

As shown, all mainline freeway segments are projected to operate at LOS D or better under Preferred Plan conditions, with the exception of the following:

- I-8 EB, between Morena Boulevard and Hotel Circle Drive (LOS F: PM Peak Hour)
- I-5 NB, between Clairemont Drive and Sea World Drive (LOS E: AM & PM Peak Hours)
- I-5 SB, between Clairemont Drive and Sea World Drive (LOS E: PM Peak Hour)
- I-5 NB, between Sea World Drive and I-8 (LOS E: AM Peak Hour, LOS F PM Peak Hour)
- I-5 SB, between I-8 and Old Town Avenue (LOS F: PM Peak Hour)
- I-5 NB, between Old Town Avenue and Washington Avenue (LOS E: AM Peak Hour and LOS F: PM Peak Hour)
- I-5 SB, between Washington Avenue and Pacific Highway (LOS F: PM Peak Hour)
- I-5 SB, between Laurel Street and Hawthorne Avenue (LOS E: PM Peak Hour)

6.1.5 Meter Analysis

Table 6.6 summarizes the freeway ramp metering analysis results under implementation of the Preferred Plan for all ramp meter locations within both study communities. The volumes were derived using the outputs for the modeling described in Section 5.0. Existing ramp meter flow rates were assumed under Preferred Plan conditions.

Table 6.6 Freeway Ramp Metering Analysis – Preferred Plan Conditions

Ramp	Peak	Lanes		Flow Rate	Volume	Excess Demand	Delay (Minutes)	Queue (Feet)
		SOV	HOV					
I-8 EB / Sports Arena Boulevard	PM	2	1	641	920	279	26.1	8,091
I-5 SB / Sea World Drive	AM	1	1	444	530	86	11.6	2,494
	PM	1	1	444	670	226	30.5	6,554
I-5 NB / Sea World Drive	AM	2	0	1,555	1,530	0	0.0	0
	PM	2	0	1,656	1,250	0	0.0	0
I-5 SB / Old Town Avenue	PM	1	0	461	410	0	0.0	0
I-5 NB / Old Town Avenue	AM	2	0	905	370	0	0.0	0
	PM	2	0	888	690	0	0.0	0

Source: Chen Ryan Associates (May 2017)

Notes:
SOV = Single Occupancy Vehicle; HOV = High Occupancy Vehicle.
[1] Demand is the peak hour demand expected to use the on-ramp.
[2] Meter Rate is the peak hour capacity expected to be processed through the ramp meter. This value was obtained from Caltrans.
[3] Excess Demand = (Demand) – (Meter Rate) or zero, whichever is greater.
[4] Delay = (Excess Demand / Meter Rate) X 60 min/hr.
[5] Queue = (Excess Demand) X 29 ft/veh.

As shown in the table, the anticipated peak hour demand is not anticipated to exceed the anticipated meter rate at any of the study ramp meter locations creating a delay of 15 minutes[1], with the exception of the following:

- I-8 EB / Sports Arena Boulevard during the PM peak hour (26.1 minutes)
- I-5 SB / Sea World Drive during the PM peak hour (30.5 minutes)

6.2 Intelligent Transportation Systems (ITS)

The implementation of Intelligent Transportation Systems (ITS) can provide many benefits to the local roadway network, including improving roadway traffic operations, improving transit operations, relaying valuable traffic-related information and providing guidance to drivers (e.g. locations of available parking, traffic congestion points, and the location of accidents). Coordinated traffic signals and transit signal priority treatments are examples of ITS programs that can help improve both transit and roadway operations.

The City of San Diego should investigate the feasibility of the following ITS improvements within the Midway-Pacific Highway and Old Town communities:

- Expand signal coordination along major roadway corridors including Rosecrans Street, Taylor Street, Midway Drive, Sports Arena Boulevard, Pacific Highway, Kettner Street and San Diego Avenue.
- Regularly update the timing of traffic signals to reflect shifting travel patterns
- Use traffic responsive or adaptive traffic control in areas with variable traffic patterns
- Implement transit signal priority treatments at signalized intersections serving rapid bus routes
- Use variable message signs to direct motorists to available parking and to alert them of street closures.

The recommendations identified above are consistent with the goals of the future traffic signal communications network elements identified in the City of San Diego *Traffic Signal Communication Master Plan* (2014).

6.3 Transportation Demand Management (TDM) Strategies

The goal of the City's Transportation Demand Management (TDM) program is to improve mobility, reduce congestion and air pollution, and provide options for employees and residents to commute to/ from work. Typical TDM strategies include promoting the following:

- Teleworking
- Alternative Work Schedules
- Transit
- Mixed-Use Development

[1] The City of San Diego Traffic Impact Study Manual (July 1998) defines ramp meters with more than 15 minutes of delay as having a significant impact.

- Walking
- Bicycling
- Carpooling
- Vanpooling
- Shared Mobility Services (e.g., bikeshare, carshare, and on-demand ridesharing services)
- Other Transportation Options

TDM measures improve the efficiency of the transportation system by helping to reduce vehicle trips during peak periods of demand. The San Diego Association of Governments (SANDAG) has an established program (iCommute) that serves as the administrator for TDM programs throughout the region. iCommute provides the following services:

Ridematching Services – the iCommute TripPlanner tool allows users to compare multiple transportation choices in addition to finding vanpool and carpool matches.

Subsidized Vanpool Program – Through the SANDAG vanpool program, each qualified vanpool receives a $400 monthly subsidy when leased through SANDAG preferred vendors, Enterprise Rideshare and vRide. Vanpools range from 7 to 15 passenger vehicles where commuters share the ride to work and split the cost thereby saving money, wear and tear on their personal vehicles, as well as reducing Greenhouse Gas emissions.

Employer Services - The SANDAG iCommute program provides assistance and tools to help local San Diego organizations design and implement customized commuter programs that assist and support employees commute using alternative modes of transportation. The iCommute Diamond Awards recognizes employers with exemplary commute programs and mode-share.

Walk, Ride, and Roll to School – Part of the Safe Routes to School program, this service supports active transportation to and from K-12 schools including biking, walking, skating, skateboarding, or riding a scooter to help promote physical activity and healthier lifestyles for students.

Telework - Teleworking is a convenient solution that enables employees to work from home or a remote location one or more days per week. Telework has proven benefits to employees and employers such as reducing commute costs, lowering parking demand, and helping the environment.

Transit Information – Provides information about San Diego regional transit agencies in addition to Compass Card information.

Bike Parking Program– Provides secure bike parking spaces at more than sixty transit stops and some Park & Ride lots throughout San Diego County in addition to a Regional Bike Map, which has been updated to show bike paths, lanes and routes.

Guaranteed Ride Home – A free service that allows registered iCommute users getting to work by alternative modes to receive free emergency rides home in the cases of illness or unscheduled overtime. Commuters can use the service up to three times per year.

In addition to the iCommute program, Caltrans owns and/or maintains several Park & Ride lots throughout the region that are used to promote carpool and vanpool activity.

The City of San Diego's Land Development Code (LDC) requires new development to provide sufficient bicycle parking stalls, carpool parking, and motorcycle facilities to encourage the use of alternative modes of transportation. The City is early in the process of developing recommendations to amend the LDC requirements for pedestrian, bicycle, carpool, and commuter information facilities. The City's municipal code now allows for on-street carshare operations. Pricing strategies are also used to reduce demand on the transportation system.

6.4 Pedestrian Assessment and Results

This section presents an assessment of the pedestrian network under implementation of the Preferred Plan, which assumes the implementation of the pedestrian related improvements outlined in Sections 3.3.2 and 4.3.2. The City of San Diego Pedestrian Master Plan Phase I identifies the following six Pedestrian Route Typologies and the purpose they serve:

District Sidewalks – Sidewalks along roads that support heavy pedestrian levels in mixed-use concentrated urban areas.

Corridor Sidewalks – Sidewalks along roads that support moderate density business and shopping districts with moderate pedestrian level.

Connector Sidewalks – Sidewalks along roads that support institutional, industrial or business complexes with limited lateral access and low pedestrian levels.

Neighborhood Sidewalks – Sidewalks along roads that support low to moderate density housing with low to moderate pedestrian levels.

Ancillary pedestrian facilities – Facilities away or crossing over streets such as plazas, paseos, promenades, courtyards or pedestrian bridges and stairways.

Path – Walkways and paved paths that are not adjacent to roads that support recreational and transportation purposes.

The assumed Pedestrian Route Typologies within both communities is displayed in Figure 6-6.

The proposed pedestrian network under Preferred Plan conditions was assessed using the methodologies described in Section 2.3.1. The pedestrian network connectivity, quality and overall adequacy (combining both quality and connectivity) are discussed below.

6.4.1 Pedestrian Network Connectivity

Figure 6-7 displays the pedestrian network connectivity to/from pedestrian attracting land uses (residential, commercial, office and recreational uses) throughout both communities. This analysis calculates the percent of area accessible to pedestrians within a half mile walking distance from the respective land uses (connectivity ratio). A connectivity ratio of 50% or better is considered to be ideal.

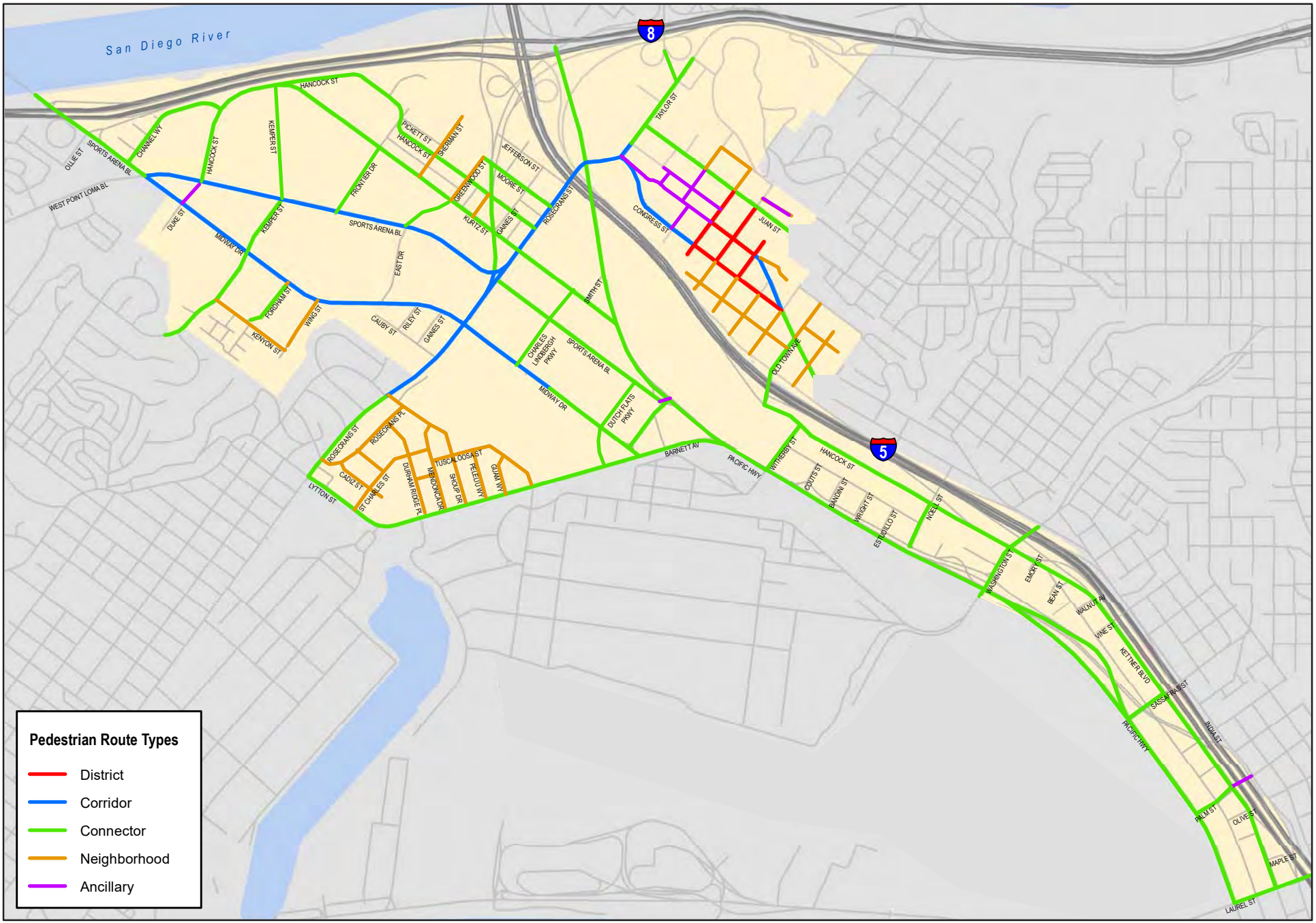

Figure 6-6
Pedestrian Route Typologies -
Preferred Plan Conditions

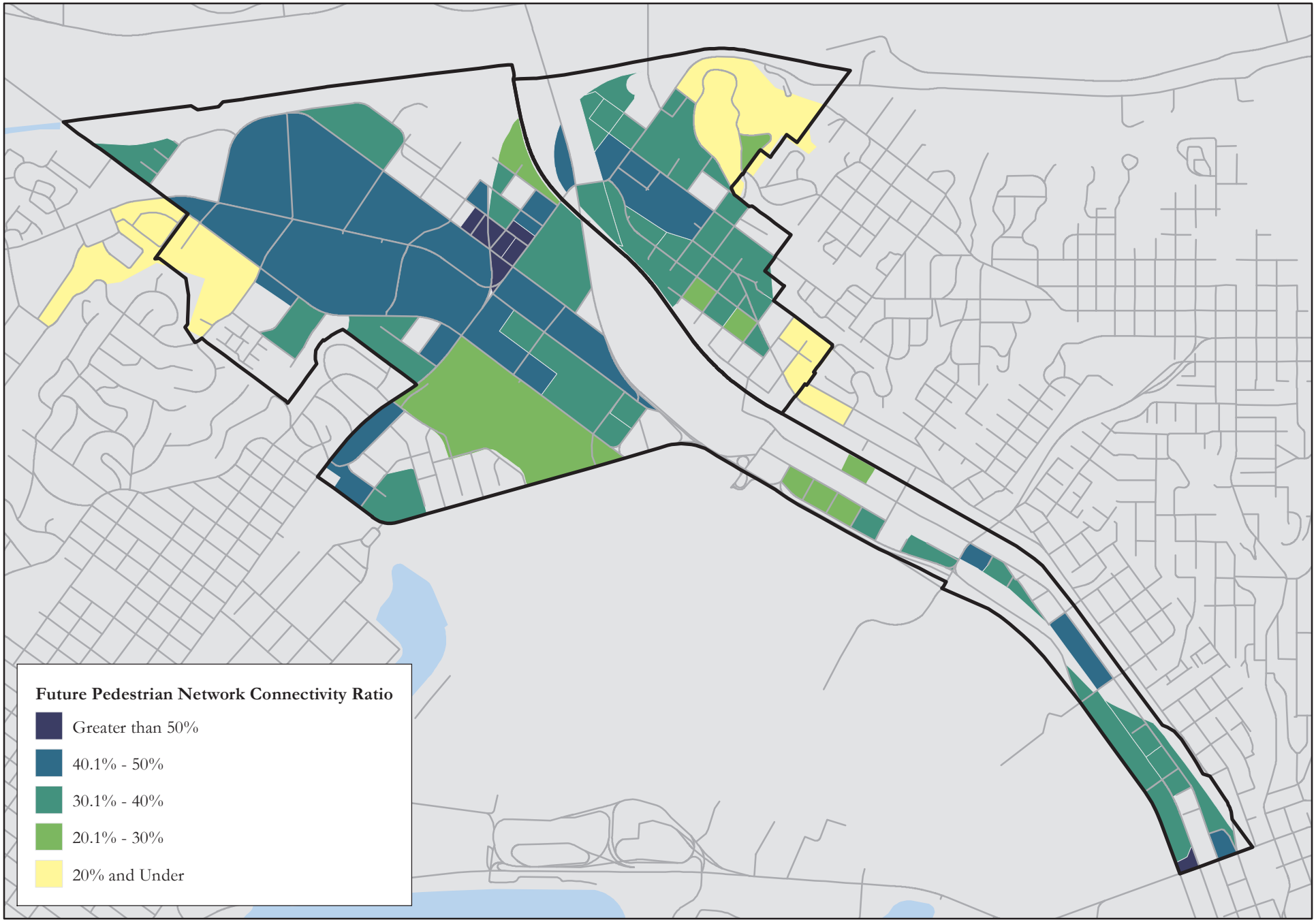

Figure 6-7
Pedestrian Network Connectivity -
Preferred Plan Conditions

Midway-Pacific Highway Community

As shown in the figure, pedestrian connectivity is at ideal levels (50%+ connectivity ratio) within the center of the community (in the area to the northeast of the intersection of Kurtz Street and Rosecrans Street, on either side of Camino Del Rio West. This is primarily due to the dense grid network present in this area. The lower connectivity ratio areas include the northwest area of the community west of Midway Drive and in the area west of Midway Drive and south of Rosecrans Street. The lower ratio is due to large, disconnected parking lots, superblocks, and private property with primary access points along Midway Drive.

Old Town Community

As shown in the figure, the Old Town Community generally has a good connectivity ratio between 40-50%, which is highest in the tourist areas around the Historic State Park and Transit Center Area, and gets lower toward the outskirts of the community. The lower connectivity ratio on the outskirts of the community is primarily due to the barriers created by the I-5 and I-8 freeways where pedestrian crossings are constrained.

6.4.2 Pedestrian Network Quality

Figure 6-8 and Tables 6.7A and 6.7B display the PEQE analysis results for roadways segments and intersections, along the major pedestrian corridors within the community. PEQE calculation worksheets are provided in Appendix F. As shown in the table, with the implementation of the proposed improvements, the pedestrian facilities along all major roadways within both communities have a Medium or High grade under implementation of the Preferred Plan with the exception of the following:

Midway-Pacific Highway Community

Kettner Boulevard between Vine Street and Sassafras Street – This segment has a score of Low due to the lack of pedestrian facilities on the west side of the roadway (where there are no fronting land uses) and high posted speed limit (40 mph). It should be noted that the east side of the roadway, where the fronting land uses are located, has a grade of Medium. Based on the results of the PEQE analysis, the pedestrian improvements proposed under the Preferred Plan would significantly improve the walkability and safety within Midway-Pacific Highway community from their current conditions.

Old Town Community

Taylor Street between Morena Boulevard and I-8 Ramps – This segment has a grade of Low due to the lack of pedestrian facilities. However, it should be noted that there are no fronting land uses on either side of this segment, nor does this segment connect to any activity centers to the east of the community. While the Old Town community is very walkable today, the improvements proposed under the Preferred Plan provide both access and safety upgrades throughout the community. Improvements such as ADA ramps, continental cross-walks and bulb outs (at key intersections) upgrade many of the intersections within the community from Low to Medium conditions.

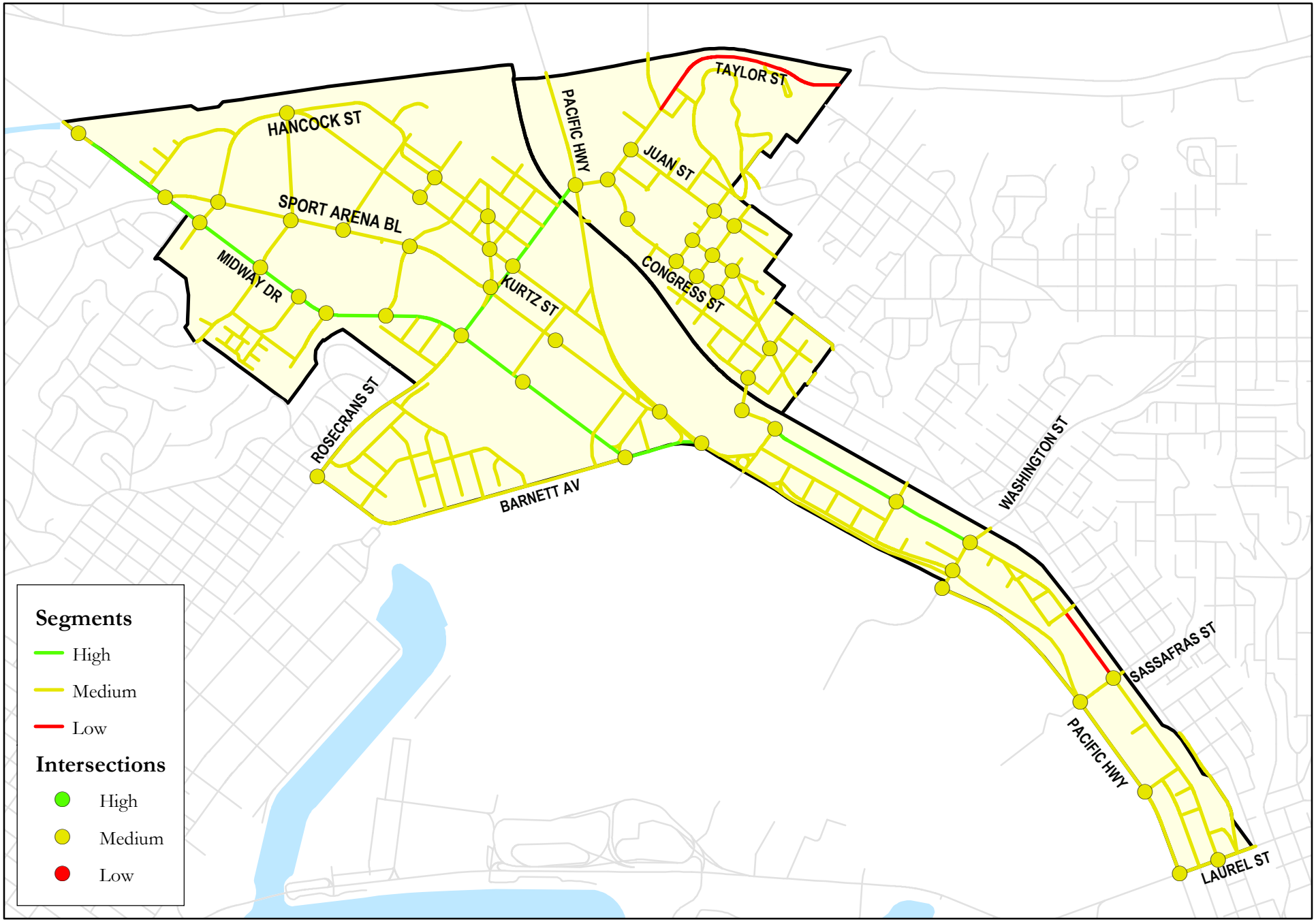

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Figure 6-8
PEQE Scoring
Preferred Plan Conditions

Table 6.7A PEQE Results: Roadway Segments – Preferred Plan Conditions

Roadway	To	From	Northside/ Eastside		Southside/ Westside		Total	
			Score	Grade	Score	Grade	Score	Grade
North-South								
Midway/Pacific Highway Corridor								
Lytton Street/ Barnett Avenue	Rosecrans St	Midway Dr	4	Medium	4	Medium	8	Medium
	Midway Dr	Pacific Hwy	7	High	7	High	14	High
W. Mission Bay Dr	I-8 WB Ramps	I-8 EB Ramps	4	Medium	4	Medium	8	Medium
Midway Dr	W. Point Loma Blvd/Sports Arena Blvd	Kemper St	7	High	7	High	14	High
	Kemper St	East Dr	7	High	7	High	14	High
	East Dr	Rosecrans St	7	High	7	High	14	High
	Rosecrans St	Barnett Ave	7	High	7	High	14	High
Sports Arena Blvd	I-8 EB Ramps	W. Point Loma Blvd/Sports Arena Blvd	6	Medium	7	High	13	High
	W. Point Loma Blvd/Midway Dr	Kemper St	5	Medium	5	Medium	10	Medium
	Kemper St	East Dr	5	Medium	5	Medium	10	Medium
	East Dr	Rosecrans St	5	Medium	5	Medium	10	Medium
	Rosecrans St	Pacific Hwy	6	Medium	5	Medium	11	Medium
Kurtz St	Hancock St	Rosecrans St	6	Medium	6	Medium	12	Medium
	Rosecrans St	Pacific Hwy	4	Medium	4	Medium	8	Medium
Hancock St	Sports Arena Blvd	Kurtz St	3	Low	6	Medium	9	Medium
	Kurtz St	Camino Del Rio West	4	Medium	6	Medium	10	Medium
	Camino Del Rio West	Rosecrans St	5	Medium	5	Medium	10	Medium
	Old Town Ave	Witherby St	4	Medium	4	Medium	8	Medium
	Witherby St	Washington St	6	Medium	7	High	13	High
Kettner Blvd	Washington St	Vine St	3	Low	5	Medium	8	Medium
	Vine St	Sassafras St	4	Medium	2	Low	6	Medium
	Sassafras St	Laurel St	5	Medium	5	Medium	10	Medium
Pacific Hwy	Sea World Dr	Taylor St	5	Medium	5	Medium	10	Medium
	Taylor St	Kurtz St	6	Medium	6	Medium	12	Medium
	Kurtz St	Sports Arena Blvd	6	Medium	6	Medium	12	Medium
	Sports Arena Blvd	Barnett Ave	6	Medium	6	Medium	12	Medium
	Barnett Ave	Harney Washington St	6	Medium	6	Medium	12	Medium
	Washington St	Sassafras St	6	Medium	6	Medium	12	Medium
	Sassafras St	Laurel St	6	Medium	6	Medium	12	Medium
Old Town								
Congress St	Taylor St	Twiggs St	6	Medium	6	Medium	12	Medium
	Twiggs St	Harney St	6	Medium	6	Medium	12	Medium
	Harney St	San Diego Ave/Ampudia St	6	Medium	6	Medium	12	Medium
San Diego Ave	Twiggs St	Harney St	6	Medium	6	Medium	12	Medium
	Harney St	Ampudia St	6	Medium	6	Medium	12	Medium

Table 6.7A PEQE Results: Roadway Segments – Preferred Plan Conditions

Roadway	To	From	Northside/ Eastside		Southside/ Westside		Total	
			Score	Grade	Score	Grade	Score	Grade
San Diego Ave	Ampudia St	Old Town Ave	6	Medium	6	Medium	12	Medium
	Old Town Ave	Hortensia St	6	Medium	6	Medium	12	Medium
Juan St	Taylor St	Twiggs St	6	Medium	6	Medium	12	Medium
	Twiggs St	Harney St	6	Medium	6	Medium	12	Medium
	Harney St	San Juan Rd	6	Medium	6	Medium	12	Medium
East-West								
Midway/Pacific Highway Corridor								
Channel Wy	W. Mission Bay Dr	Hancock St	6	Medium	6	Medium	12	Medium
Kemper St	Kenyon St	Midway Dr	6	Medium	5	Medium	11	Medium
	Midway Dr	Sports Arena Blvd	6	Medium	6	Medium	12	Medium
Camino Del Rio West	Rosecrans St	I-5/I-8 Ramps	4	Medium	4	Medium	8	Medium
Rosecrans St	Lytton St	Midway Dr	6	Medium	6	Medium	12	Medium
	Midway Dr	Sports Arena Blvd	7	High	7	High	14	High
	Sports Arena Blvd	Pacific Hwy/Taylor St	7	High	7	High	14	High
Washington St	Frontage Rd	Pacific St	5	Medium	5	Medium	10	Medium
	Pacific St	Hancock St	6	Medium	5	Medium	11	Medium
Vine St	California St	Kettner Blvd	7	High	5	Medium	12	Medium
Sassafras St	Pacific Hwy	Kettner Blvd	5	Medium	5	Medium	10	Medium
Laurel St	Pacific Hwy	Kettner Blvd	5	Medium	5	Medium	10	Medium
Old Town								
Taylor St	Pacific Hwy/ Rosecrans St	Congress St	4	Medium	4	Medium	8	Medium
	Congress St	Juan St	4	Medium	4	Medium	8	Medium
	Juan St	Morena Blvd	4	Medium	4	Medium	8	Medium
	Morena Blvd	I-8 EB Ramps	1	Low	1	Low	2	Low
Twiggs St	Congress St	San Diego Ave	5	Medium	5	Medium	10	Medium
	San Diego Ave	Juan St	6	Medium	6	Medium	12	Medium
Harney St	Congress St	San Diego Ave	6	Medium	6	Medium	12	Medium
	San Diego Ave	Juan St	6	Medium	5	Medium	11	Medium
Old Town Ave	Hancock St	Moore St	5	Medium	5	Medium	10	Medium
	Moore St	San Diego Ave	5	Medium	5	Medium	10	Medium

Source: Chen Ryan Associates (June 2016)

Table 6.7B PEQE Results: Intersections – Preferred Plan Conditions

#	Intersection	Score	Grade
Midway-Pacific Highway			
1	Lytton St and Rosecrans St	6	Medium
2	W Mission Bay Dr and I-8 WB Off-Ramp	6	Medium
3	W Mission Bay Dr and Channel Way	5	Medium
4	Midway Dr and Sports Arena/W Point Loma Blvd	6	Medium
5	Midway Dr and Kemper St	6	Medium
6	Midway Dr and East Dr	6	Medium
7	Midway Dr and Rosecrans St	6	Medium
8	Midway Dr and Charles Lindbergh Pkwy	6	Medium
9	Midway Dr and Enterprise St	5	Medium
10	Midway Dr and Barnett Ave	6	Medium
11	Sports Arena Blvd and Hancock St	6	Medium
12	Sports Arena Blvd and Kemper St	6	Medium
13	Sports Arena Blvd and Sports Arena Driveway	6	Medium
14	Sports Arena Blvd and East Dr	6	Medium
15	Sports Arena Blvd and Rosecrans St	6	Medium
16	Sports Arena Blvd and Charles Lindbergh Pkwy	6	Medium
17	Sports Arena Blvd and Pacific Hwy	6	Medium
18	Kurtz St and Hancock St	5	Medium
19	Kurtz St and Camino Del Rio West	6	Medium
20	Kurtz St and Rosecrans St	6	Medium
21	Kurtz St and Pacific Hwy	6	Medium
22	Hancock St and Channel Wy	5	Medium
23	Hancock St and Camino Del Rio West	6	Medium
24	Hancock St and Rosecrans St	5	Medium
25	Hancock St and Old Town Ave	5	Medium
26	Hancock St and Witherby St	5	Medium
27	Hancock St and Washington St	6	Medium
28	Kettner Blvd and Vine St	5	Medium
29	Kettner Blvd and Sassafras St	6	Medium
30	Kettner Blvd and West Laurel St	6	Medium
31	Pacific Hwy and Barnett Ave	6	Medium
32	Pacific Hwy and Washington St @ Frontage Rd	6	Medium
33	Pacific Hwy and Washington St @ Pacific St	6	Medium
34	Pacific Hwy and Sassafras St	6	Medium
35	Pacific Hwy and West Laurel St	6	Medium
Old Town			
36	Pacific Hwy and Taylor St	6	Medium
37	Moore St and Old Town Ave	6	Medium
38	Congress St and Taylor St	6	Medium

Table 6.7B PEQE Results: Intersections – Preferred Plan Conditions

#	Intersection	Score	Grade
39	Congress St and Twiggs St	5	Medium
40	Congress St and Harney St	5	Medium
41	Congress St and San Diego Ave/Ampudia St	5	Medium
42	San Diego Ave and Twiggs St	5	Medium
43	San Diego Ave and Harney St	5	Medium
44	San Diego Ave and Old Town Ave	6	Medium
45	Juan St and Taylor St	6	Medium
46	Juan St and Twiggs St	5	Medium
47	Juan St and Harney St	5	Medium
48	Morena Blvd and Taylor St	6	Medium
New Intersections			
61	Kurtz St & Frontier Dr	5	Medium
63	Kurtz St & Charles Lindbergh Pkwy	6	Medium
64	Barnett Ave & Dutch Flats Pkwy	6	Medium
65	Midway Dr & Dutch Flats Pkwy	6	Medium
66	Dutch Flats Pkwy & Sports Arena Bl	6	Medium

Source: Chen Ryan Associates (June 2016)

As shown, all study intersections within both communities are projected to have a Medium grade under implementation of the Preferred Plan.

6.4.3 Pedestrian Quality Network Coverage

Figure 6-9 displays the Pedestrian Quality Network Coverage at all study intersections across both communities. This analysis calculates the ratio of the length of quality pedestrian network facilities (PEQE score Medium or High) within a half-mile walk from an intersection, compared to the total network available (based on existing conditions).

Midway-Pacific Highway Community

As shown in the figure, under implementation of the Preferred Plan, the Pedestrian Quality Network Coverage increases to over 75% at all study intersections within the community. The significant increase in coverage is primarily due to the new roadway links proposed under Preferred Plan conditions, including multi-use urban path improvements.

Old Town Community

As shown in the figure, under implementation of the Preferred Plan, the Pedestrian Quality Network Coverage increases to over 75% at all study intersections within the community. The significant increase in coverage is primarily due to the overall improvement to the intersections within the community by implementing minor improvements such as ADA ramps and Continental Crosswalks.

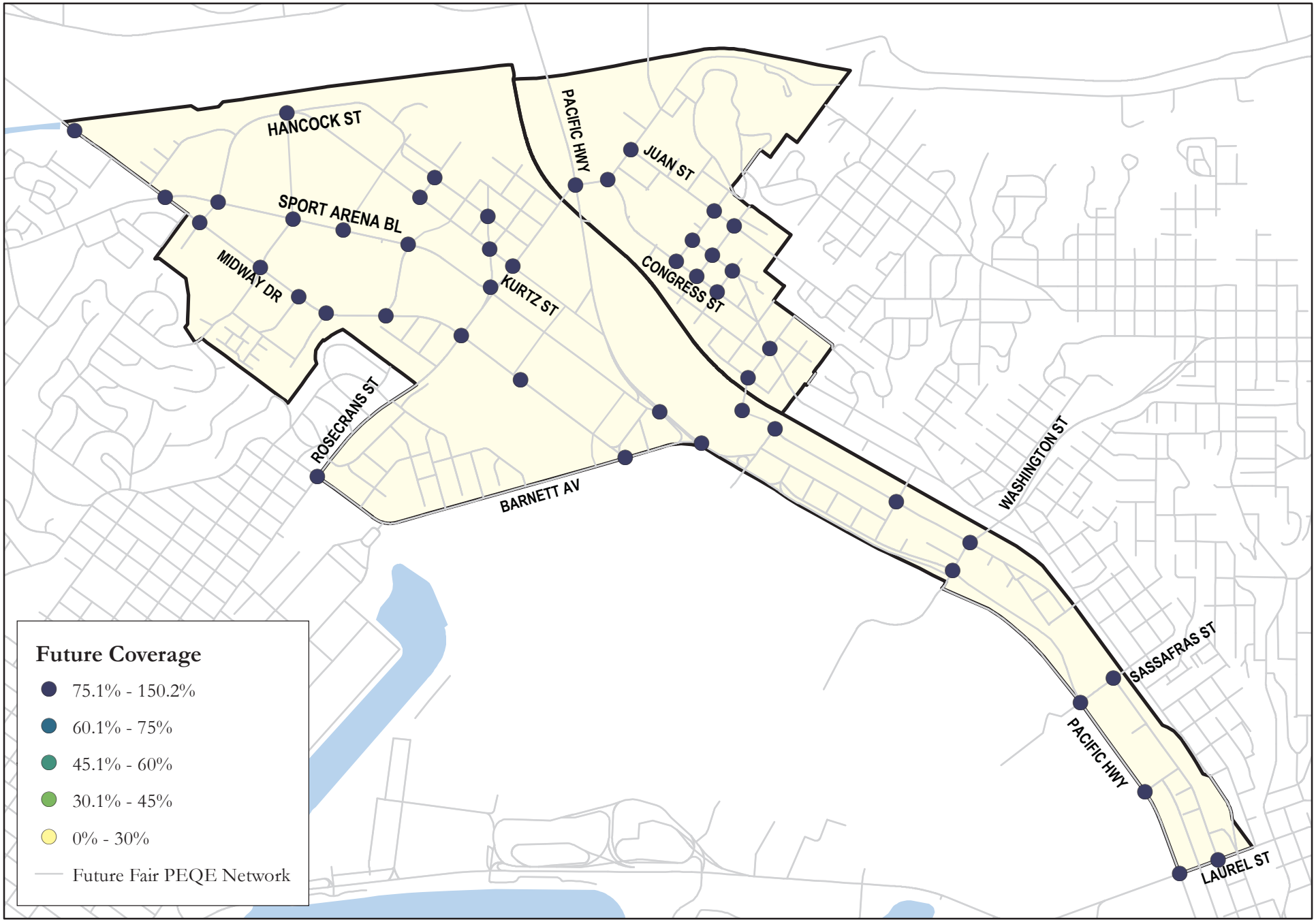

Figure 6-9
Pedestrian Quality Network Coverage -
Preferred Plan Conditions

6.5 Cycling Environment Assessment and Results

This section presents an assessment of the cycling environment under implementation of the Preferred Plan conditions, which assumes implementation of the cycling-related improvements outlined in Sections 3.4.2 and 4.4.2. Figure 6-10 displays the proposed bicycle network in both communities under implementation of the Preferred Plan.

The cycling environment under Preferred Plan conditions was assessed using the methodologies presented in Section 2.3.2. Cycling network connectivity, quality and overall adequacy (combining both quality and connectivity) are assessed below.

6.5.1 Bicycle Network Connectivity

Figure 6-11 displays bicycle network connectivity to/from the study area intersections across both communities. This analysis calculates the percent of area that a cyclist can access within a one mile ride from the respective intersection (connectivity ratio). A connectivity ratio of 50% or better is considered to be ideal.

Midway-Pacific Highway Community

As shown in the figure, the bicycle connectivity is at good levels (40%+ connectivity ratio) in the center of the community around the block bound by Rosecrans Street, Midway Drive, Sports Arena Boulevard and East Drive. This improvement in connectivity is predominantly due to the new roadway connections between Midway and Sports Arena Boulevard.

Old Town Community

As shown in the figure, the Old Town community generally has a good connectivity ratio of 35+%, with the highest connectivity along Taylor Street, where regional connections are available from Taylor Street (Coastal Rail Trail and Ocean Beach Bike Path).

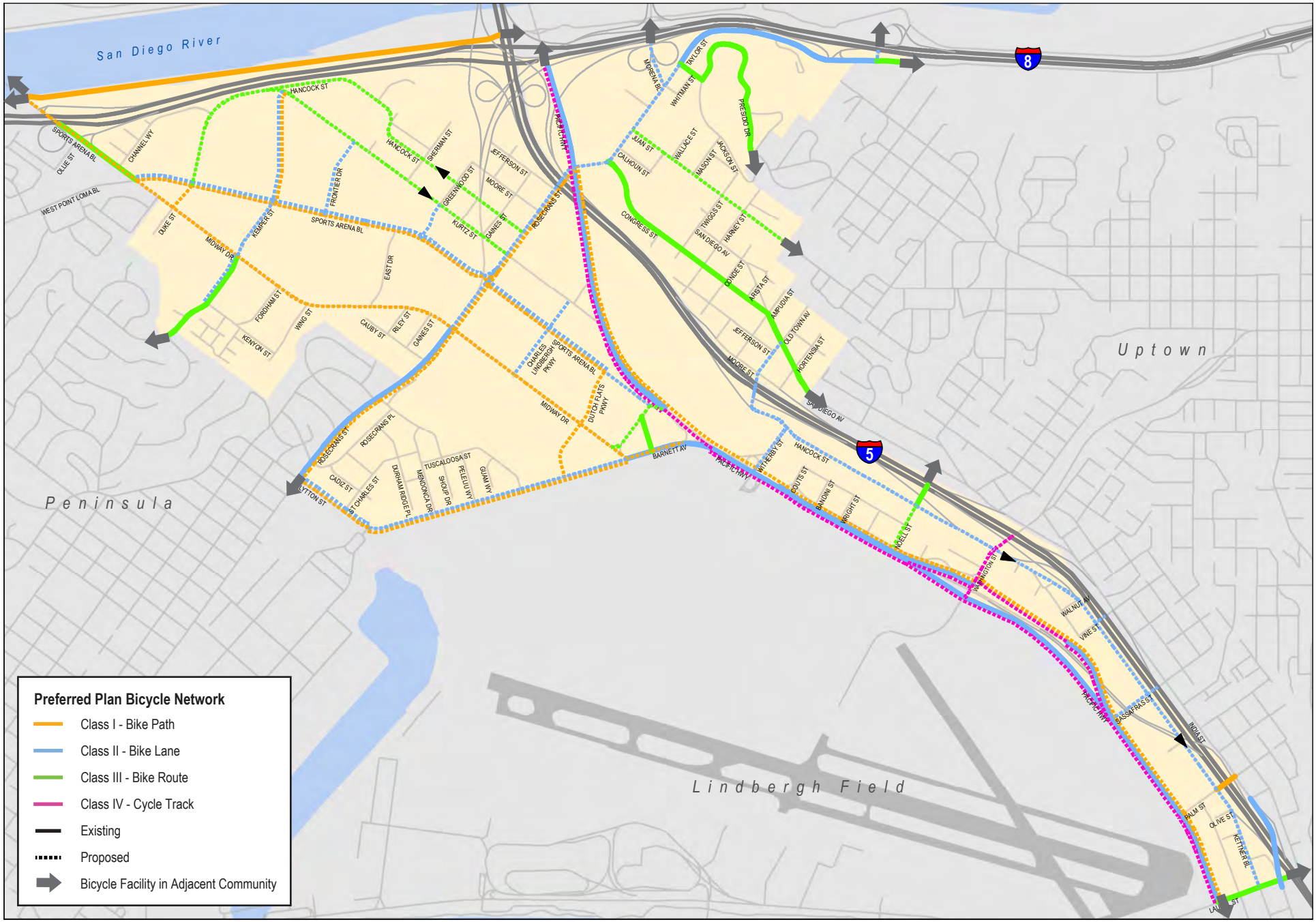

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Figure 6-10
Bicycle Network -
Preferred Plan Conditions

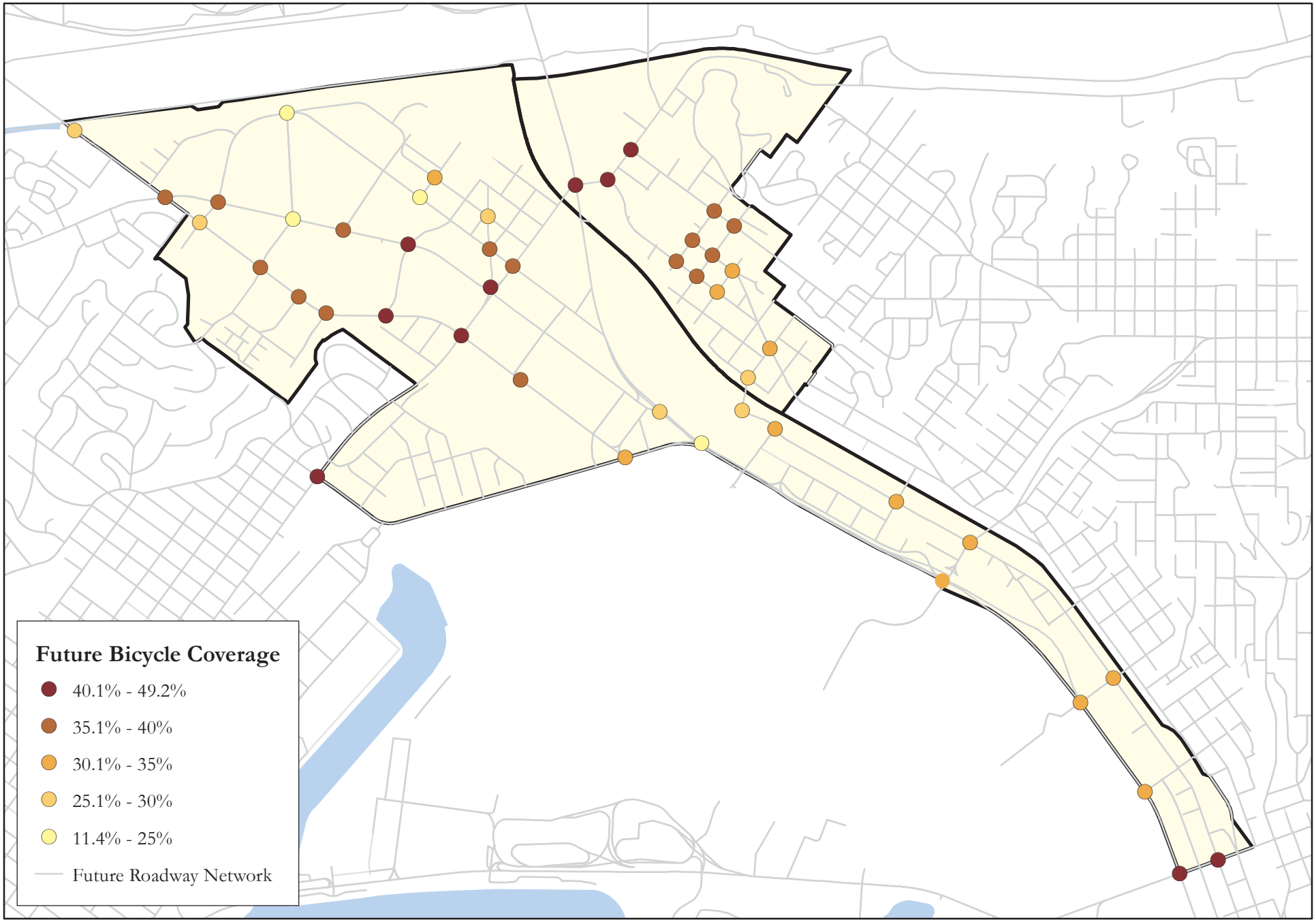

Figure 6-11
Bicycle Network Connectivity
Preferred Plan Conditions

6.5.2 Bicycle Network Quality

Figure 6-12 display the LTS analysis results for roadways segments and intersections along all Mobility Element roadways within the community.

Midway-Pacific Highway Community

As shown in the figure, the new multi-use urban paths proposed as part of the Midway/Pacific Highway Urban Greening Plan (La Playa Trail, Bay-to-Bay Path, the Historic Highway 101 Path, and the Midway Path), and the Preferred Plan, provide a slower low stress environment for cyclists (all paths have a score of LTS 1). Additionally, the proposed Class IV One-Way Cycle Tracks proposed along Pacific Highway provide a safe cycling environment for higher speed cyclists entering the community from either the north or south. These facilities have an LTS 1 score. Finally, the Enhanced Class II Buffered Bikes Lanes proposed along Sport Area Boulevard and Rosecrans Street provide more confident and higher speed cyclists a safe in-road alternative along these routes. Both facilities have a score of LTS 1.

Hancock Street between Kurtz Street and Rosecrans Street, and Hancock Street/Kettner Boulevard between Noel Street and Laurel Street were identified as providing LTS 4 environments under Preferred Plan conditions. The LTS 4 designation is largely due to the one-way directional travel. When calculating LTS scores for one-way streets the number of vehicular travel lanes is doubled, and the street is treated as though it has a median. This results in Hancock Street and Hancock Street/Kettner Boulevard as providing conditions equivalent to a 6-lane roadway, from the cyclist's perception. Hancock Street, between Kurtz Street and Rosecrans Street, does not have a bicycle facility, resulting in the LTS 4 score. Hancock Street/Kettner Boulevard, between Noel Street and Laurel Street, does have a Class II bike lane under Preferred Plan conditions, however, the posted speed limit of 40 MPH results in the LTS 4 score.

Based on the results of the LTS analysis, the bicycle facilities proposed under the Preferred Plan would significantly improve the connectivity and safety for cyclists within Midway-Pacific Highway community from their current conditions.

Old Town Community

As shown in the figure all roadways, with the exception of Taylor Street and Morena Boulevard, are projected to be low stress cycling environments (LTS 1 or 2). This is due to the low speed nature of the roadways within the Old Town Community. However, even with Class II Bike Lanes proposed along Taylor Street, the roadway is still projected to have an LTS score of 3. This is due to the high vehicular travel speed along Taylor Street and lack of a horizontal or vertical buffer between cyclists and motorists.

As noted in section 4.4.2, the connection along Morena Boulevard between Taylor Street and Linda Vista Road is critical. A connection here would link the Old Town and Linda Vista communities, as well as provide a connection to the Ocean Beach Bike Path.

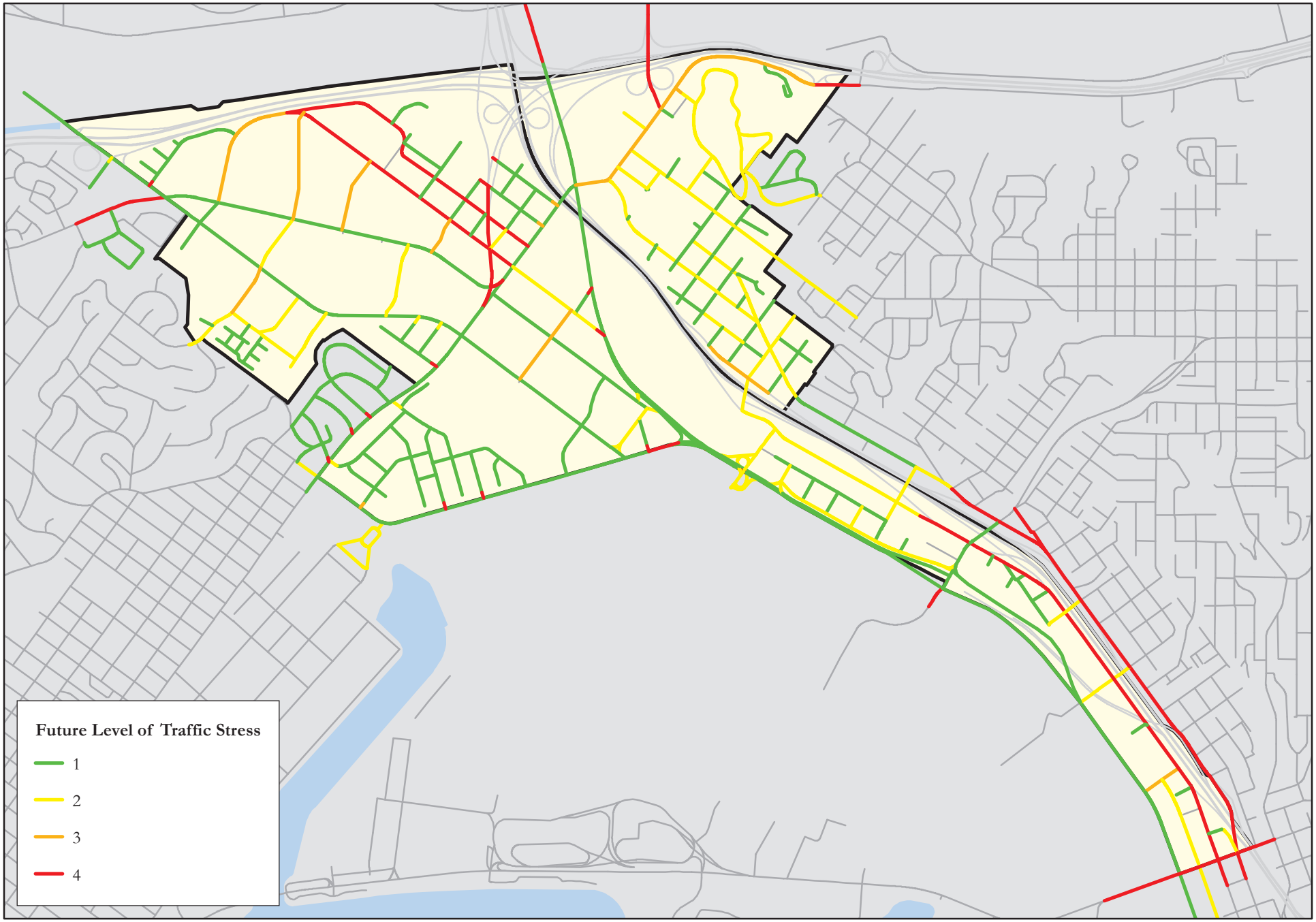

Figure 6-12
Bicycle LTS Score - Preferred Plan Conditions

Unfortunately, the bridge along this segment of the roadway has a constrained right-of-way, and the current configuration of the I-8 Morena Boulevard ramps position four high-speed free-right turn movements on/off the bridge. Due to these constraints there is not feasible bicycle facility that can be implemented along this segment without both widening the bridge and reconfiguring the I-8 / Morena Boulevard Ramps. However, it is recommended that the City work with both Caltrans and SANDAG to look for opportunities to implement bicycle facilities and better pedestrian facilities along this segment should any improvements be done to this segment.

6.5.3 Combined Bicycle Network Connectivity and Quality Assessment

Figure 6-13 displays the combined Bicycle Network Connectivity and Quality Assessment for all bicycle accessible land uses (residential, commercial, office, recreational and instructional land uses) throughout both communities. This analysis calculates the percent of TAZs with bicycle accessible land uses that a cyclist can reach using only LTS 1 and 2 facilities.

Midway-Pacific Highway Community

As shown in the figure, the proposed bicycle improvements enhance the level of connectivity to/from the residential land uses located on the western side of the community. In this area, cyclists can connect to 40+% of the bicycle accessible land uses within the community using only LTS 1 or 2 facilities. The proposed commercial areas within the community (north of Rosecrans Street) can typically connect to 30-40% of the bicycle accessible land uses within the community using only LTS 1 or 2 facilities. The only areas that have low connectivity (0-10%) are the more industrial areas located in the north and northeast portions of the community. However, these areas have very few bicycle accessible land uses.

Old Town Community

As shown in the figure, the community as a whole has generally moderate connectivity levels between 20% and 40%. The main barrier limiting the overall quality connectivity within the community is Taylor Street, which has an LTS score of 3. If the LTS score along Taylor Street can be improved to an LTS 1 or 2, the overall quality connectivity within the Old Town Community will increase significantly. However, based on the roadway's current configuration, enhanced bicycle facilities such as Buffered Class II Bike Lanes or a Class IV Cycle Track is not currently feasible along Taylor Street. Therefore, a policy should be included in the Mobility Element that if Taylor Street is ever widened beyond its current right-of-way, enhanced bicycle facilities such as Class II Buffered Bike Lanes or a Class IV Cycle Track should be implemented as well.

6.6 Public Transit Services and Facilities Assessment and Results

This section assesses the proposed transit network under implementation of the Preferred Plan conditions, which assumes implementation of the transit-related improvements outlined in Sections 3.5.2 and 4.5.2. The proposed Transit network under Preferred Plan conditions was assessed using the methodologies contained in Section 2.3.3. Transit stop/station ridership and amenities are assessed below as well as the roadway arterial speed along roadways continuing transit routes.

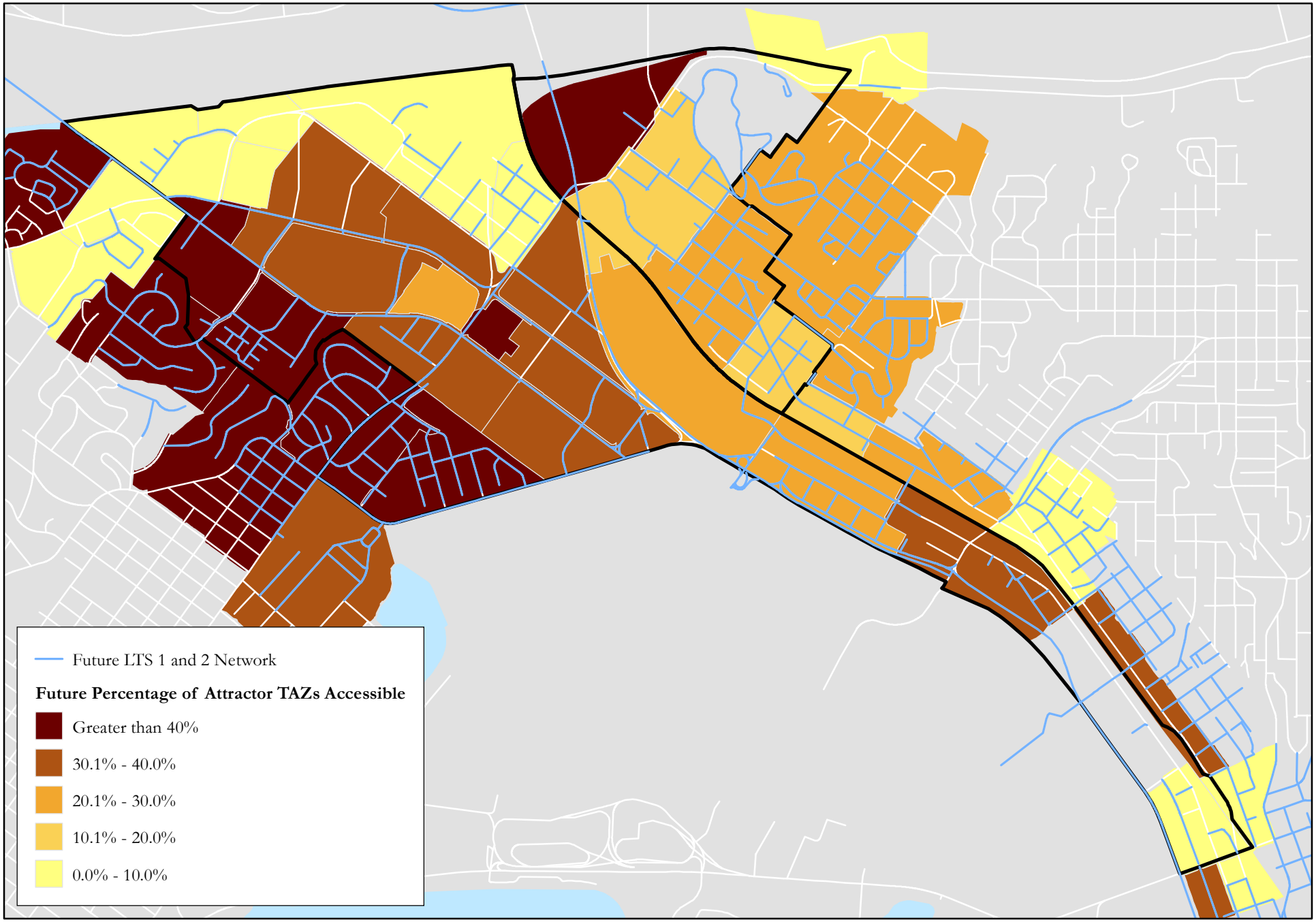

Figure 6-13
Combined Bicycle Network Connectivity and Quality Assessment
Preferred Plan Conditions

6.6.1 Transit Stop/Station Amenities and Average Daily Boardings and Alightings

While projecting increases in multimodal trips requires some level of judgment and is dependent on numerous factors, quantitative methods are available to assist in this process. A community-wide transit ridership growth factor was derived based on future growth estimates in SANDAG Series 12 Transportation Forecast Model, as documented in Section 5.0. Based on the SANDAG model results, a 1.75 growth factor was applied to existing transit ridership volumes, which is consistent with the projection of regional growth. Due to the methodology, projected ridership is only presented for existing locations and does not include the future Blue Line extension.

Table 6.8 displays the projected transit boarding and alightings by route and by stop within both communities under Preferred Plan conditions.

Table 6.8 Average Daily Transit Boardings and Alightings by Route and Station – Preferred Plan Conditions

Route # and Location	Boardings	Alightings	Total Trips
Bus Route 8 Clockwise			
Sports Arena Blvd and Midway Dr	30	30	60
Sports Arena Blvd and Midway Dr	150	50	200
Sports Arena Blvd Between Hancock and Kemper	60	20	70
Sports Arena Blvd Between Kemper and Sports Arena Driveway	70	50	160
Sports Arena Blvd and East Dr	120	50	170
Rosecrans St and Pacific Highway	40	40	70
Old Town Transit Center	20	1,090	1,110
Bus Route 9 Counter Clockwise			
Old Town Transit Center	1,110	20	1,120
Rosecrans St and Moore St	30	20	40
Rosecrans St and Kurtz St	20	40	50
Sports Arena Blvd and Camino Del Rio West	20	60	70
Sports Arena Blvd and East Dr	20	90	110
Sports Arena Blvd and Sports Arena Driveway	50	130	170
Sports Arena Blvd and Hancock St	60	180	230
Bus Route 10 East			
Old Town Transit Center	1,770	30	1,790
Pacific Highway and Sports Arena Blvd	50	30	70
Pacific Highway and Witherby St	100	170	260
Washington St and Pacific Highway	90	70	160
Washington St and Hancock St	40	10	50
Washington St and India St	90	30	120
Bus Route 10 West			
Washington St and India St	20	90	100

Table 6.8 Average Daily Transit Boardings and Alightings by Route and Station – Preferred Plan Conditions

Route # and Location	Boardings	Alightings	Total Trips
Washington St and Hancock St	10	20	30
Washington St and The Trolley Tracks	30	150	170
Pacific Highway and Washington St	30	30	60
Pacific Highway and Witherby St	90	110	200
Pacific Highway and Enterprise St	20	60	80
Pacific Highway and Kurtz St	10	10	10
Old Town Transit Center	30	1,450	1,470
Bus Route 28 East			
Rosecrans St and Lytton St	30	20	40
Rosecrans St and North Evergreen St	30	30	60
Rosecrans St and Loma Square	80	60	140
Rosecrans St and Sports Arena Blvd	60	60	110
Rosecrans St and Pacific Highway	30	10	30
Old Town Transit Center	N/A	1,090	1,090
Bus Route 28 West			
Old Town Transit Center	930	N/A	930
Rosecrans St and Moore St	20	N/A	20
Rosecrans St and Kurtz St	20	20	30
Rosecrans St and Midway Drive	50	50	90
Rosecrans St and Midway Drive	80	90	160
Rosecrans St and North Evergreen St	30	40	60
Rosecrans St and Lytton St	10	20	30
Bus Route 30 North			
Pacific Highway and Witherby St	90	80	170
Pacific Highway and Enterprise St	20	40	50
Pacific Highway and Kurtz St	10	10	10
Old Town Transit Center	1,110	610	1,710
Bus Route 30 South			
Old Town Transit Center	590	1,090	1,680
Pacific Highway and Sports Arena Blvd	20	590	60
Bus Route 35 East			
Midway Drive and Duke St	100	60	160
Midway Drive and Kemper St	70	40	110
Midway Drive and Fordham St	110	40	140
Midway Drive and East Drive	70	70	140
Rosecrans St and Sports Arena Blvd	100	30	130
Rosecrans St and Pacific Highway	20	20	30

Table 6.8 Average Daily Transit Boardings and Alightings by Route and Station – Preferred Plan Conditions

Route # and Location	Boardings	Alightings	Total Trips
Old Town Transit Center	N/A	990	990
Bus Route 35 West			
Old Town Transit Center	1,010	N/A	1,010
Rosecrans St and Moore St	40	10	50
Rosecrans St and Kurtz St	20	30	40
Rosecrans St and Midway Drive	50	70	110
Midway Drive and East Drive	80	60	140
Midway Drive and Fordham St	40	110	140
Midway Drive and Kemper St	50	110	150
Midway Drive and Duke St	40	130	160
Bus Route 44 North			
Old Town Transit Center	1,820	10	1,830
Taylor St and Juan St	20	10	20
Bus Route 44 South			
Taylor St and Sunset St	10	10	20
Old Town Transit Center	50	1,570	1,610
Bus Route 88 East			
Old Town Transit Center	240	20	250
Taylor St and Juan St	10	10	10
Taylor St and Presidio Drive	10	10	10
Taylor St and I-8 East	10	10	10
Bus Route 88 West			
Taylor St and I-8 East	10	10	10
Taylor St and Presidio Drive	10	10	10
Taylor St and Sunset St	10	10	10
Old Town Transit Center	10	140	150
Bus Route 105 North			
Old Town Transit Center	770	10	780
Taylor St and Juan St	10	10	10
Bus Route 105 South			
Taylor St and Juan St	10	10	10
Old Town Transit Center	10	570	570
Bus Route 150 North			
Pacific Highway and Witherby St	50	20	70
Pacific Highway and Enterprise St	10	20	20
Pacific Highway and Kurtz St	10	10	10
Old Town Transit Center	470	140	610

Table 6.8 Average Daily Transit Boardings and Alightings by Route and Station – Preferred Plan Conditions

Route # and Location	Boardings	Alightings	Total Trips
Bus Route 150 South			
Old Town Transit Center	120	660	80
Pacific Highway and Sports Arena Blvd	20	10	20
Green Line Trolley East			
Old Town Transit Center	8,280	390	8,670
Washington Street Station	280	660	930
Middletown Station	10	11,110	11,110
Green Line Trolley West			
Old Town Transit Center	10,600	7,680	18,270
Washington Street Station	690	220	910
Middletown Station	330	190	510

Source: Chen Ryan Associates (March 2017)

Table 6.9 displays the projected transit boardings and alightings at each transit stop/station within both communities under implementation of the Preferred Plan. The table also shows the required stop/station amenities, as shown in Table 2.2, based on the future ridership projects.

Table 6.9 Transit Station/Stop Locations, Amenities and Average Daily Boardings and Alightings – Preferred Plan Conditions

				Amenities at the Stops			
Station	Boardings	Alightings	Total	Signs	Shelter	Bench	Trash Can
Sports Arena Blvd and Midway Dr (Clockwise)	180	80	260	✓	✓	✓	✓
Sports Arena Blvd Between Hancock and Kemper (Clockwise)	60	20	70	✓	□	○	□
Sports Arena Blvd Between Kemper and Sports Arena Driveway (Clockwise)	70	50	160	✓	□	✓	□
Sports Arena Blvd and East Dr (Clockwise)	120	50	170	✓	○	✓	□
Rosecrans St and Pacific Highway (Clockwise)	40	40	70	✓	✓	✓	✓
Old Town Transit Center (Clockwise)	20	1,090	1,110	✓	✓	✓	✓
Old Town Transit Center (Counter Clockwise)	1,110	20	1,120	✓	✓	✓	✓
Rosecrans St and Moore St (Counter Clockwise)	30	20	40	✓	□	✓	✓
Rosecrans St and Kurtz St (Counter Clockwise)	20	40	50	✓	□	✓	□
Sports Arena Blvd and Camino Del Rio West (Counter Clockwise)	20	60	70	✓	□	✓	□
Sports Arena Blvd and East Dr (Counter Clockwise)	20	90	110	✓	□	✓	✓

Table 6.9 Transit Station/Stop Locations, Amenities and Average Daily Boardings and Alightings – Preferred Plan Conditions

Station	Boardings	Alightings	Total	Amenities at the Stops			
				Signs	Shelter	Bench	Trash Can
Sports Arena Blvd and Sports Arena Driveway (Counter Clockwise)	50	130	170	✓		✓	
Sports Arena Blvd and Hancock St (Counter Clockwise)	60	180	230	✓		✓	
Old Town Transit Center (Eastbound)	2,010	2,130	4,120	✓	✓	✓	✓
Pacific Highway and Sports Arena Blvd (Eastbound)	50	30	70	✓			
Pacific Highway and Witherby St (Eastbound)	100	170	260	✓		✓	✓
Washington St and Pacific Highway (Eastbound)	90	70	160	✓		✓	
Washington St and Hancock St (Eastbound)	40	10	50	✓		✓	✓
Washington St and India St (Eastbound)	90	30	120	✓		✓	✓
Washington St and India St (Westbound)	20	90	100	✓			✓
Washington St and Hancock St (Westbound)	10	20	30	✓		✓	✓
Washington St and The Trolley Tracks (Westbound)	30	150	170	✓			
Pacific Highway and Washington St (Westbound)	30	30	60	✓		✓	
Pacific Highway and Witherby St (Westbound)	90	110	200	✓	✓	✓	✓
Pacific Highway and Enterprise St (Westbound)	20	60	80	✓			
Pacific Highway and Kurtz St (Westbound)	10	10	10	✓			
Old Town Transit Center (Westbound)	1,980	1,590	3,560	✓	✓	✓	✓
Rosecrans St and Lytton St (Eastbound)	30	20	40	✓	✓	✓	✓
Rosecrans St and North Evergreen St (Eastbound)	30	30	60	✓		✓	✓
Rosecrans St and Loma Square (Eastbound)	80	60	140	✓	✓	✓	✓
Rosecrans St and Sports Arena Blvd (Eastbound)	160	90	240	✓	✓	✓	✓
Rosecrans St and Pacific Highway (Eastbound)	50	30	60	✓	✓	✓	✓
Rosecrans St and Moore St (Westbound)	60	10	70	✓		✓	✓
Rosecrans St and Kurtz St (Westbound)	40	50	70	✓		✓	
Rosecrans St and Midway Drive (Westbound)	180	210	360	✓	○	✓	✓
Rosecrans St and North Evergreen St (Westbound)	30	40	60	✓			
Rosecrans St and Lytton St (Westbound)	10	20	30	✓			

Table 6.9 Transit Station/Stop Locations, Amenities and Average Daily Boardings and Alightings – Preferred Plan Conditions

Station	Boardings	Alightings	Total	Amenities at the Stops			
				Signs	Shelter	Bench	Trash Can
Pacific Highway and Witherby St (Northbound)	140	100	240	✓	✓	✓	✓
Pacific Highway and Enterprise St (Northbound)	30	60	70	✓			
Pacific Highway and Kurtz St (Northbound)	20	20	20	✓			
Old Town Transit Center (Northbound)	4,170	770	4,930	✓	✓	✓	✓
Old Town Transit Center (Southbound)	770	3,890	3,940	✓	✓	✓	✓
Pacific Highway and Sports Arena Blvd (Southbound)	40	600	80	✓			
Midway Drive and Duke St (Eastbound)	100	60	160	✓	✓	✓	✓
Midway Drive and Fordham St (Eastbound)	110	40	140	✓	✓	✓	✓
Midway Drive and East Drive (Eastbound)	70	70	140	✓	✓	✓	✓
Midway Drive and East Drive (Westbound)	80	60	140	✓		✓	
Midway Drive and Fordham St (Westbound)	40	110	140	✓		✓	
Midway Drive and Kemper St (Westbound)	50	110	150	✓		✓	
Midway Drive and Duke St (Westbound)	40	130	160	✓		✓	
Taylor St and Juan St (Northbound)	30	20	30	✓		✓	
Taylor St and Sunset St (Southbound)	10	10	20	✓		✓	
Taylor St and Juan St (Eastbound)	10	10	10	✓		✓	
Taylor St and Presidio Drive (Eastbound)	10	10	10	✓		✓	
Taylor St and I-8 East (Eastbound)	10	10	10	✓			
Taylor St and I-8 East (Westbound)	10	10	10	✓		✓	
Taylor St and Presidio Drive (Westbound)	10	10	10	✓		✓	
Taylor St and Sunset St (Westbound)	10	10	10	✓		✓	
Taylor St and Juan St (Southbound)	10	10	10	✓		✓	
Old Town Transit Center	8,280	390	8,670	✓	✓	✓	✓
Washington Street Station	280	660	930	✓	✓	✓	✓
Middletown Station	10	11,110	11,110	✓	✓	✓	✓

Source: Chen Ryan Associates (March 2017)

Notes:
✓: Existing Amenity
O: Needed Amenity

As shown, the majority of the existing stops/stations already provide adequate amenities to accommodate the projected future ridership. However, additional amenities will be needed at the following stations as ridership increased:

Midway-Pacific Highway Community

- Sports Arena Boulevard, between Hancock Street and Kemper Street (Clockwise) – Bench
- Sports Arena Boulevard and East Drive (Clockwise) – Shelter
- Rosecrans Street and Midway Drive (Westbound) – Shelter

Old Town

- None

6.6.2 Arterial Speed Analysis Along Roadways Serving Transit Routes

An HCM peak hour arterial speed analysis was conducted along all roadway corridors where transit routes are projected to operate in order to identify future roadway congestion that could potentially impact transit route travel times and on-time performance. Transit priority measures such as queue jumper lanes and transit priority signal timing should be implemented in locations where future roadway congestion is anticipated.

Table 6.10 displays peak hour arterial speed analyses for all roadway facilities where a transit route operates under implementation of the Preferred Plan. Peak hour arterial analysis worksheets are provided in Appendix G.

Table 6.10 Arterial Speed Analysis Along Transit Corridors – Preferred Plan Conditions

Roadway	Segment	Posted Speed (MPH)	AM				PM			
			EB/NB		WB/SB		EB/NB		WB/SB	
			Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS
Midway-Pacific Highway Community										
Camino Del Rio West	Sports Arena Blvd to Kurtz Street	35	5.7	F	6.8	F	4.7	F	5.1	F
	Kurtz Street to Hancock Street	35	10.8	D	24.2	B	10.9	D	23.1	C
Rosecrans Street	Barnett Avenue to Midway Drive	35	22.2	C	9.5	F	12.9	F	19.1	D
	Midway Drive to Sports Arena Blvd	35	31.2	B	9.3	F	31.2	B	8.3	F
	Sports Arena Blvd to Kurtz Street	35	9.8	F	2.9	F	7.2	F	2.7	F
	Kurtz Street to Pacific Highway	35	16.9	E	20.5	D	14.5	E	20.4	D
Midway Drive	Sports Arena Blvd to Duke Street/Hancock Street	35	6	F	10.4	E	5.1	F	9.2	F
	Duke Street/Hancock Street to Kemper Street	35	20.5	C	17.7	D	16.1	D	13.4	E
	Kemper Street to East Drive	35	19.1	C	24.9	B	15.6	D	23.7	C
	East Drive to Rosecrans Street	35	23	C	12.3	E	20	C	8.4	F
Sports Arena Boulevard	I-8 WB Off-Ramp to W Point Loma Blvd	35	21	C	8.1	F	8.8	F	7.5	F
	W Point Loma Blvd to Hancock Street	35	11.7	E	21.1	C	4.8	F	23.1	C
	Hancock Street to Kemper Street	35	15.1	D	13.7	E	18.2	C	9.5	F
	Kemper Street to Frontier Drive	35	10.9	E	14.3	D	14.4	D	17.7	D
	Frontier Drive to Greenwood Street	35	12	E	20.6	C	12.3	E	11.7	E
	Greenwood Street to Rosecrans Street	35	26.2	B	6.4	F	23.7	C	6.1	F
Pacific Highway	Taylor Street to Kurtz Street	45	24.9	C	21.9	D	22.7	C	15.5	E
	Kurtz Street to Sports Arena Blvd	45	23	C	16.5	E	13.2	E	23	C

Table 6.10 Arterial Speed Analysis Along Transit Corridors – Preferred Plan Conditions

Roadway	Segment	Posted Speed (MPH)	AM				PM			
			EB/NB		WB/SB		EB/NB		WB/SB	
			Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS
Pacific Highway	Sports Arena Blvd to Barnett Avenue	45	11.7	F	11.7	F	9.4	F	4.8	F
	Washington Street to Sassafras Street	45	9.5	F	28	B	5.4	F	28.1	B
	Sassafras Street to W Laurel Street	45	31.6	B	15.3	E	27.9	C	13.2	E
Old Town Community										
Taylor Street	Pacific Highway to Congress Street	35	12.5	D	9	E	9.1	D	8.6	E
	Congress Street to Juan Street	35	9.7	D	12.9	D	6.7	F	13.8	C
	Juan Street to Whitman Street	35	17.5	C	14.3	C	15.4	C	15.3	C

Source: Chen Ryan Associates (March 2017)

Note:
Bold letter indicates LOS E or F

As shown, several segments within both communities are projected to operate at LOS E or F during both the AM and PM Peak hours:

<u>Midway-Pacific Highway</u>

- Camino del Rio West, between Sports Arena Boulevard and Kurtz Street
  - LOS F: AM & PM peak hours, westbound & eastbound directions
- Rosecrans Street, between Barnett Avenue and Midway Drive
  - LOS F: AM peak hour, westbound direction
  - LOS F: PM peak hour, eastbound direction
- Rosecrans Street, between Midway Drive and Sports Arena Boulevard
  - LOS F: AM & PM peak hours, westbound direction
- Rosecrans Street, between Sports Arena Boulevard and Kurtz Street
  - LOS F: AM & PM peak hours, westbound & eastbound directions
- Rosecrans Street, between Kurtz Street and Pacific Highway
  - LOS E: AM & PM peak hours, eastbound direction
- Midway Drive, between Sports Arena Boulevard and Hancock Street
  - LOS F: AM & PM peak hours, northbound direction
  - LOS E: AM peak hour, southbound direction
  - LOS F: PM peak hour, southbound direction
- Midway Driveway, between Hancock Street and Kemper Street
  - LOS E: PM peak hour, southbound direction
- Midway Drive, between East Drive and Rosecrans Street
  - LOS E: AM peak hour southbound direction
  - LOS F: PM peak hour southbound direction
- Sports Arena Boulevard, between I-8 Westbound Ramps and West Point Loma Boulevard
  - LOS F: AM peak hour, southbound direction
  - LOS F: PM peak hour, northbound & southbound directions
- Sports Arena Boulevard, between West Point Loma Boulevard and Hancock Street
  - LOS E: AM peak hour, northbound direction

    - LOS F: PM peak hour, northbound direction
- Sports Arena Boulevard, between Hancock Street and Kemper Street
    - LOS E: AM peak hour, southbound direction
    - LOS F: PM peak hour, southbound direction
- Sports Arena Boulevard, between Kemper Street and Frontier Drive
    - LOS E: AM peak hour, northbound direction
- Sports Arena Boulevard, between Frontier Drive and Greenwood Street
    - LOS E: AM peak hour, northbound direction
    - LOS E: PM peak hour, northbound & southbound directions
- Sports Arena Boulevard, between Greenwood Street and Rosecrans Street
    - LOS F: AM & PM peak hours, southbound direction
- Pacific Highway, between Taylor Street to Kurtz Street
    - LOS E: PM peak hour, southbound direction
- Pacific Highway, between Kurtz Street and Sports Arena Boulevard
    - LOS E: AM peak hour, southbound direction
    - LOS E: PM peak hour, northbound direction
- Pacific Highway, between Sports Arena Boulevard and Barnett Avenue
    - LOS F: AM & PM peak hours, northbound & southbound directions
- Pacific Highway, between Washington Avenue and Sassafras Street
    - LOS F: AM & PM peak hours, northbound direction
- Pacific Highway, between Sassafras Street and Laurel Street
    - LOS E: AM & PM peak hours, southbound direction

As noted in Section 3.5.2, the following transit priority treatments are recommended to help on-time performance for bus routes within the Midway-Pacific Highway community:

Pacific Highway - Pacific Highway serves several regional bus routes that connect multiple communities. The projected low travel speeds along several segments of Pacific Highway could impact the efficiency and on-time performance of these regional routes. Therefore, it is recommended that, transit priority measures such as queue jumper lanes and transit priority signals are implemented at all signalized intersections along Pacific Highway between Taylor Street and Laurel Street.

Rosecrans Street – Rosecrans Street east of Camino Del Rio West currently serves four MTS bus Routes (8, 9, 28 and 35). A queue jumper lane and transit signal have already been implemented on the eastbound approach at the Taylor Street / Rosecrans Street and Pacific Highway intersection. Similar transit priority improvements should also be looked at the Rosecrans Street Camino Del Rio West and Sports Arena Boulevard intersection to allow westbound buses (Routes 8, 9 and 35) to turn right onto Sports Arena Boulevard and avoid congestion.

New Roadway Connections – The proposed new roadway connections can serve as alternative east/west routes for busses traveling through the community. Rerouting to these new facilities, if possible, may help avoid the congestion on Rosecrans Street. It is recommended that after

the construction of any of the new roadways, the City of San Diego coordinate with MTS to look at bus rerouting opportunities.

Old Town

- Taylor Street, between Pacific Highway and Congress Street
  - LOS E: AM & PM peak hours, southbound direction
- Taylor Street, between Congress Street and Juan Street
  - LOS F: PM peak hour, northbound direction

Taylor Street serves several regional bus routes connecting multiple communities. Therefore, it is recommended that transit priority treatments be implemented along Taylor Street to help increase transit performance. It is recommended to implement queue jumper lanes and transit priority signals in either direction at both the Taylor Street / Juan Street and Taylor Street / Morena Boulevard intersections.

6.7 Parking Management

It is anticipated that any additional parking demand associated with future developments will be accommodated on-site. It is assumed that all on-street public parking spaces will be maintained under Preferred Plan implementation, with the exception of the following:

Midway-Pacific Highway

Rosecrans Street, between Sports Arena Boulevard / Camino Del Rio West and Pacific Highway – To implement the multi-use urban path improvements proposed as part of the Preferred Plan, parking along both sides of Rosecrans Street will need to be removed. Approximately 65 on-street parking spaces will be removed along this segment. Since there is abundant off-street parking within the community and these spaces are not heavily utilized, the removal of these spaces should not negatively impact the community.

Sports Arena Boulevard, between West Point Loma Boulevard and Rosecrans Street – To implement the multi-use urban path improvements proposed as part of the Preferred Plan, parking along the southwest side of Sports Arena Boulevard will need to be removed. Approximately 24 on-street parking spaces will be removed along this segment. Since there is abundant off-street parking within the community and these spaces are not heavily utilized, removal of these spaces should not negatively impact the community.

Old Town

There is not anticipated to be any loss of on-street parking within the Old Town Community. However, as noted in Section 4.2.2 it is proposed that the parking along the east side of San Diego Avenue, between Twiggs Street and Conde Street, be converted from parallel to diagonal parking. This improvement could potentially result in up to 20 additional on-street parking spaces along San Diego Avenue.

The community is not currently in favor of metering parking within Old Town as a means to create parking turnover, therefore, use of the existing parking supply should be maximized to help meet parking demands. The Caltrans parking lot, located north of the Congress Street and Taylor Street intersection, provides approximately 800 parking spaces that are open to the public on nights and weekends and is frequently under capacity. Increased utilization of these spaces may help alleviate some of the parking demand experienced throughout the Old Town community. Additional wayfinding signage may be beneficial to help direct community visitors and employees to the lot.