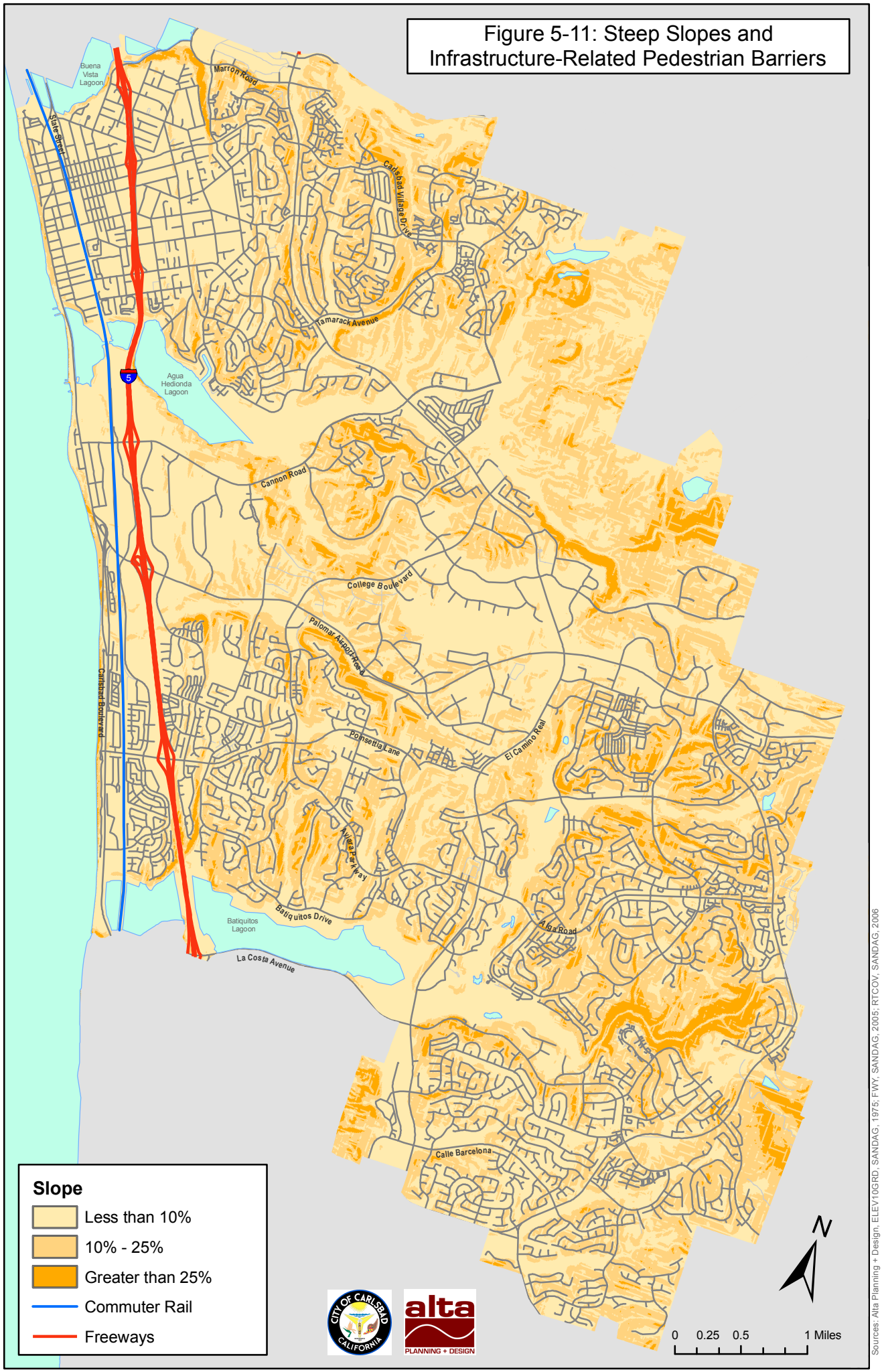
Figure 5-11: Steep Slopes and Infrastructure-Related Pedestrian Barriers



Sources: Alta Planning + Design, ELEV10GRD, SANDAG, 1975; FWY, SANDAG, 2005; RTCOV, SANDAG, 2006

Figure 5-12:
2006 Traffic Volumes and Posted Speeds

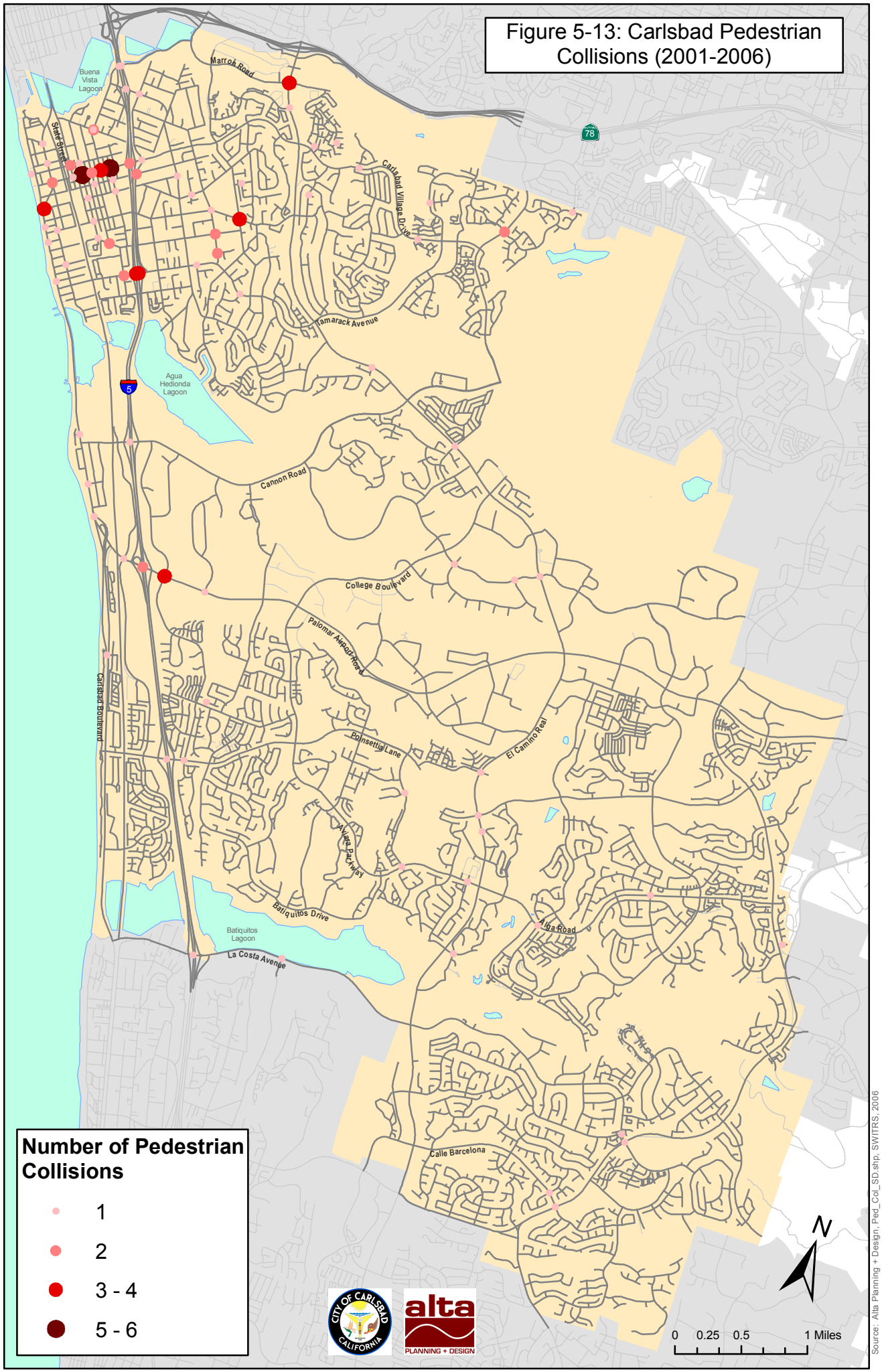


Figure 5-13: Carlsbad Pedestrian Collisions (2001-2006)
Buena Vista Lagoon
Marron Road
State Street
Carlsbad Village Drive
Tamarack Avenue
Agua Hedionda Lagoon
Cannon Road
College Boulevard
Palomar Airport Road
Carlsbad Boulevard
Poinsettia Lane
El Camino Real
Alga Road
Batiquitos Drive
Batiquitos Lagoon
La Costa Avenue
Calle Barcelona
Number of Pedestrian Collisions
1
2
3 - 4
5 - 6
N
0 0.25 0.5 1 Miles
alta PLANNING + DESIGN
Source: Alta Planning + Design, Ped_Col_SD.shp, SWITRS, 2006

travel period between 7AM to 9AM, while twenty percent of the accidents involving pedestrians occurred during the afternoon peak travel period (4PM to 6PM).

5.3.4 Final Pedestrian Barrier Map

Figure 5-14 displays the final pedestrian barrier map for the City of Carlsbad. The pedestrian barriers are weighted individually, with higher values assigned to locations with higher levels of pedestrian detracting features. Differing multipliers are also applied to the various pedestrian barriers to account for the relatively greater importance of some barriers over others. High barrier areas are weighted with higher point values and multipliers because these locations reflect areas with relatively higher need for pedestrian facility improvements. **Table 5.4** displays the pedestrian barriers, along with the associated weights and multipliers. The weight and multiplier values were similarly applied by the City of San Diego in their *2006 Draft Pedestrian Master Plan.*

Table 5.4
Pedestrian Barrier Weights and Multipliers
Used to Create the Final Pedestrian Barrier Map

Pedestrian Detractor	Weights	Multipliers	Final Score
Pedestrian Collisions 2001 to 2006 (1/16 miles buffer applied to each collision)			
> 1	3	3	9
0.5 – 0.9	2		6
0.001 – 0.5	1		3
0	0		0
Average Daily Trips (ADT)			
>45,000	3	2	6
35,000 – 45,000	2.5		5
25,000 – 34,999	2		4
15,000 – 24,999	1.5		3
10,000 – 14,999	1		2
5,000 – 9,999	0.5		1
< 5,000	0		0
Posted Speed Limits			
>45 mph	3	1	3
35 – 44	2		2
25 - 34	1		1
<25	0		0
Absence of Street Lights			
> 300 feet	3	1	3
150 – 300 feet	2		2
75 – 149 feet	1		1
0 – 75 feet	0		0
Rail and Freeway Corridors			
	1	1	1
Slopes			
> 25%	2	1	2
10% - 25%	1		1
< 10%	0		0

Sources: Alta Planning + Design; City of Carlsbad Shapefiles, SANDAG Shapefiles, *City of San Diego Pedestrian Master Plan.*

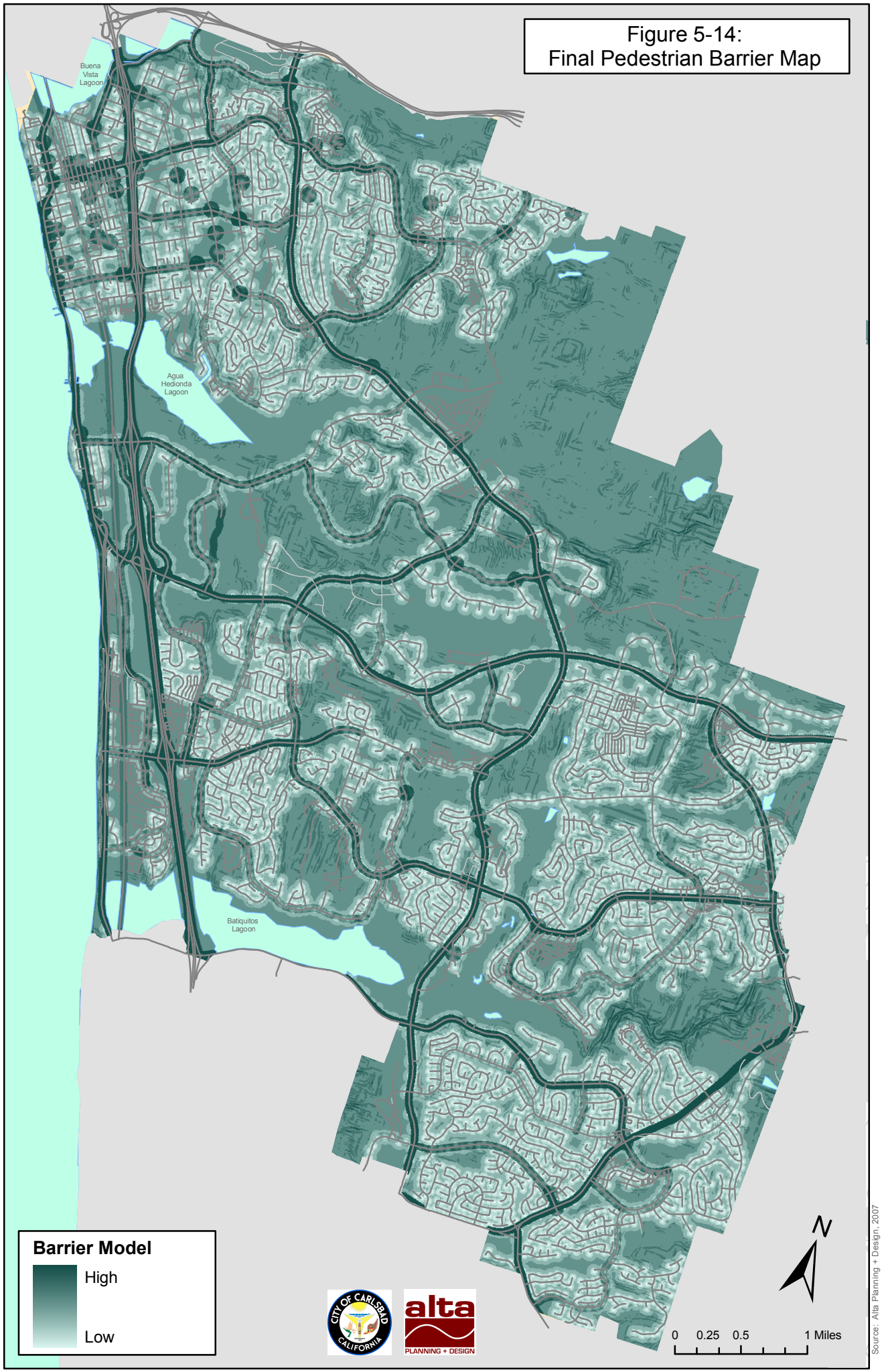


Figure 5-14:
Final Pedestrian Barrier Map
Buena Vista Lagoon
Agua Hedionda Lagoon
Batiquitos Lagoon
Barrier Model
High
Low
N
0 0.25 0.5 1 Miles
Source: Alta Planning + Design, 2007

As shown in Figure 5-14, the final pedestrian barrier map identifies several high-barrier areas within Carlsbad. The freeway, rail, and major arterial corridors appear as significant pedestrian detractors. In addition, several portions of the northwest quadrant have more diffuse areas of high pedestrian detracting features.

5.4 High Pedestrian Need Locations

Three composite maps were constructed and used as the basis for developing a "final pedestrian need" map intended to reflect those areas across Carlsbad that warrant high consideration for pedestrian projects and improvements. The final pedestrian need map incorporates consideration of both those areas with high pedestrian travel demands (in terms of pedestrian trip generation and attraction) and high pedestrian barriers.

Figure 5-15 displays the final pedestrian need map. There are four to five significant concentrations of high pedestrian need across the City of Carlsbad. Those include the following locations:

- The entire northwest quadrant,
- The western coastal area of the City, between Cannon Road and Batiquitos Lagoon,
- Several locations along El Camino Real, at Aviara Parkway/Alga Road and at La Costa Avenue, and
- A large area emanating from the intersection of La Costa Avenue and Rancho Santa Fe Road.

Figure 5-16 defines more discrete Pedestrian Priority Areas that formed the basis for project identification presented in the next chapter.

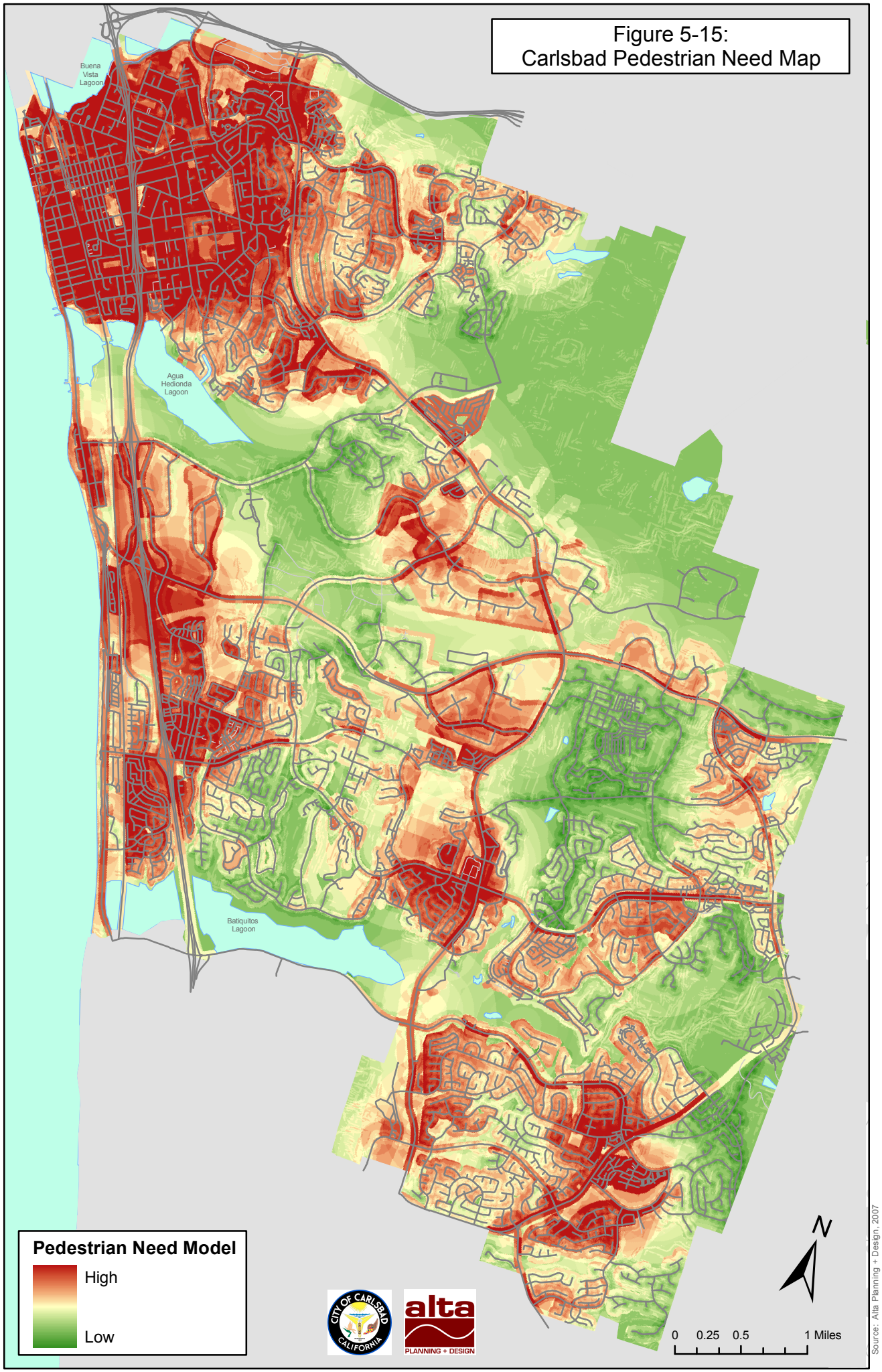


Figure 5-15:
Carlsbad Pedestrian Need Map
Buena Vista Lagoon
Agua Hedionda Lagoon
Batiquitos Lagoon
Pedestrian Need Model
High
Low
N
0 0.25 0.5 1 Miles
Source: Alta Planning + Design, 2007

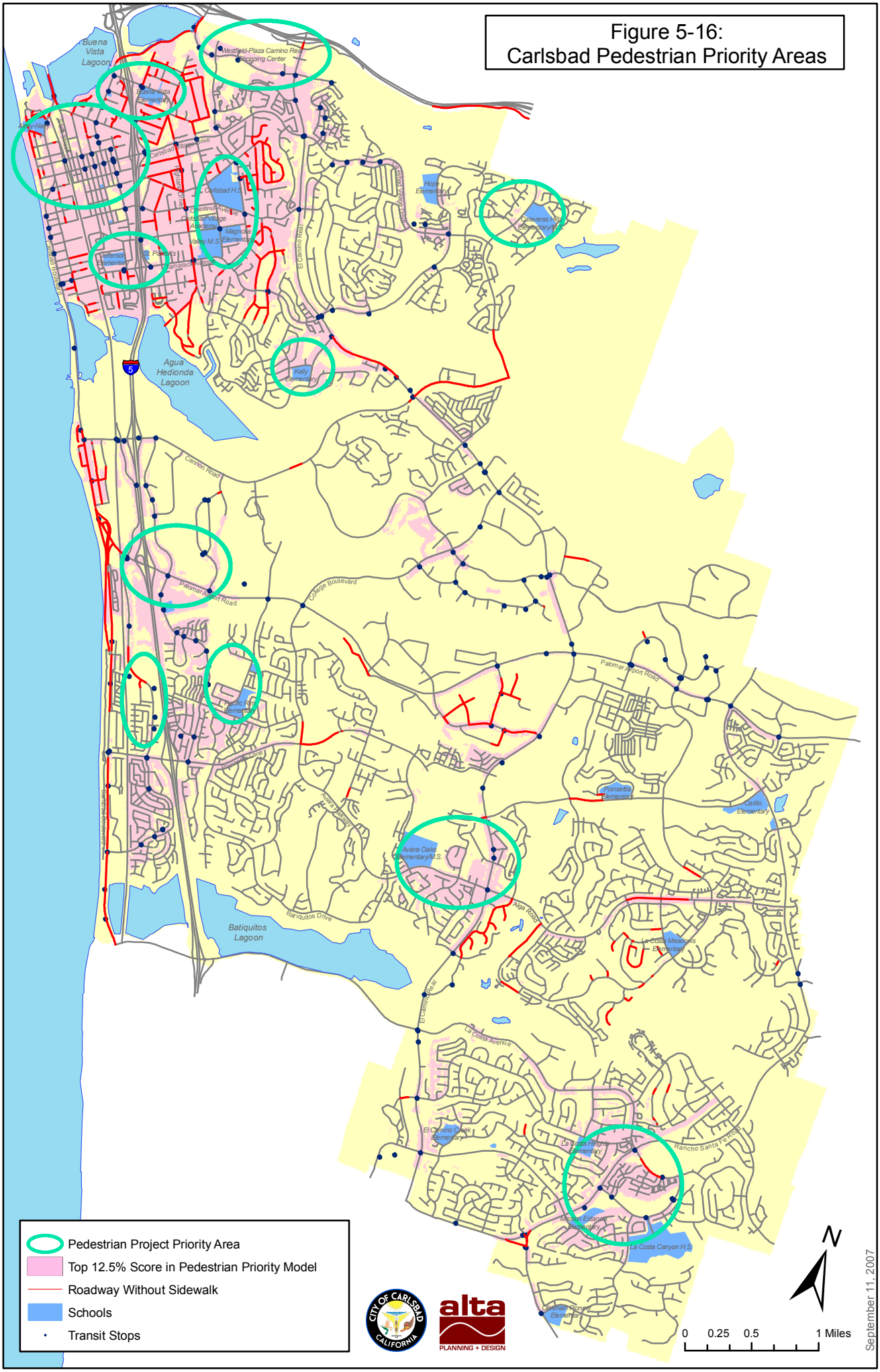


Figure 5-16:
Carlsbad Pedestrian Priority Areas
Pedestrian Project Priority Area
Top 12.5% Score in Pedestrian Priority Model
Roadway Without Sidewalk
Schools
Transit Stops
CITY OF CARLSBAD CALIFORNIA
alta PLANNING + DESIGN
N
0 0.25 0.5 1 Miles
September 11, 2007

6.0 Recommended Projects

This chapter discusses capital project recommendations for Carlsbad's pedestrian network. These infrastructure improvements are intended to enhance pedestrian access and circulation as well as help pedestrians feel more comfortable when walking in Carlsbad. This chapter focuses on engineering and infrastructure. Chapter 7 discusses programs and other non-infrastructure improvements to enhance the walking environment in Carlsbad.

A number of recommendations are made for infrastructure projects that should be implemented on a broad citywide basis. These projects were divided into six major categories of improvements: Infill of Sidewalk Gaps, Americans with Disabilities (ADA) Improvements, Signalized Intersections, Uncontrolled Crosswalk Improvements, Signage Improvements, and Safe Routes to School. As part of the citywide improvement project descriptions, specific recommendations are made for prioritizing these improvements, so that the city can implement them in a logical manner based on the areas of greatest need first. The pedestrian needs analysis presented in Chapter 6 provided the foundation for project prioritization.

Following the citywide project recommendations, fifteen (15) of the highest priority project locations are identified and shown with preliminary project improvement plans. These projects seek to improve specific intersections, corridors, or other locations that were identified through the existing conditions review, extensive public input, and the pedestrian needs analysis.

Project implementation requires that all pedestrian projects and programs be implemented through Carlsbad's Capital Improvement Program process. This includes a public review process and project approval from the City Council. Cost estimates for the projects discussed in this chapter are shown in **Appendix B** of this plan. Total costs for implementing the capital improvements described in this chapter is approximately $23 million.

6.1 Pedestrian Facility Prioritization

Pedestrian facilities were prioritized through a multi-part process which relied upon public input (see Appendix A), the pedestrian needs analysis presented in Chapter 5, and project team field reviews. This extensive data was utilized to develop a listing of twenty-seven (27) corridors and sixty-six (66)

intersections that should receive priority from the City as it pursues pedestrian improvement projects.

Appendix C displays the priority corridors and intersections, along with each facility's ranking. **Figure 6-1** displays the location of priority corridors and intersections across the City of Carlsbad.

6.2 Citywide Pedestrian Improvements

This section summarizes recommended improvement projects applicable on a citywide basis and those identified for application to priority corridors and intersections.

6.2.1 Infill of Sidewalk Gaps

Sidewalk gaps are areas in Carlsbad where there are no sidewalks, or the sidewalk ends abruptly, resulting in a discontinuous pedestrian network. Areas without sidewalks may force pedestrians to walk along the edge of the roadway, or may cause pedestrians to cross at undesignated crossing locations. Providing a continuous pedestrian sidewalk along all of Carlsbad's roadways is recommended. **Figure 6-2** displays locations of roadway segments in Carlsbad with sidewalks missing on both sides of the roadway. Appendix B lists roadway segments in Carlsbad where sidewalks are missing along both sides of the street. The length of the missing sidewalk is shown along with an overall cost associated with completing all sidewalk infill projects across Carlsbad. As shown in Appendix B, there are approximately 275,620 feet–or 52.2 miles–of missing sidewalks in the City of Carlsbad. The majority of the missing sidewalks are in the Northwest quadrant, east of I-5 and north of Tamarack Avenue. Some of the roadways in the Northwest quadrant are classified as Alternative Design Streets, in which case, the City may forego sidewalk infill. In locations near schools, however, it is recommended that the City pursue sidewalk infill for improved safety of children walking to and from school.

RECOMMENDATION: As a first priority, Carlsbad should fill sidewalk gaps located in the Village area. A second priority is to complete missing sidewalk segments along Carlsbad Boulevard.

List of Tables

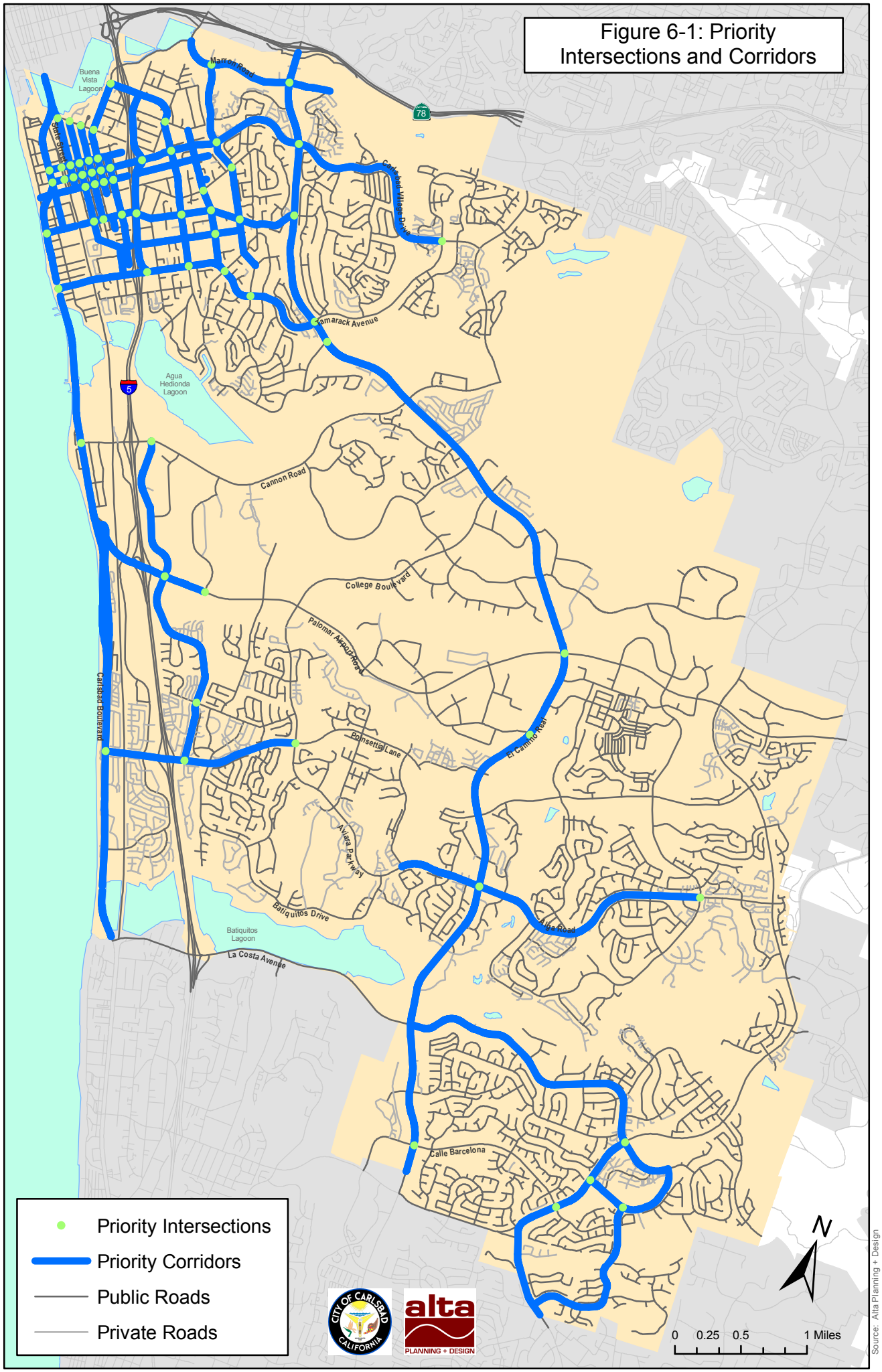


Figure 6-1: Priority Intersections and Corridors
Buena Vista Lagoon
Marron Road
Sonro Street
78
Carlsbad Village Drive
Tamarack Avenue
5
Agua Hedionda Lagoon
Cannon Road
College Boulevard
Palomar Airport Road
Carlsbad Boulevard
Poinsettia Lane
El Camino Real
Aviara Parkway
Batiquitos Drive
Batiquitos Lagoon
La Costa Avenue
Alga Road
Calle Barcelona
Priority Intersections
Priority Corridors
Public Roads
Private Roads
CITY OF CARLSBAD CALIFORNIA
alta PLANNING + DESIGN
N
0 0.25 0.5 1 Miles
Source: Alta Planning + Design

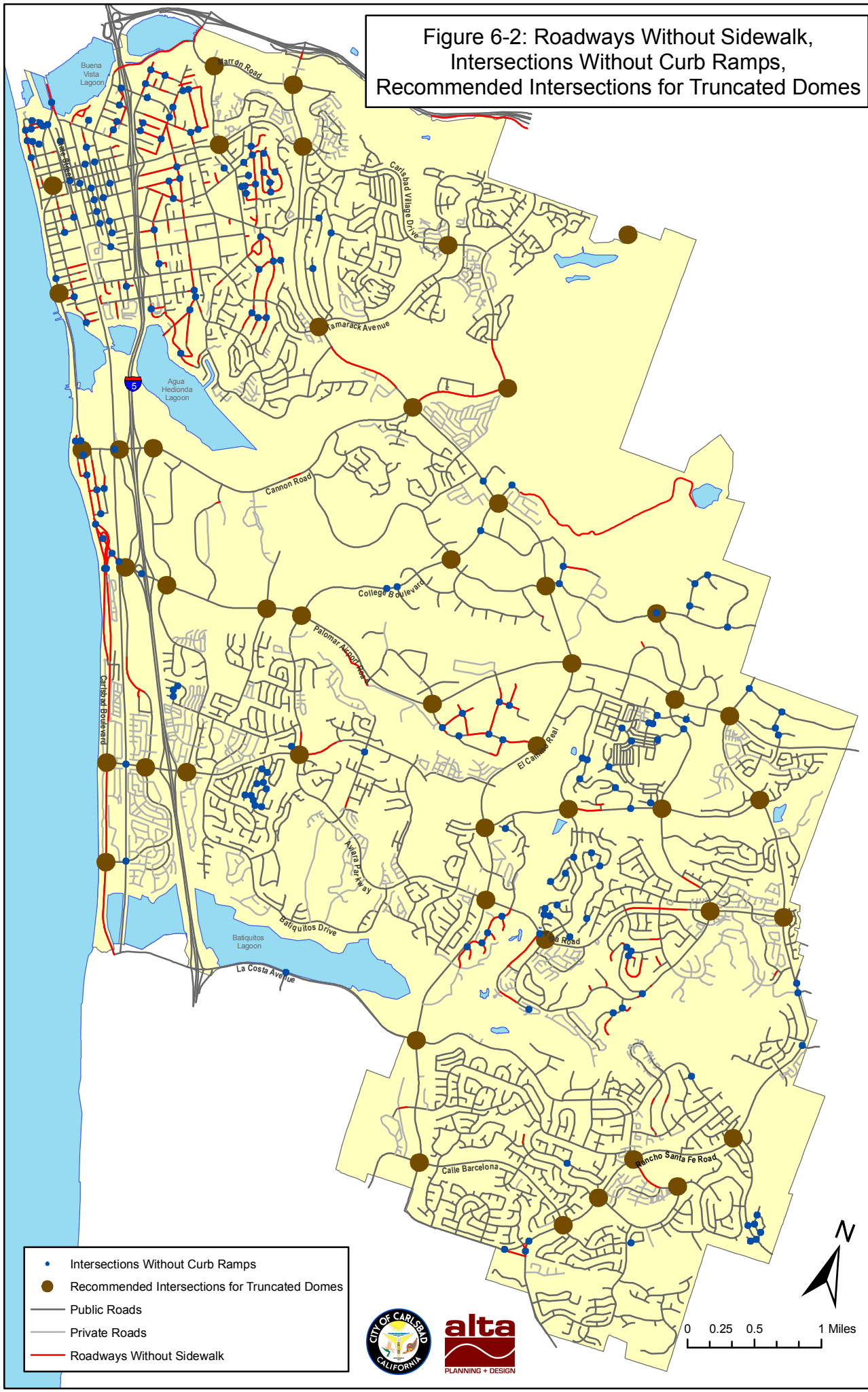


Figure 6-2: Roadways Without Sidewalk, Intersections Without Curb Ramps, Recommended Intersections for Truncated Domes
Buena Vista Lagoon
Harbor Drive
Carlsbad Village Drive
Tamarack Avenue
Agua Hedionda Lagoon
Cannon Road
College Boulevard
Palomar Airport Road
Carlsbad Boulevard
El Camino Real
Aviara Parkway
Batiquitos Drive
Batiquitos Lagoon
La Costa Avenue
Calle Barcelona
Rancho Santa Fe Road
Intersections Without Curb Ramps
Recommended Intersections for Truncated Domes
Public Roads
Private Roads
Roadways Without Sidewalk
CITY OF CARLSBAD CALIFORNIA
alta PLANNING + DESIGN
N
0 0.25 0.5 1 Miles
Source: City of Carlsbad; Alta Planning + Design (2007)

1.0 Introduction

The City of Carlsbad Pedestrian Master Plan guides the future development and enhancement of pedestrian facilities within the city, and intends to make walking an integral mode of transportation in Carlsbad. This plan was developed with extensive input from the community and seeks to meet Carlsbad's needs and desires for pleasant, enjoyable and safe places to walk.

What will Carlsbad be like for pedestrians in the future? This Master Plan offers a vision of a future Carlsbad where:

- People can conveniently walk to their destinations.
- People feel safe walking.
- Facilities are provided for people from all age groups.
- People with disabilities are more easily mobile.
- Visitors are attracted to the enhanced walking environment.
- Commercial streets are exciting places to visit.

The goals, policies and strategies outlined in this Plan can turn this vision into a reality. It includes phased recommendations that will encourage people to walk more for short trips, enhance the environment for people with disabilities and children walking to school, and lead overall to an increase in the number of pedestrian trips. It focuses on enhancing pedestrian safety in crosswalks and along streets, and provides a blueprint for improving residents' quality of life, creating a more sustainable environment, and reducing traffic, noise and energy consumption.

Carlsbad City leaders, staff and residents are committed to ensuring that future growth results in a city with a truly multi-modal transportation network, where pedestrian facilities are fully integrated and residents can walk comfortably and pleasurably between a variety of destinations. This pedestrian plan builds on Carlsbad's past planning efforts to enhance the pedestrian environment in future development. Providing these walking opportunities will decrease residents' dependence on vehicles, and will help to preserve and promote Carlsbad as a place where people want to live, work, and visit.

1.1 Setting

The City of Carlsbad is situated in the northwest corner of San Diego County along the Pacific Ocean. It encompasses approximately forty square miles of land, and is bordered on the north by the City of Oceanside, on the northeast by the City of Vista and the unincorporated County of San Diego, on the east by the City of San Marcos, and on the south by the City of Encinitas. With a current population of about 104,000, it is the fifth most populated city in the San Diego region. The topography of Carlsbad varies, with three significant lagoons traversing the city east to west (Buena Vista Lagoon, Agua Hedionda Lagoon, and Batiquitos Lagoon). **Figure 1-1** displays the City of Carlsbad within the San Diego region.

One of the most vibrant areas of pedestrian activity in the City of Carlsbad is its downtown, known as the Carlsbad Village. The "Village" has a unique development character and is noted for its attractive architecture, shopping, dining, public art and inviting pedestrian streetscape. The Village is situated in the western part of what is known as Olde Carlsbad – the boundaries of the City's original incorporation (south of Buena Vista Lagoon, north of Cannon Road, and west of El Camino Real). Olde Carlsbad is part of the more urbanized northern half of the City, and possesses quaint residential communities to the east of the Village which integrate rustic character into an attractive urban setting.

The central portion of the City surrounding McClellan-Palomar Airport functions as a large base for office and industrial employment. Residential development is limited in this area due to the proximity of the airport and industrial uses. The remaining parts of Carlsbad, to the east and south

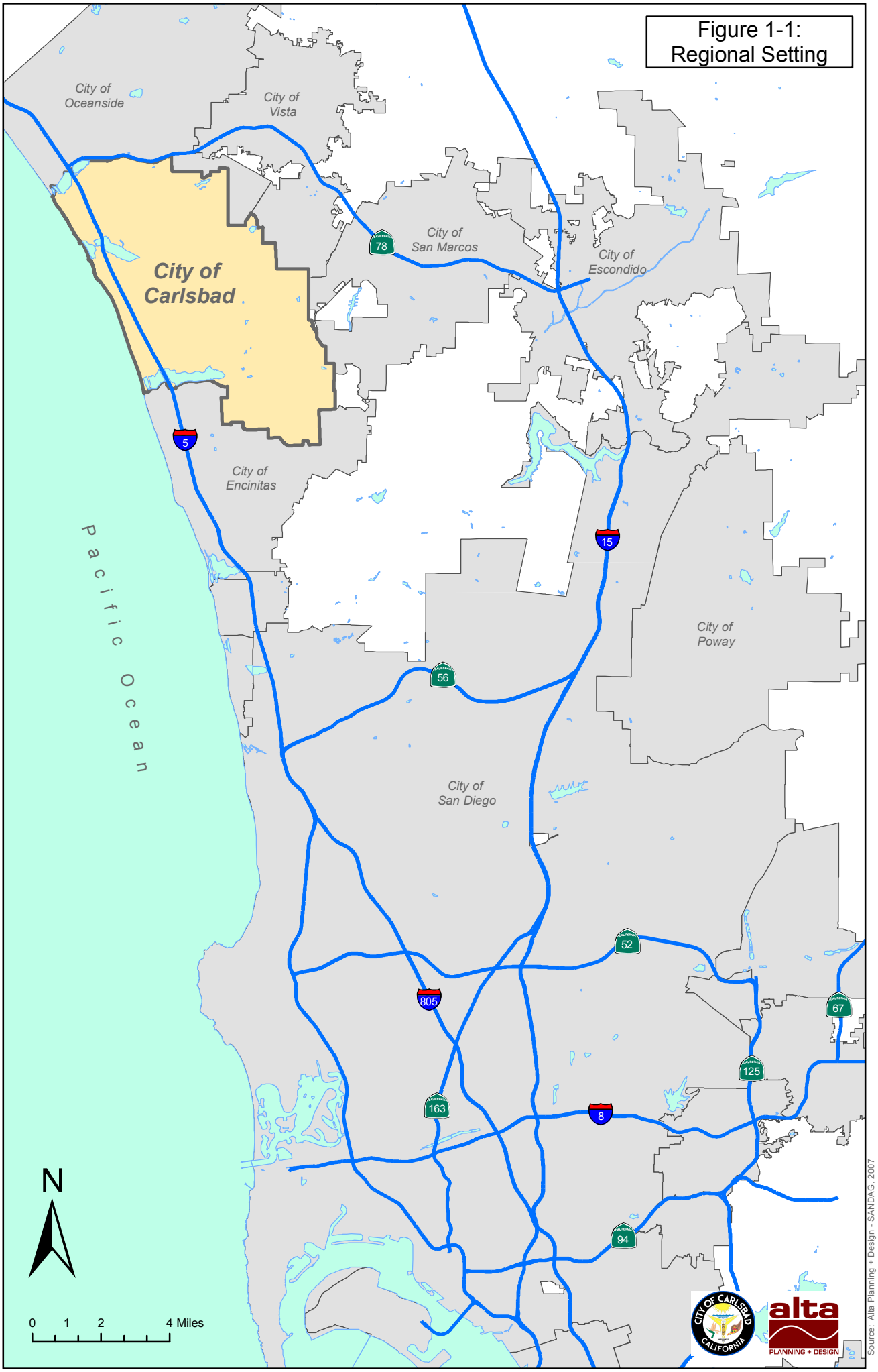


Figure 1-1:
Regional Setting
City of Oceanside
City of Vista
City of San Marcos
City of Escondido
City of Carlsbad
City of Encinitas
City of Poway
City of San Diego
Pacific Ocean
5
78
15
56
52
805
67
125
163
8
94
N
0 1 2 4 Miles
Source: Alta Planning + Design - SANDAG, 2007