CITY OF

Solana Beach

CALIFORNIA

COMPREHENSIVE ACTIVE TRANSPORTATION STRATEGY

Prepared For:

City of Solana Beach
635 South Highway 101
Solana Beach, Ca 92075

Prepared By:

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RECON

City of Solana Beach
Comprehensive Active Transportation Strategy

Final Plan

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1.0 Introduction

1.1 Plan Background and Purpose

The Solana Beach Comprehensive Active Transportation Strategy (CATS) lays the foundation for bicycle and pedestrian improvements within the City of Solana Beach for the next fifteen years. This plan focuses on enhancing the safety and comfort of existing bicycle and pedestrian facilities and increasing connectivity to key attracting land uses such as schools, commercial/retail districts, and recreational resources.

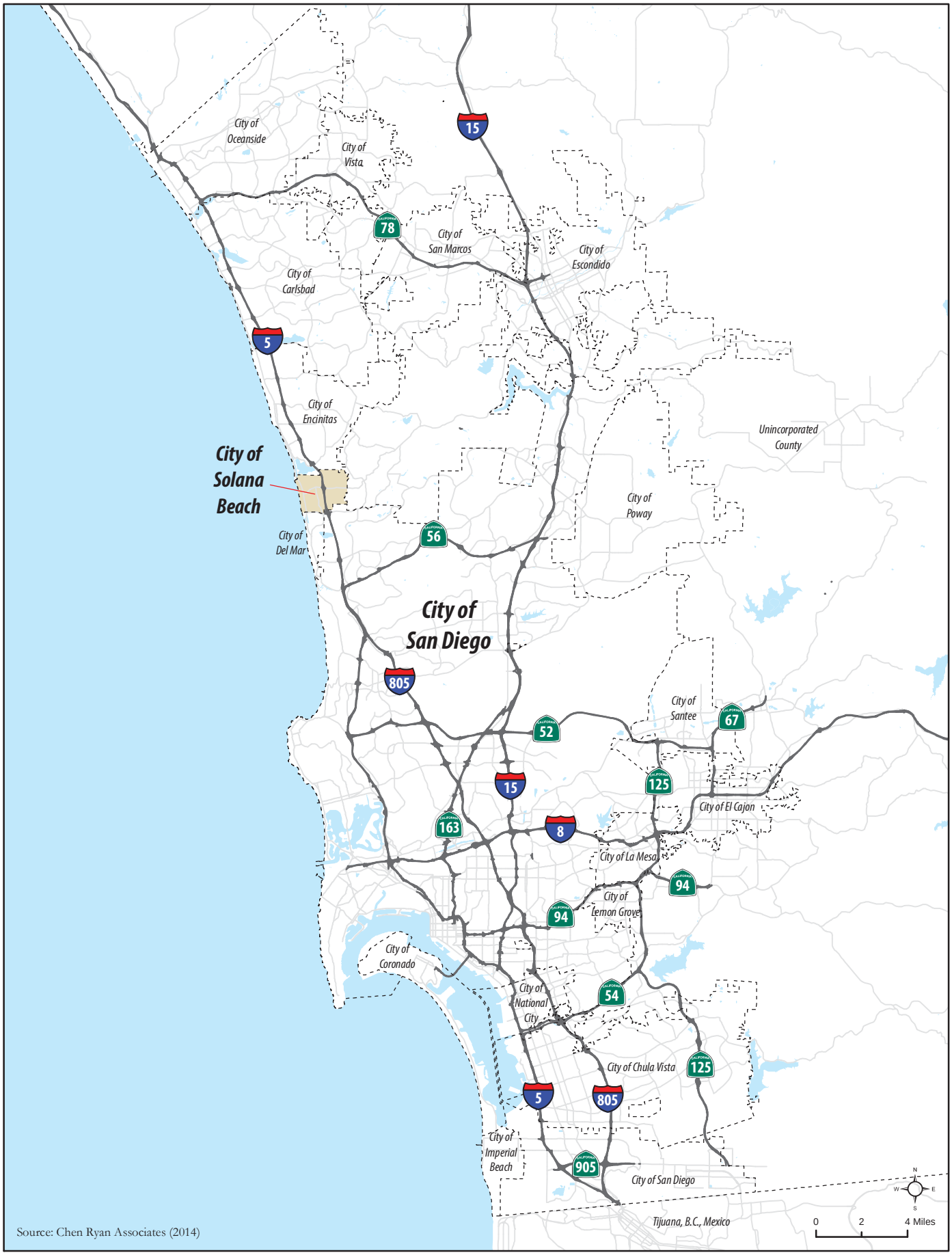
It has been over twenty years since the City of Solana Beach last adopted a comprehensive bicycle master plan. The CATS plan will provide a comprehensive update to the City's Bicycle Master Plan (BMP) which was adopted in 1993 with two subsequent addenda in 1996 and 2005. The City does not have a currently adopted pedestrian master plan. Since adoption of the bicycle master plan, the City has experienced many changes: population has increased, travel demands across the roadway network have changed, and the Coaster commuter rail began service. Additionally, in 2012 the City initiated a comprehensive update to its General Plan, including the Circulation Element, which sets forth a future vision for mobility in Solana Beach. The CATS planning process took these changes into account, and reflects them through the recommendations provided.

1.2 Setting

The City of Solana Beach occupies approximately 3.5 square miles and is located 25 miles north of downtown San Diego. It is bounded by the Pacific Ocean to the west; Encinitas to the north; Del Mar to the south; and the unincorporated community of Rancho Santa Fe to the east. It is bisected in the north-south direction by Interstate 5, and traversed by Lomas Santa Fe Drive from east to west. **Figure 1-1** displays the City of Solana Beach within the region.

Cyclists pass a bus stop on S. Highway 101.

The City is predominantly built out with less than 1% of land undeveloped. Future development in Solana Beach will occur primarily through infill and redevelopment. The community has a multi-modal network of public transit routes comprised of rail (Coaster/Amtrak) and bus (Breeze). The rail line traverses the community from north to south connecting Solana Beach to the neighboring city of Encinitas to the north and greater San Diego area to the south. Two bus routes supplement the Coaster/Amtrak line, providing for local and regional connections.



Source: Chen Ryan Associates (2014)

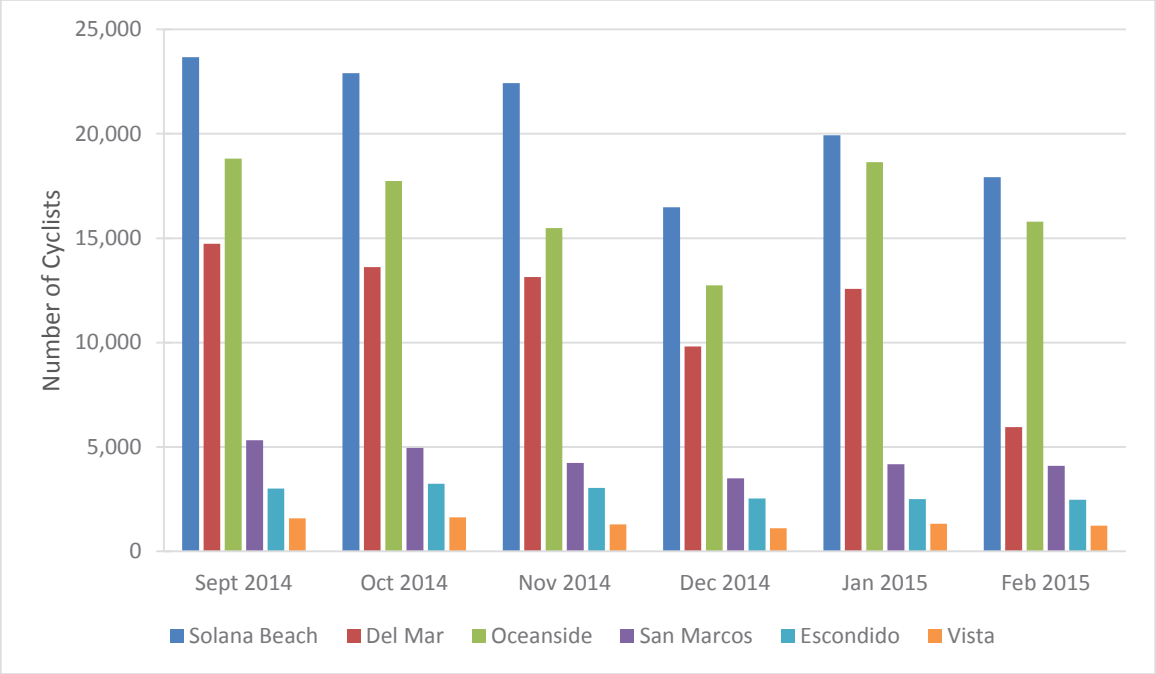
Solana Beach Comprehensive Active Transportation Strategy

Figure 1-1
City of Solana Beach within the Region

CHEN RYAN

As shown in **Chart 1-1**, relative to other North County San Diego cities, Solana Beach has very high cycling demands. The cycling volumes displayed were collected from 24-hour continuous automated counters permanently installed across the region. The Solana Beach counter located on Highway 101 recorded an average of approximately 20,500 cyclists per month from September 2014 to February 2015, compared to 16,500 in Oceanside, the second greatest monthly average among the six cities analyzed. This indicates Solana Beach experiences relatively high cycling demand when compared to other cities in northern San Diego County.

Chart 1-1 Comparing Bicycle Volumes by Month (2014 – 2015)



Source: San Diego State University Active Transportation Research, 2015; Chen Ryan Associates, March 2015

Active transportation in Solana Beach is supported by the advocacy group BikeWalkSolana (www.bikewalksolana.org) which aims to generate community support and awareness for active travel within the City. BikeWalkSolana serves as the voice of the citizens of Solana Beach to assist the City in the following ways: 1) developing guidelines and policies for cyclists, pedestrians, and travelers; 2) fostering growth of cycling and walking within Solana Beach; and 3) providing a resource center for educating the public. BikeWalkSolana was a useful resource during this planning process for engaging the community and providing user knowledge of the local bicycle and pedestrian environments.

Several key planning efforts and legislative actions of the past decade have redefined the way community transportation planning is carried out including Assembly Bill 1358 – The Complete Streets Act, Senate Bill 375, the San Diego Regional Comprehensive Plan, and the SANDAG Active Transportation Grant Program. A unifying theme among these documents is to achieve a more balanced, multi-modal transportation system that increases the travel mode options for all users, with a particular focus on active transportation.

The Complete Streets Act was approved by the State of California on September 30, 2008. Starting January 1, 2011, this act requires that the legislative body of a city or county plan for a balanced, multimodal transportation network that meets the needs of all roadway users, defined to include motorists, pedestrians, bicyclists, children, persons with disabilities, seniors, movers of commercial goods, and users of public transportation, in a manner that is suitable to the rural, suburban, or urban context of the general plan.

Bike racks, a green-backed sharrow, pedestrian scale lighting, high visibility pedestrian signs, and a mid-block crossing are features all present in this image of Highway 101.

In 2008, Senate Bill 375 was adopted, requiring California metropolitan planning organizations to formulate a "sustainable communities strategy" (SCS) as part of their regional transportation plans, specifically identifying how the region will achieve targeted reductions in greenhouse gas emissions from automobiles and light trucks. SANDAG adopted the region's first SCS in October 2011, making it the first agency in California to do so.

The current San Diego Regional Comprehensive Plan (RCP) was adopted by SANDAG in 2004, proposing a land use transportation strategy that directs new growth to already urbanized areas, in mixed-use high-density nodes served by high capacity transit and including high quality bicycle and pedestrian improvements. The Smart Growth Concept Map was developed to help implement the RCP by identifying existing, planned, and potential areas to focus smart growth throughout the region. The 2012 Smart Growth Concept Map, identifies a smart growth "Town Center" in the downtown area of Solana Beach. This smart growth area represents a great opportunity for Solana Beach to competitively pursue funds from the *TransNet* Smart Growth Incentive Program which, according to SANDAG, "funds transportation-related infrastructure improvements and planning efforts that support smart growth development."

Following these trends, the Solana Beach CATS project is funded by the SANDAG Active Transportation Grant Program which serves to encourage local jurisdictions to promote multi-modal travel choices. The program awards competitive grants to local jurisdictions to develop and provide bicycle parking, education, encouragement, and awareness programs in support of bicycle and pedestrian infrastructure. Taken together, these developments and associated planning initiatives reflect a growing recognition that our communities should be working to reduce reliance on automobile travel and to increase the ease of walking, bicycling and using transit to support daily life.

1.3 Benefits of Walking and Bicycling

Increasing bicycling and walking is viewed as one method to positively contribute to the many complex issues faced by local jurisdictions, including public health, traffic congestion, emissions reduction and economic growth. In response to this, many cities and regional planning agencies are placing increased emphasis on bicycle and pedestrian mobility. The following points present a snapshot of recent research performed regarding the potential benefits of walking and bicycling.

Bicycle and pedestrian activity is common on Highway 101.

- Active commuting that incorporates cycling and walking is associated with an overall 11% reduction in cardiovascular risk[1].
- Bicycling to school improves children's cardiorespiratory fitness[2].
- A San Francisco Bay Area study found that increasing biking and walking from 4 to 24 minutes a day on average would reduce cardiovascular disease and diabetes by 14% and decrease GHGE by 14%[3].
- Youth who bike or walk to school have less excess weight and body fat than those who take a bus or car[4].
- The benefits of investments in cycle networks are estimated to be at least 4-5 times the costs, making such investments more beneficial to society than other transport alternatives[5].
- Houses located in areas with above-average levels of walkability [or bikeability] are worth up to $34,000 more than similar houses in areas with average walkability levels[6].
- Bicycle and pedestrian infrastructure projects create up to double the jobs (11-14) of road infrastructure projects (7) per $1 million spent[7].

[1] Harmer, M., Chida, Y. "Active commuting and cardiovascular risk: A meta-analysis review." *Preventative Medicine* 46 (2007): 9-13.

[2] Borrestad, L., et. Al. "Experiences from a randomized controlled trial on cycling to school: Does cycling increase cardiorespiratory fitness?" *Scandinavian Journal of Public Health* 7 (2012).

[3] Maizlish, N., et. Al. "Health Cobenefits and Transportation-Related Reduction in Greenhouse Gas Emissions in the San Francisco Bay Area." *American Journal of Public Health* 103.4 (2013): 703-709.

[4] Silva, K., Lopes, A. "Excess weight, arterial pressure and physical activity in commuting to school: Correlations." *Archives of Brazilian Cardiology* 91 (2008): 84-91.

[5] Saelnsminde, K. "Cost-benefit analyses of walking and cycling track networks taking into account insecurity, health effects, and external costs of motorized traffic." *Transportation Research* 38 (2004): 593-606.

[6] Cortight, J. "Walking the Walk: How walkability raises home values in U.S. cities." *CEOs for Cities* (2009).

[7] Garrett-Peltier, H. "Estimating the employment impacts of pedestrian, bicycle, and road infrastructure." *Political Economy Research Institute, University of Massachusetts, Amherst* (2010).

1.4 Organization of the Plan

Following this introductory chapter, the remainder of this document is organized into the following chapters:

Chapter 2 describes the community involvement efforts, including the development of a project fact sheet and website, community surveys, targeted outreach, two community workshops, and the Project Working Group (PWG).

Chapter 3 presents the goals of the CATS and supporting policies that will be used to achieve the goals.

Chapter 4 summarizes the existing conditions related to bicycling and walking within Solana Beach, including a description of the bicycle and pedestrian network's physical and operational conditions, support facilities, and other active transportation programs.

Chapter 5 presents the needs analysis for bicyclists and pedestrians in Solana Beach. The chapter includes a review of estimated active transportation demand and the identification of network deficiencies. The chapter concludes with the identification of network opportunities and constraints.

Chapter 6 identifies the active transportation network recommendations, including the planned bicycle network and facility classifications and the pedestrian and traffic calming focus areas. The process used to prioritize individual network segments and the resulting high-priority projects are also described in this chapter.

Chapter 7 describes the proposed program recommendations to support active transportation in Solana Beach. The programs are categorized as follows, education, encouragement, enforcement, evaluation, and an active transportation monitoring program.

Chapter 8 presents a near-term and longer range implementation plan along with high-priority project concept sheets. Additionally, a summary of available funding sources for the City to consider pursuing is provided.

2.0 Community Involvement

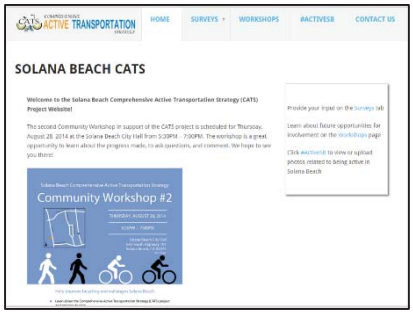
Public participation was an important component throughout the Solana Beach CATS development, encompassing a variety of outreach strategies targeting a diverse range of community members and stakeholders. Key outreach strategies included distribution of a project fact sheet, maintaining a project website, community surveys, targeted community group outreach, community workshops, and a project working group. This section serves to describe the public engagement methods outlined above and how the input from community members shaped the final CATS.

2.1 Project Fact Sheet

A one-page project fact sheet was developed to raise awareness of the project and briefly summarize the project purpose. The fact sheet was made available in English and Spanish and distributed at public meetings, during on the street outreach, at stakeholder group meetings, and various community group meetings. In addition to a project description, the fact sheet described methods to get involved in the planning process, provided the project website address and project manager contact information.

2.2 Project Website

The Solana Beach CATS project website (www.sbcats.com) served as the online source for project information. Website visitors could view and print the project fact sheet and learn about project updates. The draft Existing Conditions Report was made available for download and visitors had the option to leave comments or complete pedestrian and bicycle surveys (the community surveys are detailed in the following section). Upcoming workshops were advertised on the workshop and brief workshop summaries were also provided.

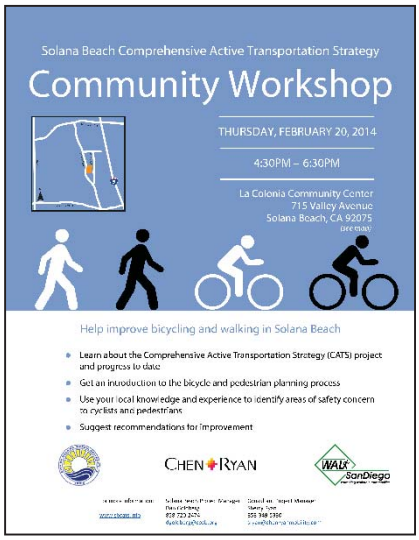


2.3 Community Surveys

Two surveys were prepared to obtain feedback regarding community members' impressions of existing bicycle and pedestrian facilities and opinions about adding new bicycle and pedestrian in Solana Beach. The bicycle survey responses were collected via 81 in-person surveys conducted at community events and 54 online surveys, available through the project website (www.sbcats.info), for a total sample of 135 completed bicycle surveys. Additionally, 92 in-person surveys and 168 online pedestrian surveys were collected, for a total sample of 227 pedestrian surveys.

2.4 Community Workshops

Community Workshop #1



The first of two community workshops in support of the Solana Beach CATS was held at the La Colonia Community Center on February 20, 2014. The identified workshop goals included:

1. Community members to provide input regarding specific locations of safety concern to pedestrians and cyclists.
2. Suggest solutions and opportunities for improvement.
3. Share local knowledge from experience in Solana Beach as a pedestrian, a cyclist, and a motorist.

The workshop started with a PowerPoint presentation where attendees were introduced to the bicycle and pedestrian planning process through an overview of different bicycle facilities and pedestrian crossing treatments and amenities. The presentation drew from examples of bicycle and pedestrian facilities both within Solana Beach and from outside.

Additionally, two map figures were displayed on large plots (36” x 48”), one showing the existing bicycle network and another displaying the roadway network and streets with existing sidewalks. Attendees were invited to mark up locations of concerns to bicyclists or pedestrians. Section 5.2.3 of this document summarizes the deficiencies identified by workshop participants and includes a map figure displaying the locations of their comments. This input was further used in the prioritization process described in Chapter 6.

Community Workshop #2

The second community workshop served to present and obtain feedback on the proposed bicycle network and facility classifications and the proposed pedestrian and traffic calming focus areas. A presentation was provided, describing each of the facility types in greater detail and showing example images. This was followed by a group exercise where attendees were invited to mark up map figures displaying the proposed networks. The feedback was intended to be focused on both the facility type and the location. Attendees were asked to consider the following:

- Is the proposed facility type appropriate for the environment?
- Do the proposed networks adequately address the needs of cyclists and pedestrians?

After obtaining input on the proposed networks, the presentation resumed by describing the proposed process to rank the importance of implementing individual project segments. Each of the individual criteria were discussed and then the draft prioritized networks were presented. Attendees were invited to look at each prioritized network and record their impressions of the rankings. Finally, the proposed supporting programs were presented for comment by community members.

2.5 Project Working Group

A Project Working Group (PWG) was established to serve as a community advisory group throughout the project and to complement other community engagement strategies. The purpose of the PWG was to engage a wide range of perspectives and interests in developing recommendations and guidance for the CATS and to provide feedback on key deliverables. Initial efforts sought to establish a group of roughly ten representatives from local agencies, community members, emergency personnel, bicycle/pedestrian organizations, and the school district.

Three PWG meetings were held over the course of the project. The initial meeting served to introduce PWG members to the project and identify project objectives, and the goal of the PWG. Additionally, a mapping exercise was conducted to identify specific locations of concern related to bicycle and/or pedestrian travel throughout Solana Beach.

The second PWG meeting was held following the completion of extensive existing conditions analysis, and included a review of many of the existing conditions materials, including the Active Transportation Propensity Model and submodels, Active Transportation Need Model and Detractor Submodels, and initial network recommendations. Examples of bicycle and pedestrian programs from other jurisdictions were also shared with PWG members at the second meeting to gain their input on what types of programs are needed and would be successful in Solana Beach.

The proposed CATS networks and facility types were presented to PWG members at the third meeting for review and comment. Additionally, a refined list of supporting programs was shared with members. A draft outline of the Final CATS document was also presented for comment.

2.6 Communities of Concern

A concerted outreach effort was focused on engaging low-income and minority community members in the City of Solana Beach. The La Colonia de Edens Garden Foundation, a local community group in the one Solana Beach neighborhood (Eden Gardens) where low-income and minority populations are concentrated, as well as Velo Hangar/Alternabike, a bike shop also located within this neighborhood, were targeted for outreach. Surveys and project sheets were made available at the bike shop to help reach those community members.

Additionally, presentations were provided to two school associations, Earl Warren and Solana Vista Elementary School, with the intent of engaging families in the La Colonia de Eden Gardens neighborhood. At each meeting, a presentation was given reviewing the CATS project and background along with the project fact sheet. The presentation covered the project timeline, goals, and future opportunities for community input, followed by a brief discussion regarding walking and biking issues experienced around the schools and throughout Solana Beach. The full report prepared by Circulate San Diego, who served as the community outreach consultant on this project, is provided in **Appendix A**.

3.0 Goals & Policies

The Solana Beach CATS goals and objectives outlined below were largely drawn from the Solana Beach Circulation Element Update, which was in draft format and undergoing public review during the CATS preparation. Additionally, the draft CATS goals and objectives were shared with members of the public for comment at the first community workshop, at a Project Working Group meeting, and at BikeWalkSolana meetings.

Goal B-1.0: Correlated land use and circulation planning.

Policy B-1.1: Require new development to provide and enhance connectivity to existing transportation facilities via the provision of key roadway connections, sidewalks, and bicycle facilities.

Policy B-1-2: Require new development and redevelopment to provide good internal circulation facilities that meet the needs of pedestrians, bicyclists, children, seniors, and persons with disabilities.

Policy B-1.3 Require new or expanded land uses to provide adequate bicycle parking and support facilities.

Goal B-2.0: A comprehensive circulation network to move people and goods safely and efficiently for all modes of travel.

Policy B-2.1: Utilize multi-modal performance indicators to periodically evaluate the City's transportation system, with attention to the following guiding framework:

- Balanced Facilities *(Multi-Modal Boulevard and Community Connector)* – Seek balanced performance of automobile, transit, bike and pedestrian circulation.
- Bicycle Prioritized *(Bicycle Boulevards)* – Prioritize bicycle travel through the provision of wayfinding signage, pavement markings every 250 to 500 feet, and traffic calming measures considered every 1,000 feet.
- Bicycle and Pedestrian Prioritized *(Pedestrian Corridors and Multi-Use Path)* – Prioritize pedestrian and bicycle circulation through the provision of physically separated bicycle and/or pedestrian facilities.

Policy B-2.2 Pursue measures to reduce congestion at intersections, while also balancing the needs of pedestrians, cyclists and transit riders.

Policy B-2.3 Develop a program to measure and monitor changes in active transportation/travel.

Goal B-3.0: Adequate measures to ensure traffic safety.

Policy B-3.1 Continue to improve bicycle and pedestrian facilities by providing ongoing maintenance that ensures the safety of all users of the roadway system.

Policy B-3.2 Enhance connectivity by eliminating gaps and barriers in roadway, bikeway, and pedestrian networks.

Policy B-3.3 Implement traffic calming techniques, where appropriate, as a means to improve safety, increase efficiency of pick-up and drop-off operations at schools, and provide greater separation between pedestrians and vehicles.

Goal B-4.0: Adequate funding to support build-out of the City's multi-modal transportation system, linked to the capital improvements program.

Goal B-5.0: Compatibility with the regional mobility system.

Policy B-5.1 Consult with SANDAG regarding Active Transportation programs and grant opportunities for capital and planning-related bicycle, pedestrian, and traffic calming efforts.

Policy B-5.2 Provide multi-modal support facilities near and to/from transit stops for bicyclists and pedestrians, including children and youth, the elderly, and persons with disabilities.

Goal B-6.0: Safe alternatives to motorized transportation that meet the needs of all city residents, reduce vehicle trips, save energy, and improve air quality.

Policy B-6.1 Encourage the use of non-motorized transportation modes.

Policy B-6.2 Prioritize attention to transportation issues along routes to schools in order to reduce school-related vehicle trips.

Policy B-6.3 Seek opportunities to reduce vehicle trips before requiring physical roadway improvements.

Goal B-7.0: A comprehensive and integrated bikeway system, providing for the safe and efficient movement of cyclists.

Policy B-7.1 Utilize demand-related and safety-related criteria to prioritize the implementation of active transportation projects.

Policy B-7.2 Develop a citywide bicycle network consisting of Class I bike paths, Class II bike lanes, Class III bicycle routes, and other innovative facilities such as cycle tracks, sharrows, buffered bike lanes, and bicycle boulevards.

Policy B-7.3 Maximize opportunities for citizen input to the process of planning a bikeway system.

Policy B-7.4 Maximize the use of public property (e.g., utility and drainage easements, railroad right-of-way) and lightly traveled roadways for bikeways.

Policy B-7.5 Expand and improve the bikeway system and facilities by establishing bike lanes, separated paths, and bicycle storage facilities at major destinations.

Policy B-7.6 Encourage cycling through education and promotional programs, in conjunction with the local school districts.

Policy B-7.7 Keep abreast of bicycle facility innovations in other cities and regions, and seek to incorporate these into the bicycle network.

Goal B-8.0: A universally accessible, safe, and convenient system of sidewalks or pathways throughout the city that encourages walking and is harmonious with the surrounding neighborhood.

Policy B-8.1 Prioritize pedestrian circulation near schools, public transit, recreational resources, and commercial/retail land uses.

Policy B-8.2 Develop a citywide pedestrian network consisting of sidewalks along roadways, trails, Class I multi-use paths, and pedestrian bridges.

Policy B-8.3 Provide connectivity of wide, well-lit walking environments with safety buffers between pedestrians and vehicular traffic, when feasible.

Policy B-8.5 Identify and implement necessary pedestrian improvements with special emphasis on providing safe access to schools, parks, community and recreation centers shopping districts, and other appropriate facilities.

Policy B-8.6 Promote walking and biking as the primary modes of travel to schools.

Policy B-8.7 Improve pedestrian safety at intersections and mid-block crossings.

Policy B-8.8 Reduce architectural barriers that restrict full movement and access by less mobile segments of the population consistent with the Americans with Disabilities Act.

Policy B-8.9 Apply universal design standards to the pedestrian system.

Policy B-8.10 Provide a continuous pedestrian network within and between neighborhoods to facilitate pedestrian travel free from major impediments and obstacles.

Policy B-8.11 Support the development of pedestrian corridors in key activity centers.

4.0 Existing Infrastructure & Programs

This chapter provides an overview of the existing land uses, bicycle and pedestrian facilities and supporting features and programs in the City of Solana Beach. Resources used in this analysis include geographic information system (GIS) files accessed via SANDAG, existing planning documents, satellite imagery, mapping analyses, and confirmation through field review.

4.1 Existing Land Uses

Table 4-1 summarizes current land uses in Solana Beach by acreage and percentage of total land area. The largest share of land within Solana Beach is dedicated to residential land uses, accounting for over half of total land area. Transportation land uses represent the second greatest portion of land (20.4%), followed by parks, recreation, and open space (12.8%).

Figure 4-1 displays existing land uses in the City of Solana Beach. Residential land uses are dispersed across Solana Beach with commercial and office uses spanning the length of Highway 101, concentrated on the western side of the street. This commercial corridor establishes the downtown area. Additional commercial uses are located along S. Cedros Avenue from Lomas Santa Fe Drive to just south of Rosa Street, and on both sides of Interstate 5, south of Lomas Santa Fe Drive. Recreational land uses include the beach and ocean running along the westernmost boundary of the City; the Coastal Rail Trail, a multi-use path running adjacent to Highway 101 for the entire length of the City; and La Colonia Park and Community Center, located between Stevens Avenue and Valley Avenue south of Lomas Santa Fe Avenue. Recreational resources just outside of the City limits include San Elijo Lagoon to the north of the City, and San Dieguito County Park just east of Solana Beach.

Table 4-1 Existing Land Uses

Land Use Classification	Acreage	Percent of Total
Residential	1180.5	53.9%
Transportation	446.3	20.4%
Parks, Recreation, Open Space	280.9	12.8%
Commercial & Office	146.5	6.7%
Education	65.8	3.0%
Other	32.9	1.5%
Undeveloped	20.4	0.9%
Industrial	15.5	0.7%
Civic Uses	3.3	0.2%

Source: SANDAG Current Land Use Shapefile, 2012; Chen Ryan Associates, March 2015

4.2 Existing Bicycle Network

The *California Highway Design Manual* defines a "Bikeway" as a facility primarily for bicycle travel. **Table 4-2** identifies the three standard bicycle facilities as recognized by the California Department of Transportation (Caltrans).

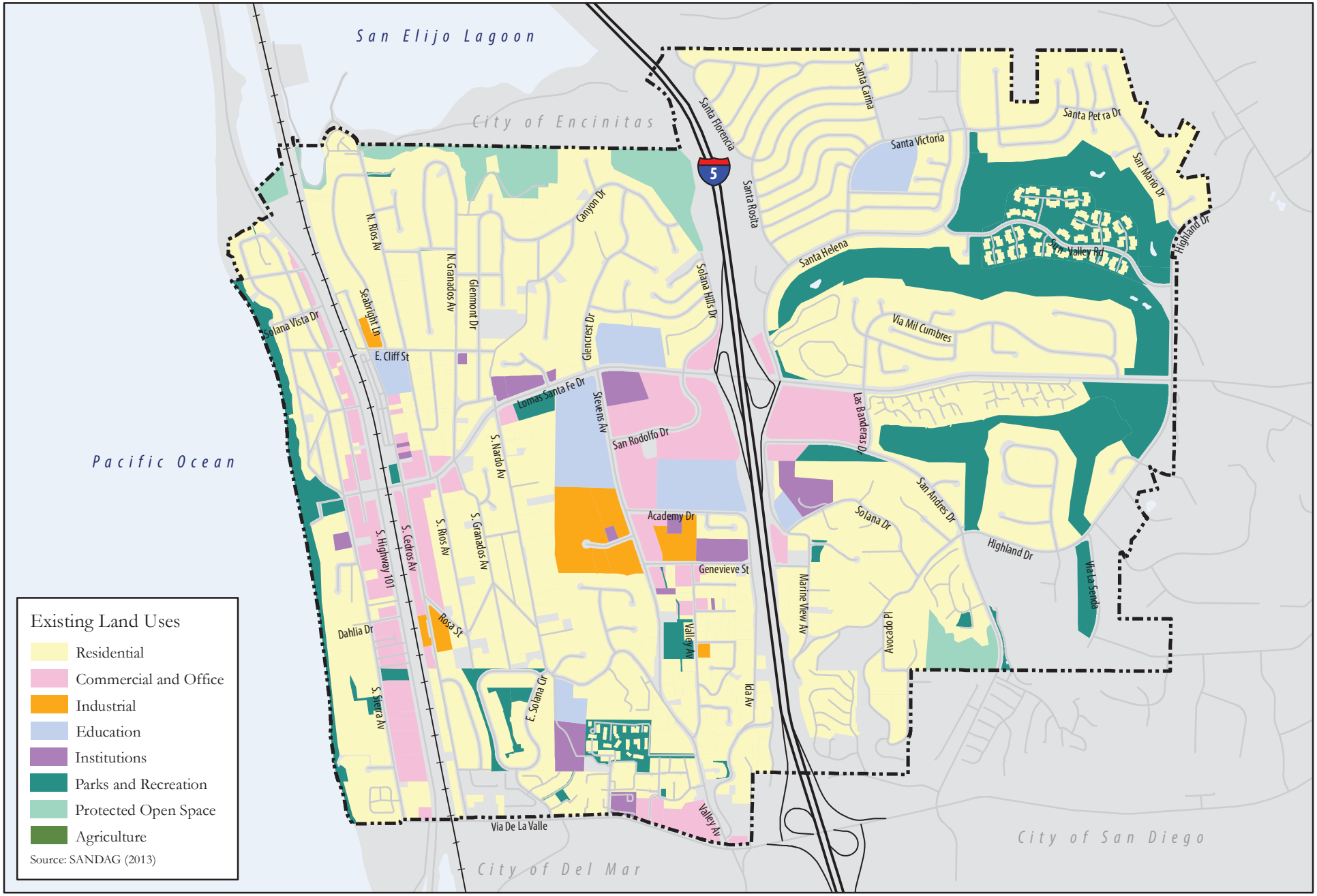


Figure 4-1
Existing Land Uses

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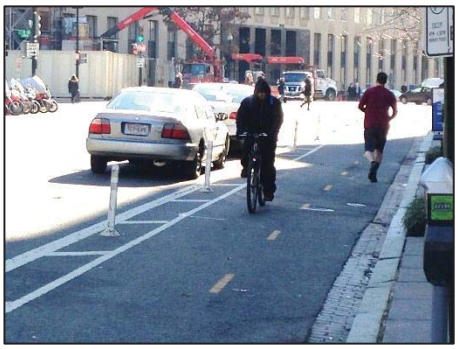
Table 4-2 California Bikeway Classification

Class Description	Example
Class I Bikeway (Bike Path) – Also referred to as shared-use paths or multi-use paths, Class I facilities are completely separated from vehicular traffic. Bike paths are exclusively for non-motorized use, such as bicycles and pedestrians. Bike paths can provide connections where roadways are non-existent or unable to support bicycle travel.	
Class II Bikeway (Bike Lane) – Provide a striped lane for one-way travel on streets and highways. The striped lane creates a defined space exclusively for bicycle use. Desired widths are 5 feet, and minimum widths are 4 feet.	
Class III Bikeway (Bike Route) – Provides shared use of traffic lanes with motor vehicles, identified only by signage and street markings such as "sharrows". Bike Routes serve to provide connections to other bicycle facilities or to designate preferred routes for bicycle travel. Solana Beach utilized green paint on Highway 101 to increase visibility of the sharrow symbols.	
Class IV Bikeway (Cycle Track) – Also referred to as separated bikeways, cycle tracks provide a right-of-way designated exclusively for bicycle travel within the roadway and physically protected from vehicular traffic. Types of separation include, but are not limited to, grade separation, flexible posts, or on-street parking.	

Source: California Highway Design Manual, 2012; Chen Ryan Associates, March 2015

The City of Solana Beach's existing bicycle network is comprised of Class I, II, and III facilities. **Figure 4-2** displays the existing bicycle network by facility type in the City of Solana Beach.

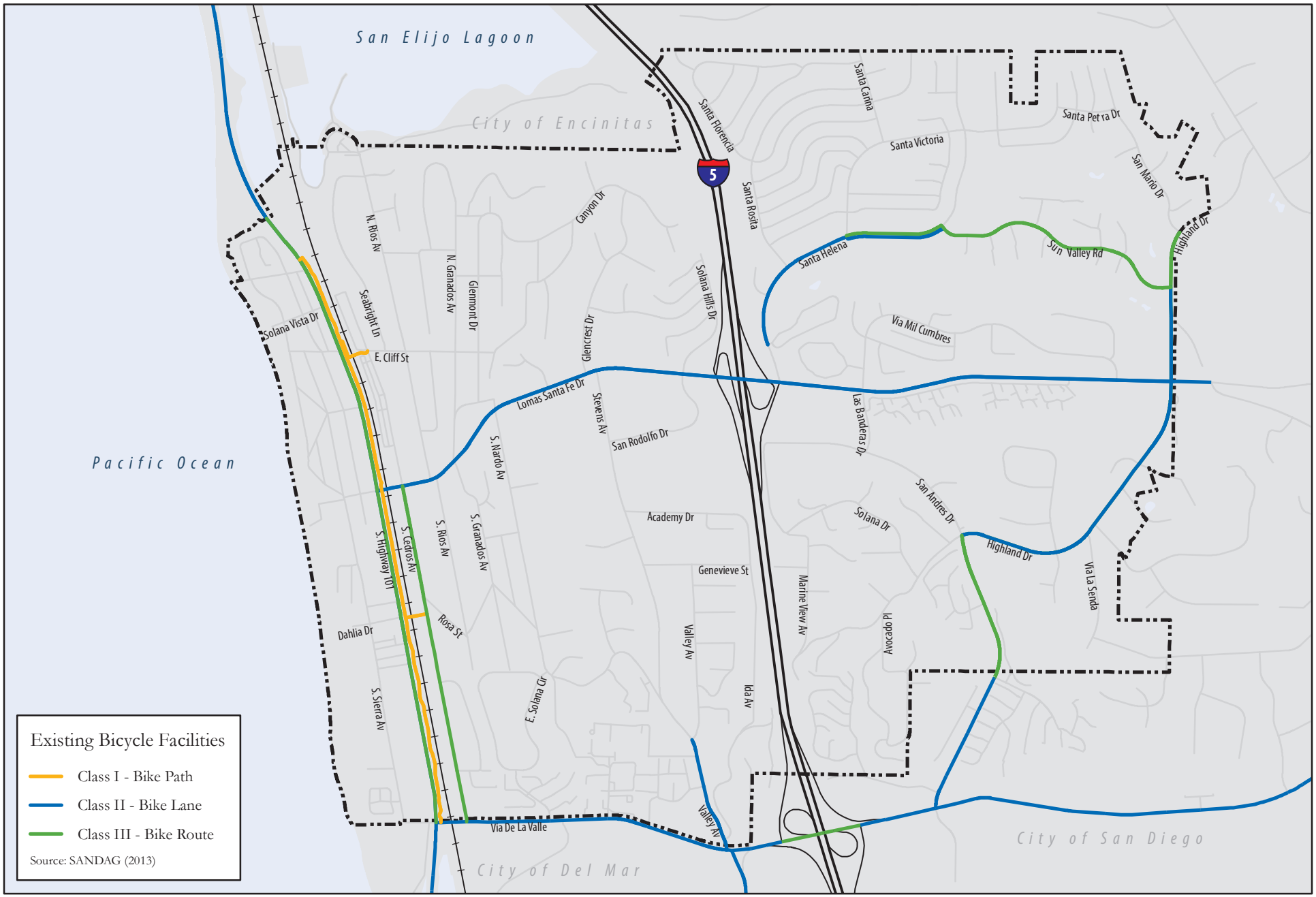


Figure 4-2
Existing Bicycle Facilities

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Table 4-3 summarizes existing Solana Beach bicycle facilities by class. The network's Class I facility consists of the Coastal Rail Trail multi-use path, traversing Solana Beach from north to south along Highway 101. A Class II bike lane runs parallel to the Coastal Rail Trail in the northbound direction. Bike lanes cross the community from east to west along Lomas Santa Fe Drive from Highway 101 to Highland Drive, with an additional Class II segment on Valley Avenue from Stevens to Via de la Valle. Class III facilities are located east of Interstate 5 along San Andres Drive and Highland Drive. Southbound Highway 101 throughout Solana Beach is also categorized as a Class III. Additionally, S. Cedros Avenue and Santa Helena were recently designated as Class III facilities, with high visibility sharrows installed. Though the current bicycle network traverses the major roads in Solana Beach and adequately serves businesses along Highway 101, it lacks connectivity through the residential neighborhoods.

Table 4-3 Solana Beach Existing Bicycle Facility by Class

Facility Classification	Mileage
Class I	1.6 miles
Class II	4.0 miles
Class III	3.5 miles
Total	**9.1 miles**

Source: SANDAG Bike Shapefile, 2010; Chen Ryan Associates, March 2015

4.3 Existing Sidewalk Network & Public Transit Connections

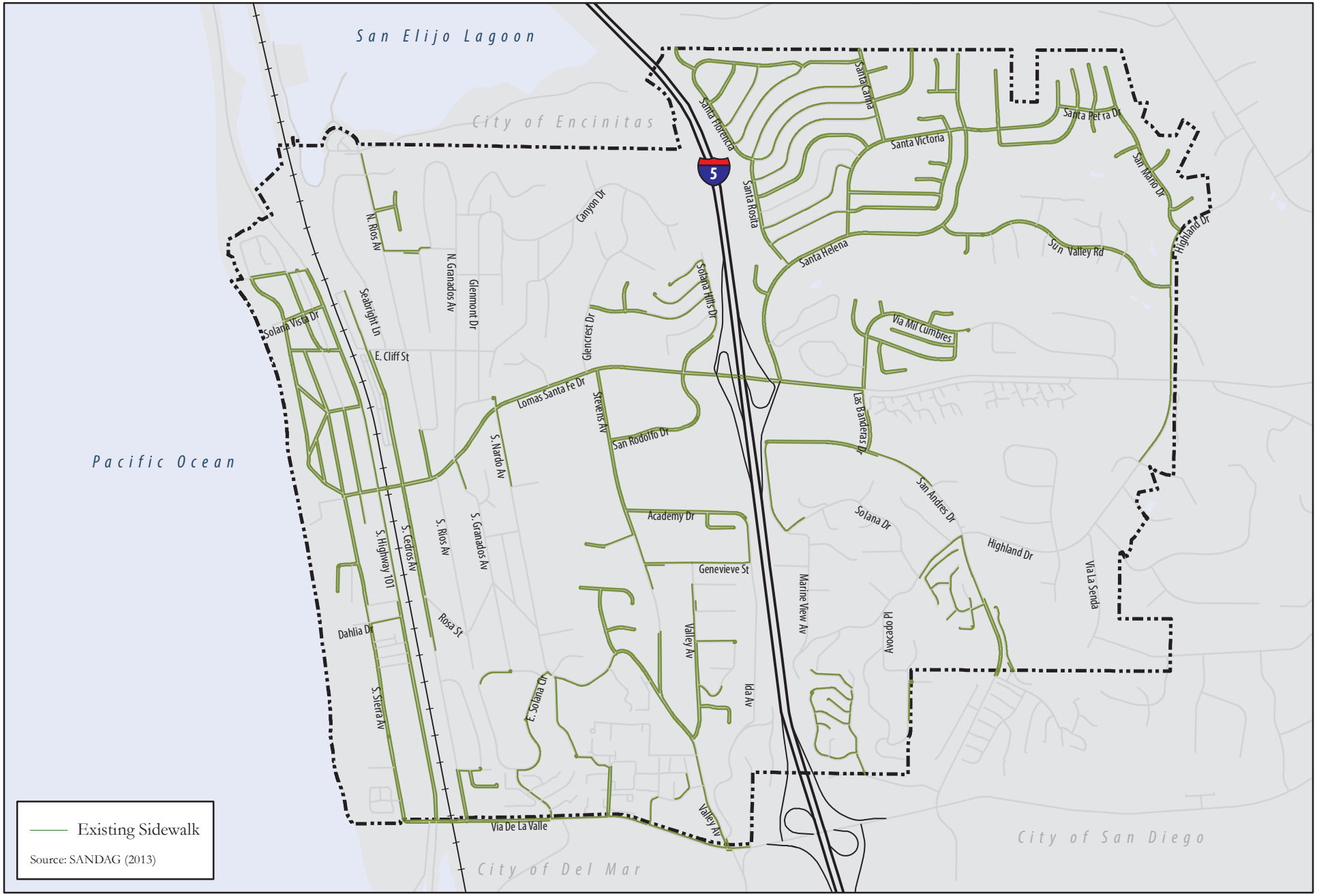
Figure 4-3 displays the existing Solana Beach sidewalk network**.** **Table 4-4** presents the approximate length of the existing roadway network compared to the sidewalk network. Approximately 50% of Solana Beach roads do not have sidewalks, predominantly in low-speed, residential neighborhoods. Three bicycle-pedestrian bridges provide additional connections across the rail corridor running parallel to Highway 101. The bridges cross the rail corridor at Rosa Street/Dahlia Drive, E. Cliff Street, and just north of Lomas Santa Fe Drive through the Transit Station to Highway 101.

Table 4-4 Existing Sidewalk Network and Roads by Miles

Infrastructure	Network Length
Sidewalks	28.29 miles
Roads	54.71 miles
Percent of Roads with Sidewalks	**51.7%**

Source: SANDAG Roads, Sidewalks Shapefiles, 2013; Chen Ryan Associates, March 2015

Figure 4-4 displays existing transit stops and routes. Approximately 65% of the transit stops within Solana Beach can be accessed using existing bicycle facilities, including the Solana Beach Train Station, which services Amtrak/Coaster trains and Breeze bus services. Additionally, every transit stop is accessible via the existing sidewalk network.



Solana Beach Comprehensive Active Transportation Strategy

Figure 4-3
Existing Sidewalks

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Figure 4-4
Existing Public Transportation

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Solana Beach Transit Center

The Breeze and Coaster/Amtrak permit bicycles on board. Every Breeze bus is equipped with racks capable of transporting at least two standard size bicycles. The Coaster/Amtrak cars have specific doors marked with bicycle emblems for cyclists to enter and then store their bicycles in a designated space. The Solana Beach Transit Center provides bike lockers as long-term storage options for commuting cyclists.

4.4 Supporting Bicycle and Pedestrian Amenities

Supporting amenities such as bicycle parking, lockers, street furniture, wayfinding signs and lighting at the cyclist and pedestrian scale are necessary, yet often overlooked components of bicycle and pedestrian networks. These amenities can help create a "brand" or identity for a district, similar to what has been achieved along S. Cedros Avenue within the Design District. A variety of seating options, bike racks, landscaping, and artistic installations can be found along S. Cedros Avenue, creating a welcoming, vibrant commercial district that is distinct from other parts of the City.

Existing bicycle parking in Solana Beach can be categorized into two groups: short-term and long-term parking. Short-term parking is intended to accommodate visitors, customers and other cyclists expected to depart within two hours. Bicycle racks are the primary example of short-term bicycle parking providing cyclists a place to secure and park their bicycle. Long-term parking is intended to accommodate commuters, residents, employees and others expected to park longer than two hours. The long-term bike lockers in Solana Beach are provided through the SANDAG iCommute program. The lockers are free to use with a $25 refundable deposit, available on a first-come, first-served basis.

Bicycle and pedestrian amenities are plentiful along Highway 101, such as the seating, trash can, artwork and pedestrian scale lighting displayed in this image.

Figure 4-5 shows locations of short- and long-term bicycle parking in Solana Beach. **Table 4-5** illustrates examples of both short- and long-term bicycle parking options in Solana Beach.

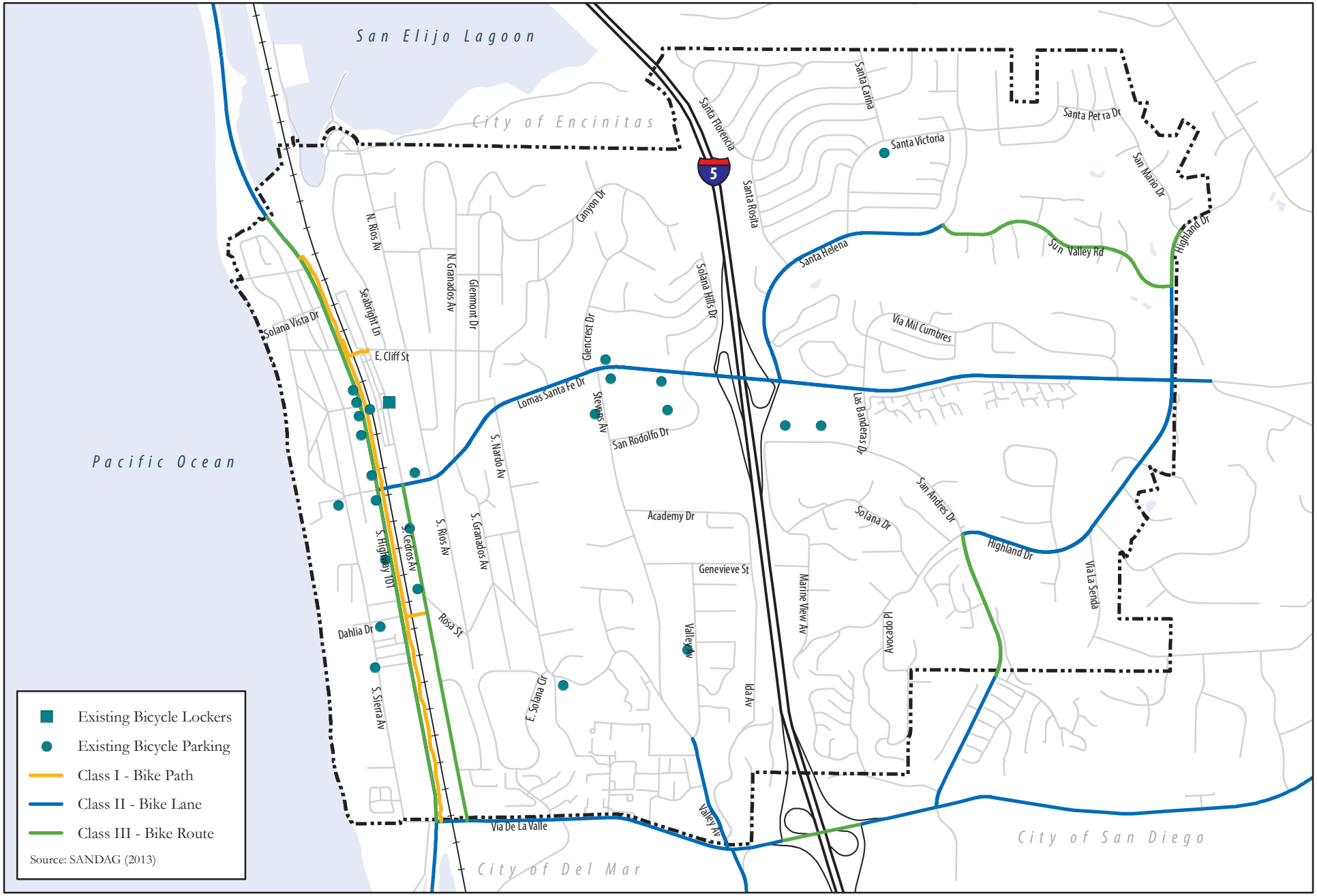

Figure 4-5
Existing Bicycle Parking Facilities

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Table 4-5 Bicycle Parking

Description	Examples	Graphic
Short -Term (Bicycle Racks) – Intended for visitors, customers and others expected to depart within two-hours. Provides cyclists a place to park and secure their bicycle.	• Belly Up Tavern S. Cedros Ave • Solana Beach Library • Solana Beach Towne Centre • Lomas Santa Fe Plaza • La Colonia Community Center • Solana Vista School • Multiple locations along Highway 101	
Long-Term (Bicycle Lockers) – Intended for commuters, residents, employees and others expected to park longer than two hours. Provides a more secure location to park a bicycle for longer periods of time.	• Solana Beach Transit Center	

Source: Douglas Alden, 2011; Chen Ryan Associates, March 2015

4.5 Supporting Programs

This section provides a summary of the bicycle- and pedestrian-related safety, education, and awareness programs adopted by Solana Beach and other local agencies.

4.5.1 City of Solana Beach Programs

Bicycle Safety Rodeos

Bike Safety Rodeos are organized in Solana Beach by BikeWalkSolana to teach cyclists various aspects of safe cycling including a bike safety inspection, helmet fitting, and road skills. The educational and interactive events are led by a League of American Bicyclists League Certified Instructor (LCI). BikeWalkSolana applied for the Community Grant Award Program in pursuit of funding to continue conducting Bike Safety Rodeos in 2014. At the December 11, 2013 Solana Beach City Council meeting, Council voted unanimously to award BikeWalkSolana a Community Grant to continue their efforts. A subsequent grant was awarded to BikeWalkSolana to continue providing educational and encouragement events throughout Solana Beach in 2015.

Bicycle Safety Rodeo

Neighborhood Traffic Management Program

The Neighborhood Traffic Management Program was created by the City of Solana Beach in 2004 to help communities manage traffic through their neighborhoods. The program seeks to change driver behavior and help improve safety for pedestrians, cyclists, and drivers. A neighborhood traffic concern can be identified by a resident, City staff, Traffic Technical Action Committee (TTAC) member, Public Safety Commission member, or City Council member.

Once a concern is identified, the TTAC evaluates the traffic concern through speed surveys, Stealth Technology deployment, volume counts, and site visits. Then the issues are addressed first by Stage 1 Tools which include mechanisms such as traditional enforcement, speed feedback signs and neighborhood signage programs. These measures do not require approval by the Public Safety Commission or the City Council. Other Stage 1 Tool measures such as stop signs, striping changes, and parking restrictions must go through the Public Safety Commission and City Council approval process. If the problem persists and the Stage 1 measure is not effective, the TTAC determines whether a Stage 2 measure is appropriate. Stage 2 measures include physical alterations to the roadway using narrowing tools, median tools, vertical deflection tools, diversion tools, and other measures. Stage 3 of the Program includes a Neighborhood Traffic Management Toolbox with a Usage Guide for the Stage 1 and Stage 2 measures.

4.5.2 Programs in the Region

The San Diego County Bicycle Coalition (SDCBC) partners with local agencies and non-profits to emphasize education and advocacy for cycling. Some of the educational programs include:

- *Good Routes Campaign* – an effort to improve street conditions for pedestrians and cyclists by providing a way for people to report hazards such as potholes or request other street improvements.
- *Learn to Ride* – classes teach the basics of riding in a one-on-one setting.
- *Road Rules* – introductory course covering traffic laws, the basics of bicycling in traffic, proper cycling conduct, and pedestrian basics.
- *Bicycle Safety Rodeo* – bicycle skills events, taught on a school playground or parking lots, that provide an opportunity for kids and teens to practice and develop skills that will help them become better bicyclists and avoid typical crashes.
- *Teen Bicycle Traffic Skills* – educates teens on bicycle safety checks, fixing a flat, on-bike skills and crash avoidance techniques.
- *Teen Bicycle Maintenance* – course teaching the basics of maintaining your bicycle from simple bearing system overhauls to tune-ups.
- *Teacher Training Program* – collaborative program between teachers, administrators, parents, volunteers, and the SDCBC covering how to lead youth bicycle education courses.

In addition to the SDCBC efforts outlined, there are several other efforts to improve safety, education, and awareness related to cyclists and pedestrians throughout the region. Examples of some of the programs are provided.

Safe Routes to School, SANDAG, San Diego Region School Districts

The Safe Routes to School program is an education program aimed at promoting walking and cycling to school and improving traffic safety around schools. These programs involve educating people on the "Five E's" Engineering, Education, Encouragement, Enforcement, and Evaluation and typically involve partnerships between municipalities, school districts, community and parent volunteers, and law enforcement agencies.

Employer Incentive Programs, SANDAG, Local Governments

The Employer Incentive Program encourages employers to provide bicycle commuters with bicycle lockers and shower facilities, offer more flexible arrival and departure times, and financial incentives such as cash bonuses or in-kind gifts to employees who participate. SANDAG has an iCommute program which includes the Diamond Awards, a program that honors San Diego organizations and individuals promoting alternative travel options.

Four (4) additional pedestrian crossings were installed as part of the Highway 101 Revitalization Project completed in September 2013.

Walk Friendly Community Designation, Local Governments

The Walk Friendly Community Designation is a national recognition program developed to encourage towns and cities across the U.S. to make supporting safer walking environments a high priority. The WFC program recognizes communities that are working to improve a wide range of pedestrian conditions, including safety, mobility, access, and comfort.

Bicycle Friendly Community Designation, Local Governments

The Bicycle Friendly Community Designation is an encouragement program by the League of American Bicyclists (LAB) that recognizes cities and counties that actively support bicycling. A Bicycle Friendly Community is one that encourages cycling for recreation and transportation and provides safe accommodation. Within San Diego County, Coronado has achieved silver level designation, while both Chula Vista and Oceanside are recognized with bronze level status.

San Diego Region Bike Map, SANDAG, Local Governments

The San Diego Region Bike Map is published and regularly updated by SANDAG. The map serves to encourage bicycle usage by providing location information on bicycle facilities including bikeways, points of interest, transit centers, bike shop locations, and bike locker stations.

5.0 Needs Analysis

This chapter provides a summary of the analysis process used to understand cycling and pedestrian demands and deficiencies in Solana Beach. A combination of analysis techniques and data were employed to identify areas of relatively high demand and deficiency, including a raster-based spatial model, a community and online survey, manual peak period bicycle and pedestrian counts, collision assessments, and survey data from the Census Bureau. Identifying areas of high demand and deficiency is important for the prioritization of proposed improvements, for developing a baseline against which to measure usage volume changes, and for pursuing funding.

5.1 Demand

In the absence of systematically collected data on walking and cycling travel, a common analysis technique used to understand potential demand for cycling and walking – or the propensity to make a walk or bike trip – is through an assessment of population and land uses characteristics. An "active travel" propensity model was created to support this assessment and combines likely walk and bike trip generator inputs – population, employment and no-vehicle households – with likely walk and bike trip attractors, or key land uses understood to attract bicycle and pedestrian trips. These trip attracting land uses include schools, retail, parks and recreational space, and select public services. When combined, the active transportation generators and attractors provide a foundation for understanding active transportation demand across the City of Solana Beach.

5.1.1 Active Transportation Trip Generators and Attractors

Table 5-1 displays the inputs, thresholds, and multiplier values used to create the active transportation trip generator submodel. Generator input values listed as "high" reflect conditions with a greater likelihood of generating an active transportation trip relative to the rest of the City. Generator input values in the "low" range are understood to generate relatively fewer trips. These conditions include population density less than 9.6 persons per acre, employment density less than 11.9 jobs per acre, and areas where less than 15% of households report not owning a car.

Table 5-1 Active Transportation Trip Generator Submodel Inputs

Generator	High	Medium	Low
Multiplier	3	2	1
Population Density (residents per acre)	>20.8	9.6 – 20.8	<9.6
Employment Density (jobs per acre)	>37.7	11.9 – 37.7	<11.9
Zero-Vehicle Households	>25%	15% - 25%	<15%

Source: US Census, 2010; American Community Survey, 2012; Chen Ryan Associates, March 2015

Figure 5-1 displays the City of Solana Beach's 2010 population density. As illustrated in Table 5-1, higher population densities are associated with potentially higher levels of active transportation demand. Census blocks with higher population densities are concentrated in the south-central portions of Solana Beach, just west of Interstate 5. Additionally, the area west of Highway 101 has several pockets of relatively high population density. Relatively lower population density levels are found east of Interstate 5 and along the City's northern boundary.

Figure 5-2 displays 2010 employment density. Relatively higher levels of employment density are located along Highway 101, S. Cedros Avenue, and just west of Interstate 5 south of Lomas Santa Fe Drive. The areas east of Interstate 5 generally have lower employment density except for the shopping center immediately east of the freeway.

Figure 5-3 shows the share of households with zero-vehicle ownership. Higher rates potentially indicate an increased reliance on active transportation and public transit. The highest rates were found in the northeast portion of the City followed by northwestern Solana Beach, representing 1.9% and 0.9%, respectively.

The three variables identified as trip generators (population density, employment density, and percent of zero-vehicle households) were combined to create an Active Transportation Trip Generator Submodel composite map to display areas with increased potential to generate active transportation trips. **Figure 5-4** displays the Trip Generator Submodel composite map. As shown, active transportation trips generators are more heavily concentrated west of Interstate 5 and south of Lomas Santa Fe Drive. The areas of Solana Beach east of Interstate 5 generally show low levels of active travel trip generators.

S. Cedros Avenue Design District Gateway Sign

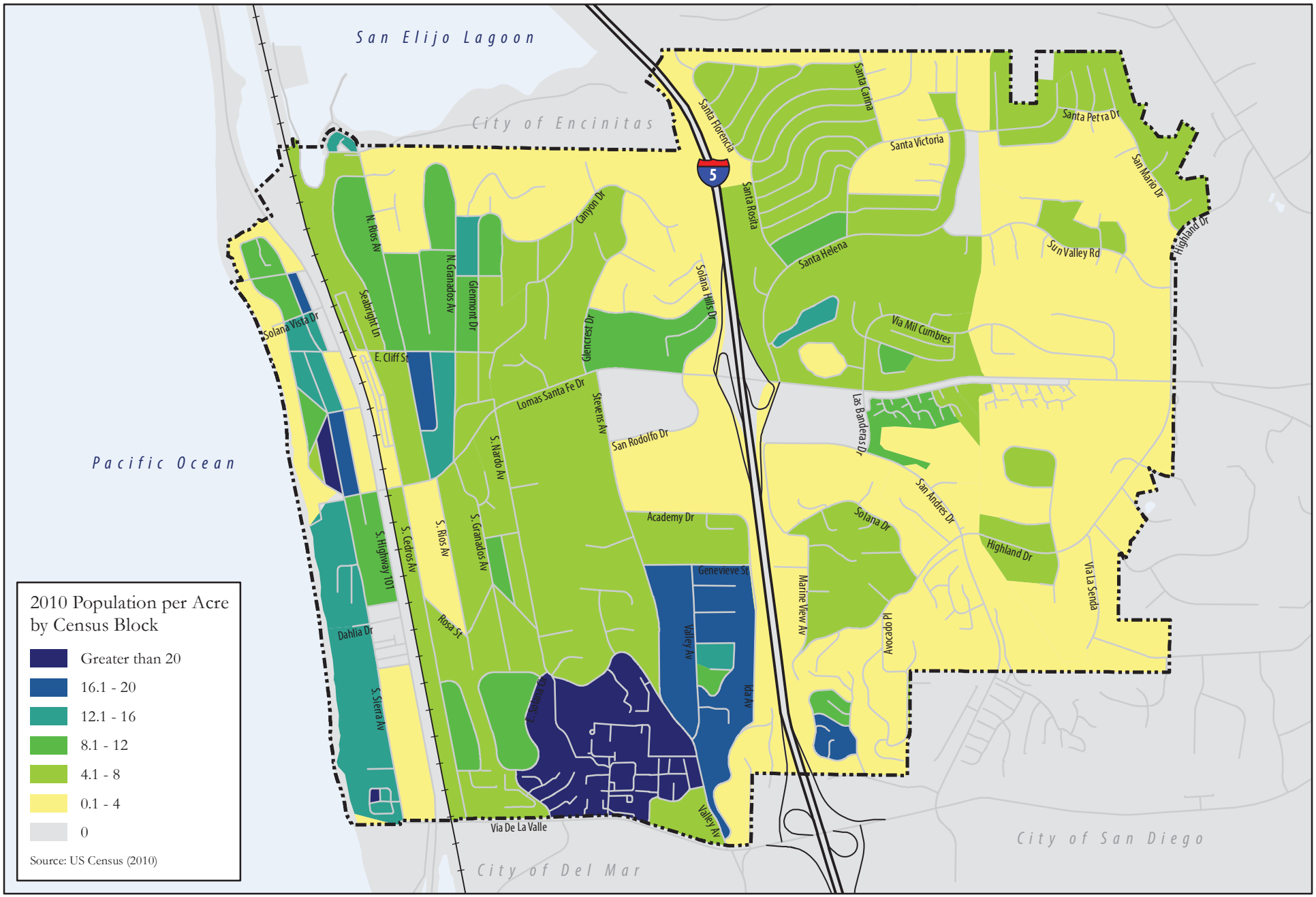

Figure 5-1
2010 Population Density

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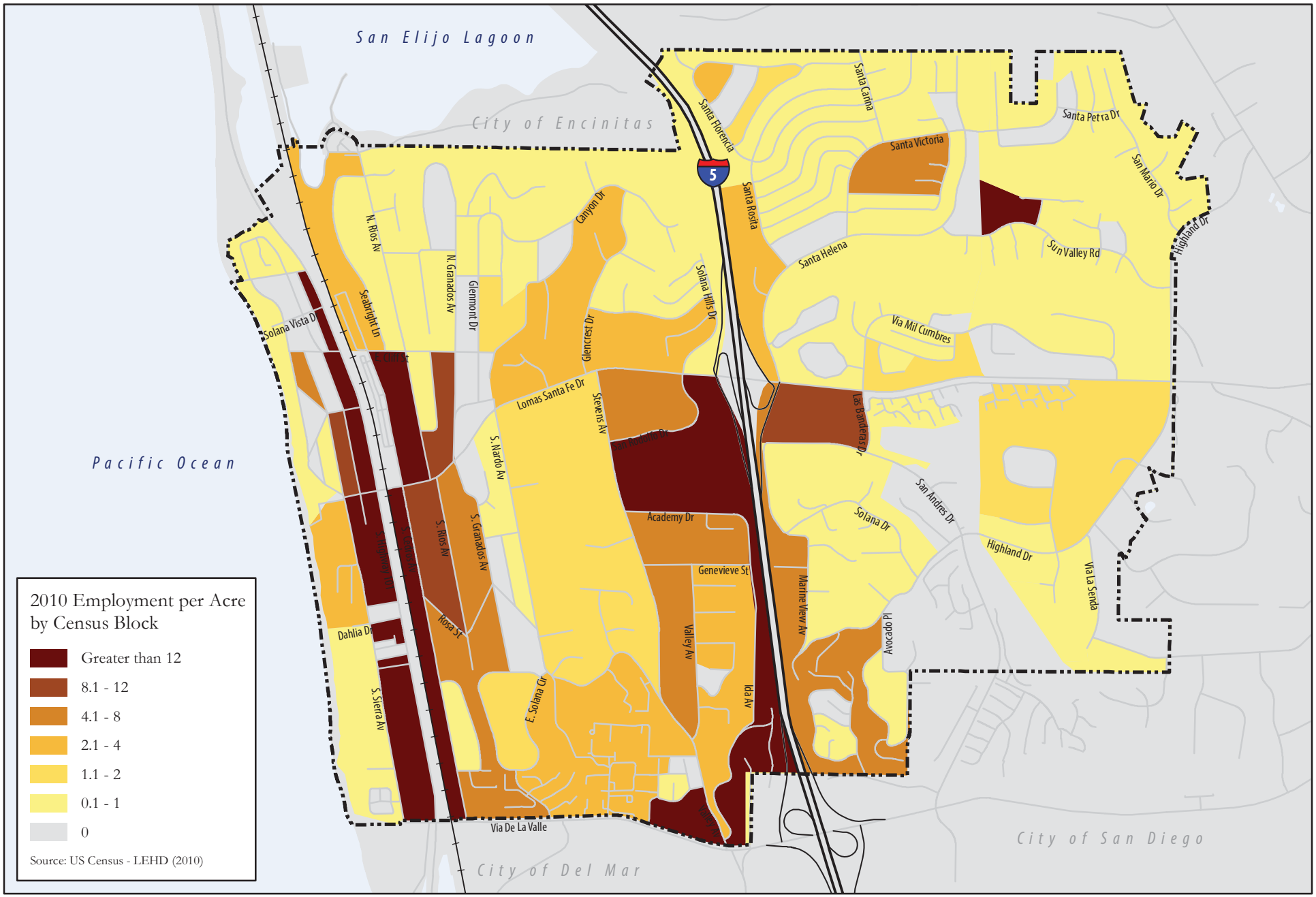

Figure 5-2
2010 Employment Density

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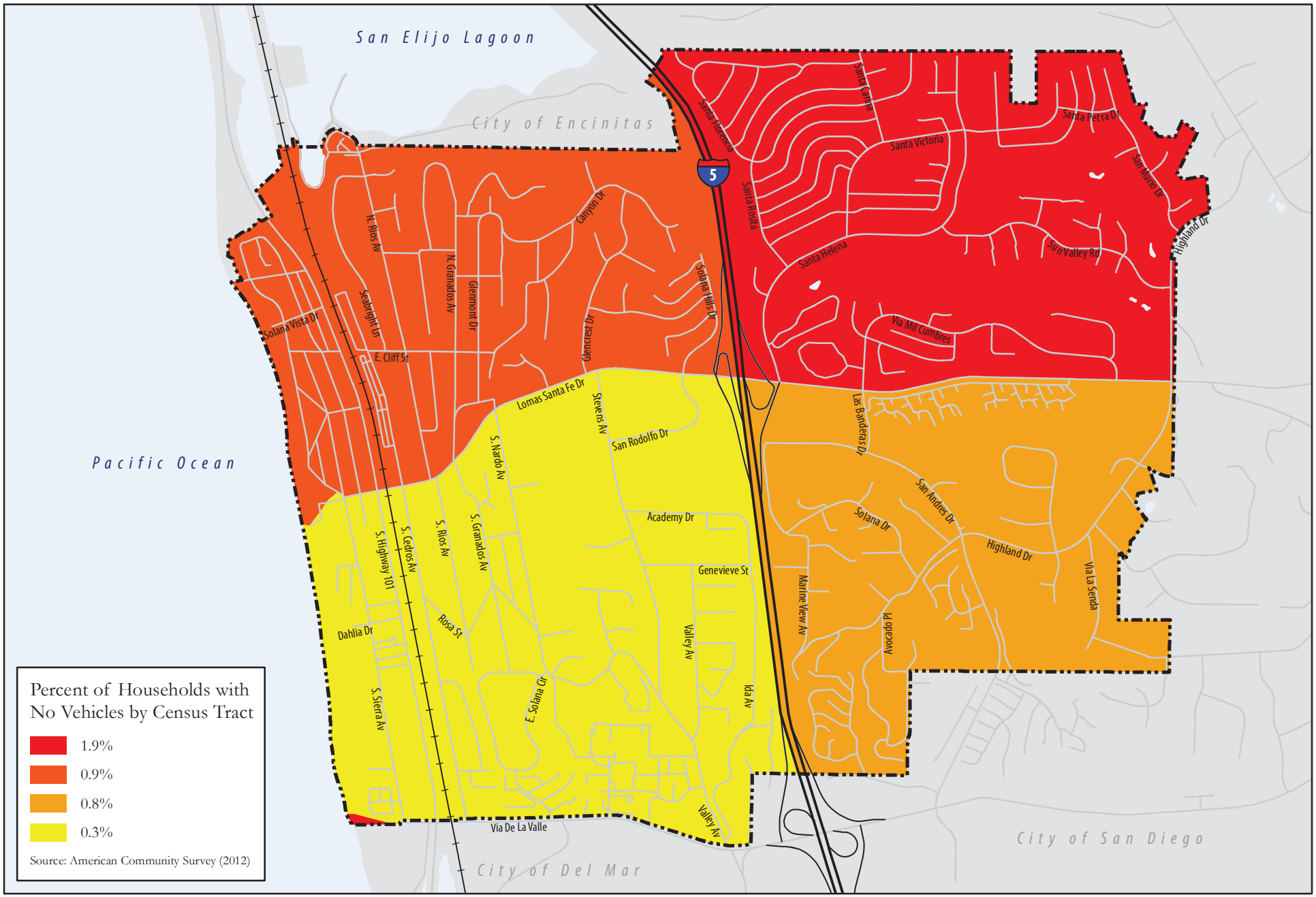

Figure 5-3
2012 Zero-Vehicle Households

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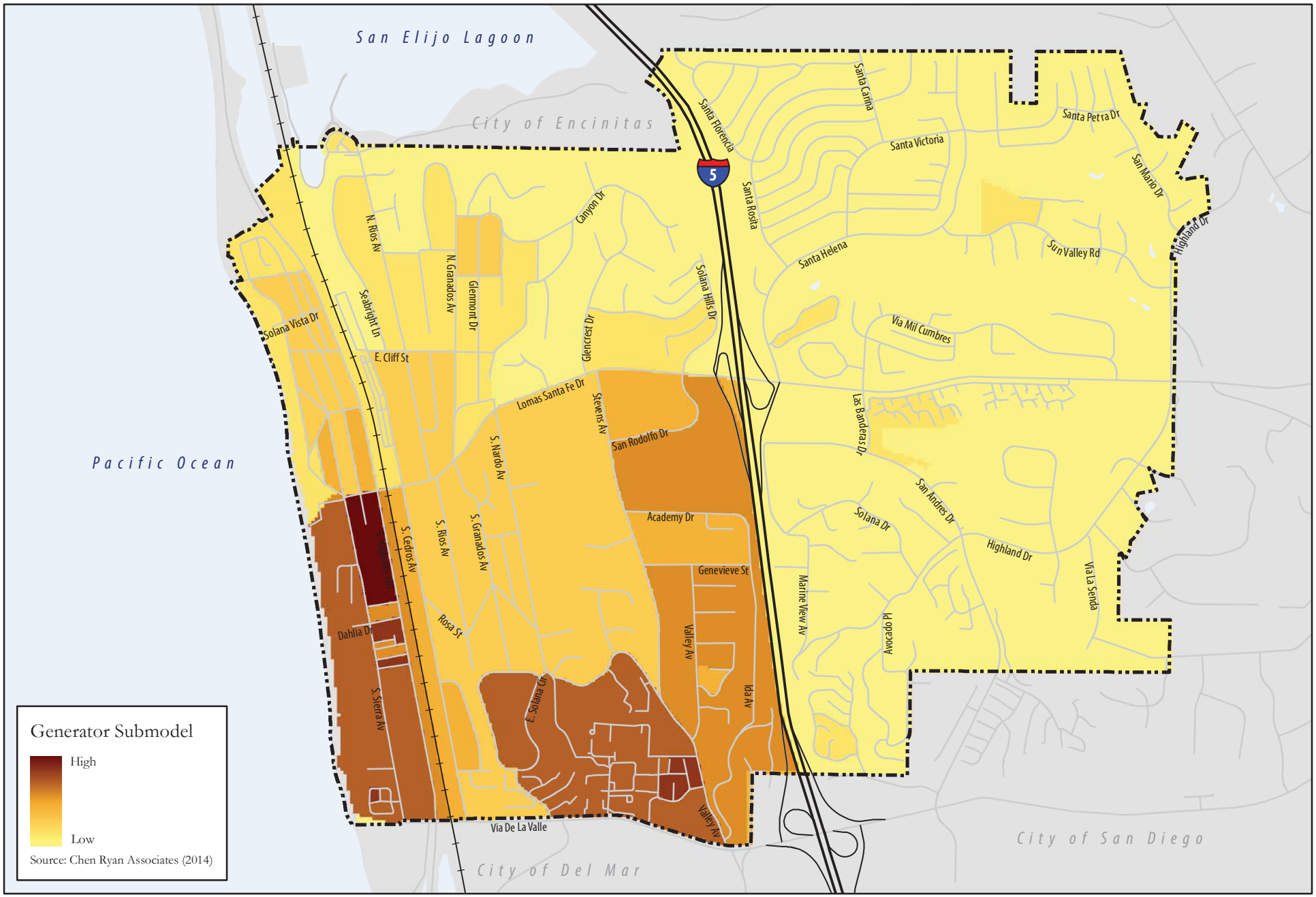

Figure 5-4
Active Transportation Trip Generator Submodel

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The Active Transportation Trip Attractor Submodel was created using the input variables displayed in Table 5-2. Each attractor land use type is buffered by one-mile, with multipliers that decrease every quarter-mile interval away from the trip attracting land use. A point value is calculated by multiplying the distance multiplier with the weight assigned to each land use. The model was developed and run at a regional scale to include attracting land uses both within and outside of Solana Beach City limits.

Table 5-2 Active Transportation Trip Attractor Submodel Inputs

Attractor	Weights	Within ¼ Mile	Between ¼ and ½ Mile	Between ½ and ¾ Mile	Between ¾ and 1 Mile
Multiplier		1.5	1.0	0.75	0.5
Major Ports of Entry	4	6	4	3	2
Colleges and Universities	3	4.5	3	2.25	1.5
Retail (Shopping Centers and Dense Retail Districts)	2	3	2	1.5	1
Recreation (Beaches and Parks)	1	1.5	1	0.75	0.5
Public Services (Civic Uses, Hospitals, Libraries, Schools)	1	1.5	1	0.75	0.5

Source: SANDAG Land Use Shapefile, 2013; Chen Ryan Associates, March 2015

Figure 5-5 displays the Active Transportation Trip Attractor Submodel, combining each of the trip attractor inputs into a single composite map. The highest concentration of trip attractors is located in the heart of Solana Beach's downtown area, gradually declining further east. The higher concentrations of attractors represent areas likely to draw active transportation trips.

The Active Transportation Propensity Model, displayed in **Figure 5-6**, was created by combining the trip generator and trip attractor submodels with equal weighting. As shown, the area with the greatest propensity for active transportation include:

- West of Highway 101, south of Lomas Santa Fe Drive;
- South of Solana Circle/S. Nardo Avenue, east of W. Solana Circle, west of Valley Avenue;
- South of Genevieve Street, west of Stevens Avenue; and
- North of Lomas Santa Fe Drive, east of Highway 101, south of W. Cliff Street.

These areas of higher propensity, demarcated by red and orange shades in Figure 5-6, represent the combination of generators and attractors with potential for relatively higher active transportation demand. These locations should be prioritized with focused improvements to support the relatively higher active travel demands.

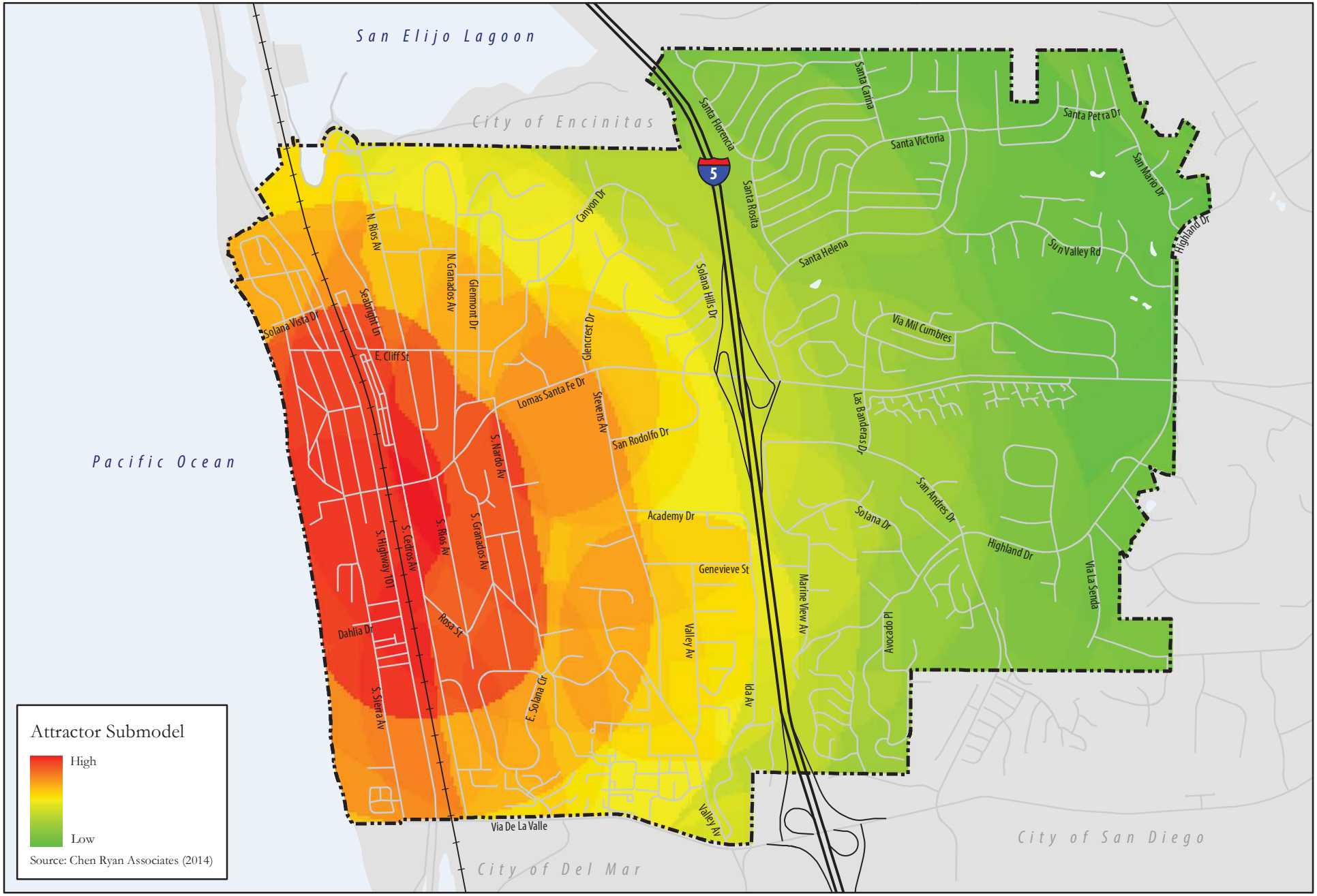

Figure 5-5
Active Transportation Trip Attractor Submodel

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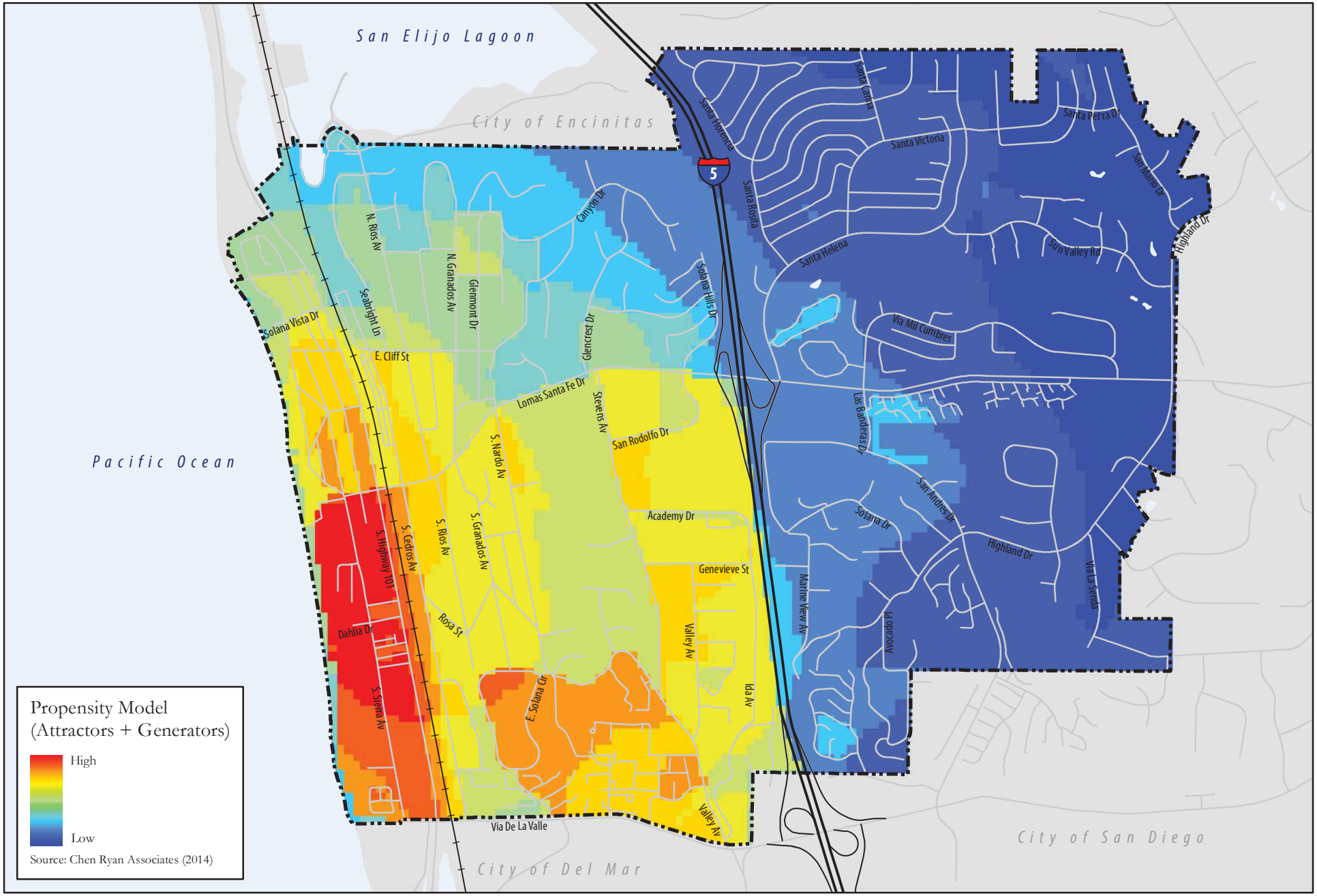

Figure 5-6
Active Transportation Propensity Model (Generator + Attractors)

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5.1.2 Bicycle and Pedestrian Counts

Manual bicycle and pedestrian counts were conducted at 35 locations during the week of January 6, 2014 on Tuesday, Wednesday, and Thursday during the morning peak period from 7:00AM to 9:00AM. Weekday peak period counts were performed to capture estimates of utilitarian pedestrian and cycling activity. Count locations were selected based on existing and planned bicycle facility, high-collision locations, land use designations, and City staff input.

Figure 5-7 displays the 35 count locations with bicycle volumes observed, while **Table 5-3** summarizes both bicycle and pedestrian count volumes in tabular format. The location with the highest 2-hour bicycle count was Highway 101 between Solana Vista Drive and W. Cliff Street, where 102 cyclists were counted during the 2-hour AM period. The three additional count sites along Highway 101 recorded the second, third, and fourth highest volumes, indicating a relatively high demand for cycling along this major north-south corridor. The highest volumes recorded on a segment without existing bicycle facility was E. Cliff Street between Barbara Avenue and N. Granados Avenue with 25 cyclists.

Table 5-3 Manual Bicycle and Pedestrian Count Volumes

Roadway Segment	To	From	Bicycle Volume	Pedestrian Volume
Highway 101	Solana Vista Drive	W. Cliff Street	102	59
Highway 101	Dahlia Drive	Via de la Valle	63	41
Highway 101	Estrella Street	Lomas Santa Fe Drive	58	115
Highway 101	Lomas Santa Fe Drive	Dahlia Drive	57	48
E. Cliff Street	Barbara Avenue	N. Granados Avenue	25	36
Lomas Santa Fe Drive	Stevens Avenue	Solana Hills Drive	19	33
Lomas Santa Fe Drive	Highway 101	S. Cedros Avenue	15	67
Lomas Santa Fe Drive	Las Villas	Via Mil Cumbres	11	6
S. Sierra Avenue	Linda Mar Drive	Dahlia Drive	11	69
Valley Avenue	Turfwood Lane	Waterford Drive	11	18
N. Rios Avenue	E. Cliff Street	Barbara Ave	7	54
Valley Avenue	Vera Street	Hernandez Avenue	7	73
San Rodolfo Drive	Stevens Avenue	Lomas Santa Fe Drive	6	24
Genevieve Street	Stevens Avenue	Valley Avenue	5	43
S. Nardo Avenue	Nardito Lane	Fresca Street	5	37
S. Nardo Avenue	Nardito Lane	Fresca Street	5	37
Stevens Avenue	San Rodolfo Drive	Lomas Santa Fe Drive	5	43
Lomas Santa Fe Drive	Santa Helena	Las Banderas Drive	4	19
S. Cedros Avenue	Cofair Avenue	Via de la Valle	4	33
Stevens Avenue	Genevieve Street	S. Nardo Avenue	4	37
Highland Drive	Lomas Santa Fe Drive	Sun Valley Road	4	16
Plaza Street	S. Acacia Avenue	Highway 101	3	52
N. Granados Avenue	Lynwood Avenue	E. Cliff Street	3	10
N. Cedros Avenue	E. Cliff Street	Lomas Santa Fe Drive	3	44
San Andres Drive	Las Banderas Drive	La Sobrina Court	2	30
Solana Hills Drive	Lomas Santa Fe Drive	Dell Street	2	5
Las Banderas Drive	Lomas Santa Fe Drive	San Andres Drive	2	13

Table 5-3 Manual Bicycle and Pedestrian Count Volumes

Roadway Segment	To	From	Bicycle Volume	Pedestrian Volume
S. Cedros Avenue	Lomas Santa Fe Drive	Dahlia Drive	1	46
Highland Drive	North Lane	Oranado Lane	1	14
Dahlia Drive ped bridge	Highway 101	S. Cedros Avenue	0	22
Santa Helena	Santa Rosita	Santa Victoria	0	22
Sun Valley Road	Camino Catalina	Calle Paula	0	14
N. Rios Avenue	Midori Lane	Patty Hill Drive	0	33
S. Rios Avenue	Lomas Santa Fe Drive	Rosa Street	0	9
San Andres Drive	Highland Drive	Ladera Linda	0	8

Source: Chen Ryan Associates, March 2015

Table 5-4 shows count locations where cyclists were observed riding on the sidewalk. Sidewalk cycling is indicative of cyclists' perception that the roadway environment is not comfortable for cycling. Higher rates of sidewalk cycling typically demonstrate that cyclists feel unsafe using the existing bicycle facility or roadway, or that they are unaware of the dangers posed to pedestrians by cycling on the sidewalk. The location with the highest rate of observed sidewalk cycling was San Rodolfo Drive between Stevens Avenue and Lomas Santa Fe Drive where 67% of cyclists observed were riding on the sidewalk.

Table 5-4 Manual Count Locations by Rates of Sidewalk Cycling

Roadway Segment	From	To	AM Peak Period Bicycle Count	Sidewalk Cycling Rate
San Rodolfo Drive	Stevens Avenue	Lomas Santa Fe Drive	6	67%
Stevens Avenue	Genevieve Street	S. Nardo Avenue	4	50%
Valley Avenue	Vera Street	Hernandez Avenue	7	43%
Stevens Avenue	San Rodlfo Drive	Lomas Santa Fe Drive	5	40%
S. Nardo Avenue	Nardito Lane	Fresca Street	5	40%
Plaza Street	S. Acacia Avenue	Highway 101	3	33%
Valley Avenue	Turfwood Lane	Waterford Drive	11	18%
Lomas Santa Fe Drive	Stevens Avenue	Solana Hills Drive	19	16%
S. Sierra Avenue	Lindamar Drive	Dahlia Drive	11	9%
Lomas Santa Fe Drive	Highway 101	S. Cedros Avenue	15	7%
Highway 101	Dahlia Drive	Via de la Valle	63	5%
Highway 101	Lomas Santa Fe Drive	Dahlia Drive	57	4%
Highway 101	Solana Vista Drive	W. Cliff Street	102	2%

Source: Chen Ryan Associates, March 2015

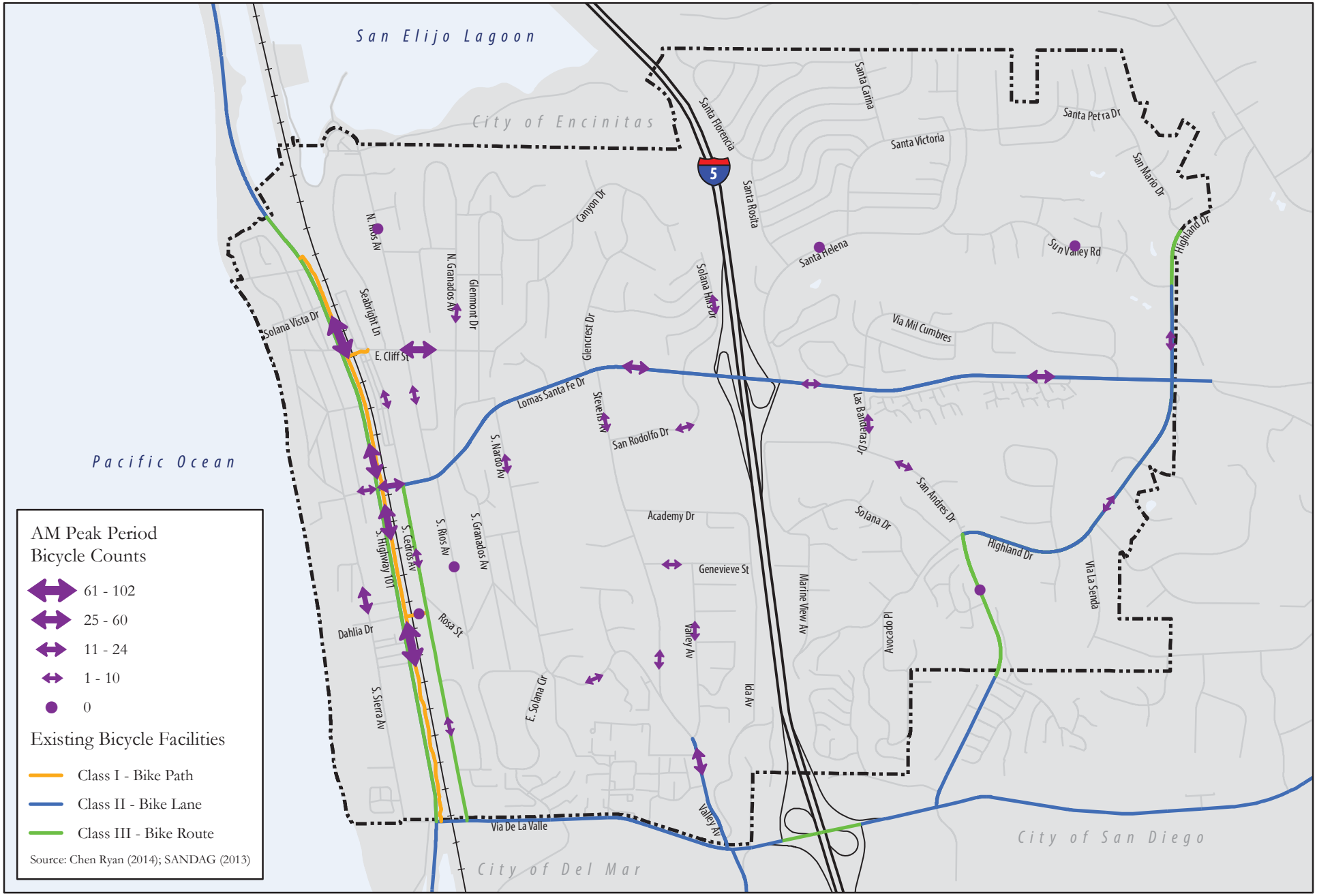

Figure 5-7
2014 Weekday AM Peak Period Bicycle Counts

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Figure 5-8 displays AM peak period pedestrian counts for each of the 35 locations. The highest pedestrian volumes were observed along Highway 101 between Lomas Santa Fe Drive and Estrella Street, followed by Valley Avenue between Vera Street and Hernandez Avenue, where 115 and 73 pedestrians were counted, respectively, over a 2-hour morning period.

5.1.3 Bicycle and Pedestrian Survey Data

Two sources of survey data were examined to further strengthen the understanding of bicycle- and pedestrian-related demand in Solana Beach. The 2012 American Community Survey (U.S. Census Bureau) and a community travel survey prepared specifically for this project both provide important data related to the demand for walking and cycling.

2012 American Community Survey Data

Table 5-5 presents the work trip commute mode share for the City of Solana Beach, San Diego County, the State of California, and the United States as reported in the 2008 – 2012 American Community Survey 5-Year Estimates. The leading mode share for all four geographies is "Drove alone (car, truck, or van)," however, the lowest share for that mode is attributed to Solana Beach with 69.2% of residents commuting alone in a private automobile. Solana Beach also shows the highest rate of bicycle commuters at 2.3%, as compared to the countywide, statewide and national averages, at 0.7%, 1.0% and 0.6%, respectively. Work commute rates for walking in Solana Beach were reported at 2.6% of commuters, slightly lower than the other three geographies.

Cyclists and automobiles coexist on S Highway 101.

Table 5-5 Commute by Mode of Transportation (2012)

Transportation Mode	City of Solana Beach	San Diego County	State of California	United States of America
Drove alone (car, truck, or van)	69.2%	75.9%	73.0%	76.1%
Worked at home	15.3%	6.3%	5.2%	4.3%
Carpooled	8.0%	10.2%	11.5%	10.0%
Walked	2.6%	2.7%	2.8%	2.8%
Bicycle	2.3%	0.7%	1.0%	0.6%
Public Transit	1.6%	3.1%	5.2%	5.0%
Other means	0.8%	1.1%	1.3%	1.2%

Source: 2008 – 2012 American Community Survey 5-Year Estimates; Chen Ryan Associates, March 2015

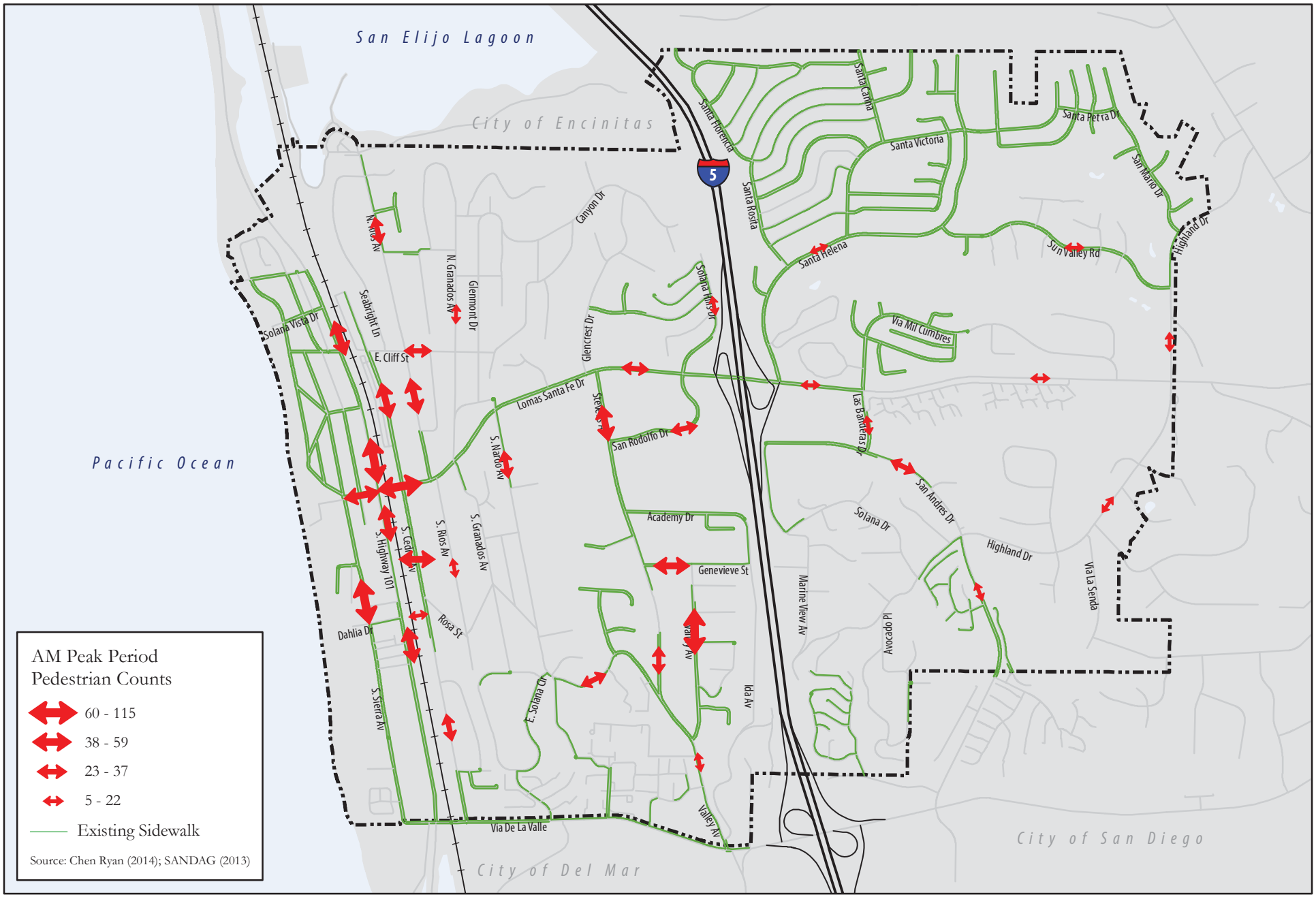

Figure 5-8
2014 Weekday AM Peak Period Pedestrian Counts

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Figure 5-9 shows the share of Solana Beach residents that commute by bicycle by census tract. The City is divided into four census tracts, creating four quadrants demarcated by Interstate 5 and Lomas Santa Fe Drive. Interestingly, the two census tracts east of Interstate 5 reported no bicycle commuters, while the two tracts west of the freeway showed 2.8% and 3.6% of residents commuting by bicycle.

Figure 5-10 displays the percentage of Solana Beach residents who commute primarily by walking. Similar to the distribution of bicycle commuters, residents west of Interstate 5 reported relatively higher rates of walking for commuting purposes than those east of the freeway. Additionally, the single census tract with the highest share of walking commuters was tract 173.04, covering the portion of the Solana Beach south of Lomas Santa Fe Drive and west of Interstate 5, representing 3.9% of commuters. This census tract was also identified as having the greatest share of bicycle commuters in the City.

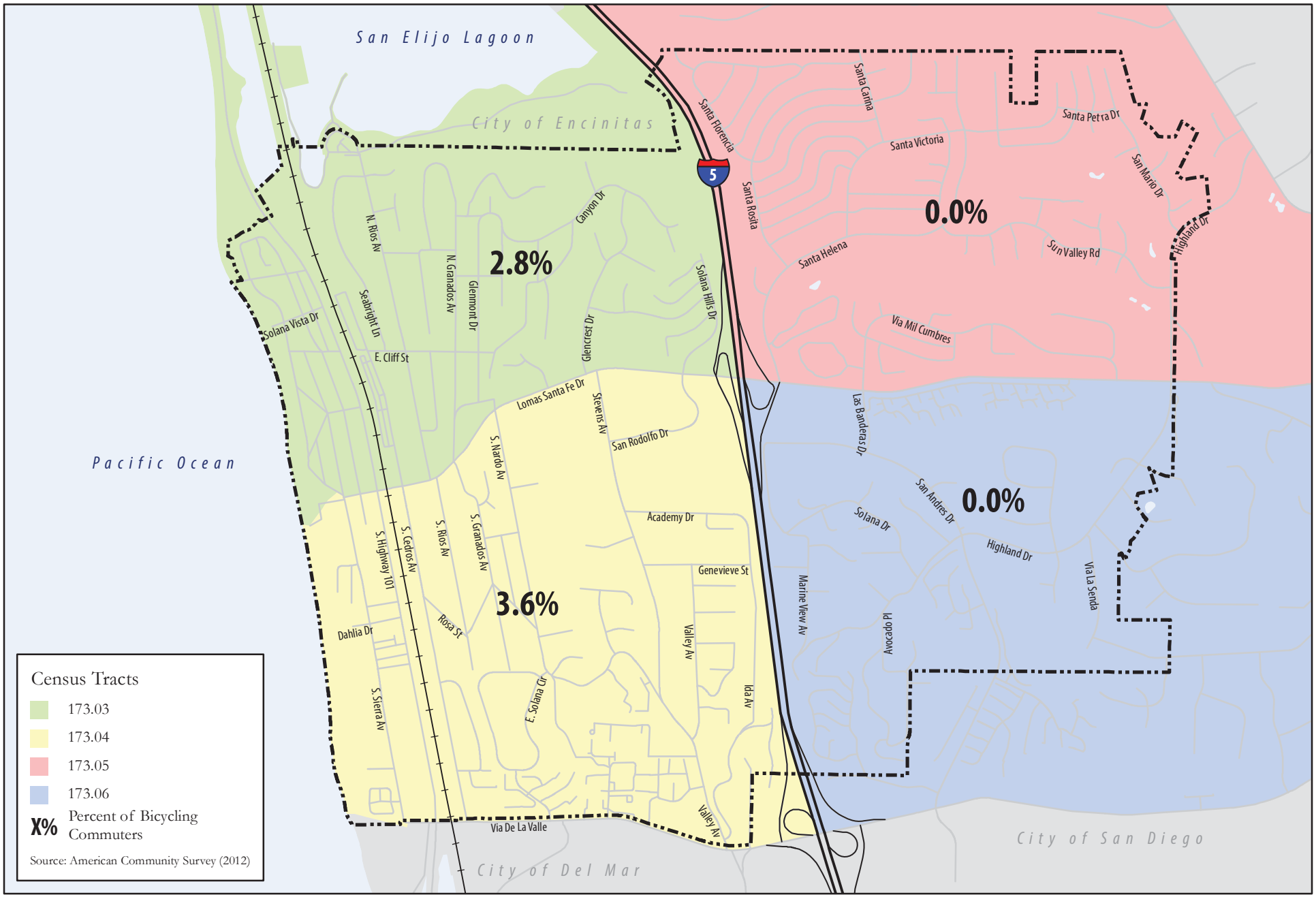
Percentages of residents commuting by transit are shown in **Figure 5-11**. Residents living in the census tract north of Lomas Santa Fe Drive and west of Interstate 5 reported the highest share of transit commuters (2.6%), followed by the tract just south, showing 2.2% of residents commuting by transit. A consideration related to transit commuters is the potential for these commuters to utilize active transportation as a means of accessing transit stops. **Table 5-6** below summarizes the rates of pedestrian, bicycle, and transit commuters by census tract. As described above, commuter rates for all three categories in the census tracts west of Interstate 5 exceeded the rates reported east of the freeway.

Table 5-6 Pedestrian, Bicycle, and Transit Commuters by Census Tract (2012)

Census Tract (location)	Pedestrian Commuters	Bicycle Commuters	Transit Commuters
173.03 – (north of Lomas Santa Fe Drive, west of Interstate 5)	2.4%	2.8%	2.6%
173.04 – (south of Lomas Santa Fe Drive, west of Interstate 5)	3.9%	3.6%	2.2%
173.05 – (north of Lomas Santa Fe Drive, east of Interstate 5)	1.3%	0.0%	0.0%
173.06 – (south of Lomas Santa Fe Drive, east of Interstate 5)	0.0%	0.0%	0.0%

Source: 2008 – 2012 American Community Survey 5-Year Estimates; Chen Ryan Associates, March 2015

Taken together, the analysis of Figures 5-9, 5-10, and 5-11 further support the results of the Active Transportation Propensity Model in Figure 5-6 which identifies the portion of the City west of Interstate 5 as having a the highest propensity for attracting and generating bicycle and pedestrian trips. The greatest propensity for active transportation was found south of Lomas Santa Fe Drive and west of Highway 101 in the southwest quadrant, which was reported as having the highest rates of both walking and cycling commuters and the second greatest percentage of transit commuters.



Solana Beach Comprehensive Active Transportation Strategy

Figure 5-9
2012 Bicycle Commuter Mode Share

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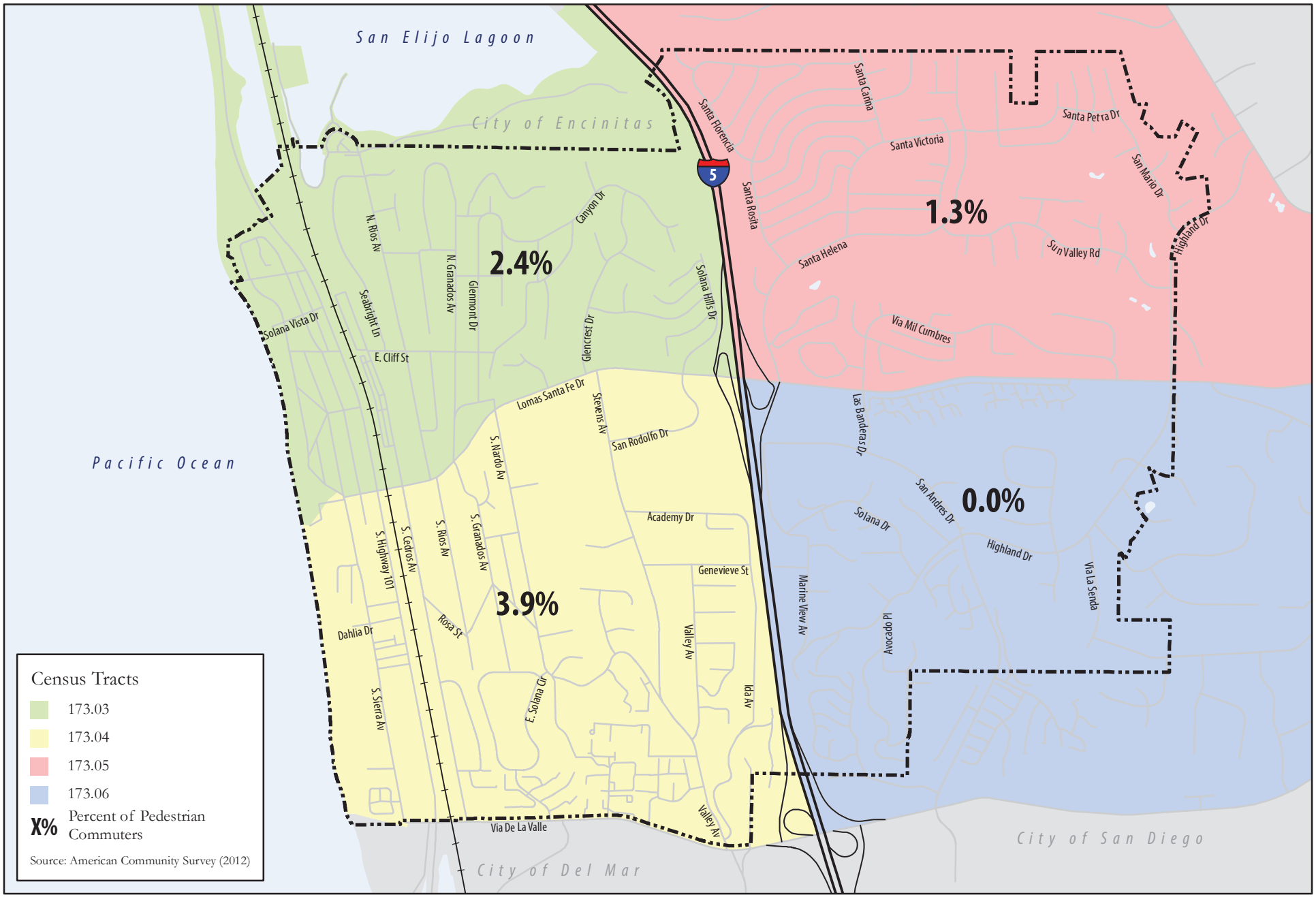

Solana Beach Comprehensive Active Transportation Strategy

Figure 5-10
2012 Pedestrian Commuter Mode Share

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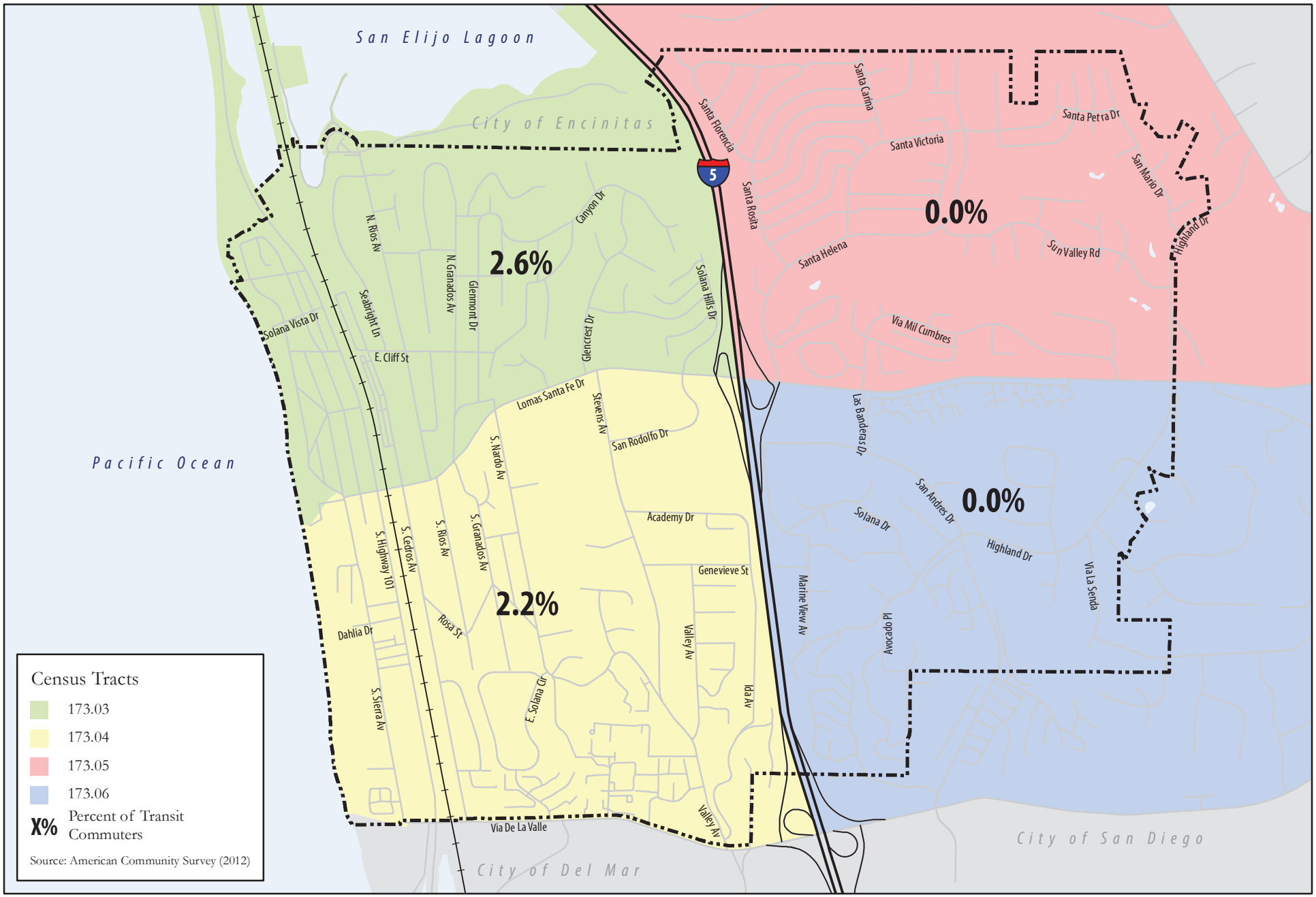

Figure 5-11
2012 Transit Commuter Mode Share

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Community Travel Survey

A survey was prepared and distributed to members of the public to obtain feedback from the community about cycling and walking in Solana Beach. Over 64% of people surveyed believe that building better bike lanes or bike paths is a way to encourage more people to travel by bike instead of by car. The responses also show that over 45% of respondents indicated slowing vehicular traffic is another way to encourage bike travel. Other responses show that over 40% of people believe that more bike parking and separated bicycle facilities (such as bike path and cycle track) would encourage more people to ride a bike. The survey also asked what factors inhibit people from riding their bike more often. According to the results, over 33% believe it is due to a lack of safe bike lanes or bike paths, approximately 30% of respondents do not feel safe, over 35% believe there is not enough time to travel by bicycle, and approximately 22% travel to destinations that are too far away.

The survey identified street segments in Solana Beach that are perceived as undesirable or unsafe for cycling. There were multiple responses identifying Lomas Santa Fe Drive, between Highway 101 and Santa Helena, Stevens/Valley Avenue, and Sierra Avenue. Other street segments identified were Cedros Avenue and Granados Avenue. The intersections identified as undesirable or unsafe for cycling were Lomas Santa Fe Drive and all Interstate 5 ramps, as well as the intersection of Via De La Valle and Valley Avenue.

The pedestrian survey asked participants to identify what changes could be made to encourage more people to travel by foot instead of car. The responses show that over 70% of people surveyed believed that better sidewalks would encourage more people to walk instead of travel by car. Additionally, 32% of respondents indicated that slowing vehicular traffic and separating pedestrian traffic from vehicular traffic would encourage pedestrian activity. The survey also asked what factors inhibit people from walking to their destination more often. Over 41% of survey respondents indicated they did not have enough time to walk. Similarly, 30% of people surveyed stated their destination was too far away. Additionally, 25% believed there was a lack of safe sidewalks leading to their destination.

5.2 Deficiencies

This section explores deficiencies in active transportation infrastructure in Solana Beach as identified through a review of the networks, information obtained from the community survey, an active transportation "detractor" model, the initial community workshop, a project working group meeting, and project team meetings with BikeWalkSolana members.

La Colonia Park is one of Solana Beach's recreational resources currently inaccessible by existing bicycle facility.

Table 5-7 displays gaps identified in the existing pedestrian and bicycle networks. A gap is defined as a relatively short, missing segment in the existing network, as opposed to all street segments lacking sidewalks or bicycle facility.

For the purposes of this assessment, a gap was also defined as a Class III bicycle route, since it provides little and/or inconsistent designated space for cyclists. The Class III bicycle route on Highway 101 is a unique result of the recently completed revitalization improvements. The revitalization project reduced speeds on the segment thereby improving cycling and walking safety. There is also an adjacent Class I facility on the east side of Highway 101 as the City's portion of the regional Coastal Rail Trail. This Class I facility provides cyclists with an alternate to the Class III route that is completely separated from vehicular traffic.

Table 5-7 Existing Pedestrian and Bicycle Network Gaps

Street Segment (from/to)	Segment Description	Gap Length
Pedestrian Network Gaps		
S. Cedros Avenue (north of Marsolan Avenue to Cofair Avenue)	Access to Cedros Design District from the south. No sidewalks.	0.27 miles
E. Cliff Street (N Cedros Avenue to Marview Lane)	Access to Solana Beach Child Development Center (preschool). No sidewalks.	0.30 miles
Stevens Avenue (Genevieve Street to La Colonia Park)	Access to La Colonia Park, two schools, library, and commercial/retail. Temporary sidewalk on west side of Stevens Avenue.	0.08 miles
San Andres Drive (La Sobrina Court to Highland Drive)	Connects residential areas to commercial/ retail. No sidewalks, 40 mph speeds.	0.13 miles
	Total Pedestrian Network Gap Mileage	**0.78 miles**
Bicycle Network Gaps		
Stevens Avenue (Lomas Santa Fe Drive to Valley Avenue)	Access to La Colonia Park, two schools, library, and commercial/retail. No facility.	.92 miles
Highland Drive (Sun Valley Road north to City boundary)	Class II facility transitions into Class III at Sun Valley Road.	.25 miles
San Andreas Drive (Highland Drive to southern City boundary)	Class III facility connects Class II to the north on Highland Ave and Class II at City boundary.	.31 miles
	Total Bicycle Network Gap Mileage	**1.48 miles**

Source: Chen Ryan Associates, March 2015

5.2.1 Active Transportation Detractors Model

A detractor model was created to identify street segments and areas that may be unappealing to cyclists and pedestrians due to roadway speeds or relatively high volumes of traffic. **Table 5-8** shows the inputs for the Active Transportation Detractor Submodel. As shown, average daily traffic volumes and posted speed limits are assigned point values ranging from 0 to 4 based on the magnitude of the inputs. For example, very high traffic volumes and speed limits receive the full four points. The remaining inputs, freeway interchange locations and bicycle and pedestrian collision locations, are assigned two points and one point, respectively, when present.

Table 5-8 Active Transportation Detractor Submodel Inputs

Detractor	Very High	High	Medium	Low	Very Low
Points	4	3	2	1	0
Average Daily Traffic Volumes (ADT)	>20,000	15,000 – 20,000	10,000 – 15,000	5,000 – 10,000	<5,000
Posted Speed Limits (mph)	>40	40	35	30	<30
	Points				
Freeway Interchange Locations	2				
Collisions	1				

Source: Chen Ryan Associates, March 2015

Figure 5-12 displays average daily traffic volumes on Solana Beach roadways. Increased vehicular volumes may deter cyclists and pedestrians due to perceptions of decreased safety. The highest traffic volumes were found on Lomas Santa Fe Drive from N. Granados Drive to just east of the Interstate 5 northbound ramps, and along Highway 101. Each segment was found to have average volumes greater than 20,000 vehicles. Another factor potentially discouraging cyclists and pedestrians relates to posted speed limits. Similar to traffic volumes, increased vehicle speeds decrease perceptions of safety, potentially leading to decreased utilization by cyclists and pedestrians.

Figure 5-13 identifies the posted speed limits. As shown, Lomas Santa Fe Drive east of Interstate 5 northbound on-ramps displays the highest posted speed limit at 45 miles per hour. Posted speeds of 40 miles per hour are found on Stevens Avenue south of San Rodolfo Drive, Highland Drive south of Lomas Santa Fe Drive and Highway 101 south of Dahlia Drive.

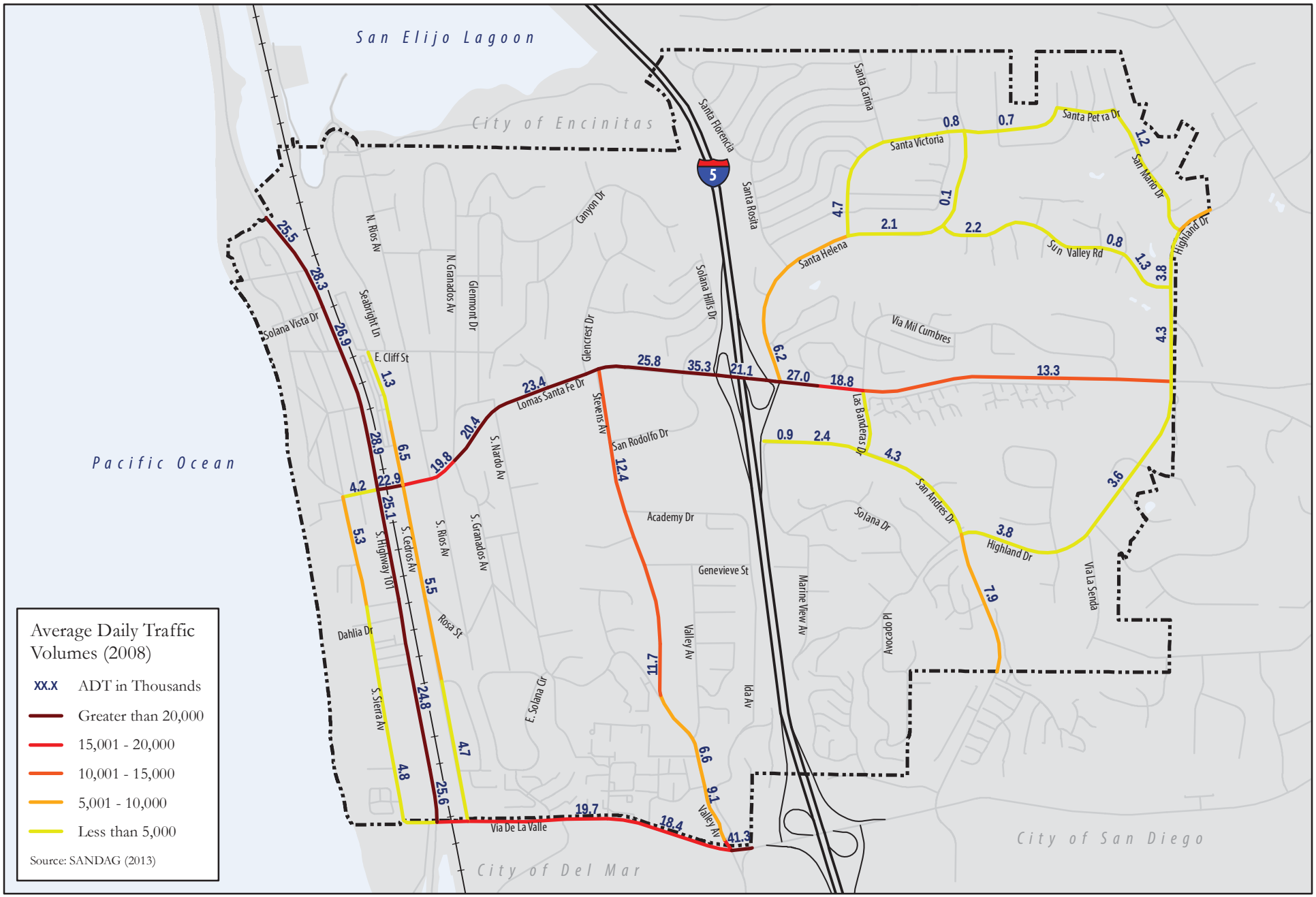

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Figure 5-12
Average Daily Traffic Volumes (2008)

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Figure 5-13
Posted Speed Limits

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Figure 5-14 combines the detractor inputs (average daily traffic volumes, posted speed limits, freeway interchange locations, and collision locations) to form the Active Transportation Detractor Submodel. Roadway segments with the highest level of detractors include Highway 101 and Lomas Santa Fe Drive, followed by Stevens Avenue/Valley Avenue.

Figure 5-15 displays the final Solana Beach Active Transportation Needs Model, a composite map combining the propensity model and detractors. Higher need is indicative of areas with increased potential for active transportation due to relatively higher levels of population and employment density, and zero-vehicle households. However, these areas also have increased barriers related to active transportation including relatively higher roadway volumes and posted speed limits.

Two general areas in the City of Solana Beach were identified as having the greatest active travel need:

1) In the area south of Lomas Santa Fe Drive and west of Highway 101; and
2) In the area south of W. Solana Circle/S. Nardo Avenue, east of W. Solana Circle, and west of Stevens Avenue/Valley Avenue.

Highway 101 is one of two roadways in Solana Beach experiencing average daily traffic volumes in excess of 20,000 vehicles.

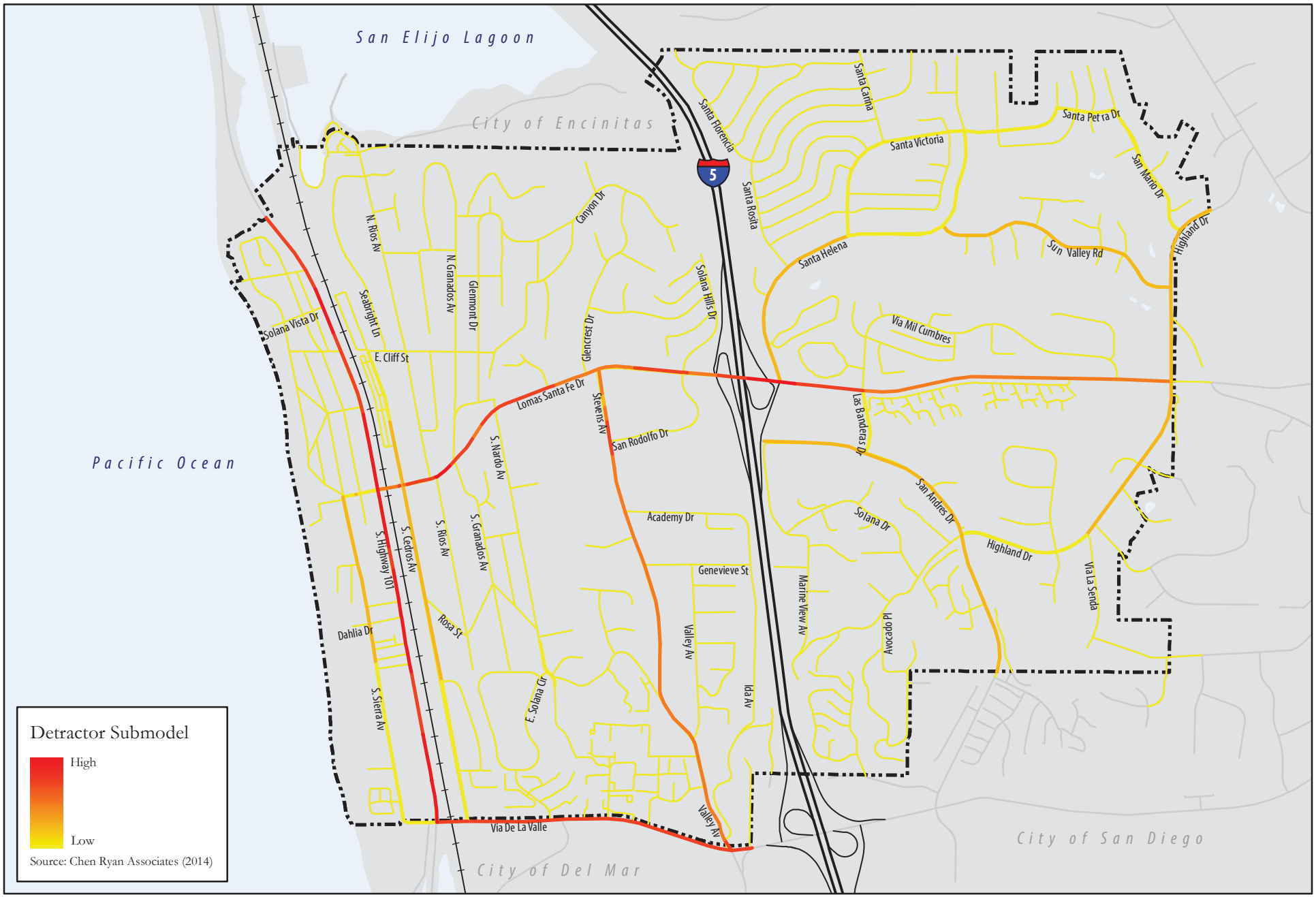

Figure 5-14
Active Transportation Detractor Submodel

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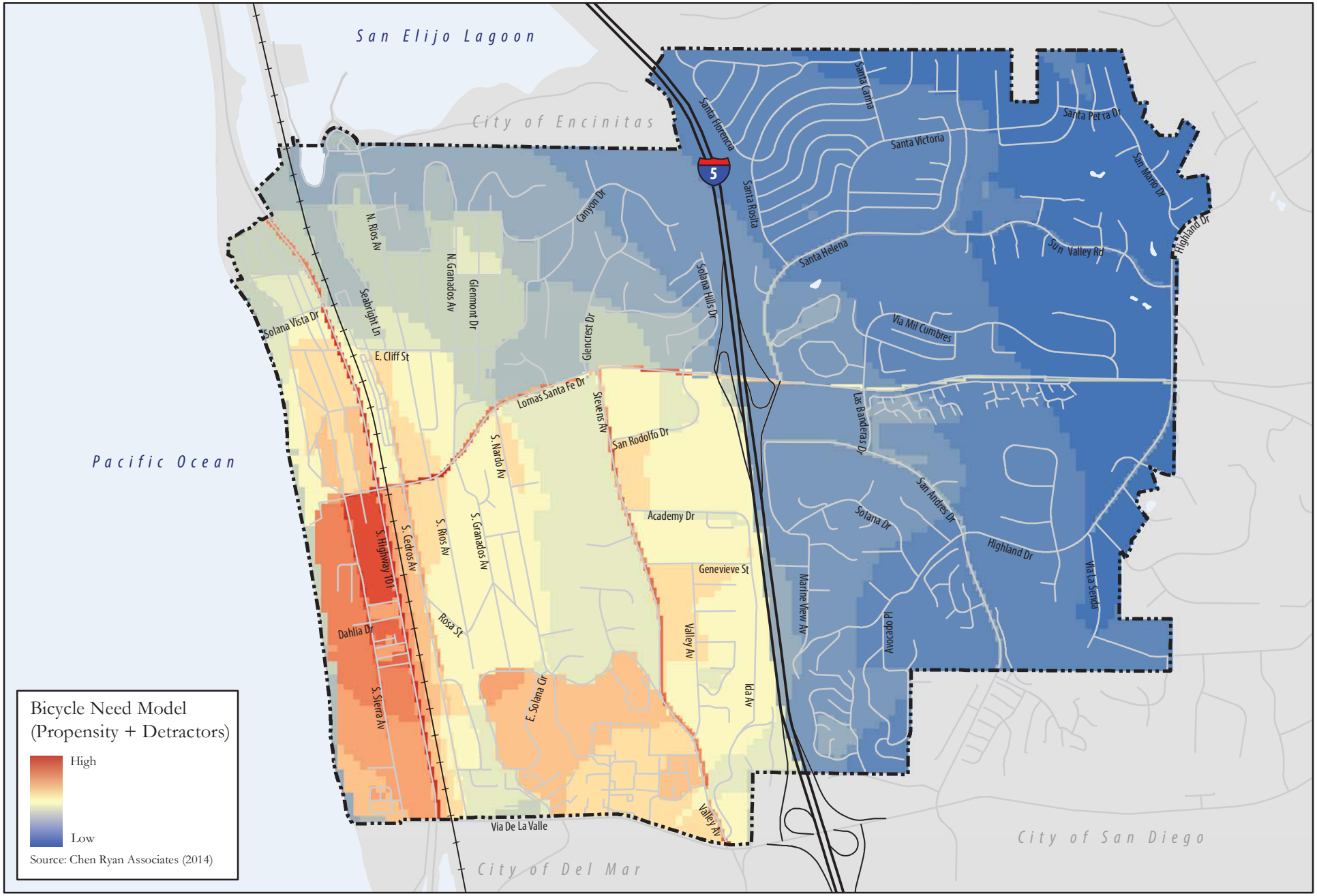

Figure 5-15
Active Transportation Need Model (Propensity + Detractors)

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5.2.2 Collision Analysis

Collision data is another valuable source of information used to identify potential deficiencies in the existing bicycle and pedestrian networks. The analysis of collision data from the previous five years (2008 to 2012) was used to identify trends and patterns related to collision locations, causes, time of collision, party-at-fault, and victim age. Data was obtained from the California Statewide Integrated Traffic Records System (SWITRS). A total of 27 bicycle and 6 pedestrian collisions were recorded and analyzed for the five-year period.

Bicycle and pedestrian collisions were recorded on Lomas Santa Fe Drive near Interstate 5.

Figure 5-16 displays the bicycle collisions in Solana Beach, while **Figure 5-17** displays the pedestrian-involved collisions. A vast majority of bicycle collisions occurred along two major arterials, Highway 101 and Lomas Santa Fe Drive. Collisions along these roadways accounted for 41% and 37%, respectively, of all bicycle collisions in the City of Solana Beach. The street segment with the most pedestrian collisions was Stevens Avenue/Valley Avenue, representing 50% of all pedestrian collisions. Highway 101 and Lomas Santa Fe Drive experienced one pedestrian collision each.

Table 5-9 displays the roadway segments with multiple bicycle and pedestrian collisions. The three segments listed account for 84% of all bicycle and pedestrian collisions within Solana Beach from 2008 to 2012.

Table 5-9 Street Segments with Multiple Collisions (2008 – 2012)

Street Segment	Bicycle Collisions	Pedestrian Collisions	Total Collisions on Street Segment	Percent of All Collisions
Highway 101	11	1	12	36%
Lomas Santa Fe Drive	10	1	11	33%
Stevens Avenue/ Valley Avenue	2	3	5	15%

Source: Statewide Traffic Integrated Records System (SWITRS), 2013; Chen Ryan Associates, March 2015

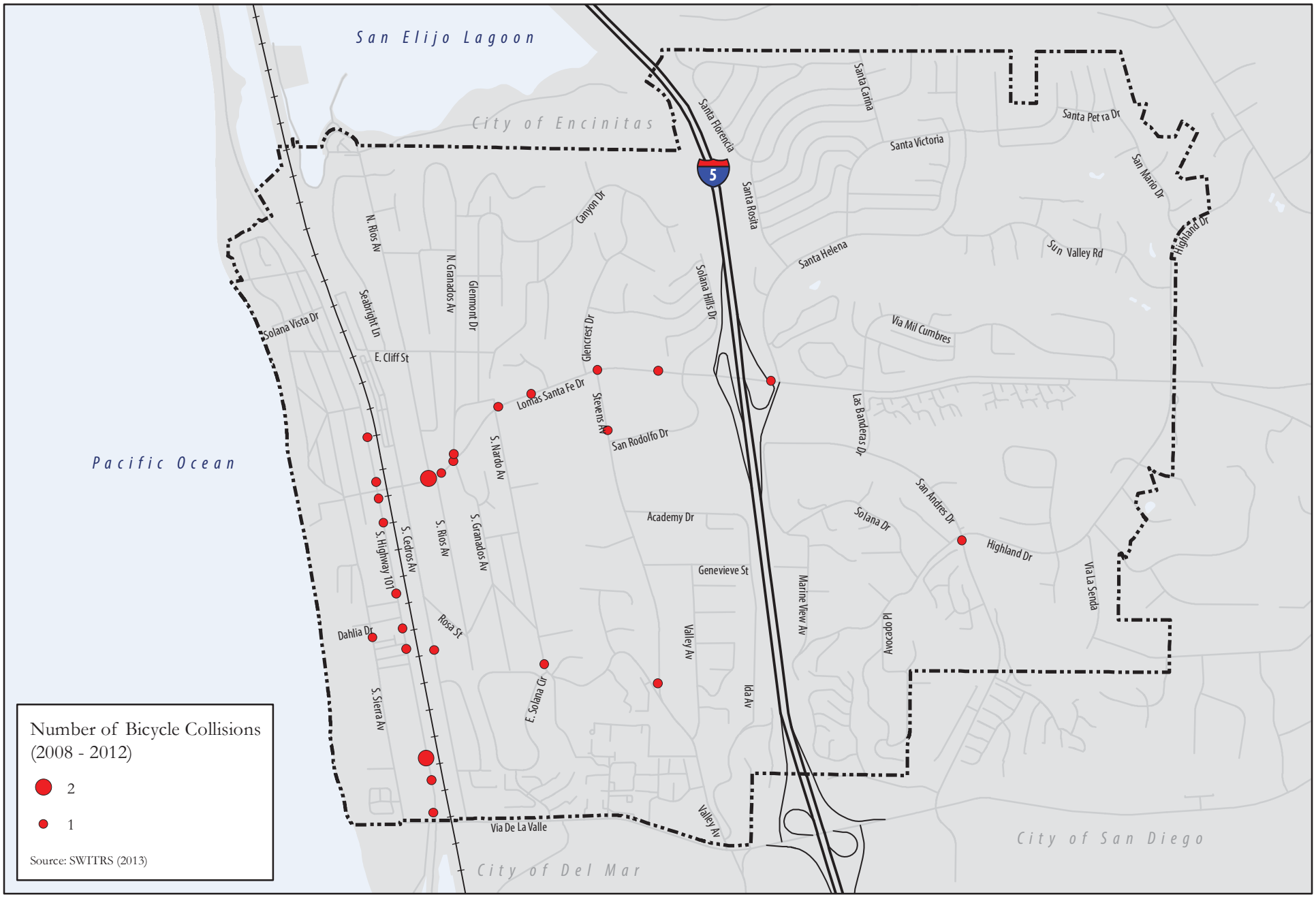

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Figure 5-16
Bicycle Collisions (2008 - 2012)

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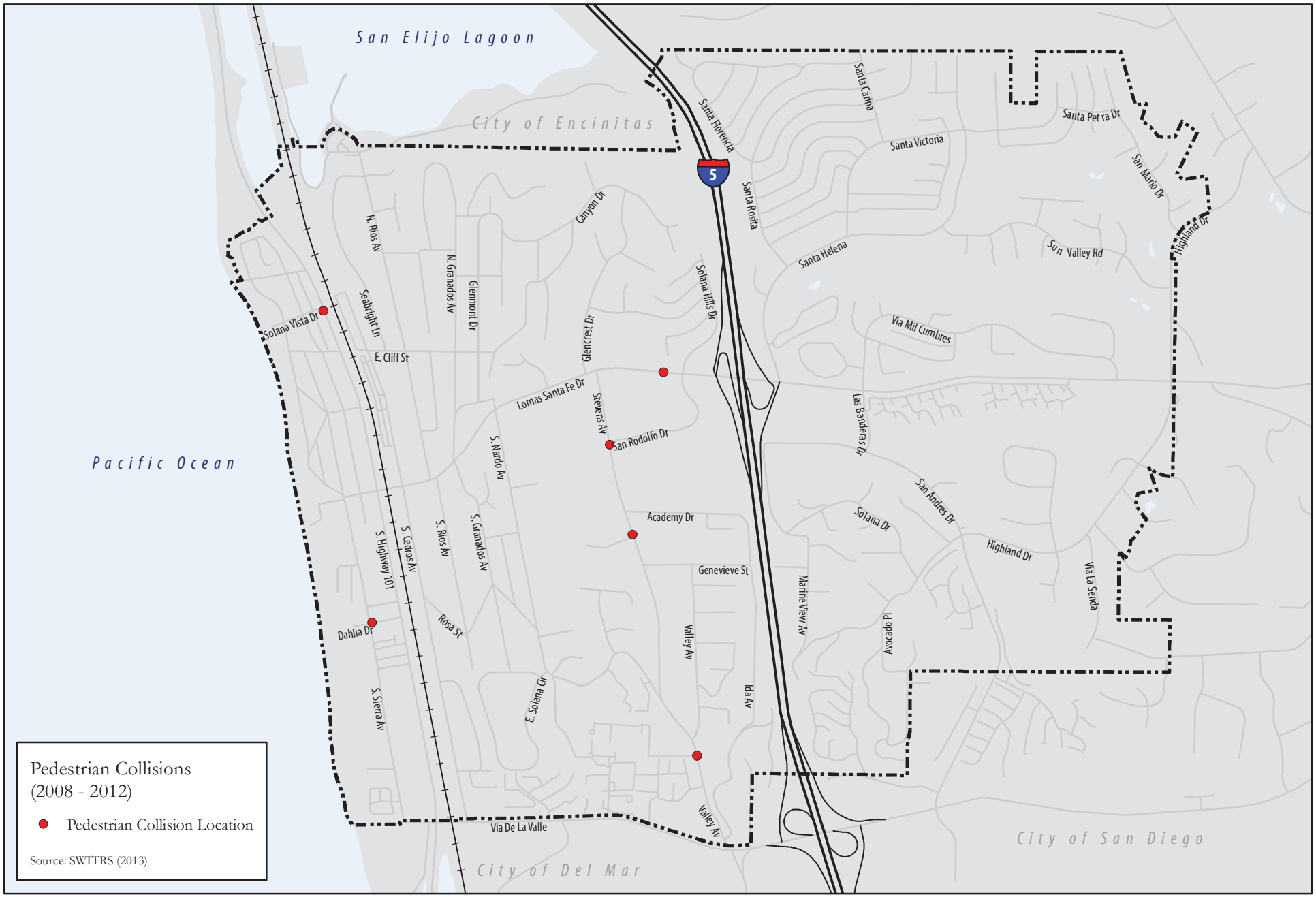

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Figure 5-17
Pedestrian Collisions (2008 - 2012)

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Chart 5-1 displays bicycle-involved collisions by party-at-fault. In approximately 74% of all bicycle-involved collisions, the motor vehicle was assigned fault. **Chart 5-2** displays pedestrian collisions by party-at-fault. Similar to Chart 5-1, the majority of pedestrian-involved collisions (approximately 67%) were reported as being motor vehicle-at-fault.

Chart 5-1 Bicycle Collisions by Party-at-Fault (2008 – 2012)

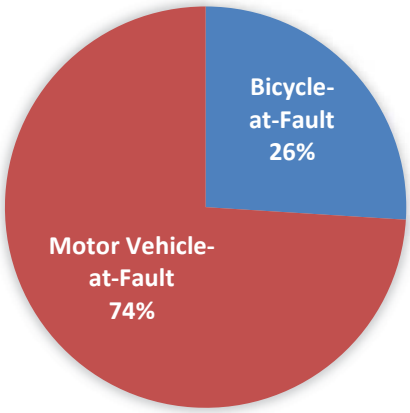
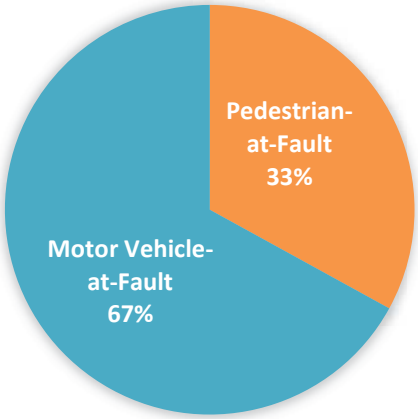


Chart 5-2 Pedestrian Collisions by Party-at-Fault (2008 – 2012)



Source: Statewide Integrated Traffic Records System (SWITRS), 2013; Chen Ryan Associates, March 2015

Table 5-10 shows the distribution of primary collision factors as assigned to each party-at-fault designation. The leading collision category was "improper turning" by drivers, cited as the primary collision factor for 48% of all bicycle-involved collisions. Interestingly, all 13 of the collisions attributed to "improper turning" occurred along either Highway 101 or Lomas Santa Fe Drive indicating a need for increased awareness of cyclists along those segments.

Stevens Avenue/Valley Avenue was one of three segments that experienced multiple collisions involving cyclists or pedestrians.

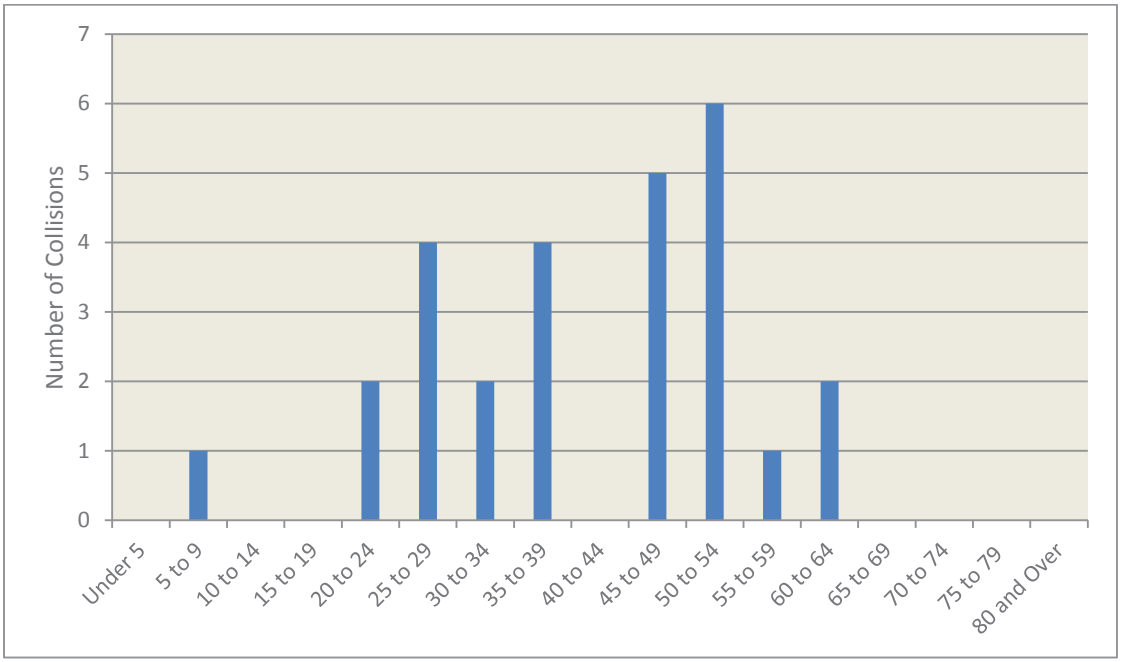
Table 5-10 Primary Bicycle Collision Factor Categories

Primary Collision Factor Category	Number of Collisions	Percent of Total Collisions
Bicycle-at-Fault		
Under the Influence of Alcohol or Drug	1	4%
Unsafe Speed	2	7%
Wrong Side of Road	2	7%
Automobile Right of Way	1	4%
Other Hazards Violation	1	4%
Motor Vehicle-at-Fault		
Following Too Closely	1	4%
Improper Turning	13	48%
Automobile Right of Way	3	11%
Other Hazards Violation	3	11%
Total	**27**	**100%**

Source: Statewide Integrated Traffic Records System (SWITRS), 2013; Chen Ryan Associates, March 2015

Chart 5-3 displays bicycle-involved collisions by age group. Groups experiencing the greatest number of collisions fell into the age ranges of 50 to 54 years, and 45 to 49 years, with six and five collisions occurring in these age groupings, respectively. Additional age groups with proportionately more collisions were 25 to 29 years and 35 to 39 years, with four collisions recorded for each group.

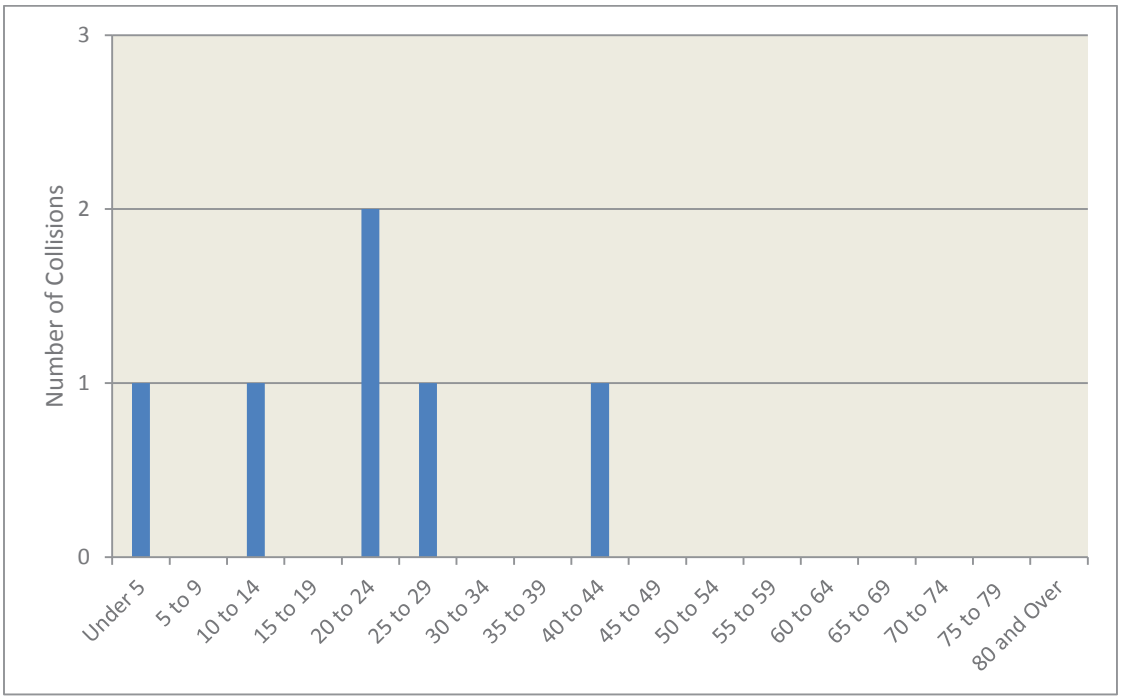
Chart 5-3 Bicycle Collisions by Age Group (2008 - 2012)



Source: Statewide Integrated Traffic Records System (SWITRS), 2013; Chen Ryan Associates, March 2015

Chart 5-4 presents the six pedestrian collisions by age group. Five different age groups experienced pedestrian-involved collisions, however, only ages 20 to 24 recorded increased collisions when compared to the other groups. Five of the six pedestrian collision victims were under the age of 30.

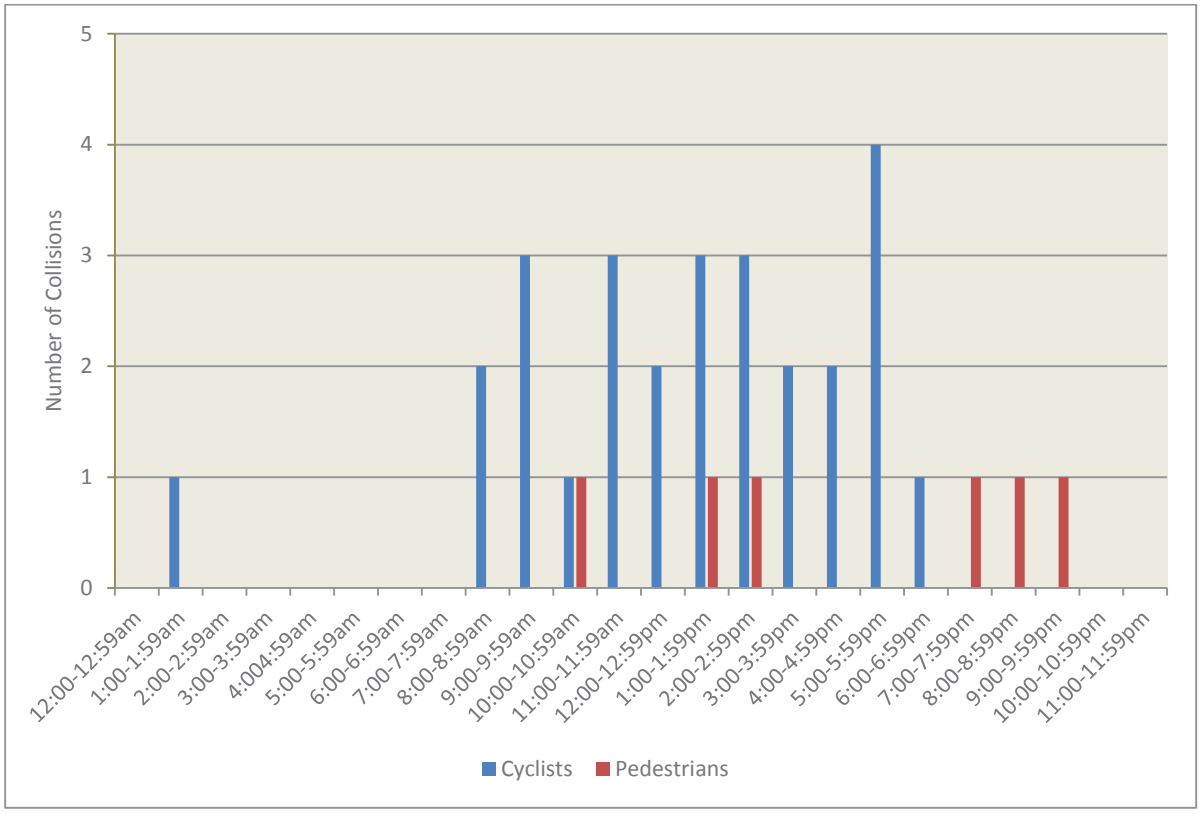
Chart 5-4 Pedestrian Collisions by Age Group (2008 - 2012)



Source: Statewide Integrated Traffic Records System (SWITRS), 2013; Chen Ryan Associates, March 2015

Chart 5-5 displays bicycle and pedestrian collisions distributed by time of day. The time frame with the most bicycle collisions recorded was between 5:00PM and 5:59PM, with four collisions. This time frame falls within the evening peak period (4:00PM to 6:00PM), potentially indicating cyclists commuting for utilitarian purposes. The six pedestrian collisions were evenly distributed, with each collision occurring in a different time frame. In terms of total collisions (bicycle and pedestrian combined), three time frames recorded a total of four collisions: 1:00PM to 1:59PM, 2:00PM to 2:59PM, and 5:00PM to 5:59PM.

Chart 5-5 Bicycle and Pedestrian Collisions by Time of Day (2008 – 2012)

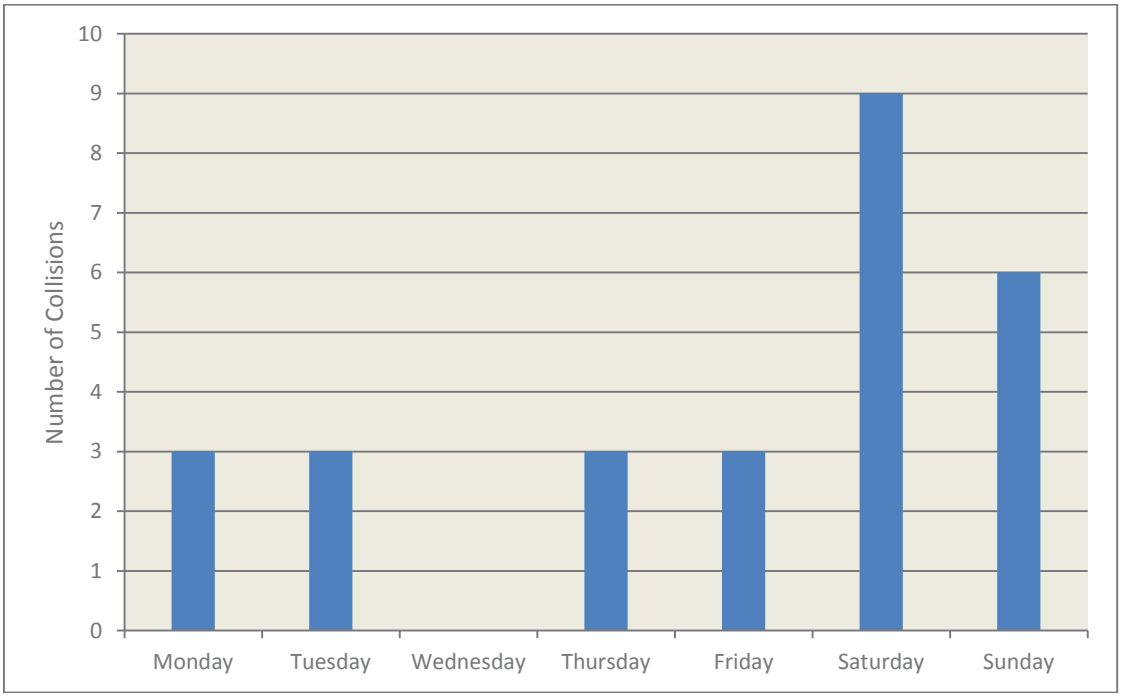


Source: Statewide Integrated Traffic Records System (SWITRS), 2013; Chen Ryan Associates, March 2015

Chart 5-6 presents bicycle collisions by day of week. Saturday experienced the greatest number of collisions occurring on a single day, with nine, or 33% of all bicycle collisions. Sunday followed Saturday in terms of total collisions, with six collisions. Combined, the two weekend days accounted for 55% of all bicycle collisions. With the exception of Wednesday, all other weekdays were consistent in the number of collisions recorded, with three occurring on each day.

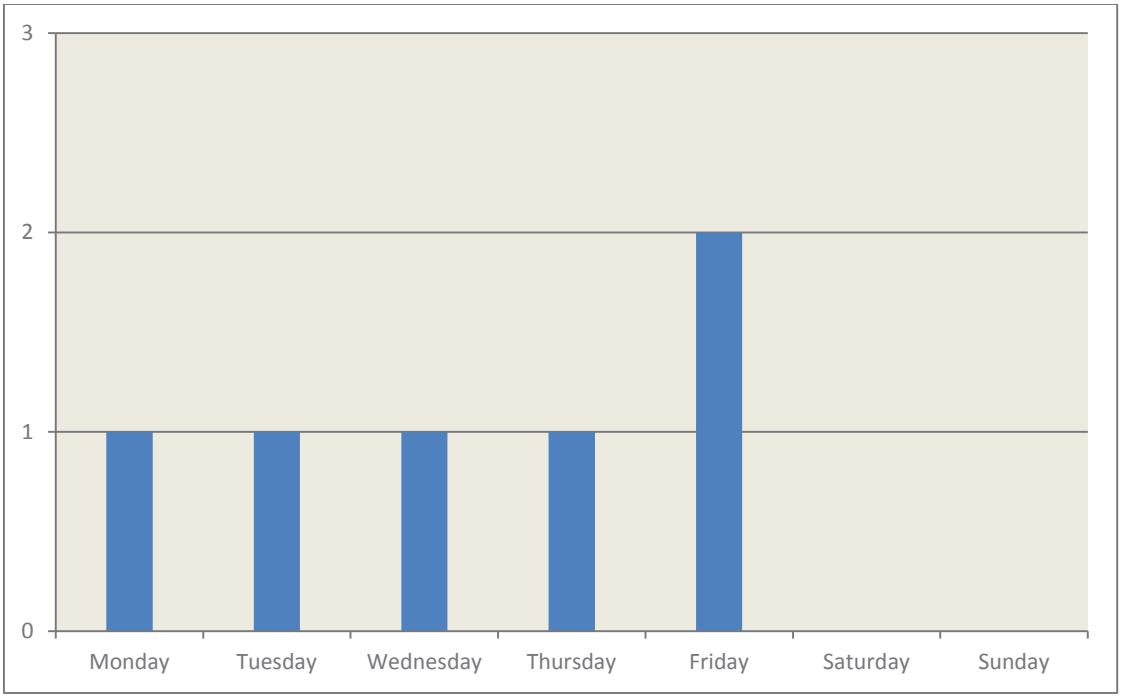
Chart 5-7 displays pedestrian collisions by day of week. The distribution of collisions is very consistent during the weekdays, with a single collision recorded on each day with the exception of Friday which had two collisions. Conversely to the bicycle collisions, which experienced the highest collision volumes on weekends, no pedestrian collisions were reported on Saturday or Sunday.

Chart 5-6 Bicycle Collisions by Day of Week (2008 - 2012)



Source: Statewide Integrated Traffic Records System (SWITRS), 2013; Chen Ryan Associates, March 2015

Chart 5-7 Pedestrian Collisions by Day of Week (2008 - 2012)



Source: Statewide Integrated Traffic Records System (SWITRS), 2013; Chen Ryan Associates, March 2015

5.2.3 Public Identification of Network Deficiencies

Table 5-11 displays segment specific comments received from community members, while **Table 5-12** summarizes node or site specific comments.

Figure 5-18 displays the segment locations and sites receiving comments, which are indicated using the alphanumeric "ID" from Tables 5-11 and 5-12. The most frequently mentioned deficiency type identified by the public was related to lack of facility (sidewalks or bicycle facility). The majority of node or site specific comments were also related to lack of facility, however, these deficiencies were more focused on pedestrian crossings, bicycle parking, cyclist detection at signals and ADA accessibility.

Table 5-11 Segment Specific Comments

ID	Location (From/To)	Comments	Deficiency Type
A	**N. Cedros Avenue** (Cliff Street to Lomas Santa Fe Drive)	• No sidewalk next to school • Needs traffic calming	No Facility / High Stress
B	**E. Cliff Street** (Cedros Avenue and Marview Lane)	• No sidewalk next to school	No Facility
C	**Lomas Santa Fe Drive** (Las Banderas Drive to City boundary)	• No sidewalk • Needs traffic calming	No Facility / High Stress
D	**Highland Drive** (San Diego boundary to Sun Valley Road)	• Bike lane drops	No Facility
E	**Highway 101** (Northern boundary with the City of Encinitas to Ocean Street)	• No sidewalk[1]	No Facility
F	**S. Cedros Avenue** (Lomas Santa Fe Drive to Rosa Street)	• Sidewalks are narrow	Obstructions
G	**Highland Drive** (San Andres Drive to Lomas Santa Fe Drive)	• High vehicle speeds along this segment	High Stress
H	**Adjacent to I-5 NB Off Ramp** (Lomas Santa Fe Drive to San Andres Drive)	• Sidewalk connection was removed to accommodate I-5 NB off ramp[2]	No Facility
I	**Stevens Avenue** (Lomas Santa Fe Drive to Valley Avenue)	• Needs bike lanes and sidewalks	No Facility
J	**Genevieve Street and Valley Avenue** (Stevens Avenue to Valley Avenue)	• Needs sharrows and sidewalks	No Facility
K	**Nardo Avenue** (Lomas Santa Fe Drive to Solana Circle)	• Needs sharrows	No Facility
L	**South Sierra Avenue** (Plaza Street to Border Avenue)	• Needs sharrows	No Facility
M	**San Andres Drive** (Las Banderas Drive to City border)	• Needs sharrows	High Stress
N	**Genevieve Street** (Ida Avenue to Marine View Avenue)	• Need connection across Interstate 5	No Facility

Source: Chen Ryan Associates, March 2015

[1] A sidewalk was constructed on the west side of this segment of Highway 101 in 2014.
[2] Comment refers to closure of northern segment of Marine View Avenue.

Table 5-12 Site Specific Comments

ID	Location	Comments	Deficiency Type
1	Highway 101 & Cliff Street	• Transition off of bridge crossing railroad tracks is poor for cyclists (90 degree turns)	Obstructions
2	Lomas Santa Fe Drive & Nardo Avenue	• Downhill warning sign needed	High Stress
3	Highway 101 & Via De La Valle	• ADA wheelchair access needed on south side of Via De La Valle[1]	No Facility
4	Highland Drive & San Andres Drive	• Westbound traffic turning right on San Andres going too fast	High Stress
5	East of Camino De Las Villas & Lomas Santa Fe Drive	• No location to cross Lomas Santa Fe Drive for long distances	No Facility
6	Solana Hills Drive & Lomas Santa Fe Drive	• Cyclist signal detection needed	No Facility
7	Granados Ave & Lomas Santa Fe Drive	• Signal needed with cyclist detection • Needs crosswalk	No Facility
8	Highway 101 & Ocean Street	• No crosswalk at the end of Coastal Rail Trail	No Facility
9	Stevens Avenue in front of Earl Warren Middle School	• Bicycle parking inadequate	No Facility
10	Santa Rosita & Santa Helena	• Needs a high visibility crosswalk	No Facility
11	Solana Beach shopping centers	• Lack adequate bicycle parking and safe pedestrian access	No Facility / High Stress
12	Fresca Street & Nardo Avenue	• Uncontrolled crosswalk with no warning signage	No Facility
13	Nardito Lane & Nardo Avenue	• Uncontrolled crosswalk with no warning signage	No Facility
14	I-5 Ramps & Lomas Santa Fe Drive	• No pedestrian signals for northbound on-ramp on the north side of LSF	No Facility

Source: Chen Ryan Associates, March 2015

[1] New ADA ramps were installed at all four intersection corners by the City of Del Mar in 2014.

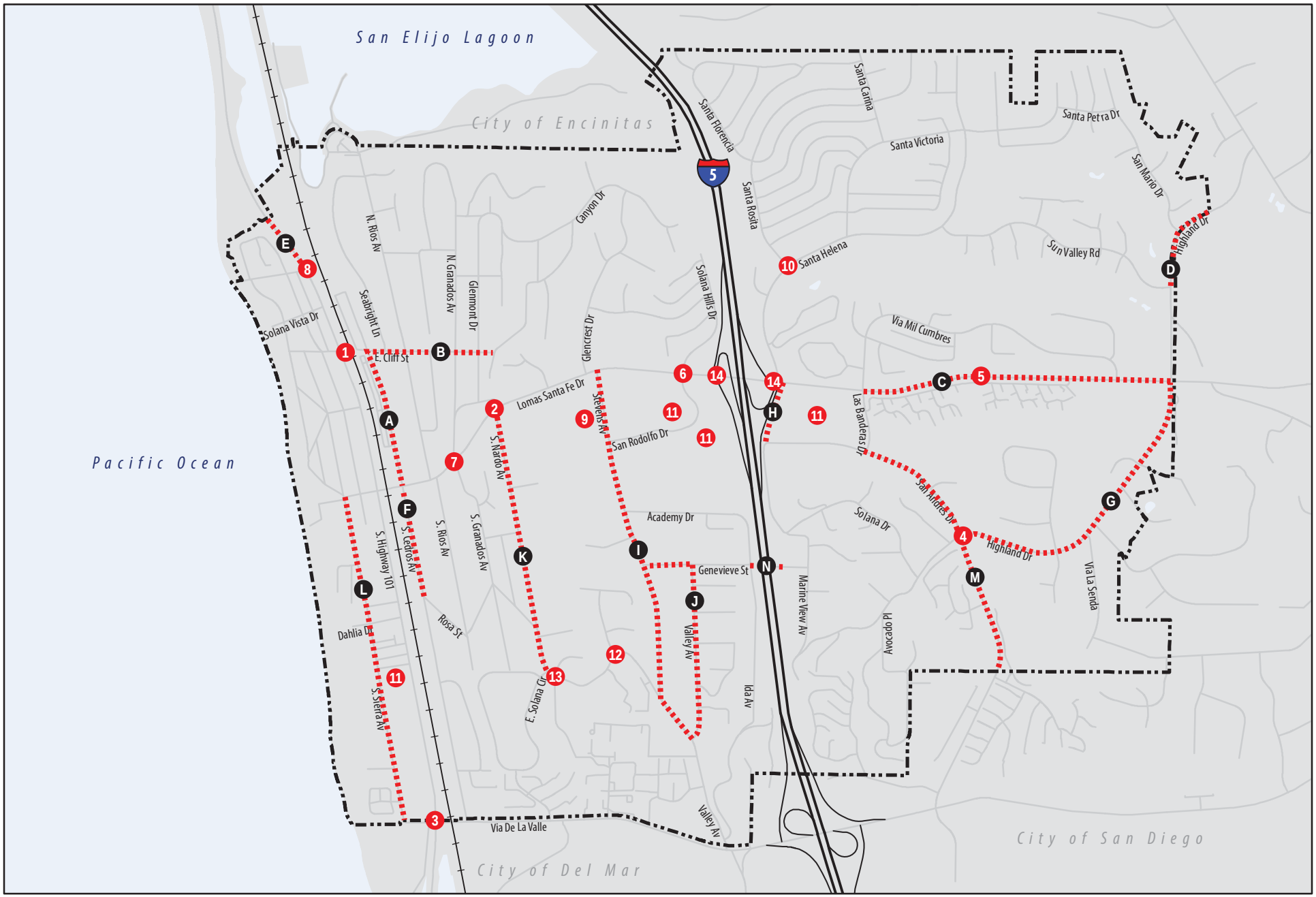


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Figure 5-18
Active Transportation Network Deficiency Comments from Public

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5.3 Opportunities & Constraints

This section summarizes the needs analyses presented in this chapter and attempts to identify opportunities and constraints related to the bicycle and pedestrian networks. The synthesis incorporates information derived from the review of existing documents, review of existing infrastructure, bicycle and pedestrian demand, collision analysis, and community input.

Figure 5-19 illustrates Solana Beach bicycle and pedestrian network opportunities and constraints. The existing bicycle network is displayed in Figure 5-19, along with areas identified as having high propensity for active transportation and planned mixed use areas. Additionally, the various multi-modal street typologies proposed in the Draft Circulation Element of the Solana Beach General Plan update are shown in Figure 5-19. These proposed typologies were viewed as opportunity areas for the CATS project moving forward, and incorporated into the network planning process. **Table 5-13** provides a description of each of the proposed street typologies from the General Plan Circulation Element Update process.

The portions of Solana Beach west of Interstate 5 are suitable for bicycle and pedestrian related improvement opportunities. The southern and southwestern areas of Solana Beach were found to contain combinations of active transportation trip generators and attractors associated with the highest levels of cyclist and pedestrian demand. Additional opportunities in this area result from the proposed street typologies that will support bicycle and pedestrian travel, including a multi-modal boulevard along Highway 101, multi-use paths, residential bicycle boulevards, and bicycle boulevards.

The land uses present along Highway 101 attract active transportation trips.

Narrow roadway widths is one citywide constraint that may limit implementation of separated facilities for pedestrians and/or cyclists. The relatively narrow residential streets are primarily located west of Interstate 5. Potential treatments for these constrained residential streets include implementing residential bicycle boulevards as identified in the Draft Circulation Element Update. This typology would include traffic calming measures to reduce or limit vehicle speeds as well as employing methods to increase the awareness and visibility of pedestrians and cyclists such as signage and prioritized phasing at signalized intersections.

A major constraint to cyclists and pedestrians alike in Solana Beach is the presence of Interstate 5, bisecting the City from north to south. Lomas Santa Fe Drive currently provides the only east-west connection across the freeway for all modes of travel within City limits. Additionally, this segment provides the only freeway access for automobiles, creating high traffic volumes along Lomas Santa Fe Drive between Solana Hills Drive/San Rodolfo Drive and the Interstate 5 SB on-ramps (Figure 5-12 Average Daily Traffic Volumes). These conditions create a significant barrier to east-west travel for cyclists and pedestrians.

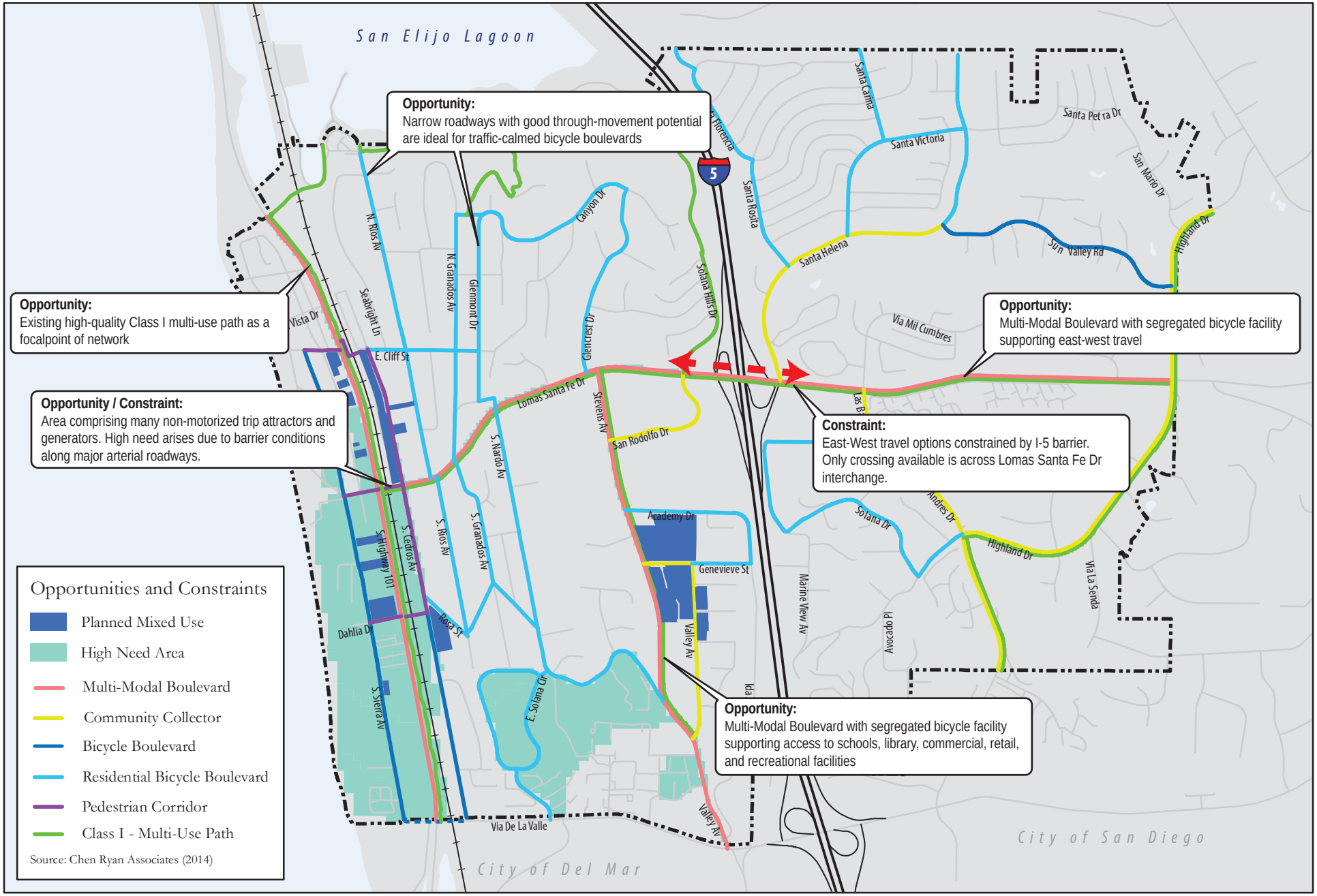

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Figure 5-19
Opportunities and Constraints

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Table 5-13 Solana Beach Draft Circulation Element Proposed Street Typologies

Proposed Typology	Number of Lanes	Description
Multi-Modal Boulevard	4-Lane or 2-Lane Divided	*Multi-Modal Boulevards* provide access to major community amenities, commercial uses, and services within Solana Beach, while also serving as regional connections to cities to the north, south and east of Solana Beach. These facilities shall be balanced in their provision of mobility and accessibility by foot, bike, transit and car. Separated bicycle facilities shall be provided.
Community Connector	2-Lane Divided or Undivided	*Community Connectors* provide for pedestrian, bicycle, and automobile access between Solana Beach residential neighborhoods, the City's Multi-Modal Boulevards, and points outside the City. The facilities should have enhanced bicycle and pedestrian treatments to ensure safe travel between residential neighborhoods and Multi-Modal Boulevards or locations outside of the City.
Bicycle Boulevard	2-Lane w/Traffic Calming and Enhanced Bicycle Treatments	*Bicycle Boulevards* provide pedestrian, bicycle, and automobile access, although non-motorized modes are distinctly prioritized through traffic calming and bicycle treatments, such as vertical and horizontal signage, priority phasing for cyclists at signalized intersections, and wayfinding. The proposed network of Bicycle Boulevards allows for convenient and safe bicycle travel between residential neighborhoods and schools, commercial, transit and recreation.
Pedestrian Corridor	2-Lane w/Traffic Calming and Enhanced Pedestrian Treatments	*Pedestrian Corridors* provide pedestrian, bicycle and automobile access, although pedestrian travel is distinctly prioritized through traffic calming and pedestrian treatments, such as raised crosswalks, high visibility crosswalks, bulb-outs, and pedestrian priority phasing at signalized crossings.
Class I Multi-Use Path	Car-free Path for Commuting and Recreational Cyclists and Pedestrians	*Class I Multi-Use Paths* provide a travel option for bicycle and pedestrian commuters and recreational users that is fully separated from automobile traffic.

Source: Solana Beach Draft Circulation Element Update, 2013; Chen Ryan Associates, March 2015

6.0 Active Transportation Network Recommendations

This chapter summarizes the planned bicycle improvements and pedestrian/traffic calming focus area recommendations. The bicycle and pedestrian improvements build upon the recommendations made in the Draft Solana Beach Circulation Element Update and incorporate community input collected from the Project Working Group and the second community workshop. The chapter concludes with a description of the process used to prioritize the bicycle network and pedestrian and traffic calming focus areas.

Cyclists ride down the bridge at Dahlia Drive.

6.1 Planned Bicycle Network & Facility Classifications

The planned bicycle network is intended to provide safe bicycle access to and from key destinations throughout Solana Beach, with an emphasis on schools, parks and beaches, transit stops and commercial land uses. The network is comprised of seven facility classifications, as described in **Table 6-1**, including four facility types previously not seen in Solana Beach: cycle track, buffered bike lane[1], commercial bicycle boulevard, and residential bicycle boulevard. The additional three facilities already used in Solana Beach include multi-use path, standard bicycle lane and bicycle route.

The complete network would provide cyclists with three physically separated options to traverse Solana Beach from north to south (Highway 101; Solana Hills Drive, Stevens Avenue, Valley Avenue; and Highland Drive to San Andres Drive). As planned, Lomas Santa Fe Drive would provide a separated facility through the center (east-west) of Solana Beach for cyclists to travel from the eastern city boundary to Highway 101.

The bicycle network was developed following a review of existing bicycle facilities, the Draft Solana Beach Circulation Element Update proposed roadway classifications, and community input. Further refinement to the network occurred following the second community workshop to incorporate public input. The Draft Circulation Element Update outlines a planned roadway network that would provide adequate right-of-way to implement the bicycle facilities recommended in this document.

Figure 6-1 displays the planned Solana Beach Bicycle Network. It should be noted there are instances where a separated multi-use path is planned adjacent to another facility type, such as one-way cycle track (Lomas Santa Fe Drive and Stevens Avenue), buffered bike lane (Highway 101), or standard bike lane (Highland Drive and San Andres Drive). This was done in an effort to accommodate cyclists of all skill levels and ages, to provide an in-road facility type and a completely separated path.

[1] A buffered bike lane was added along the northbound/eastbound direction of Santa Helena during the preparation of this document.

Table 6-1 Planned Bicycle Facility Classifications

Facility Description	Example
Multi-Use Path Multi-use paths, also referred to shared-use paths or Class I facilities, provide a shared travel way for cyclists and pedestrians that is physically separated from vehicular traffic and prohibits motorized vehicles. Paths are generally intended for two-way travel, marked by either a solid or dashed center divide line. The Coastal Rail Trail is an example of a multi-use path.	
One-Way Cycle Track One-Way Cycle tracks are intended for the exclusive use by cyclists, and are physically separated from vehicular travel lanes and sidewalks, but located within the roadway travelway. At locations where on-street parking is permitted cycle tracks should be located to the curb-side of the parking if feasible.	
Buffered Bike Lane A buffered bicycle lane is a standard bicycle lane that includes a designated buffer space separating the bicycle lane from the adjacent motor vehicle travel lane. The buffer can also be applied between cyclists and the parking lane to help prevent conflicts between cyclists and opening vehicle doors.	
Standard Bike Lane Bike lanes reserve a portion of the roadway for the exclusive use of cyclists. The defined space helps to facilitate more predictable movements by bicyclists and motorists. The bike lane is defined by solid white pavement striping, directional pavement markings and additional roadway signage.	

Table 6-1 Planned Bicycle Facility Classifications

Facility Description	Example
Commercial Bicycle Boulevard Bicycle boulevards are roadways designed to prioritize bicycle travel. Bicycle boulevards are shared use facilities, like bicycle routes, that employ signs, pavement markings, and traffic calming measures (reduced speed limits, speed cushions, speed tables/bumps, chicanes, etc.) to improve cyclist safety and reduce motor vehicle speeds and volumes. The commercial bicycle boulevard designation indicates that the facility primarily serves commercial land uses.	
Residential Bicycle Boulevard Residential bicycle boulevards primarily serve residential neighborhoods, and may require less intensive treatments than commercial bicycle boulevards due to generally lower traffic volumes and speeds. Residential bicycle boulevards should utilize signs, pavement markings and traffic calming measures to reduce speeds as needed. Additionally, intersection treatments that prioritize bicycle travel or improve bicycle safety should be explored.	 Source: Flickr user "Payton Chung"
Bicycle Route Designating a roadway as a bicycle route is intended to identify preferred routes of bicycle travel through high demand corridors, or to serve as a connection to other bike facilities. Bicycle routes are designated by signs and roadway markings referred to as "sharrows." Solana Beach recently began installing green-back sharrows along Highway 101 to increase their visibility.	

Source: Chen Ryan Associates, March 2015

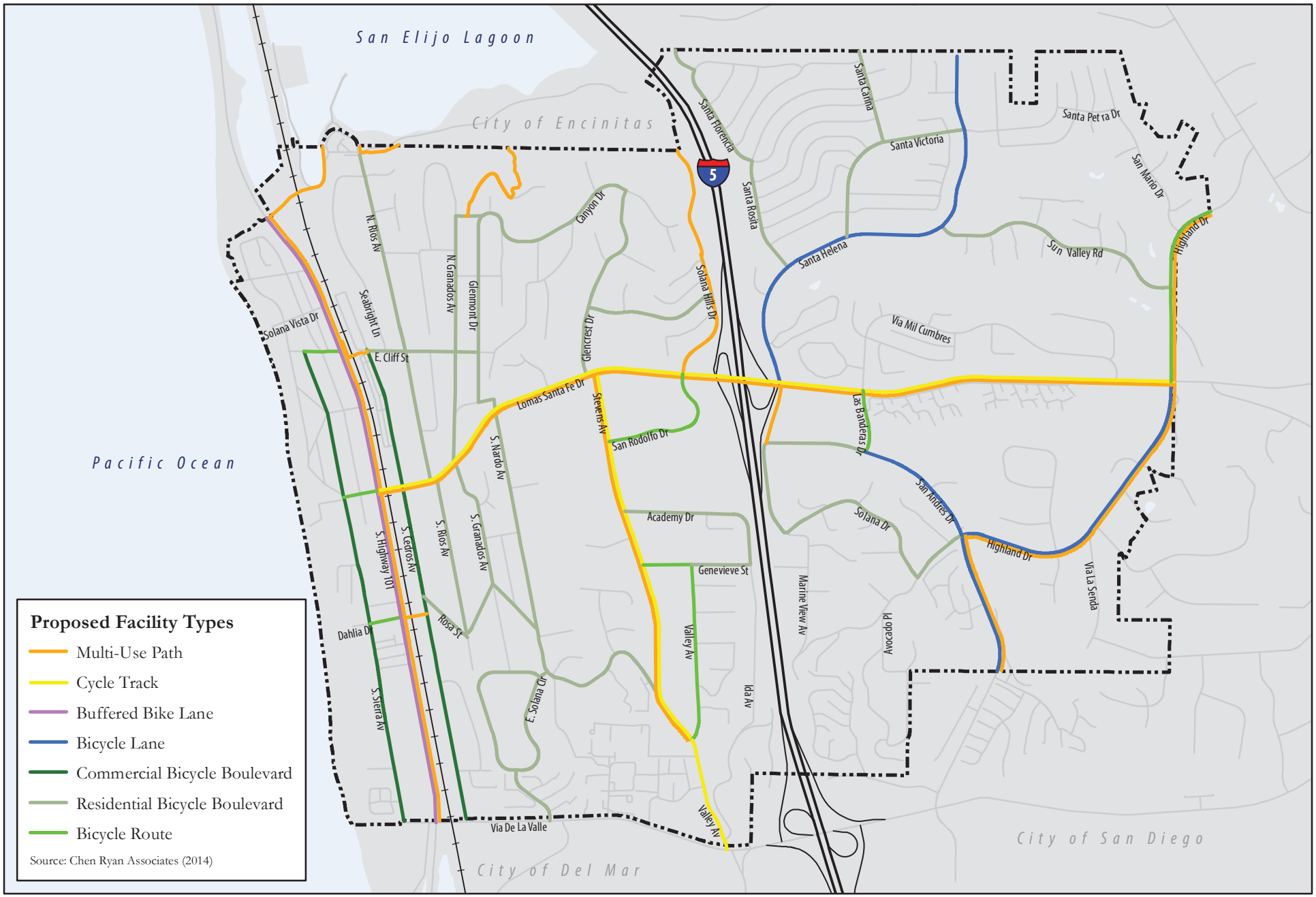

Figure 6-1
Planned Bicycle Network

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6.2 Pedestrian and Traffic Calming Focus Areas

Roadways identified as pedestrian/traffic calming focus areas are planned for improvements that increase pedestrian safety and/or reduce traffic speeds. Pedestrian and traffic calming focus areas were selected by identifying roadway segments within a 500-foot street network distance of parks, beach access points, commercial/retail land uses and schools. These are considered to be key pedestrian trip-attracting land uses. These roadway segments were further supplemented by recommendations made at the 7-29-14 Project Working Group meeting, including the addition of street segments identified as "school routes". **Figure 6-2** displays the identified pedestrian and traffic calming focus areas.

6.3 Prioritization Process and High-Priority Projects

A prioritization process was employed to rank the importance of implementing individual project segments from both the planned bicycle network and the pedestrian/traffic calming focus areas. The prioritization process helped inform the development of "high priority projects" for which conceptual designs were developed. Two categories of prioritization criteria were included: 1) demand-related criteria, and 2) safety-related criteria. **Table 6-2** and **Table 6-3** describe each of the criteria and their possible point values.

Table 6-2 Demand-Related Prioritization Criteria

Prioritization Criteria	Point Value
Active Transportation Propensity Model (Generators + Attractors) Value: The active transportation propensity model described in Chapter 5 was intersected with the planned bicycle network and pedestrian/traffic calming project areas. As documented in Chapter 5, trip generators are influenced by levels of population density, employment density, and zero-vehicle households. Trip attractor inputs include distance to schools, commercial/retail centers, recreational resources, and civic buildings. Segments falling into the highest propensity category were awarded 3 points; the next highest receiving 2 points; the second lowest category received 1 point; and the lowest category received 0 points.	0 – 3 points
Public Input: 3 points = segment identified through public comments 0 points = segment not identified through public comments	0 or 3 points
Located within a Smart Growth Opportunity Area or Regional Bicycle Network Component: Whether or not the project segment is identified as a San Diego Regional Bicycle Network corridor or is located within a SANDAG Smart Growth Opportunity Area determines the allocation of this factor's points. 3 points = corridor or opportunity area project 0 points = not a corridor or opportunity area project	0 or 3 points
School Route: The Project Working Group identified primary routes utilized by students walking and cycling to and from school. Whether or not a segment was identified as a "school route" determines the allocation of this factor's points. 3 points = project identified as a "school route" 0 points = project not identified as a "school route"	0 or 3 points
TOTAL POSSIBLE POINTS	**12**

Table 6-3 Safety-Related Prioritization Criteria

Prioritization Criteria	Point Value
Active Transportation Detractor Model Value: The active transportation detractor model described in Chapter 5 was intersected with the planned bicycle network and pedestrian and traffic calming project areas. Each segment was assigned a score based on the active transportation detractor level. As documented in Chapter 5, the detractor model includes a composite of high speed/high volume roadways, collisions, and freeway ramp locations. Higher levels of detractors resulted in increased point allocations. Segments falling into the highest level of detractors were awarded 3 points; the next highest receiving 2 points; the second lowest category received 1 point; and the lowest category received 0 points.	0 – 3 points
Network Gap: 3 points = identified gap in the Solana Beach CATS document 2 points = enhancement to existing bicycle facility 1 point = other connection to existing bicycle facility 0 points = none of the above	0 – 3 points
Bicycle or Pedestrian Collisions: 3 points = multiple collisions on segment 2 points = single collision on segment 1 point = collision within 500' of segment 0 points = none of the above	0 – 3 points
City Staff Input: Solana Beach City Staff have unique knowledge of the project area. City staff reviewed the proposed networks and provided insight as to whether or not each segment should receive additional points. 3 points = project received City Staff points 0 points = City Staff did not designate additional points	0 or 3 points
TOTAL POSSIBLE POINTS	**12**

Source: Chen Ryan Associates, March 2015

Bicycle network project segments and pedestrian/traffic calming focus area segments were sorted into three priority levels based on the prioritization assessment results.

Figure 6-3 and **Table 6-4** present results from the bicycle network prioritization process, identifying the First, Second, and Third Priority Projects.

Figure 6-4 and **Table 6-5** display the prioritized ranking of the pedestrian/traffic calming focus areas.

The recommendations of the proposed bicycle network and pedestrian traffic calming corridors were combined into a single high priority project area map to reflect the top 20 projects, as shown in **Figure 6-5**.

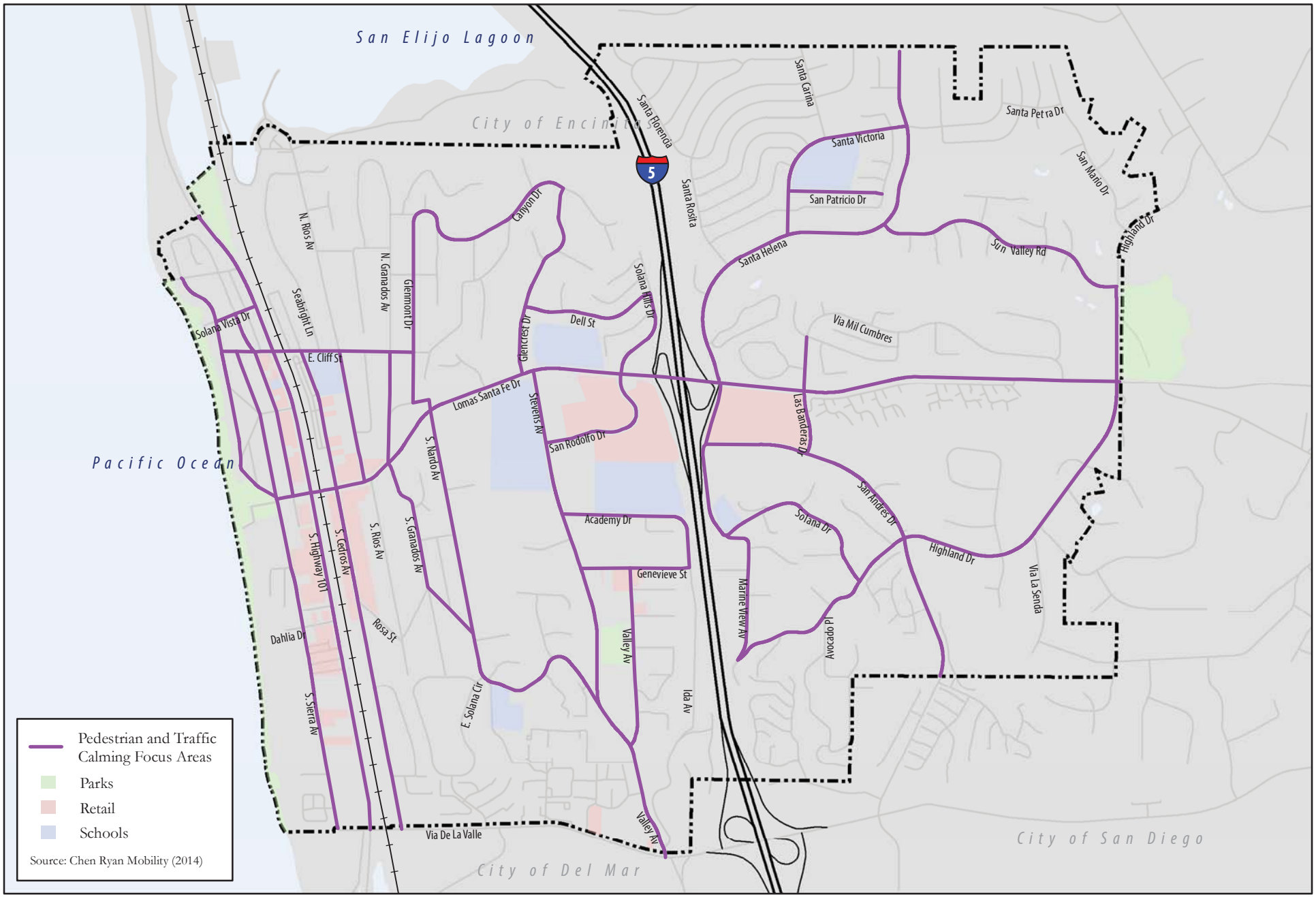

Figure 6-2
Planned Pedestrian Traffic Calming Corridors

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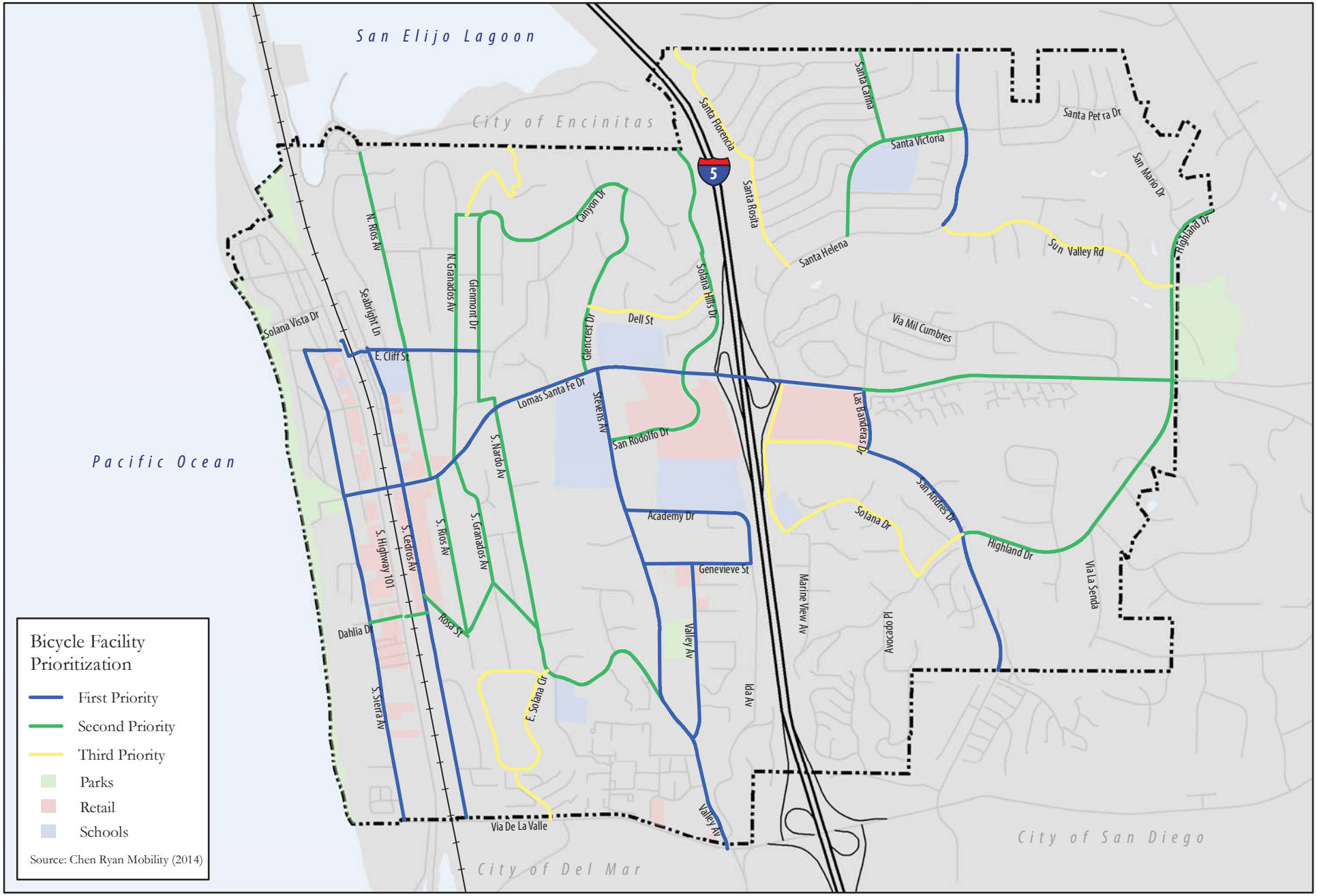

Figure 6-3
Prioritization Ranking of Bicycle Projects

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Table 6-4 Prioritization Ranking of Bicycle Projects

Rank	Segment	From	To	Proposed Facility
1	Plaza Street	Sierra Avenue	Highway 101	Bicycle Route
	Lomas Santa Fe Drive	Highway 101	Stevens Avenue	Cycle Track / Multi-Use Path
2	Cedros Avenue	Cliff Street	Via De La Valle	Commercial Bicycle Boulevard
3	Stevens Avenue / Valley Avenue	Lomas Santa Fe Drive	Via De La Valle	Cycle Track / Multi-Use Path
4	Lomas Santa Fe Drive	Stevens Avenue	Las Banderas Drive	Cycle Track / Multi-Use Path
5	Las Banderas Drive	Lomas Santa Fe Drive	San Andres Drive	Bicycle Route
	San Andres Drive	Las Banderas Drive	Highland Drive	Bicycle Lane
	San Andres Drive	Highland Drive	City Boundary	Multi-Use Path
6	Sierra Avenue	Cliff Street	Border Avenue	Commercial Bicycle Boulevard
7	Academy Drive / Ida Avenue	Stevens Avenue	Genevieve Street	Residential Bicycle Boulevard
	Genevieve Street	Stevens Avenue	Ida Avenue	Bicycle Route / Residential Bicycle Boulevard
	Valley Avenue	Genevieve Street	Stevens Avenue	Bicycle Route
8	Cliff Street	Sierra Avenue	Highway 101	Bicycle Route
	Cliff Street	Cedros Avenue	Glenmont Drive	Residential Bicycle Boulevard
9	Santa Helena	City Boundary	Sun Valley Road	Bicycle Lane
10	Lomas Santa Fe Drive	Las Banderas Drive	Highland Drive	Cycle Track / Multi-Use Path
11	Nardo Avenue / El Viento Street / Glenmont Drive	Lomas Santa Fe Drive	Canyon Drive	Residential Bicycle Boulevard
	Canyon Drive	Glenmont Drive	Glencrest Drive	
	Glencrest Drive	Canyon Drive	Lomas Santa Fe Drive	
12	Holmwood Lane	Canyon Drive	Granados Avenue	Residential Bicycle Boulevard
	Granados Avenue	Holmwood Lane	Palmitas Street / Lirio Street	
13	Highland Drive	City Boundary	Lomas Santa Fe Avenue	Bicycle Route / Multi-Use Path
	Highland Drive	Lomas Santa Fe Avenue	San Andres Drive	Bicycle Lane / Multi-Use Path
14	Rios Avenue	North Terminus	Rosa Street	Residential Bicycle Boulevard
15	Nardo Avenue	Lomas Santa Fe Drive	Stevens Avenue	Residential Bicycle Boulevard
16	Interstate 5 North Coast Bike Trail / Solana Hills Drive	City Boundary	Lomas Santa Fe Drive	Multi-Use Path
	San Rodolfo Drive	Lomas Santa Fe Drive	Stevens Avenue	Bicycle Route
17	Dahlia Drive	Sierra Avenue	Highway 101	Bicycle Route
	Rosa Street / Rios Avenue / Lirio Street	Cedros Avenue	Nardo Avenue	Residential Bicycle Boulevard
18	Santa Carina	City Boundary	Santa Victoria	Residential Bicycle Boulevard
	Santa Victoria	Santa Helena (W)	Santa Helena (E)	
19	San Andres Drive	Marine View Avenue	Las Banderas Drive	Residential Bicycle Boulevard

Table 6-4 Prioritization Ranking of Bicycle Projects

Rank	Segment	From	To	Proposed Facility
	Marine View Avenue	San Andres Drive	Solana Drive	
	Solana Drive	Marine View Avenue	Highland Drive	
	Highland Drive	Solana Drive	San Andres Drive	
20	E. Solana Circle	Nardo Avenue	Via De La Valle	Residential Bicycle Boulevard
	W. Solana Circle	E. Solana Circle (N)	E. Solana Circle (S)	

Source: Chen Ryan Associates, March 2015

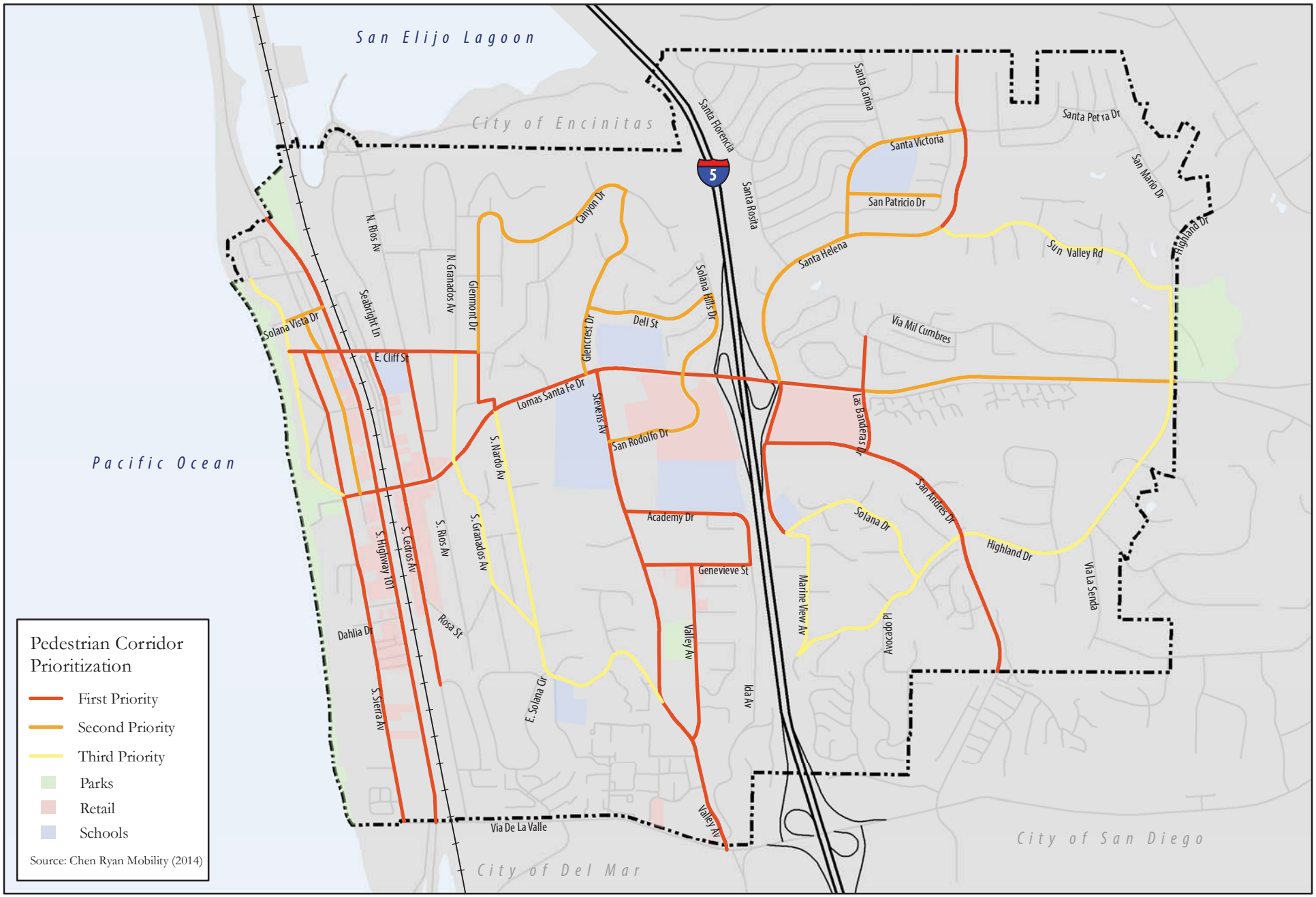

Figure 6-4
Prioritization Ranking of Pedestrian Corridors

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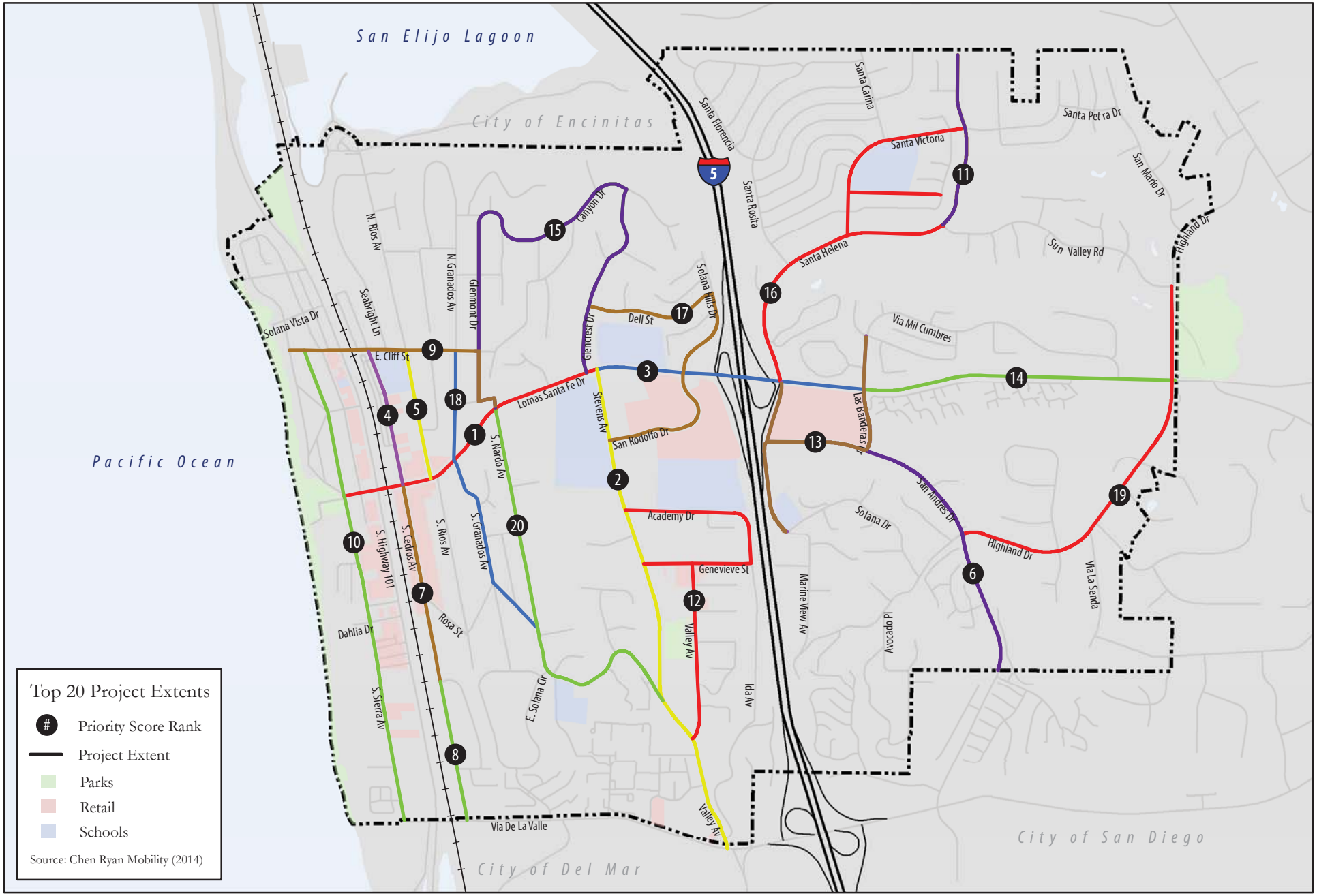
Table 6-5 Prioritization Ranking of Pedestrian/Traffic Calming Focus Areas

Rank	Segment	From	To
1	Stevens Avenue / Valley Avenue	Lomas Santa Fe Drive	Via De La Valle
2	Cedros Avenue	Cliff Street	Lomas Santa Fe Drive
3	Cliff Street	Pacific Avenue	Lomas Santa Fe Drive
	Glenmont Drive / El Viento Street / Nardo Avenue	Cliff Street	Lomas Santa Fe Drive
4	Rios Avenue	Cliff Street	Lomas Santa Fe Drive
5	Plaza Street / Lomas Santa Fe Drive	Sierra Avenue	Stevens Avenue
6	Lomas Santa Fe Drive	Stevens Avenue	Las Banderas Drive
7	Cedros Avenue	Lomas Santa Fe Drive	Cofair Avenue
8	Cedros Avenue	Cofair Avenue	Via De La Valle
9	Academy Drive / Ida Avenue	Stevens Avenue	Genevieve Street
	Genevieve Street	Stevens Avenue	Ida Avenue
	Valley Avenue	Genevieve Street	Stevens Avenue
10	Sierra Avenue	Cliff Street	Border Avenue
11	Via Mil Cumbres	Cerro Largo Drive	San Andres Drive
	San Andres Drive	Marine View Avenue	City Boundary
	Marine View Path/Marine View Avenue	Lomas Santa Fe Avenue	Solana Drive
12	Santa Helena	Santa Victoria	Lomas Santa Fe Drive
	Santa Victoria	Santa Helena (N)	Santa Helena (S)
	San Patricio Drive	Santa Victoria	Santa Rufina Drive
13	Glencrest Drive	Dell Street	Lomas Santa Fe Drive
	Dell Street	Glencrest Drive	Solana Hills Drive
	Solana Hills Drive	Dell Street	Lomas Santa Fe Drive
	San Rodolfo Drive	Stevens Avenue	Lomas Santa Fe Drive
14	Lomas Santa Fe Drive	Las Banderas Drive	Highland Drive
15	Solana Vista Drive	Pacific Avenue	Highway 101
	Acacia Avenue	Solana Vista Drive	Plaza Street
16	Granados Avenue / Lirio Street	Cliff Street	Lirio Street
	Lirio Street	Granados Avenue	Nardo Avenue
17	Nardo Avenue	Lomas Santa Fe Drive	Stevens Avenue
18	Highland Drive	San Andres Drive	Sun Valley Road
19	Solana Drive	Marine View Avenue	Highland Drive
	Marine View Avenue	Solana Drive	Highland Drive
	Highland Drive	Marine View Avenue	San Andres Drive
20	Pacific Avenue	Ocean Street	Plaza Street

Source: Chen Ryan Associates, March 2015



Solana Beach Comprehensive Active Transportation Strategy

Figure 6-5
High Priority Project Extents

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7.0 Program Recommendations

Supporting programs serve to strengthen the safety and effectiveness of walking and cycling in Solana Beach through education, encouragement, enforcement, and evaluation. The following list of recommended supporting bicycle and pedestrian programs was developed for the City of Solana Beach following an existing conditions analysis, a best practices review, consideration of existing programs, and input from the Project Working Group and community members.

7.1 Education Programs

Safe Routes to School

Safe Routes to School (SRTS) is a national effort aimed at making walking and bicycling to school safer and more accessible for children, including those with disabilities and increasing the number of children walking and bicycling to school.

Achieving these goals has broader positive implications such as improving youth health and wellness through increased physical activity, easing local traffic congestion, and reducing vehicular emissions. As outlined by Circulate San Diego, a local organization that advocates for improved mobility throughout the San Diego region, developing local SRTS requires consideration of the 5 E's:

Education – Interactive meetings with parents and school staff to learn about the importance of walking for health, as well as the barriers that make it unsafe or difficult to walk. This can include walk audits to identify and map unsafe walking conditions within a quarter mile of local schools.

Encouragement – Help kids learn that walking to school is fun. Identify and implement strategies to engage children in learning, such as logo design contests, identification of school champions, and the use of creative promotional materials.

Engineering – City traffic engineers are an important piece of the puzzle as they can implement the changes needed to overcome the barriers making it unsafe or difficult to walk.

Enforcement – The local Sherriff's Department is also important to the success of SRTS. Their involvement helps parents and students learn about the laws that protect pedestrians and bicyclists. Additionally, parents and students can inform law enforcement of issues related to bicycle and pedestrian safety.

Evaluation – Ongoing evaluation helps measure the success of the program. Are more students walking or bicycling to school? Has safety improved? These questions can be more accurately answered through continual evaluation.

Bicycle Safety Rodeo

Bicycle Safety Rodeos are currently conducted in Solana Beach to teach cyclists different aspects of safe cycling including a bike safety inspection, helmet fitting, and road skills. These educational and interactive events are led by a League of American Bicyclists League Certified Instructor (LCI). At the December 11, 2013 Solana Beach City Council meeting, Council voted unanimously to

award BikeWalkSolana a Community Grant to continue their efforts. Visit BikeWalkSolana's website (www.bikewalksolana.org) for information on upcoming Bicycle Safety Rodeos. Continuing this program will provide a source for ongoing bicycle education in Solana Beach. The rodeos provide an opportunity for the City designated Active Transportation Coordinator and Sherriff's Department designated Active Transportation Liaison to get further involved in with the local bicycle community, put a face to their respective positions, and hear from community members.

Adult Bicycle Education

An educational class for adults should provide a combination of in classroom instruction and an on-road component to teach safe bicycle operation on varying facility types and roadways. A similar program is offered monthly in Oceanside covering the following topics: proper bike and helmet fit, safety tips for riding in traffic, techniques for navigating road hazards, emergency maneuvers, using public transit as a cyclist, and cyclists' legal rights and responsibilities. Similar to the Bicycle Safety Rodeos, Adult Bicycle Education classes provide an opportunity for the City designated Active Transportation Coordinator and Sherriff's Department designated Active Transportation Liaison to get further involved in with the local bicycle community, put a face to their respective positions, and hear from community members.

On the Street Safety Campaigns

Focused campaigns should highlight and educate all roadway users about proper facility use, changes in the bicycle network, and relevant bicycle and pedestrian related safety topics identified by the Active Transportation Coordinator or community members. For example, when installing new sharrows an informational sign can educate both drivers and cyclists what the sharrows mean and how they should be used by cyclists to position themselves in the roadway. Examples of additional campaign topics may include reminding drivers to be aware of pedestrians and cyclists at intersections or freeway on-ramps, encouraging pedestrians to use legal crossings, or encouraging helmet use.

Sign to educate roadways users on recently installed "sharrows" in Vista.

Bicycle and Pedestrian Public Service Announcements (PSAs)

Local public service announcements (PSAs) can supplement on the street safety campaigns with short messages related to prominent bicycle or pedestrian safety concerns, educational components, and promotion of upcoming events such as Bike to Work Day, Walk to School Day/Month, and regularly scheduled Active Transportation Committee meetings.

7.2 Encouragement Programs

Bicycle Friendly Community

"Bicycle Friendly Community" is a nationally recognized designation awarded by the League of American Cyclists (www.bikeleague.org) to communities that provide exceptional bicycle infrastructure, supporting programs, policies, and bicycle friendly environments. The rigorous 2014 application asks 90 questions related to the 5 E's (education, encouragement, enforcement,

engineering and evaluation), to calculate a score and potentially award bronze, silver, gold or platinum status. Each applicant is provided feedback regarding their application results and technical assistance on areas for improvement. Those awarded Bicycle Friendly designation are presented an award and two highway-quality road signs to display their achievement.

Walk Friendly Community

Establish Solana Beach as a "Walk Friendly Community." The Walk Friendly Communities program is a nationwide recognition program to encourage communities to provide safe walking environments. The program recognizes communities that are working to improve walking conditions related to safety, mobility, access, and comfort. The application process evaluates jurisdictions based on their planning, education and encouragement, engineering, enforcement, and evaluation efforts. The Walk Friendly Community status helps inform residents and visitors of the City's commitment to pedestrians and their safety.

Walk to School Day & Week

The first full week of October is internationally recognized as Walk to School Week, with the Wednesday of that week recognized as Walk to School Day. In 2014, Walk to School Day is scheduled for October 8th; for 2015 it is October 7th, and October 5th for 2016. Designating the day and week serves to educate children and their families about the physical and social benefits of walking. The event can include additional activities such as poster contests, participation contests, safety fairs, bike rodeos and parent meetings.

In 2013, both Skyline Elementary School and Solana Vista Elementary School participated in the event, designating the day as "Walk to School Day" and "Walk-Bike-Skate to School Day," respectively. Schools can register for the event and track participation through www.walkbiketoschool.org which is maintained by the National Center for Safe Routes to School. Teaching resources and activities are also available through the Walk Bike to School website.

The California Active Communities organization provides downloadable resources for event organizers such as letters to parents, letters to school Principals, and information for posters and flyers and other resources.
http://www.caactivecommunities.org/w2s-resources/additional-resources/

Increase Bike to Work Day/Month Promotion and Encouragement

May is nationally recognized as Bike to Work Month, with the third Friday in May celebrated as Bike to Work Day. Throughout the San Diego region, SANDAG's iCommute program supports the event by organizing a series of "pit stops" that offer breaks where cyclists can stop, rest and pick up free t-shirts, water, snacks and other items to encourage participation. Revolution Bike Shop supported participation locally by sponsoring a pit stop in May 2014 on Highway 101 in Solana Beach. Expanded efforts by the City may include:

- Hosting an additional pit stop in Solana Beach;
- Increased promotion on the City website and events, at parks and recreation facilities; or
- Have the Mayor publicly proclaim May as Bike to Work Month and the third Friday in May as Bike to Work Day.

City-Designated Active Transportation Coordinator

The Active Transportation Coordinator would be responsible for implementing the CATS plan and the general promotion of active transportation in Solana Beach. The Coordinator would also be the City contact for active transportation-related issues and questions and would participate in active transportation planning at the regional level. Additionally, the Coordinator would serve as the City liaison to BikeWalkSolana, helping to improve communication between the City and members of the public. The Coordinator may also monitor changes or trends in active transportation activity by overseeing the proposed Active Transportation Monitoring Program, as implemented, and make the public aware of estimated emissions reductions resulting from active transportation.

7.3 Enforcement Programs

Sheriff's Department Bicycle and Pedestrian Liaison

Identify a member of the Sheriff's Department to serve as a liaison between community members and law enforcement regarding bicycle and pedestrian related concerns. The liaison should regularly attend the BikeWalkSolana meetings to stay current with local concerns and to be easily accessible to community members.

Targeted Enforcement or Mobile Speed Feedback Signs

In areas where community members have concerns about speeding vehicles, a formal request can be made to the Sherriff's Department or potentially to the Bicycle and Pedestrian Liaison to provide targeted enforcement or setup a mobile speed feedback sign. A speed feedback sign utilizes a speed radar detector to capture approaching vehicle speeds and displays the speed on a visible digital sign for the driver to see. The sign can easily be moved from one location to another. These techniques help educate drivers about areas where speed is a concern as well as assist with enforcement.

7.4 Evaluation

Active Transportation Advisory Committee

It is recommended that the City considers establishing an Active Transportation Advisory Committee. Solana Beach currently has five Citizen Commissions which act in an advisory capacity to the City Council. These "advisory bodies" may formulate recommendations and assist the City Council in addressing community concerns and needs. BikeWalkSolana currently serves as an outlet for information and a forum to voice concerns, however, establishing a more formally recognized committee could improve future planning transparency and involvement within Solana Beach.

Neighborhood Traffic Management Program

It is recommended that the Neighborhood Traffic Management Program remains a tool, providing guidance for community members to help manage traffic through their neighborhoods. The process for developing solutions for traffic management is initiated when a specific traffic related concern is identified by residents of the affected area or City Staff. If a resident initiates

the process, a Community Action Request (CAR) form must be completed by homeowners in the affected area. Following identification of a concern, the initial assessment is conducted and further actions or additional studies can be recommended if determined to be appropriate.

Annual or Bi-Annual Active Travel Evaluation

The Active Transportation Monitoring Program, described in the following section, proposes a set of locations and tools to establish ongoing data collection efforts within Solana Beach. The data can be utilized as an additional mechanism to evaluate trends in usage, safety, and investment.

7.5 Active Transportation Monitoring Program

The active transportation monitoring program is intended to fortify City staff, community member and regional/state staff understanding of active travel patterns and related responses to investments in cycling and walking infrastructure. Over the past decades, the transportation planning field has suffered from a lack of data and analysis methods related to walking and cycling, and is currently experiencing a renaissance in investment through the complete street movement and concerns about over-reliance on automobile travel. Implementing and maintaining an active transportation monitoring program will provide Solana Beach with the on-going data needed to measure and track trends and changes in active travel. The data can also be utilized to pursue grant funding sources by giving City staff the necessary information to estimate potential impacts of implementing future active transportation related projects.

Performance Measures

Several performance measures are proposed to be tracked over time in the City of Solana Beach, either yearly or every other year. The performance measures are focused on documenting overall levels of activity associated with walking and cycling, as well as safety, network quality, and potential air quality and health benefits.

Key data types necessary to support tracking these performance measures include the following:

- Bicycle and pedestrian volumes;
- Bicycle and pedestrian collisions;
- Bicycle and pedestrian trip lengths (in minutes);
- Bicycle and pedestrian trip purpose; and
- Bicycle and pedestrian infrastructure improvements.

Table 7-1 summarizes recommended approaches to data collection for each of the required data types.

Table 7-1 Data Types and Collection Methods

Data Type	Recommended Data Collection Methods	Cost Range
Bicycle and pedestrian volumes	– AM/PM Peak Period Manual Counts	– $110/count site[1] – $3,850 for 35 sites
	– Continuous Bicycle and Pedestrian Counts	– $4,000/unit installation[2] – $500/unit per year battery and modem subscription
Bicycle and pedestrian collisions	– State of CA SWITRS – City of Solana Beach	– free
Bicycle and pedestrian trip lengths in minutes	– Intercept Survey of Cyclists and Pedestrians – Data Entry, Analysis, and Summary	– 10 hours/location for surveying – 2 hours/location for data entry, analysis, and summary
Bicycle and pedestrian trip purpose	– Intercept Survey of Cyclists and Pedestrians – Data Entry, Analysis, and Summary	– 10 hours/location for surveying – 2 hours/location for data entry, analysis, and summary
Bicycle and pedestrian infrastructure improvements	– City of Solana Beach	– 2 hours review of completed bicycle and pedestrian improvement projects

Source: Chen Ryan Associates, March 2015

[1] Estimate based on January 2014 manual count rates.
[2] Based on 2013 estimates.

Data Collection

Data Collection Tools

Several data collection efforts were initiated as part of the Solana Beach CATS, including a bicycle and pedestrian counting program and the development of a community event and cyclist and pedestrian intercept survey. These tools should be sufficient to continue the monitoring program and collect the performance measures necessary to assess the success of transportation investments over time, as well as other rich measures of air quality and health related to active travel.

Figure 7-1 displays the recommended bicycle and pedestrian count locations where repeat counting should occur every year or every other year, depending on funding. **Appendix B** includes the community event and cyclist/pedestrian intercept surveys that should continue to be administered in the City.

One additional data collection piece that should be considered is continuous, automated bicycle and pedestrian counts. Solana Beach already has one continuous automated bicycle counter along Highway 101, just south of Lomas Santa Fe Drive.

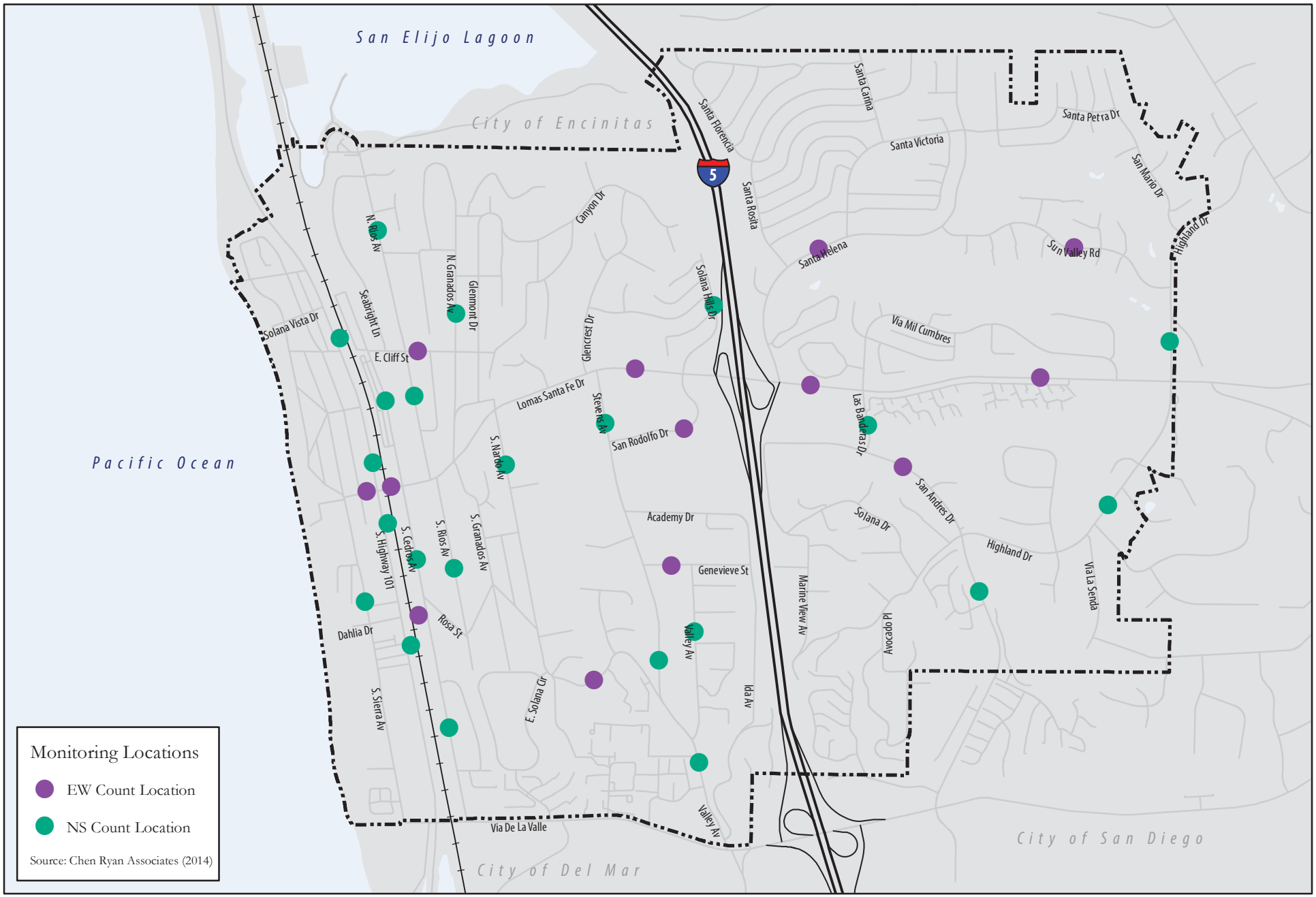

Figure 7-1
Active Transportation Monitoring Locations

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The continuous automated counters should be strategically sited across the city to capture levels of activity in each of the quadrants, on varying facility types, and in locations along the proposed bicycle and pedestrian corridor networks.

The automated counter currently installed on Highway 101 is an Eco-Counter ZELT inductive loop, one component of the San Diego regional automated counting network. The ZELT inductive loops count cyclists on roadways, bike lanes or bike paths and are able to distinguish between bicycles and motor vehicles.

The two types of automated counters recommended for continuous data collection in Solana Beach include a combination of Eco-Counter ZELT inductive loops and Eco-MULTI. The Eco-MULTI are capable of counting and differentiating between pedestrians and bicyclists and would be best suited for the Class I Multi-Use Paths (like the Coastal Rail Trail), while the ZELT loops are better for in-street bicycle facilities. At locations where a Class I Multi-Use Path and an on-street bicycle facility are proposed, both ZELT inductive loops and Eco-MULTI counters are recommended. Locations where the roadway width is greater than two travel lanes will require two ZELT inductive loops to adequately cover both directions of travel.

Figure 7-2 displays proposed locations for installation of 25 additional automated counters.

Manual Count Scheduling

Manual bicycle and pedestrian counts were conducted in support of the Solana Beach CATS at 35 locations during the week of January 6, 2014. January counts were conducted due to project scheduling. The 2-hour counts were performed on Tuesday, Wednesday, and Thursday during the morning peak period from 7:00AM to 9:00AM in an effort to capture estimates of utilitarian pedestrian and cycling activity.

For continued monitoring of active transportation levels in Solana Beach, manual counts are recommended to be conducted during mid-September on Tuesdays, Wednesdays, or Thursdays during the morning peak period (7:00AM to 9:00AM). Count sites should be consistent with the count locations used for the Solana Beach CATS project. Mid-September was selected to coincide with the school calendar and to be consistent with the National Bicycle and Pedestrian Documentation Project, a nationwide data collection effort that allows for national comparisons.

Manual counts are also recommended for the weekend peak period, Saturday mornings from 10:00AM – 12:00PM, due to the large share of recreational pedestrian and cycling activity within Solana Beach. Weekend counts are recommended for locations more likely to draw recreational activity, including Highway 101, S. Cedros Avenue, S. Sierra Avenue, Plaza Street, Lomas Santa Fe Drive, and Cliff Street.

Appendix C contains a standard screenline count form and an intersection count form, along with the community event and intercept surveys.

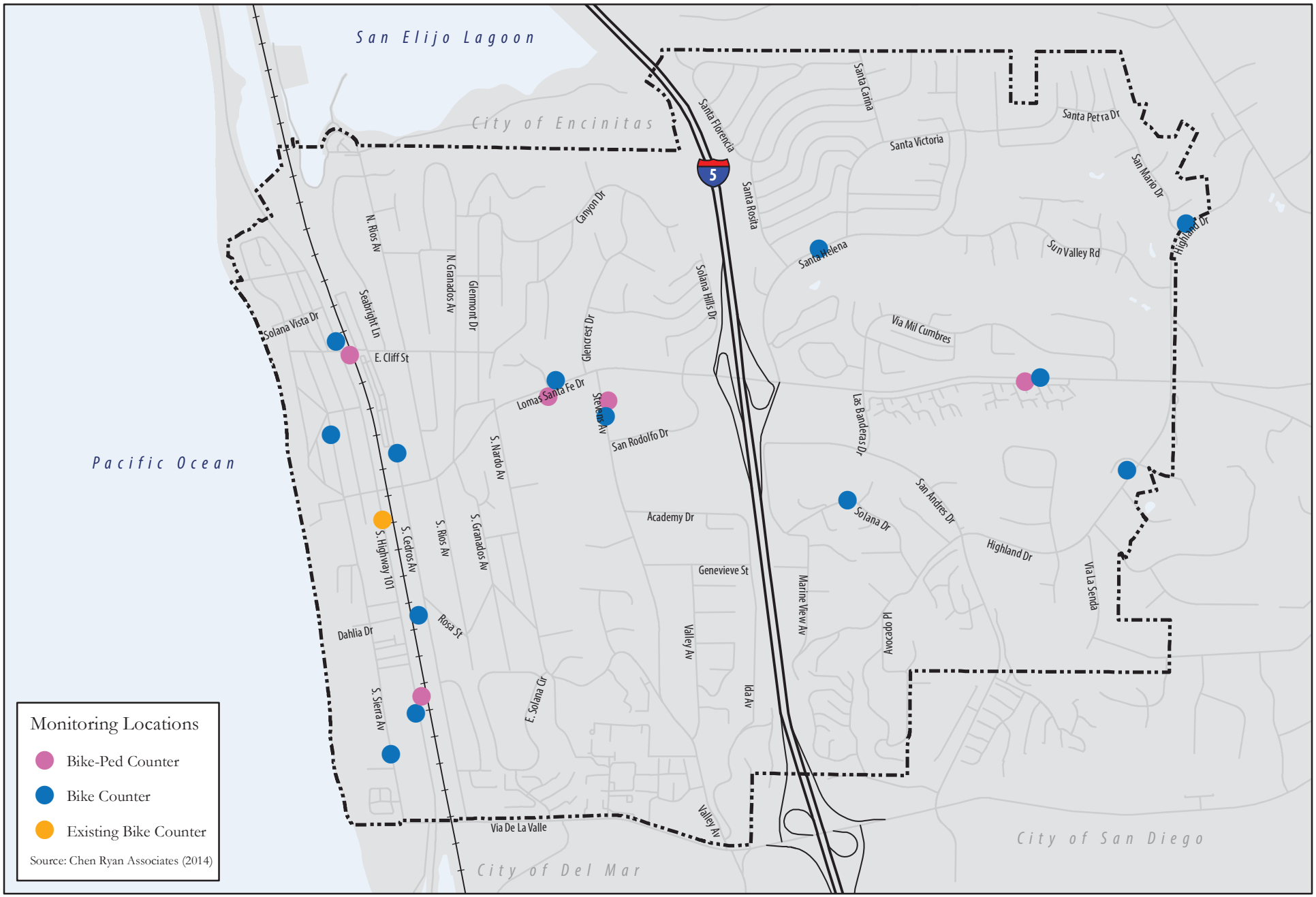

Figure 7-2
Proposed Automated Count Stations

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Analysis and Reporting

There are several important applications for the bicycle and pedestrian count data collected through the City's on-going monitoring program. This section outlines five potential applications for bicycle and pedestrian count data that will support and enhance the City's understanding of cycling and walking travel patterns and associated benefits.

Cycling/Walking Trends

Implementing a citywide cycling and pedestrian monitoring program where systematic bicycle and pedestrian counts are collected every year (or every other year) will enhance the City's understanding of a number of important travel behavior aspects, including:

- What is the estimated average daily number of bicycle and walk trips in Solana Beach;
- What is the average daily trip length for bicycle and pedestrian trips in Solana Beach;
- Is the number of cyclists and pedestrians growing or shrinking over time;
- How do cycling and walking levels vary by facility type and location across the City;
- Which trip types (purposes) tend to generate the most frequent bike and walk trip;
- How does cycling/walking vary by time or day, day of week, and season of year; and
- What percent of cyclists are riding on the sidewalk.

This rich data can support the production of an annual "State of Active Travel in Solana Beach" report that serves to inform policy makers, planners, advocates, and community members about how much and where cycling and walking is occurring in the City.

Linking Cycling and Walking Trends to Investments

Once City staff is tracking cycling and walking trends by time and location, there is an opportunity to link specific investments to changes in cycling and walking patterns in a manner that improves their understanding of how community members respond to new or enhanced cycling and pedestrian facilities and programs. This kind of before-after assessment is critical to supporting long range planning and directing investments toward active travel.

In recent years, many pedestrian and bicycle related improvements were completed on Highway 101.

Cycling and Pedestrian Safety Assessments

A more comprehensive understanding of cycling and walking demands allows for a more rigorous safety assessment of bicycle-vehicle and pedestrian-vehicle crash risk. The City of Solana Beach will be able to develop bicycle and pedestrian crash risk measures that account for the level of cyclist and pedestrian exposure, such as crashes per bicycle-mile of travel or per pedestrian-mile of travel, utilizing the city-wide estimates of cycling and walking demands.

Cycling and Walking-Related Emissions Reductions

The annual cycling and walking counts can be combined with other primary data collected at count stations by intercepting cyclists and pedestrians to inquire about details of their travel behavior. Understanding bicycle and walk trip lengths by age, income and gender, as well as average rates of bicycle and walk trips replacing automobile trips, enables calculation of auto trip travel time reductions associated with cycling and walking, which can in turn support estimates of automobile-related emissions reduction.

Cycling and Walking-Related Health Benefits

Intercepting cyclists and pedestrians at count stations to inquire about bicycle and walking trip lengths can support an estimation of daily and annual minutes of physical activity associated with cycling and walking. Understanding physical activity gained through cycling and walking will allow for estimations of the health benefits related to cycling and walking.

8.0 Implementation & Funding

This chapter is intended to support implementation of this Plan's recommendations by providing the following information:

- Implementation phasing and planning level cost estimates;
- High-priority project sheets showing conceptual designs; and
- An overview of potential funding sources to pursue.

8.1 Implementation Phasing & Cost Estimates

Chapter 6 outlined the process used to rank segments of the planned bicycle network and proposed pedestrian/traffic calming focus areas. Project segments were prioritized separately by mode in Chapter 6, as shown in Table 6-4 for bicycle projects, and in Table 6-5 for pedestrian projects. When the high priority bicycle and pedestrian project areas overlapped, this area or segment was put forth as a single high priority project. The top 20 project segments were selected from the combined bicycle and pedestrian high priority projects, as presented in Chapter 6. The 20 high priority projects comprise the near-term (within 10-years) action plan for project implementation, whereas the remaining projects are designated for longer-term implementation (more than 10-years).

Considering the relatively high cost of implementing a cycle track, this Plan recommends the implementation of interim facilities, such as bicycle lanes or buffered bicycle lanes, as a cost effective, temporary alternative. Buffered bicycle lanes require the same amount of right-of-way as cycle tracks, but cost less due to the absence of a physical buffer between cyclists and vehicular traffic. In general, the planned network and recommendations made by this Plan do not preclude the City of Solana Beach from implementing alternative, cost saving facilities.

Table 8-1 shows the total CATS active transportation network by mileage, as well as the estimated cost per mile for each facility/improvement type. Costs include 30% construction contingency and 20% engineering and administrative contingency. These unit costs were obtained from recent design and engineering work conducted by SANDAG for these facility types. They represent high quality facilities with ample treatments to provide protection for cyclists and pedestrians.

Improvement projects, such as curb bulbouts, can also incorporate landscape features.

Table 8-1 CATS Estimated Network Cost by Facility Mile

Facility/ Improvement Type	Total Network Mileage	Cost per Mile	Network Cost by Facility
Multi-Use Path	6.11	$3,000,000	$18,330,000
Cycle Track	3.25	$1,000,000	$3,250,000
Buffered Bike Lane	1.53	$1,300,000	1,989,000
Bike Lane	2.42	$650,000	$1,573,000
Commercial Bike Boulevard	2.31	$1,300,000	$3,003,000
Residential Bike Boulevard	10.48	$1,000,000	$10,480,000
Bike Route	1.17	$5,000	$5,850
Pedestrian/Traffic Calming Focus Area	2.00	$300,000	$600,000
		Total Network Estimated Cost	**$39,230,850**

Source: KOA, Corporation; SANDAG; Chen Ryan Associates, March 2015

Table 8-2 presents the near-term projects and cost estimates, while **Table 8-3** displays the longer-term projects. As shown, the near-term action plan is estimated to cost approximately $28,860,500, while the longer-term implementation plan is estimated to cost an additional $10,370,350. It should be noted that in instances where traffic calming improvements and bicycle boulevard/multi-use path improvements were recommended, only the cost of the bicycle facility was included as those improvements serve both pedestrians and cyclists.

Implementation of bicycle and pedestrian-related infrastructure and supporting programs can also be achieved through the allocation of funds from the recently adopted Solana Beach Transportation Impact Fee (TIF) Program, the General Fund budget, by pursuing grants, or through coordinated efforts of roadway restriping and resurfacing projects. An overview of these funding sources is provided below. Federal, state, regional, or other local funding sources are described later in this chapter in Section 8.3.

Solana Beach Transportation Impact Fee (TIF) Program

Solana Beach City Council adopted the City's first Transportation Impact Fee (TIF) program in December 2014. The objective of the TIF program is to ensure that adequate transportation facilities are available to meet the projected future access and circulation needs of the City as future development occurs. The program will provide the City of Solana Beach with a mechanism for financing the build-out of the adopted circulation element, including bicycle and pedestrian facilities.

Solana Beach Capital Improvement Program

The Solana Beach Capital Improvement Program (CIP) provides funding for the maintenance and construction of various capital improvement projects, such as ADA improvements, storm drain improvements, and traffic calming projects. The total FY 2014-2015 CIP budget is approximately $14.6 million in project appropriations and costs.

Table 8-2 Near-Term Project Implementation
(1 – 10 Years Following Solana Beach CATS Adoption)

Rank	Segment	From	To	Pedestrian Improvement	Bicycle Improvement	Length (miles)	Estimated Cost
1	Plaza Street	Sierra Avenue	Highway 101	--	Bicycle Route	0.08	$400
	Lomas Santa Fe Drive	Highway 101	Stevens Avenue	Multi-Use Path	Cycle Track / Multi-Use Path	0.63	$2,520,000
2	Stevens Avenue	Lomas Santa Fe Drive	Valley Avenue	Multi-Use Path	Cycle Track / Multi-Use Path	0.94	$3,760,000
	Valley Avenue	Stevens Avenue	Via De la Valle	--	Cycle Track	0.28	$280,000
3	Lomas Santa Fe Drive	Stevens Avenue	Las Banderas Drive	Multi-Use Path	Cycle Track / Multi-Use Path	0.65	$2,600,000
4	N. Cedros Avenue	Cliff Street	Lomas Santa Fe Drive	Traffic Calming	Commercial Bicycle Boulevard	0.34	$442,000
5	N. Rios Avenue	Cliff Street	Lomas Santa Fe Drive	Traffic Calming	Residential Bicycle Boulevard	0.32	$320,000
6	San Andres Drive	Las Banderas Drive	Highland Drive	--	Bicycle Lane	0.32	$208,000
	San Andres Drive	Highland Drive	City Boundary	Multi-Use Path	Multi-Use Path	0.34	$1,020,000
7	S. Cedros Avenue	Lomas Santa Fe Drive	Cofair Avenue	Traffic Calming	Commercial Bicycle Boulevard	0.48	$624,000
8	S. Cedros Avenue	Cofair Avenue	Via De La Valle	--	Commercial Bicycle Boulevard	0.33	$429,000
9	Cliff Street	Pacific Avenue	Highway 101	--	Bicycle Route	0.09	$450
	Cliff Street	Cedros Avenue	Glenmont Drive	Traffic Calming	Residential Bicycle Boulevard	0.27	$270,000
	Glenmont Drive	E. Cliff Street	El Viento Street			0.12	$120,000
	El Viento Street	Glenmont Drive	N. Nardo Avenue			0.04	$40,000
	Nardo Avenue	El Viento Street	Lomas Santa Fe Drive			0.02	$20,000
10	Sierra Avenue	Cliff Street	Border Avenue	Traffic Calming	Commercial Bicycle Boulevard	1.16	$1,508,000
11	Santa Helena	City Boundary	Sun Valley Road	--	Bicycle Lane	0.43	$279,500
12	Academy Drive	Stevens Avenue	Ida Avenue	Traffic Calming	Residential Bicycle Boulevard	0.27	$270,000
	Ida Avenue	Academy Drive	Genevieve Street			0.28	$280,000
	Genevieve Street	Valley Avenue	Ida Avenue		Residential Bicycle Boulevard	0.14	$140,000
	Genevieve Street	Stevens Avenue	Valley Avenue		Bicycle Route	0.12	$600
	Valley Avenue	Genevieve Street	Stevens Avenue		Bicycle Route	0.43	$2,150
13	Via Mil Cumbres	Cerro Largo Drive	Lomas Santa Fe Drive	Traffic Calming	--	0.13	$39,000
	Las Banderas Drive	Lomas Santa Fe Drive	San Andres Drive		Bicycle Route	0.15	$750
	San Andres Drive	Marine View Avenue	San Andres Drive		Residential Bicycle Boulevard	0.24	$240,000
	Marine View Avenue	San Andres Drive	Solana Drive			0.23	$230,000
	Marine View Path	Lomas Santa Fe Drive	San Andres Drive		Multi-Use Path	0.14	$420,000
14	Lomas Santa Fe Drive	Las Banderas Drive	Highland Drive	Multi-Use Path	Cycle Track / Multi-Use Path	0.75	$3,000,000
15	Glenmont Drive	Lomas Santa Fe Drive	Canyon Drive	Traffic Calming	Residential Bicycle Boulevard	0.33	$330,000
	Canyon Drive	Glenmont Drive	Glencrest Drive			0.44	$440,000
	Glencrest Drive	Canyon Drive	Lomas Santa Fe Drive			0.48	$480,000

Table 8-2 Near-Term Project Implementation
(1 – 10 Years Following Solana Beach CATS Adoption)

Rank	Segment	From	To	Pedestrian Improvement	Bicycle Improvement	Length (miles)	Estimated Cost
16	Santa Helena	Sun Valley Road	Lomas Santa Fe Drive	Traffic Calming	Bike Lane	0.69	$448,500
	Santa Victoria	Santa Helena (N)	Santa Helena (S)		Residential Bicycle Boulevard	0.47	$470,000
	San Patricio Drive	Santa Victoria	Santa Rufina Drive			0.22	$220,000
17	Dell Street	Glencrest Drive	Solana Hills Drive	Traffic Calming	Residential Bicycle Boulevard	0.32	$320,000
	Solana Hills Drive	Dell Street	Lomas Santa Fe Drive		Multi-Use Path	0.24	$720,000
	San Rodolfo Drive	Stevens Avenue	Lomas Santa Fe Drive		Residential Bicycle Boulevard	0.34	$340,000
18	N. Granados Avenue	E. Cliff Street	Lomas Santa Fe Drive	Traffic Calming	Residential Bicycle Boulevard	0.27	$270,000
	S. Granados Avenue	Lomas Santa Fe Drive	Lirio Street			0.31	$310,000
	Lirio Street	S. Granados Avenue	S. Nardo Avenue			0.15	$150,000
19	Highland Drive	City Boundary	Sun Valley Road	Multi-Use Path	Bicycle Route / Multi-Use Path	0.23	$691,150
	Highland Drive	Sun Valley Road	San Andres Drive		Bicycle Lane / Multi-Use Path	0.98	$3,577,000
20	Nardo Avenue	Lomas Santa Fe Drive	Stevens Avenue	Traffic Calming	Residential Bicycle Boulevard	1.03	$1,030,000
TOTAL ESTIMATED COST OF NEAR-TERM PROJECTS							**$28,860,500**

Table 8-3 Long-Term Project Implementation
(10+ Years Following Solana Beach CATS Adoption)

Rank	Segment	From	To	Pedestrian Improvement	Bicycle Improvement	Length (miles)	Estimated Cost
21	N. Granados Avenue	Holmwood Way	E. Cliff Street	--	Residential Bicycle Boulevard	0.39	$390,000
22	N. Rios Avenue	Northern City Boundary	E. Cliff Street	--	Residential Bicycle Boulevard	0.49	$490,000
23	S. Rios Avenue	Lomas Santa Fe Drive	Rosa Street	--	Residential Bicycle Boulevard	0.38	$380,000
24	Solana Hills Drive	Northern City Boundary	Dell Street	--	Multi-Use Path	0.36	$1,080,000
25	Solana Vista Drive	Pacific Avenue	Highway 101	Traffic Calming	--	0.11	$33,000
26	N. Acacia Avenue	Solana Vista Drive	Lomas Santa Fe Drive	Traffic Calming	--	0.46	$138,000
27	Dahlia Drive	S. Sierra Avenue	Highway 101	--	Bicycle Route	0.07	$350
28	Santa Carina	Northern City Boundary	Santa Victoria	--	Residential Bicycle Boulevard	0.23	$230,000
29	Solana Drive	Marine View Avenue	Highland Drive	Traffic Calming	Residential Bicycle Boulevard	0.44	$440,000
30	Highland Drive	Solana Drive	San Andres Drive	Traffic Calming	Residential Bicycle Boulevard	0.15	$150,000
31	Highland Drive	Marine View Avenue	Solana Drive	Traffic Calming	--	0.36	$108,000
32	Marine View Avenue	Solana Drive	Highland Drive	Traffic Calming	--	0.33	$99,000
33	E. Solana Circle	S. Nardo Avenue	Solana Circle	--	Residential Bicycle Boulevard	0.30	$300,000
34	W. Solana Circle	E. Solana Circle	Solana Circle	--	Residential Bicycle Boulevard	0.41	$410,000
35	Solana Circle	E. Solana Circle	Via De la Valle	--	Residential Bicycle Boulevard	0.16	$160,000
36	Santa Inez / Santa Florencia	Northern City Boundary	Santa Rosita	--	Residential Bicycle Boulevard	0.34	$340,000
37	Santa Rosita	Santa Florencia	Santa Helena	--	Residential Bicycle Boulevard	0.28	$280,000
38	Pacific Avenue	Ocean Street	Lomas Santa Fe Drive	Traffic Calming	--	0.61	$183,000
39	Sun Valley Road	Santa Helena	Highland Drive	Traffic Calming	Residential Bicycle Boulevard	0.62	$620,000
40	Holmwood Lane	Northern City Boundary	Holmwood Way	--	Multi-Use Path	0.35	$1,050,000
41	Pole Road Trail	Highway 101	Northern City Boundary	--	Multi-Use Path	0.50	$1,500,000
42*	Highway 101	Northern City Boundary	Southern City Boundary	--	Buffered Bike Lane	1.53	$1,989,000
TOTAL ESTIMATED COST OF LONG-TERM PROJECTS							**$10,370,350**

Note: * Due to recently completed infrastructure improvements, Highway 101 was not included in the prioritization process.

City of Solana Beach General Fund

The City of Solana Beach's operating budget for the General Fund is developed and adopted each fiscal year. The 2014-2015 adopted budget allocates over $15 million to the General Fund, which is apportioned into several expenditure categories, including General Government, Community Development, Public Safety, Public Works, and Community Services/Recreation. The General Fund budget provides a potential opportunity to allocate funds for bicycle and pedestrian related improvements. Categories to consider for funding opportunities are outlined in the following page.

- *Community Development* – The Community Development Department includes the Planning Division which is responsible for administering and implementing the City's General Plan, zoning and subdivision regulations and special projects.
- *Public Works* – The Public Works Department is divided into two primary areas of responsibility: Engineering and Public Works Maintenance. The Engineering Division includes engineering design and construction, environmental services, traffic engineering and sanitation. The Public Works Maintenance Division includes the maintenance of streets, parks, public facilities, traffic control devices and sanitation divisions, and responsibility for the Coastal Rail Trail, street sweeping, traffic signal and street lighting special districts.
- *Community Services / Recreation* – The Community Services/Recreation Department is responsible for various City-sponsored community events and providing the community with enriching cultural experiences and family oriented recreational activities. Recreation Services is directly responsible for providing programs and services to the community through City sponsored and contrite programs.

Bicycle Improvements with Street Restriping and Resurfacing Projects

The restriping and resurfacing of roads presents a cost-effective opportunity to implement, improve, or maintain bicycle facilities. All future roadway restriping and resurfacing along roadways included in the bicycle network should consider implementing any planned bicycle facility along the segment as identified in this Active Transportation Strategy.

North Coast Corridor Program

The Final Draft of the Interstate 5 North Coast Corridor Public Works Plan/Transportation & Resource Enhancement Program (NCC PWP/TREP) was completed in June 2014 by Caltrans and SANDAG to provide a long-range plan of rail, highway, environmental and coastal access improvements along the I-5. One component of the North Cost Corridor Program is the I-5 North Coast Bike Trail, a new facility that would run the entire length of the North Coast Corridor.

Caltrans is still working with local jurisdictions to finalize preferred alignments, however, preliminary alignments indicate the I-5 North Coast Bike Trail within Solana Beach will extend south from the San Elijo Lagoon adjacent to I-5 on the west side, with portions following Solana Hills Drive down to Lomas Santa Fe Drive. This improvement is consistent with the planned multi-use path as identified in this Solana Beach CATS document. South of Lomas Santa Fe Drive, the North Coast Bike Trail continues on San Rodolfo Drive and then south on Stevens Avenue and

Valley Avenue down to Via De la Valle. These improvements are also consistent with the planned networks identified in this CATS document. The NCC PWP/TREP classifies implementation of the Solana Beach North Coast Bike Trail components within the Mid-Term Phase (2021-2030), however, revenue and project cost constraints and additional factors may influence actual phasing.

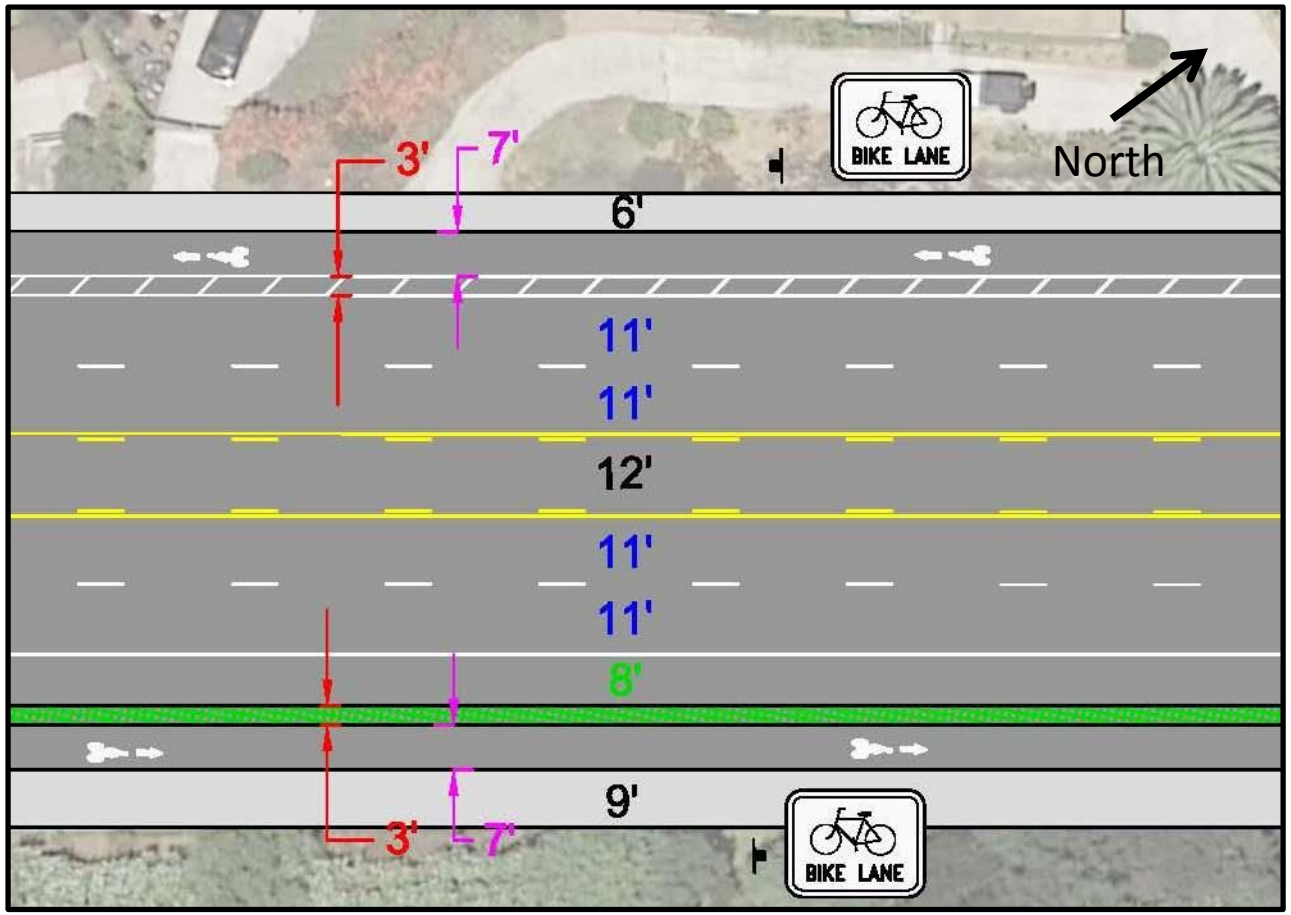
Another project identified by the NCC within Solana Beach is a parking structure at the Solana Beach Transit Station, which is currently in the planning phase. This project could potentially help gain additional right-of-way for the creation of a continuous sidewalk on the west side of N. Cedros Avenue, which currently includes a dirt area that is used for overflow parking.

8.2 High-Priority Project Sheets

Conceptual designs for the top 20 high-priority projects are included in the following pages. Each project sheet includes a representative cross-section and identifies the individual project's extent, planned facility type, roadway configuration and provides a project description. Project descriptions also propose methods for obtaining additional right-of-way that may be required for implementation. **Figure 8-1** displays the generalized locations of the top 20 high-priority project locations.

Lomas Santa Fe Dr

Priority Project #1 – Representative Cross-Section between S Highway 101 and Stevens Ave



Bicycle Facility:
Cycle Track / Multi-Use Path

Road Type:
4-lane w/ Center Turn Lane

Parking:
South Side Only

Curb to Curb:
84'

Typical Cross Section:
6'-7'-3'-11'-11'-12'-11'-11'-8'-3'-7'-9'

Length (Approx.):
.6 miles

Note:
Bicycle Pavement Markings after intersections and every 250' typ. Bike Lane signs after arterials and every 800' typ.

Cost Estimate (Entire Length):
$ 2,520,400

30' 15' 0 15' 30'
1"=30' GRAPHIC SCALE

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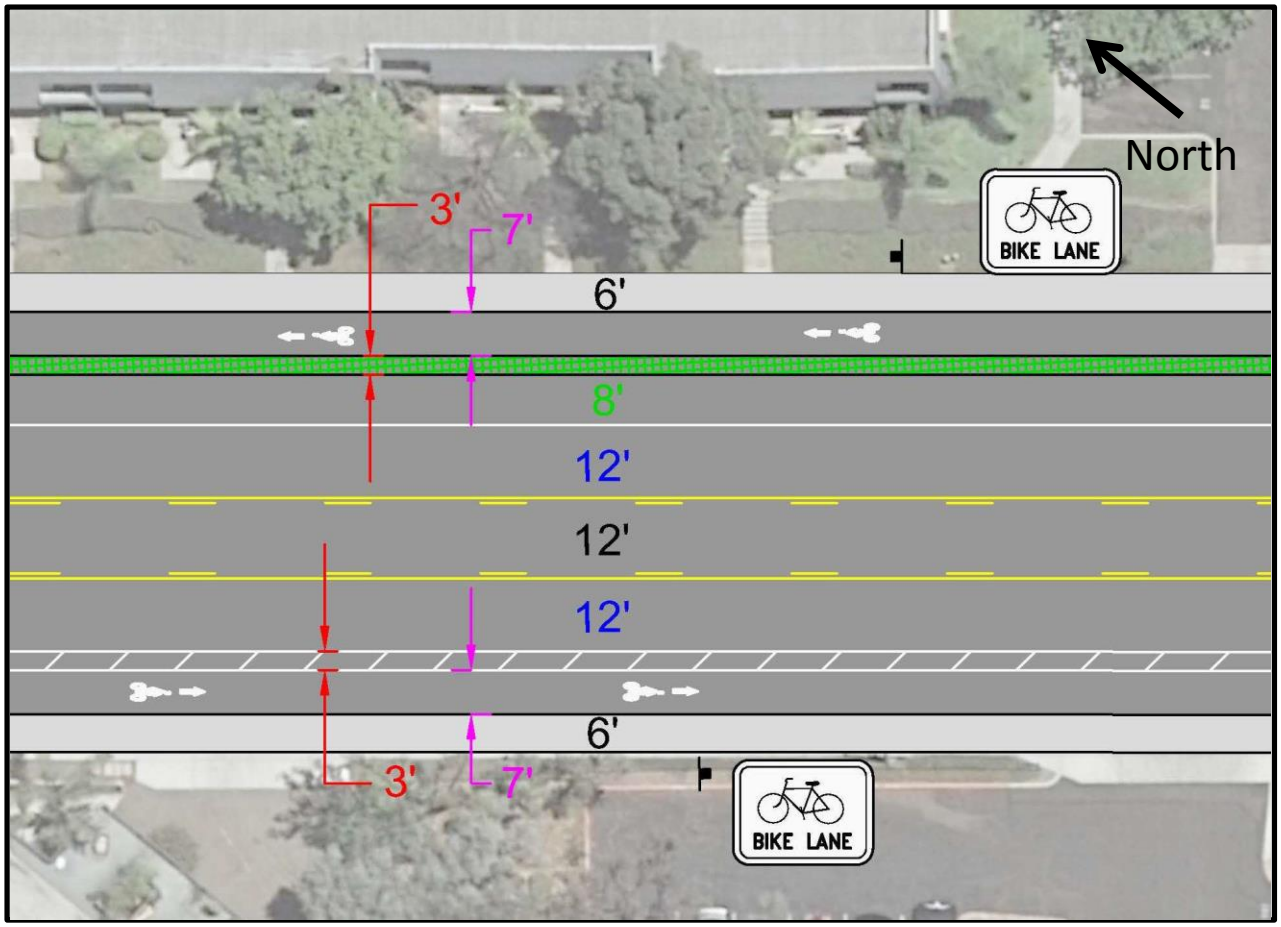
A cycle track facility is proposed along Lomas Santa Fe Drive, which is designated as a Multi-Modal Boulevard. This priority project runs along the western third of the corridor, from Highway 101 to Stevens Avenue. Lomas Santa Fe Drive is currently a four-lane arterial with a center-left-turn-lane along this section. The curb-to-curb width varies from approximately 78' to 86'. The right-of-way width varies from 100' to 102'. Within the project extent, there is only parking in the eastbound direction from Rios Avenue to Nardo Avenue. The space to provide cycle track can be obtained by narrowing travel lanes. The typical cross-section widths are shown in the diagram. The space to add a multi-use path can be obtained using the full right-of-way width.

Stevens Ave

Priority Project #2 – Representative Cross-Section between Lomas Santa Fe Dr and Valley Ave



Bicycle Facility:
Cycle Track

Road Type:
2-lane w/ Center Turn Lane

Parking:
East Side Only

Curb to Curb:
64'

Typical Cross Section:
6'-7'-3'-8'-12'-12'-12'-3'-7'-6'

Length (Approx.):
.8 miles

Note:
Bicycle Pavement Markings after intersections and every 250' typ. Bike Lane signs after arterials and every 800' typ.

Cost Estimate (Entire Length):
$ 4,040,000

30' 15' 0 15' 30'
1"=30' GRAPHIC SCALE

A cycle track and multi-use path is proposed along Stevens Avenue and Valley Avenue, a designated Multi-Modal Boulevard, from Lomas Santa Fe Drive to Via De La Valle. The space to provide cycle track can be obtained by reducing the travelway from four lanes to two lanes with a center-left-turn-lane along Stevens Avenue. Some portions of Stevens Avenue are too narrow and the cycle track might not be feasible without additional roadway widening.

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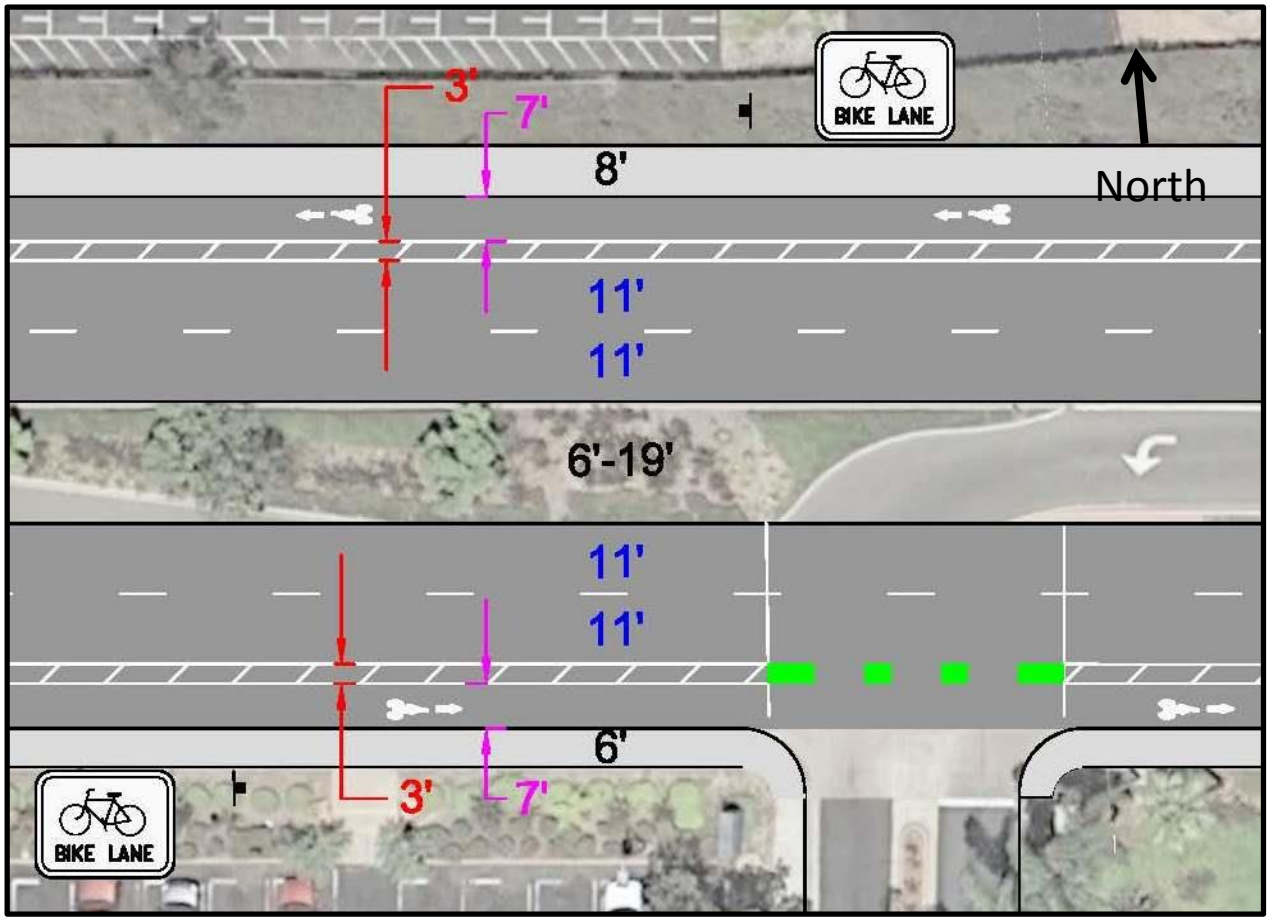
Lomas Santa Fe Dr

Priority Project #3 – Representative Cross-Section between Stevens Ave and Las Banderas Dr



Bicycle Facility:
Cycle Track / Multi-Use Path

Road Type:
4-lane w/ Median

Parking:
No Parking on Either Side

Curb to Curb:
83'

Typical Cross Section:
8'-7'-3'-11'-11'-19'-11'-11'-3'-7'-6'

Length (Approx.):
.6 miles

Note:
Bicycle Pavement Markings after intersections and every 250' typ. Bike Lane signs after arterials and every 800' typ.

Cost Estimate (Entire Length):
$ 2,600,000

30' 15' 0 15' 30'

1"=30' GRAPHIC SCALE

The extents for this priority project cover the central third of the Lomas Santa Fe Drive corridor, from Stevens Avenue to Las Banderas Drive. Lomas Santa Fe Drive is a four-lane arterial with a raised median. The curb-to-curb width varies from approximately 80' to 88'. The right-of-way width varies from 100' to 102'. The space to provide cycle track can be obtained by narrowing the travel lanes. The space to add a multi-use path can be obtained using the full right-of-way. The typical cross-section widths are shown in the diagram.

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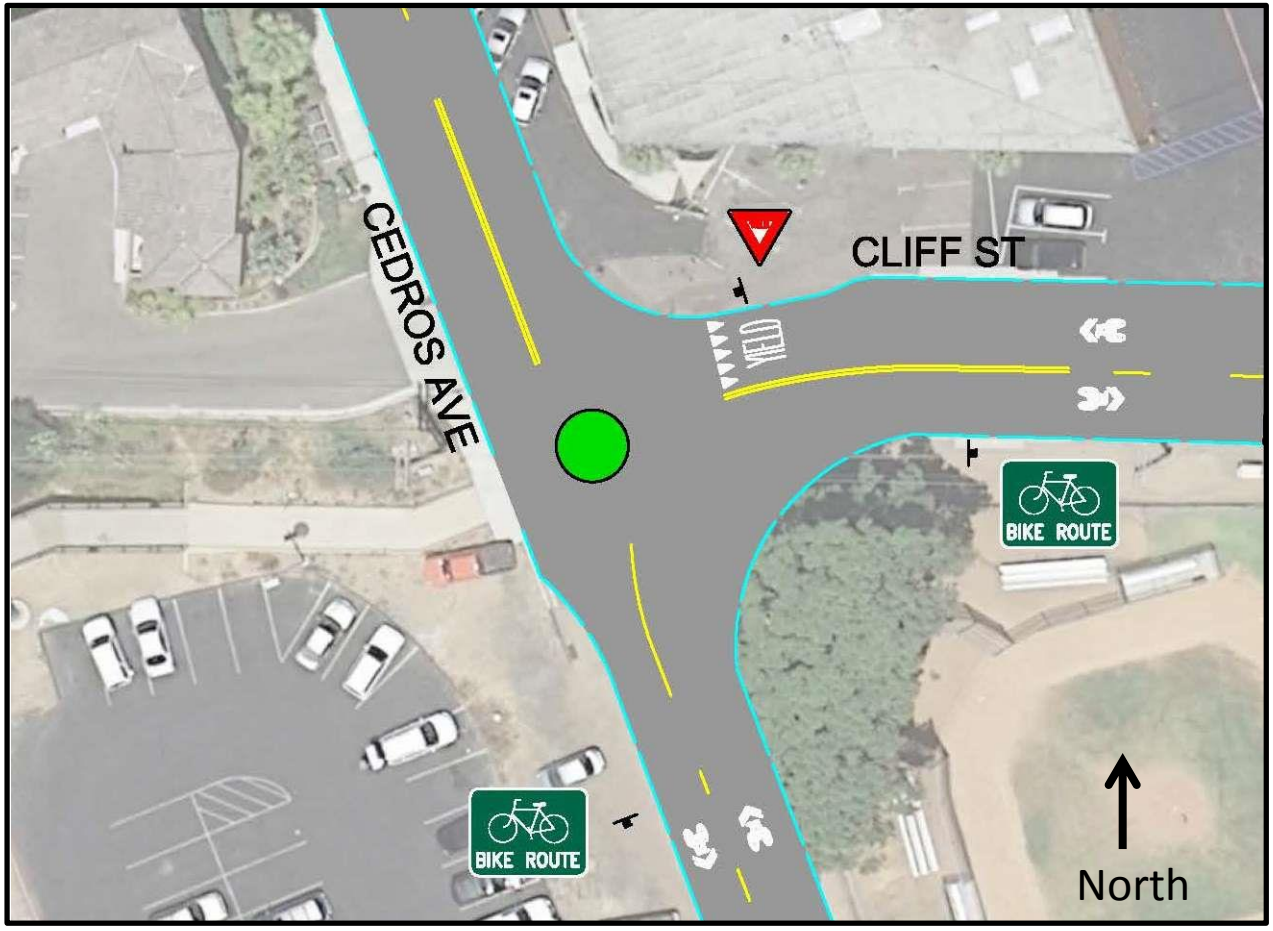
N. Cedros Ave

Priority Project #4 – between Lomas Santa Fe Dr and E. Cliff St



Cost Estimate (Entire Length):
$ 442,000

40’ 20’ 0 20’ 40’
1”=40’ GRAPHIC SCALE

Cedros Avenue, between E. Cliff Street and Lomas Santa Fe Drive, is a proposed Commercial Bicycle Boulevard and a proposed Pedestrian Traffic Calming Corridor. The street is currently a two lane collector roadway with parking on both sides. The east side of the street has a mix of parallel and 90 degree parking. At the north end of the project extent, a curb ramp is proposed to improve access to the Cliff Street multi-use path bridge. This project also includes bicycle boulevard signage every 800’ and shared lane (“sharrow”) pavement markings every 250’.

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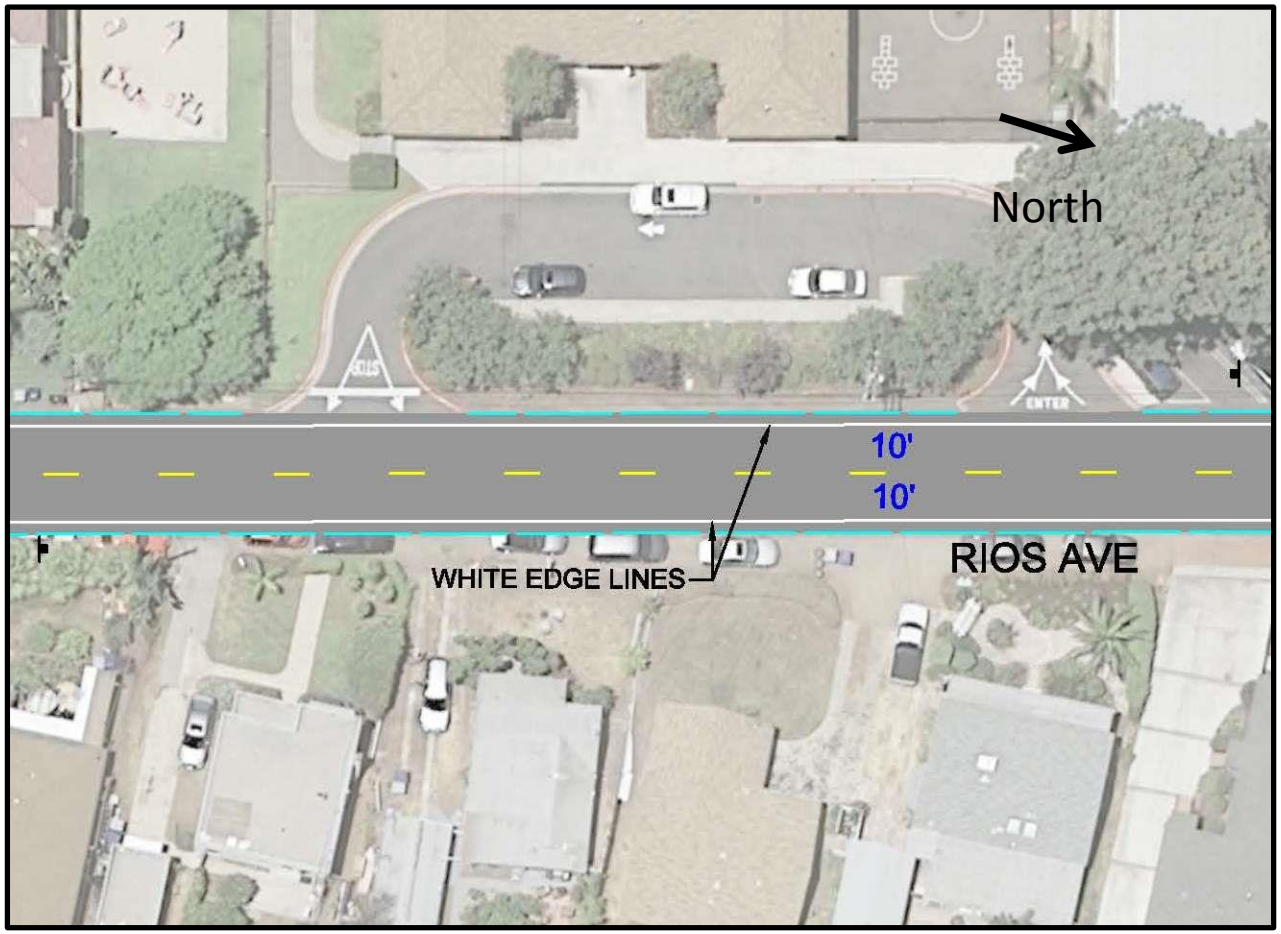
Rios Ave

Priority Project #5– Rios Ave between E. Cliff St and Lomas Santa Fe Dr



Cost Estimate (Entire Length):
$ 320,000

40’ 20’ 0 20’ 40’
1”=40’ GRAPHIC SCALE

Rios Avenue, between E. Cliff Street and Lomas Santa Fe Drive, is a proposed Residential Bicycle Boulevard and a proposed Pedestrian Traffic Calming Corridor. The street is classified as Residential with parking on one side. As a part of this project, travel lanes will be narrowed to 10’ with right edge lines. This project also includes bicycle boulevard signage every 800’ and shared lane (“sharrow”) pavement markings every 250’.

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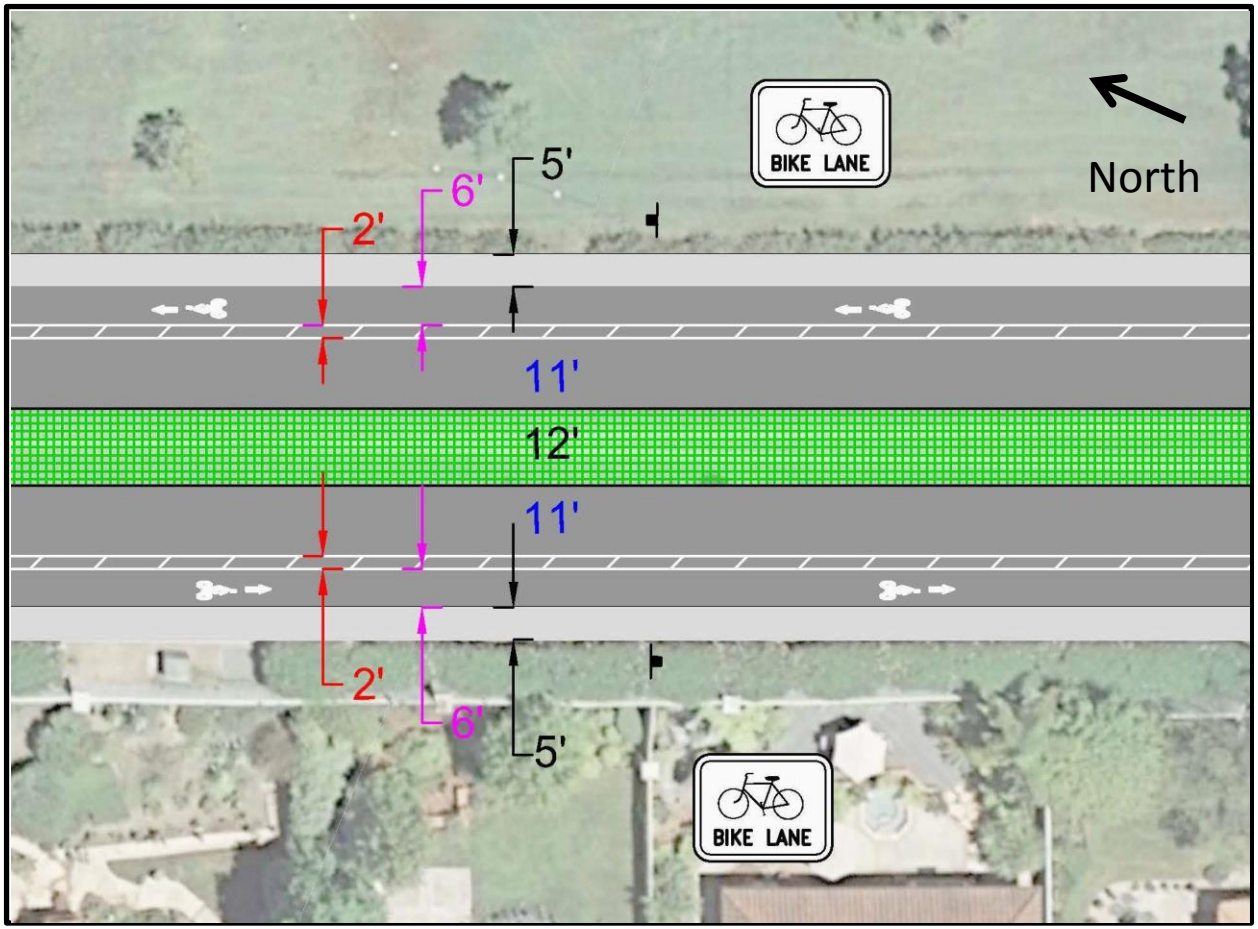
San Andres Dr

Priority Project #6 – Representative Cross-Section between Highland Dr and Via Campestre



Bicycle Facility:
Bike Lane / Multi-Use Path

Road Type:
2-lane w/ Center Turn Lane

Parking:
No Parking on Either Side

Curb to Curb:
42’

Typical Cross Section:
9’-5’-11’-10’-11’-5’-9’

Length (Approx.):
.4 miles

Note:
Bicycle Pavement Markings after intersections and every 250’ typ. Bike Lane signs after arterials and every 800’ typ.

Cost Estimate (Entire Length):
$ 1,228,000

30’ 15’ 0 15’ 30’

1”=30’ GRAPHIC SCALE

San Andres Drive, between Las Banderas Drive and the southern city boundary, is a proposed Bike Lane. There are existing bike lanes from Via Campestre to the southern city boundary. North of Via Campestre, San Andres Drive is a two-lane collector with parking prohibited. Curb to curb width varies from about 50’ to 52’. Space for a bike lane can be accommodated by narrowing the travel lanes. This project also includes bike lane signage every 800’ and bike lane pavement markings every 250’.

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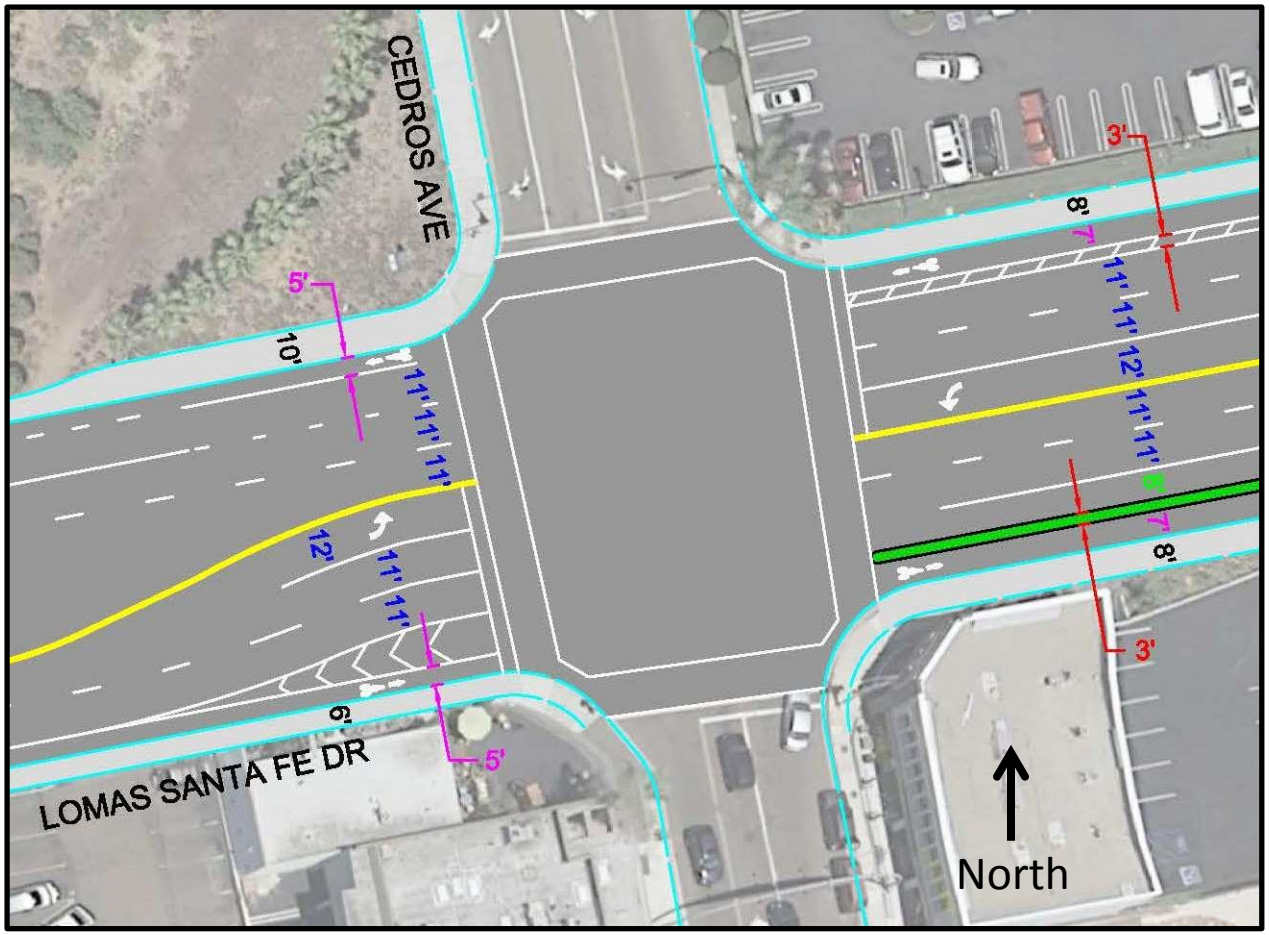
Lomas Santa Fe Dr

Cedros Ave

Priority Project #7 – Lomas Santa Fe Dr and Cedros Ave



Note:
Bicycle Pavement Markings after intersections and every 250’ typ. Bike Lane signs after arterials and every 800’ typ.

Curb to Curb Width Modified on East Side of Lomas Santa Fe Dr

Cost Estimate (Entire Length):
$ 624,000

50’ 25’ 0 25’ 50’

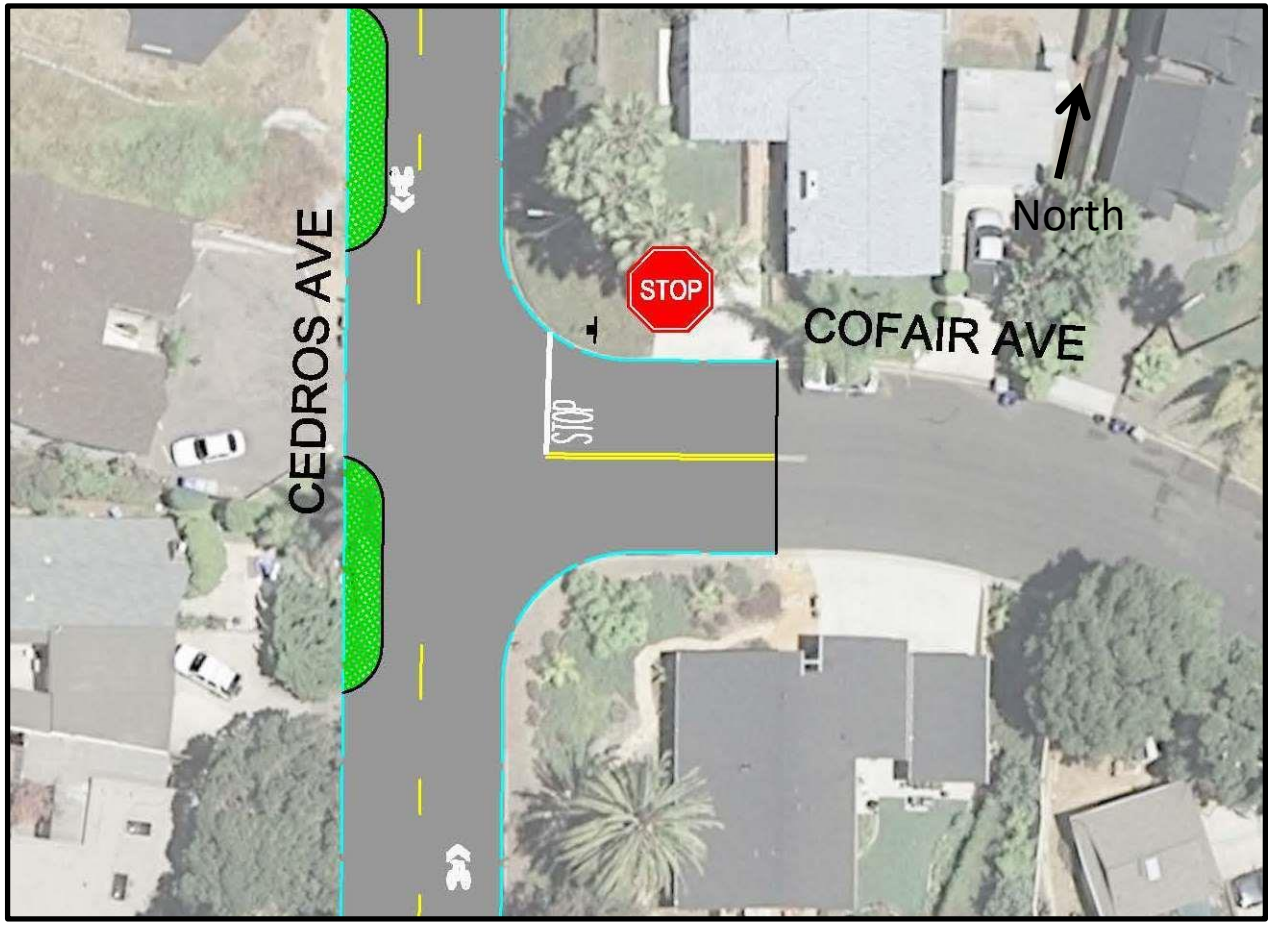
1”=50’ GRAPHIC SCALE

KOA CORPORATION
PLANNING & ENGINEERING

Cedros Avenue from Lomas Santa Fe Drive to Cofair Avenue (N) is a proposed commercial bicycle boulevard and traffic calming corridor. This portion of Cedros Avenue, known as the Cedros Design District, already features some traffic calming elements including a raised crosswalk, speed table, and narrow travel lanes. This project will include a bike box treatment at the intersection of Lomas Santa Fe Drive and Cedros Avenue and bicycle boulevard signage every 800’ and shared lane (“sharrow”) pavement markings every 250’.

Cedros Ave

Priority Project #8 – <u>Cedros Ave</u> and <u>Cofair Ave</u>



<u>Cost Estimate (Entire Length):</u>
$429,000

40’ 20’ 0 20’ 40’
1”=40’ GRAPHIC SCALE

Cedros Avenue, from Cofair Avenue (N) to Via De La Valle, is a proposed Commercial Bicycle Boulevard and Pedestrian Traffic Calming Corridor. This project proposes curb extensions at the intersection of Cofair Avenue (N) and Cedros Avenue. Initially, these curb extensions can be implemented with paint. This project will include bicycle boulevard signage every 800’ and shared lane (“sharrow”) pavement markings every 250’.

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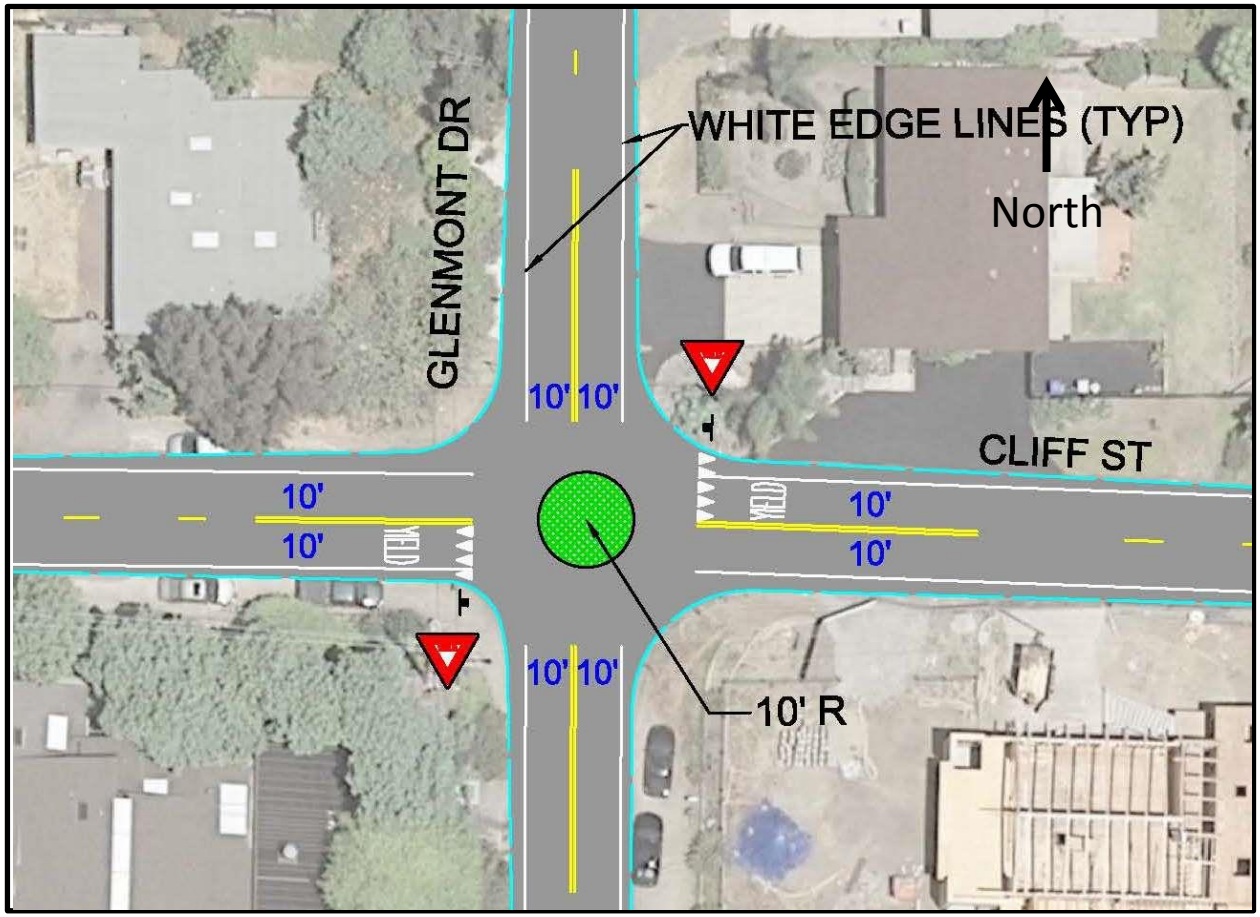
Cliff St and Glenmont Dr

Priority Project #9– <u>Cliff St</u> and <u>Glenmont Dr</u>



<u>Cost Estimate (Entire Length):</u>

$ 450,450

40’ 20’ 0 20’ 40’

1”=40’ GRAPHIC SCALE

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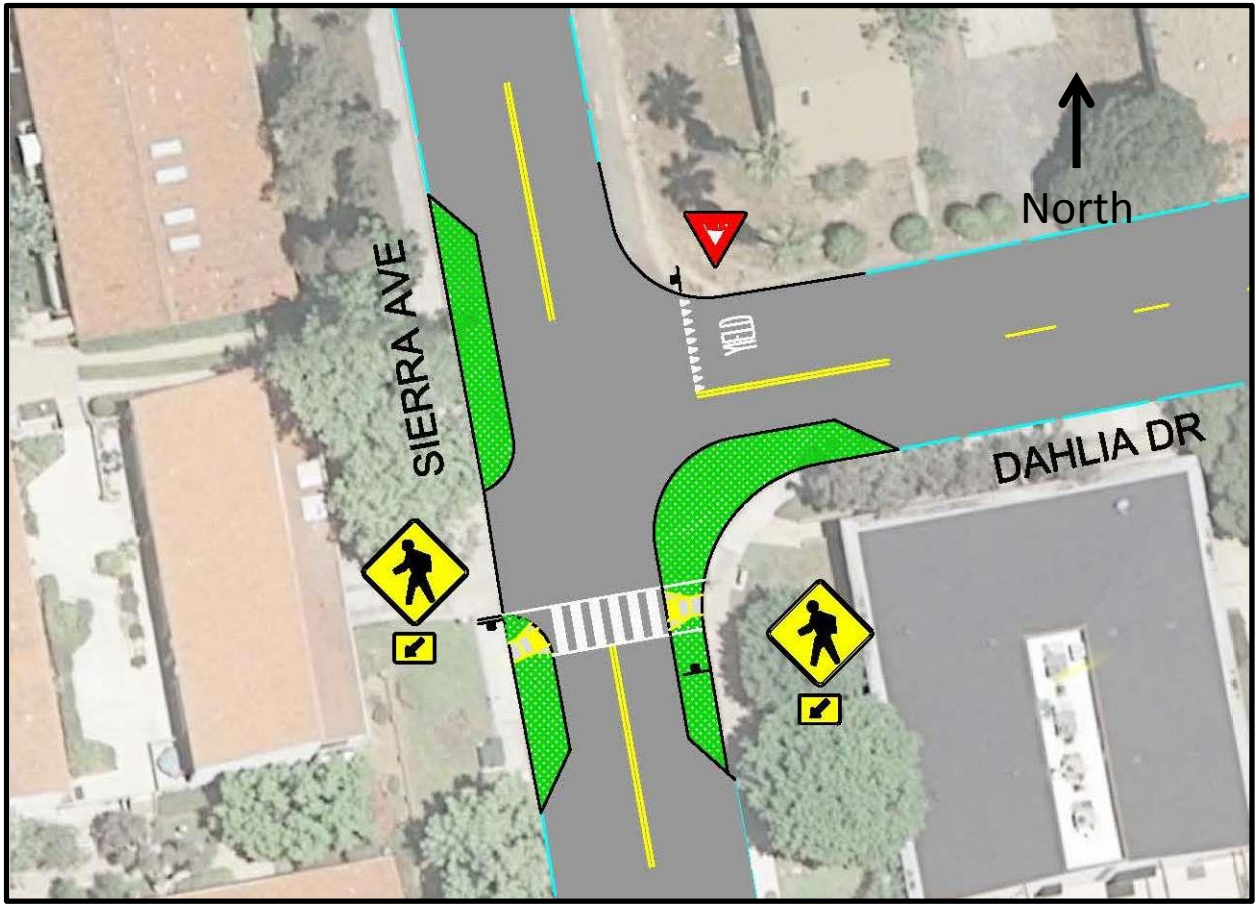
The streets within this project extent are designated in the plan as Residential Bicycle Boulevard and proposed Pedestrian Traffic Calming Corridors. Bicycle boulevard and traffic calming treatments have been identified along this corridor, they include curb extensions at the corner of W. Cliff Street and Pacific Avenue and E. Cliff Street and Glenmont Street, and a series of traffic circles on E. Cliff Street at the intersections of N. Rios Avenue, N. Granados Avenue and Glenmont Drive. A southbound-facing Bike Box treatment is proposed at the southern/eastern terminus of the project, on N. Nardo Avenue and Lomas Santa Fe Drive. Travel lanes will be narrowed with right edge striping to 10’ in each direction. This project also includes bicycle boulevard signage every 800’ and shared lane (“sharrow”) pavement markings every 250’.

Dahlia Dr / Sierra Ave

Priority Project #10– Dahlia Dr and Sierra Ave



Cost Estimate (Entire Length):
$ 1,508,000

40’ 20’ 0 20’ 40’
1”=40’ GRAPHIC SCALE

Sierra Avenue from W. Cliff Street to Border Avenue is a proposed Commercial Bicycle Boulevard and Pedestrian Traffic Calming Corridor. This project proposes curb extensions at the intersection of Sierra Avenue and W. Cliff Street and at Sierra Avenue and Dahlia Drive. This project also includes bicycle boulevard signage every 800’ and shared lane (“sharrow”) pavement markings every 250’.

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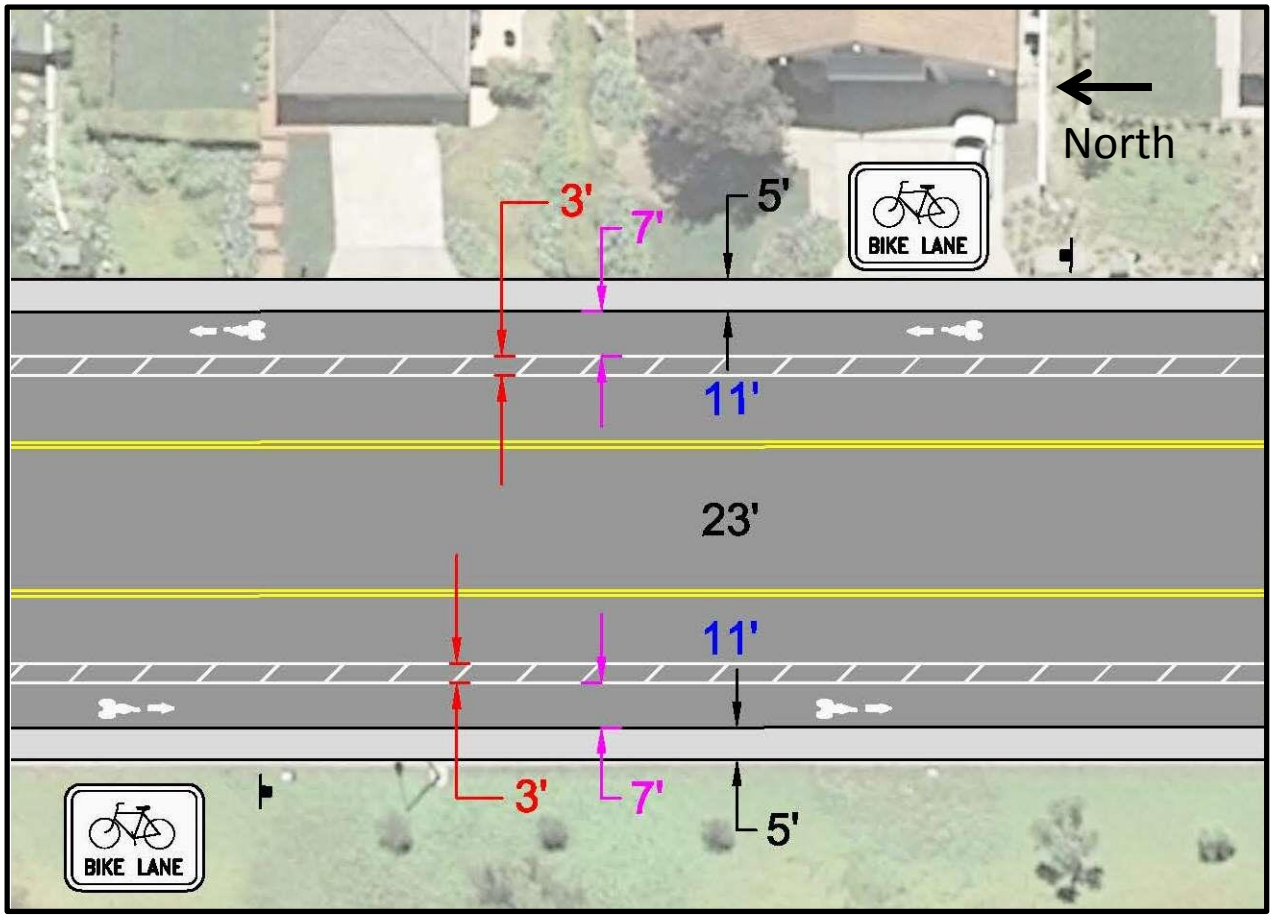
Santa Helena Dr

Priority Project #11 – Representative Cross-Section between City Limits and Sun Valley Rd



Bicycle Facility:
Bike Lane

Road Type:
2-lane w/ Center Turn Lane

Parking:
No Parking on Either Side

Curb to Curb:
65’

Typical Cross Section:
5’-7’-3’-11’-23’-11’-3’-7’-5’

Length (Approx.):
.4 miles

Note:
Bicycle Pavement Markings after intersections and every 250’ typ. Bike Lane signs after arterials and every 800’ typ.

Cost Estimate (Entire Length):
$ 279,500

30’ 15’ 0 15’ 30’

1”=30’ GRAPHIC SCALE

Santa Helena, from the northern city boundary and Sun Valley Road, is a proposed Bike Lane and Pedestrian Traffic Calming Corridor. Santa Helena is a two-lane with median roadway. The curb-to-curb width varies from approximately 62’ to 66’. Space for bike lanes could be accommodated by narrowing the width of the striped median. This project would extend the existing bike lane on Santa Helena south of Sun Valley Road. This project also includes bike lane signage every 800’ and bike lane pavement markings every 250’.

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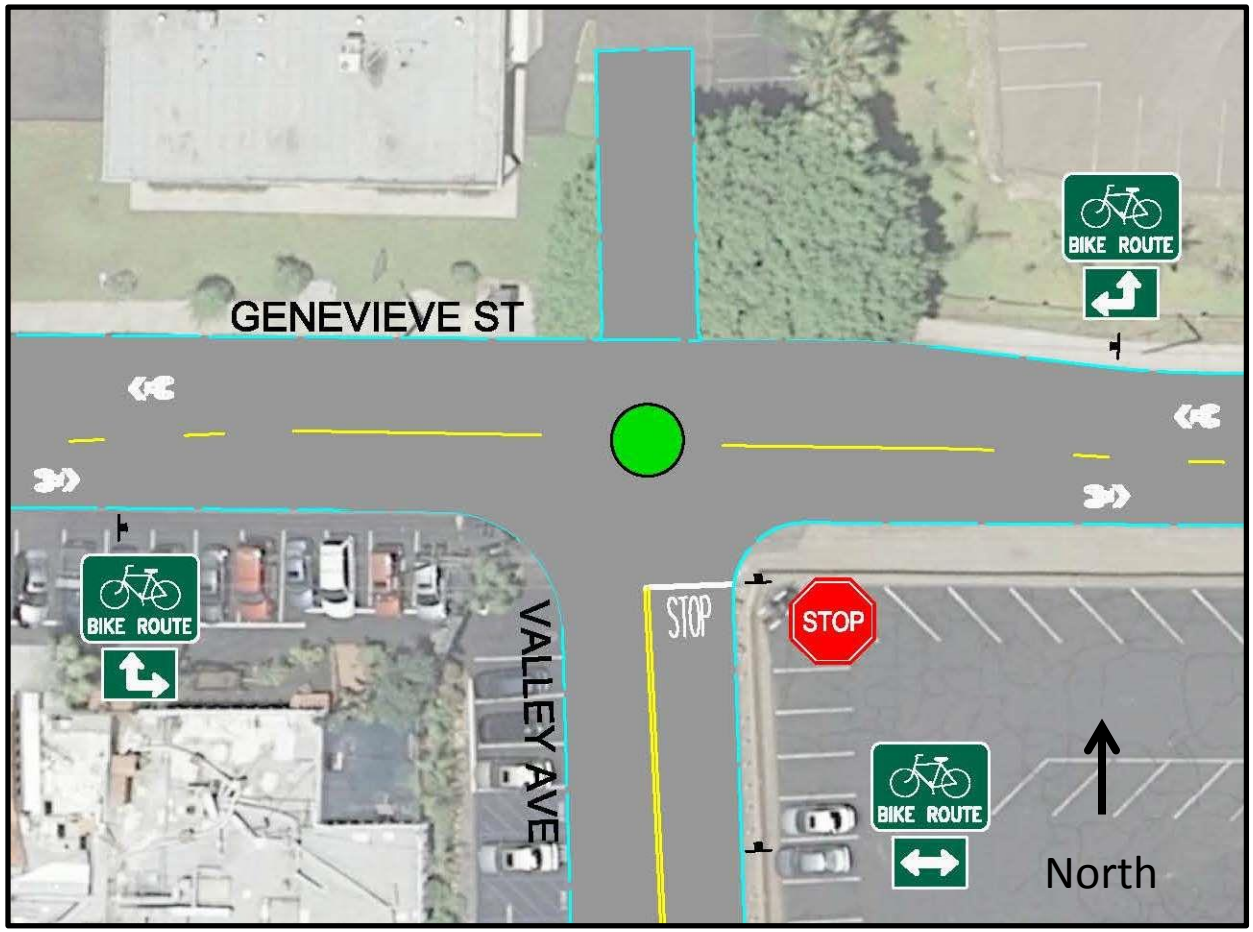
Genevieve St

Valley Ave

Priority Project #12 – Genevieve St and Valley Ave



Cost Estimate (Entire Length):
$ 629,750

40’ 20’ 0 20’ 40’
1”=40’ GRAPHIC SCALE

The streets within this project extent are designated in the plan as Residential Bicycle Boulevard, Bicycle Route and proposed Pedestrian Traffic Calming Corridors. This project proposes curb extensions at the intersection of Valley Avenue and Genevieve Street. This project also includes bicycle boulevard signage every 800’ and shared lane (“sharrow”) pavement markings every 250’.

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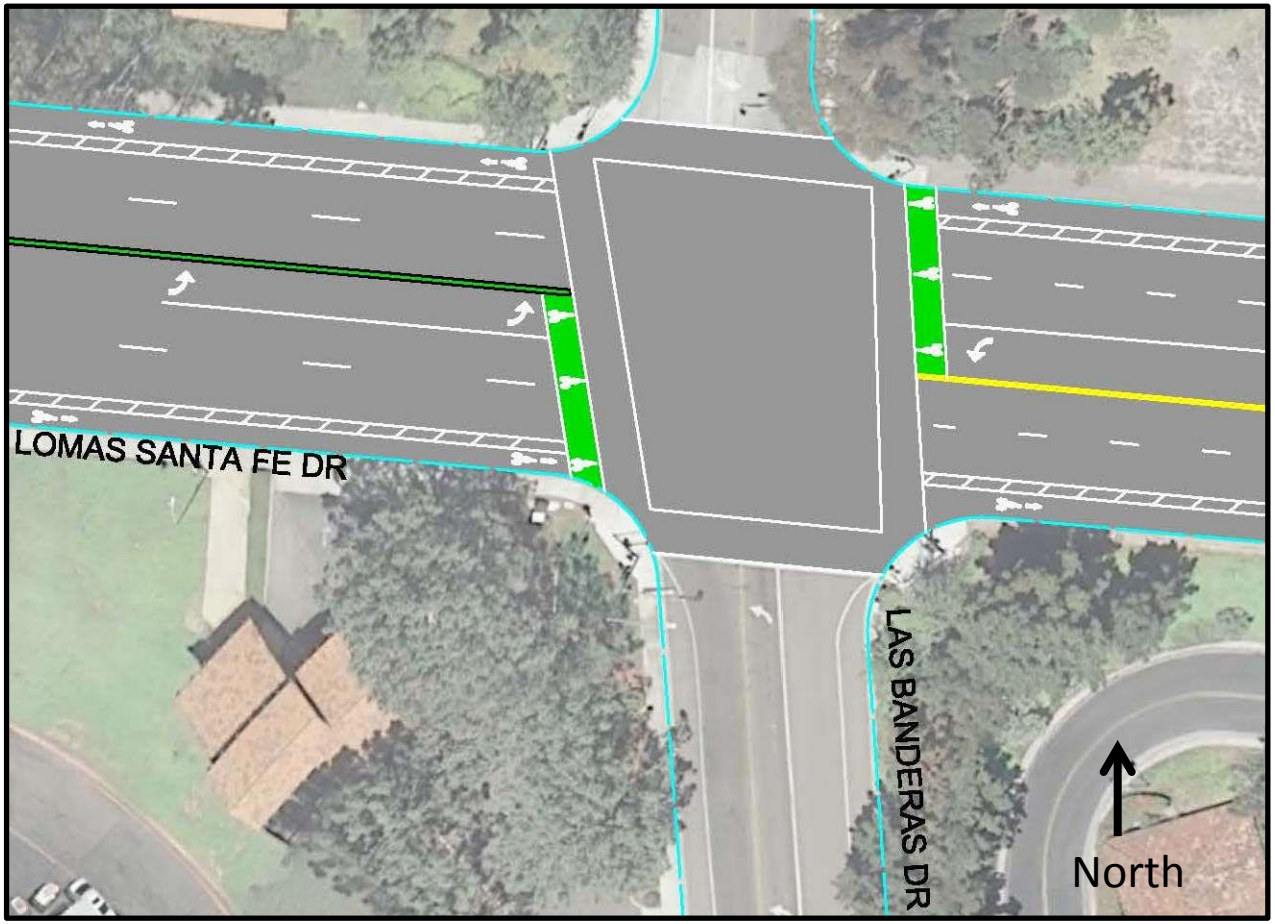
Las Banderas Dr

Lomas Santa Fe Dr

Priority Project #13 – Lomas Santa Fe Dr and Las Banderas Dr



Cost Estimate (Entire Length):

$ 929,750

50’ 25’ 0 25’ 50’

1”=50’ GRAPHIC SCALE

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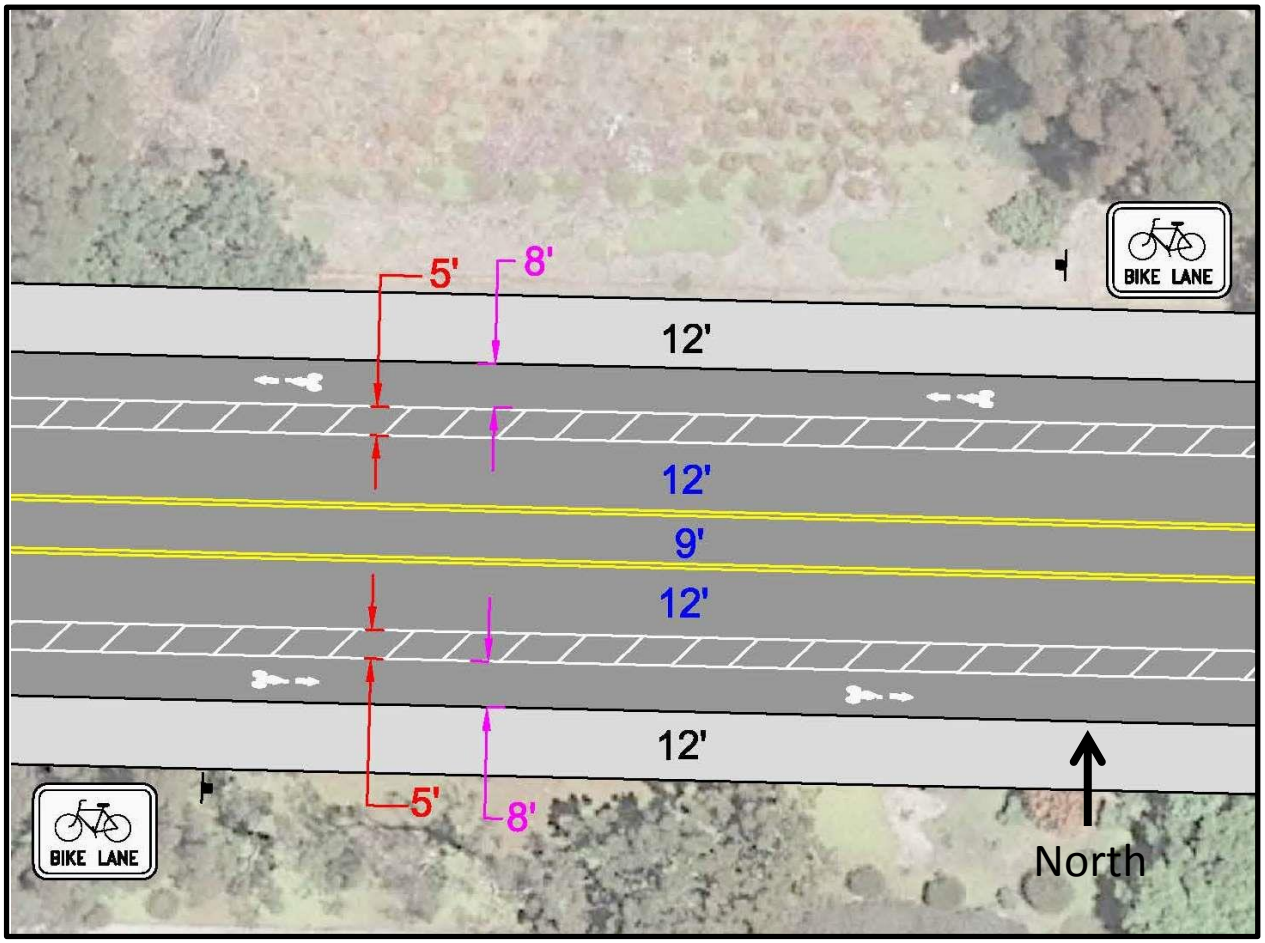
The streets within this project extent are designated in the plan as Residential Bicycle Boulevard, Bicycle Route and proposed Pedestrian Traffic Calming Corridors. A multi-use path connecting Lomas Santa Fe Drive and San Andres Drive is also proposed between the Interstate 5 NB off-ramp and the parking lot of the Lomas Santa Fe Plaza shopping center. This project proposes a bike box treatment at the Las Banderas Drive and Lomas Santa Fe Drive intersection. This project also includes bicycle boulevard signage every 800’ and shared lane (“sharrow”) pavement markings every 250’.

Lomas Santa Fe Dr

Priority Project #14 – Representative Cross-Section between Camino De Las Villas and Highland Dr



Bicycle Facility:
Cycle Track / Multi-Use Path

Road Type:
4-lane with Striped Median

Parking:
No Parking on Either Side

Curb to Curb:
75'

Typical Cross Section:
12.5'-7'-3'-11'-11'-11'-11'-11'-3'-7'-12.5'

Length (Approx.):
.2 miles

Note:
Bicycle Pavement Markings after intersections and every 250' typ. Bike Lane signs after arterials and every 800' typ.

Cost Estimate (Entire Length):
$ 3,000,000

30' 15' 0 15' 30'

1"=30' GRAPHIC SCALE

A cycle track facility is proposed along Lomas Santa Fe Drive, a designated Multi-Modal Boulevard, from Highway 101 to the eastern city boundary. The extents for this priority project cover the eastern third of the corridor, from Las Banderas Drive to Highland Drive. Lomas Santa Fe Drive is a four-lane arterial with a striped median. The curb-to-curb width varies from approximately 62' to 80'. The right-of-way width varies from 100' to 102'. The space to provide cycle track can be obtained by narrowing the travel lanes and striped median. The typical widths are shown in the diagram. At the most constrained 62' location, the striped median can be converted to a double-yellow line and the bike lane widths will drop from 7' to 6'. The space to add a multi-use path can be obtained using the full right-of-way.

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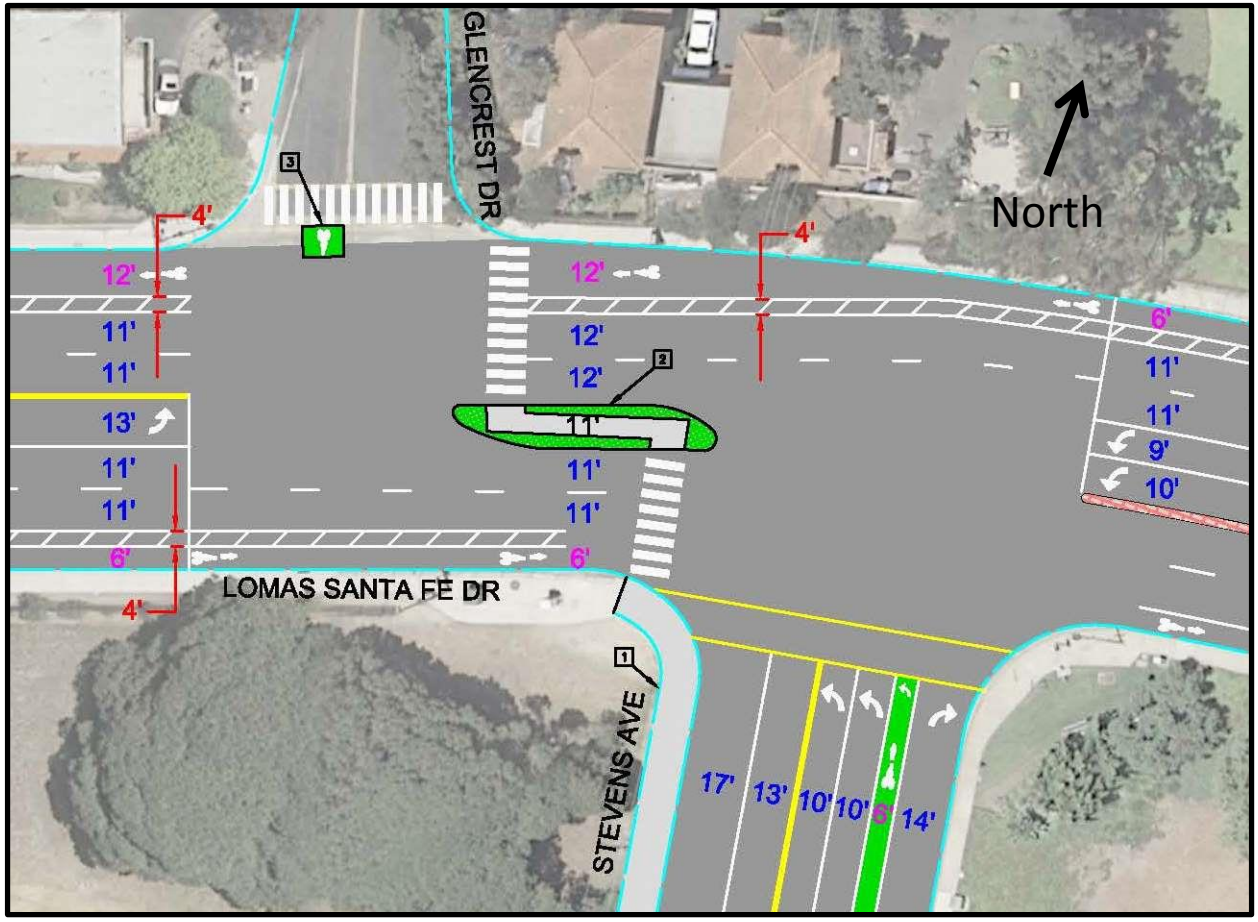
Lomas Santa Fe Dr

Glencrest Dr

Priority Project #15 – Lomas Santa Fe Dr and Glencrest Dr / Stevens Ave



Construction Notes:

1. Widen Stevens Ave on West Side. Relocate High Voltage Power Pole. Build New Retaining Wall.
2. Narrow Median. Relocate Existing North Side Crosswalk. Rebuild Ramps.
3. Add Bike Box for Southbound Left Turns. (Needs FHWA Experimentation Permission)

Note:
Bicycle Pavement Markings after intersections and every 250’ typ. Bike Lane signs after arterials and every 800’ typ.

Cost Estimate (Entire Length):
$1,250,000

50’ 25’ 0 25’ 50’

1”=50’ GRAPHIC SCALE

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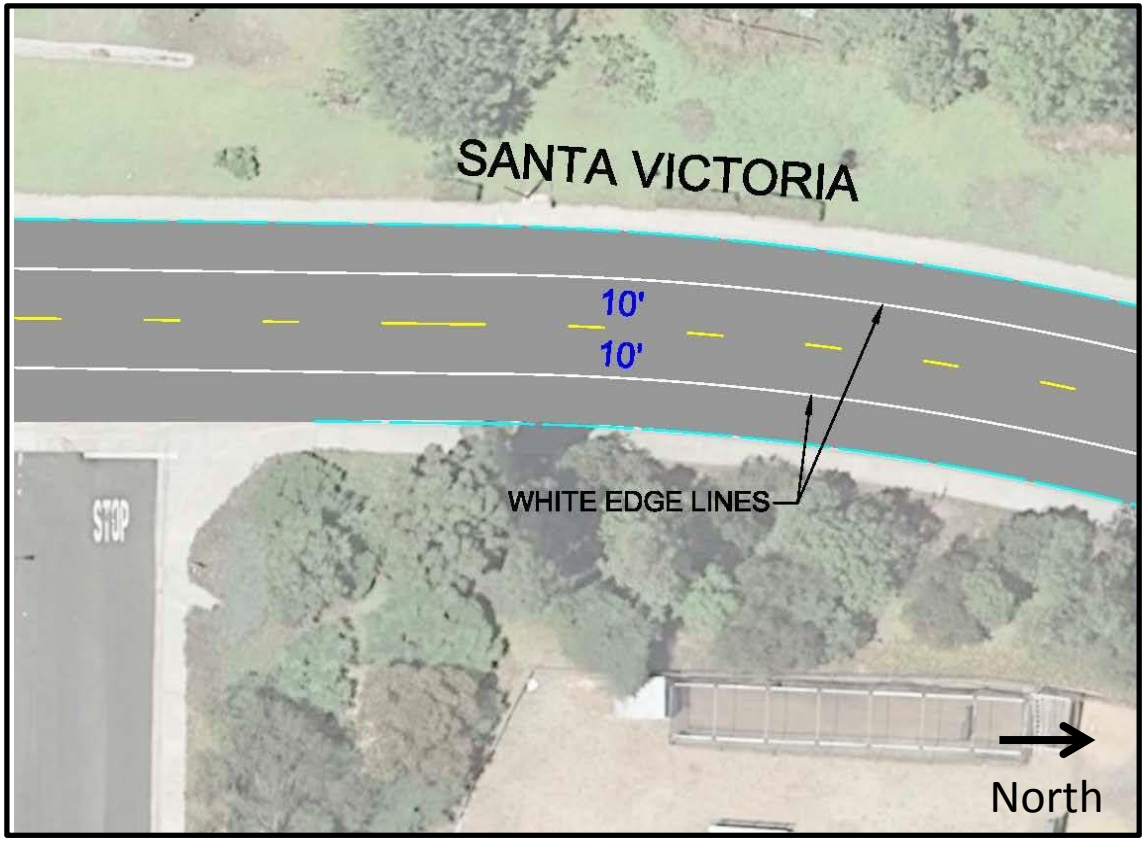
The streets within this project extent are designated in the plan as Residential Bicycle Boulevard and proposed Pedestrian Traffic Calming Corridors. Bicycle boulevard and traffic calming treatments have been identified along this corridor and include a speed table on Canyon Drive between Mar Vista Drive and Ford Drive. A bike box and pedestrian crossing treatments are proposed at the intersection of Glencrest Drive and Lomas Santa Fe Drive. This project also includes bicycle boulevard signage every 800’ and shared lane (“sharrow”) pavement markings every 250’.

Santa Victoria

Priority Project #16 – Santa Victoria, San Patricio Dr and Santa Helena between Sun Valley Rd and Lomas Santa Fe Dr



Cost Estimate (Entire Length):
$ 1,138,500

40’ 20’ 0 20’ 40’

1”=40’ GRAPHIC SCALE

The streets within this project extent are designated in the plan as Residential Bicycle Boulevard (along Santa Victoria only, as Santa Helena south of Sun Valley Road has recently installed bike lanes) and proposed Pedestrian Traffic Calming Corridors. As a part of this project, travel lanes will be narrowed to 10’ with right edge lines. This project will include bicycle boulevard signage every 800’ and shared lane (“sharrow”) pavement markings every 250’ along the Santa Victoria portion.

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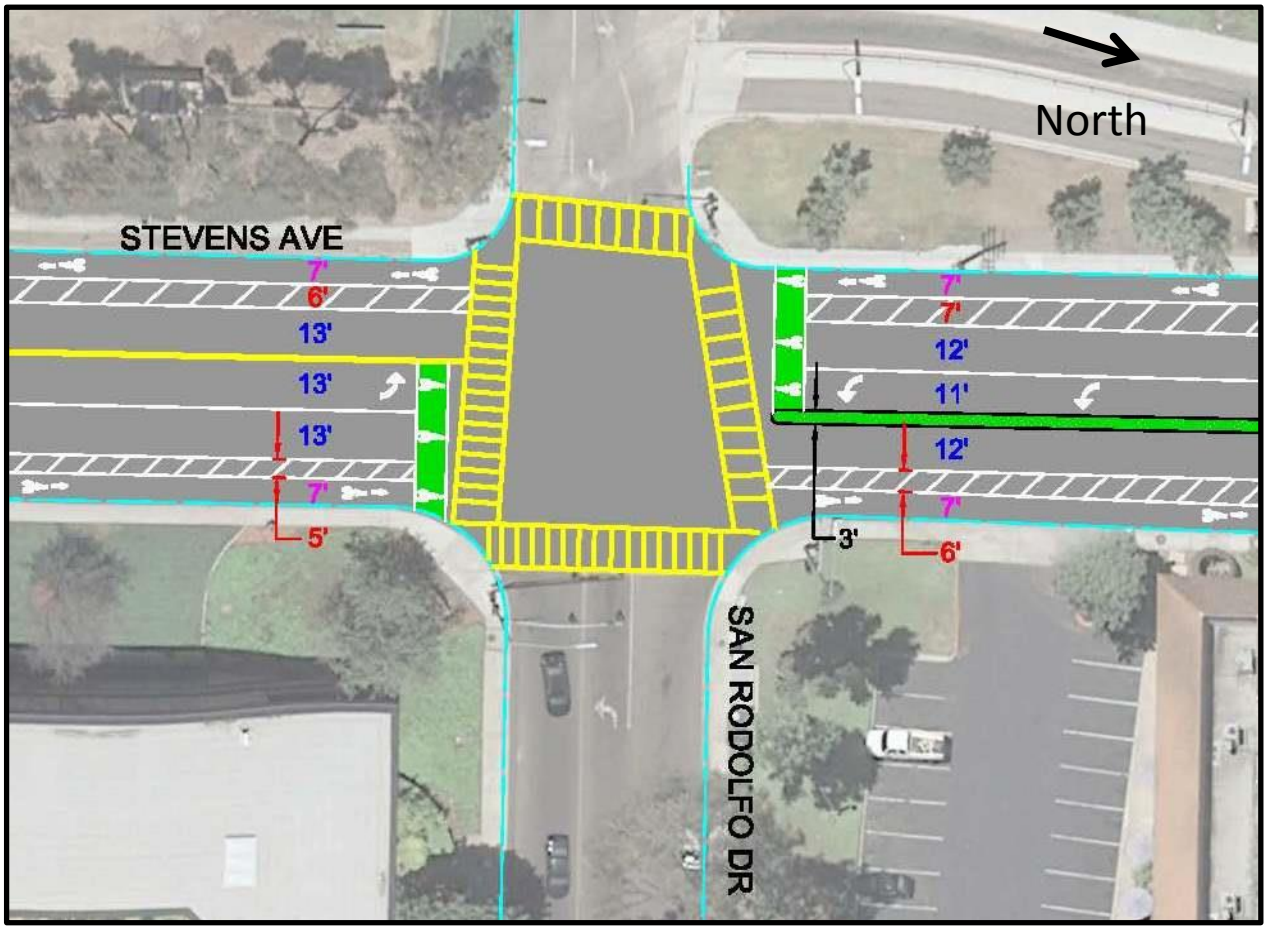
Stevens Ave

San Rodolfo Dr

Priority Project #17– Stevens Ave and San Rodolfo Dr



Note:
Bicycle Pavement Markings after intersections and every 250' typ. Bike Lane signs after arterials and every 800' typ.

Cost Estimate (Entire Length):
$ 1,380,000

50' 25' 0 25' 50'

1"=50' GRAPHIC SCALE

The streets within this project extent are designated in the plan as Residential Bicycle Boulevard, Bicycle Route and proposed Pedestrian Traffic Calming Corridors. Solana Hills Drive is a proposed multi-use path. This project proposes bike box treatments at the intersection of Stevens Avenue and San Rodolfo Drive, and at San Rodolfo Drive and Lomas Santa Fe Drive. This project also includes bicycle boulevard signage every 800' and shared lane ("sharrow") pavement markings every 250'.

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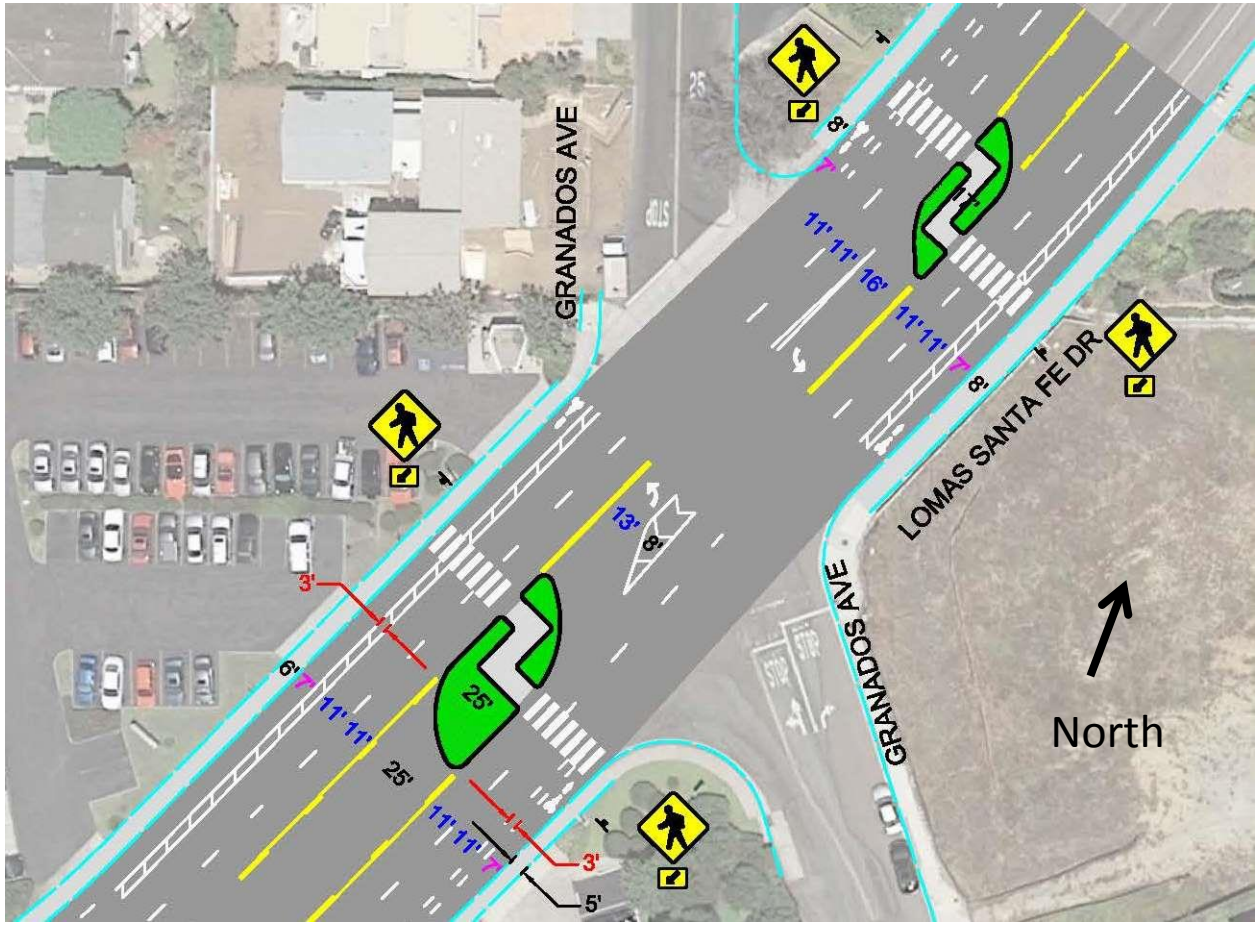
Lomas Santa Fe Dr

Granados Ave

Priority Project #18– Lomas Santa Fe Dr and Granados Ave



Cost Estimate (Entire Length):
$730,000

60’ 30’ 0 30’ 60’

1”=60’ GRAPHIC SCALE

Granados Avenue, from E. Cliff Street to S. Nardo Avenue (via Lirio Street), is a proposed Residential Bicycle Boulevard and Pedestrian Traffic Calming Corridor. This project recommends a pedestrian/bicycle-activated crossing at Lomas Santa Fe Drive, which is currently an uncontrolled crossing. This project also proposes curb extensions at the intersection of Granados Avenue and Lirio Street, and at S. Nardo Avneue and Lirio Street. This project also includes bicycle boulevard signage every 800’ and shared lane (“sharrow”) pavement markings every 250’.

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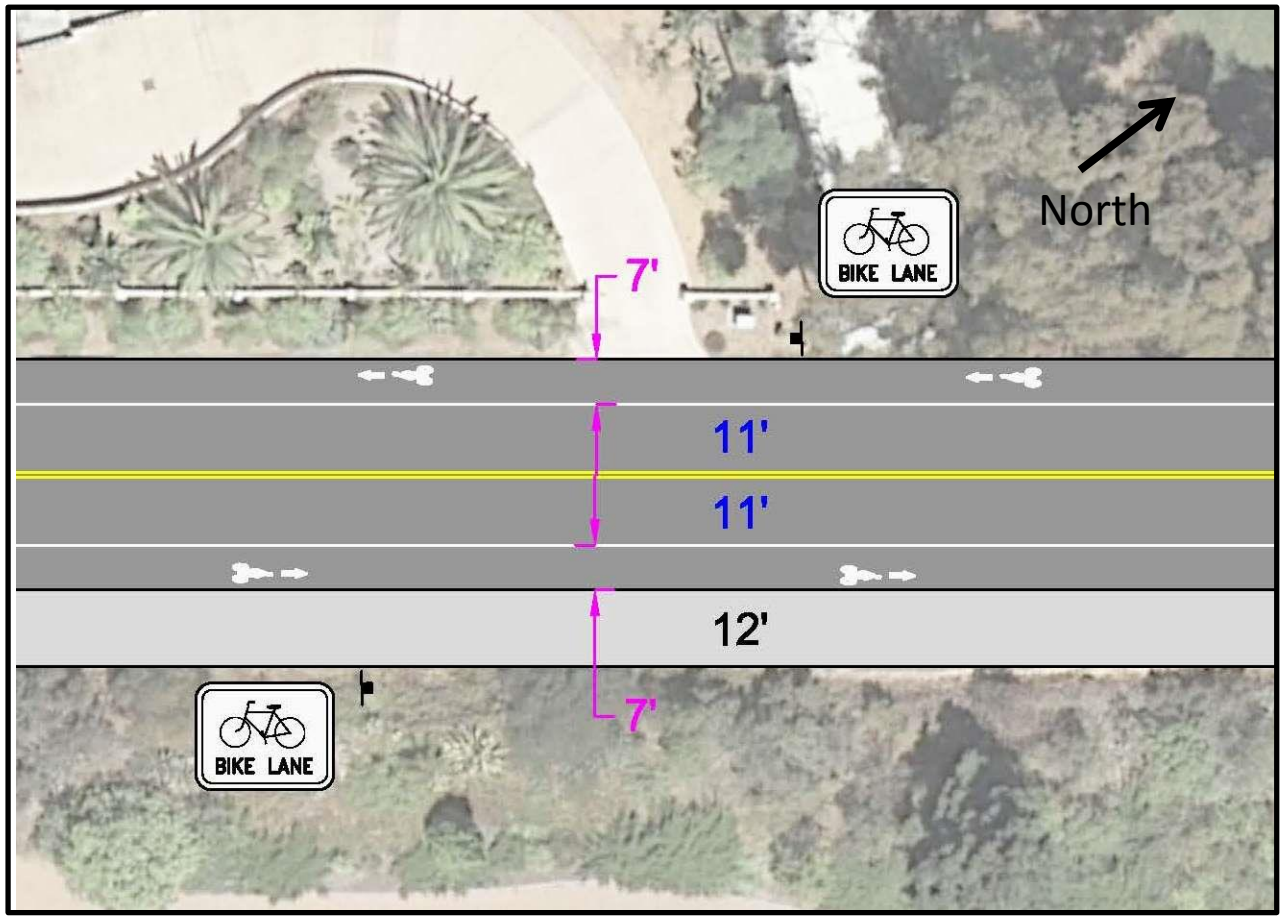
Highland Dr

Priority Project #19 – Representative Cross-Section
Between Lomas Santa Fe Dr and Via La Senda



Bicycle Facility:
Bike Lane / Multi-Use Path

Road Type:
2-lane

Parking:
No Parking on Either Side

Curb to Curb:
48’

Typical Cross Section:
6’-12’-12’-6’-12’

Length (Approx.):
.5 miles

Note:
Bicycle Pavement Markings after intersections and every 250’ typ. Bike Lane signs after arterials and every 800’ typ.

Cost Estimate (Entire Length):
$4,268,150

30’ 15’ 0 15’ 30’
1”=30’ GRAPHIC SCALE

The project extent, Highland Drive from San Andres Drive to Sun Valley Road, is a proposed multi-use path parallel to the existing bike lane. This project extent has some constrained locations where the right-of-way may be too narrow to accommodate the multi-use path and there are no opportunities for widening. At the narrowest, the pavement width along this corridor is approximately 38’. One option is to convert the bike lane in the downhill direction to shared lane markings in order to accommodate the minimum 12’ needed for the multi-use path.

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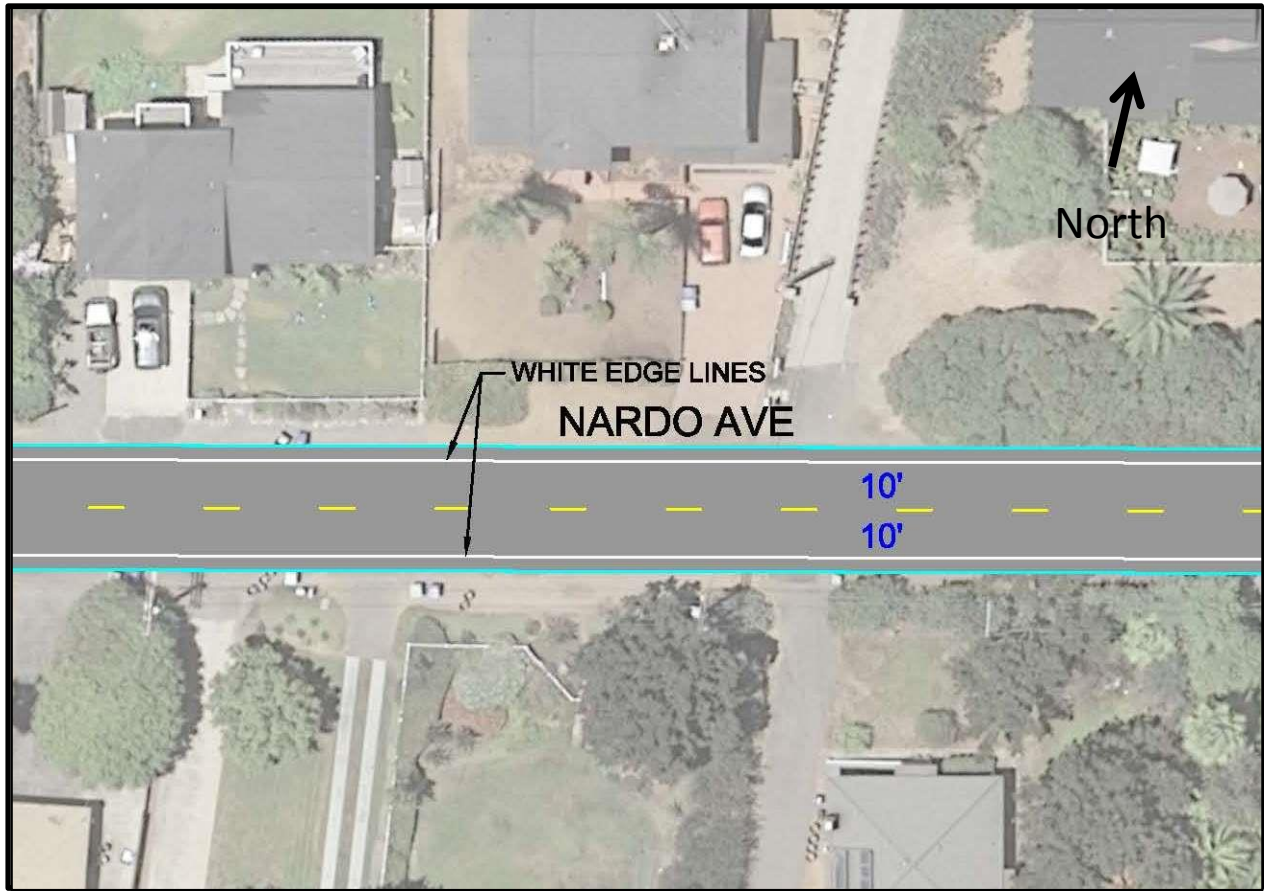
Nardo Ave

Priority Project #20 – <u>Nardo Ave</u> between <u>Lomas Santa Fe Dr</u> and <u>Lirio St</u>



<u>Cost Estimate (Entire Length):</u>
$ 1,030,000

40’ 20’ 0 20’ 40’
1”=40’ GRAPHIC SCALE

The project extent, S. Nardo Avenue from Lomas Santa Fe Drive to Stevens Avenue, is a proposed Residential Bicycle Boulevard and Pedestrian Traffic Calming Corridor. As a part of this project, travel lanes will be narrowed to 10’ with right edge lines. This project also includes bicycle boulevard signage every 800’ and shared lane (“sharrow”) pavement markings every 250’.

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8.3 Funding Opportunities

Potential funding sources for bicycle and pedestrian-related activities such as projects, programs, and plans can be found at all levels of government. Many funding sources are highly competitive, making it necessary for local governments to stay informed about available funds and requirements so they are better prepared to pursue when applications are open. This section provides an overview of currently available Federal, State, regional, and local sources of bicycle and pedestrian funding, and non-traditional funding sources.

8.3.1 Federal Funding Opportunities

MAP-21 Programs

In 2012, the U.S. Department of Transportation SAFETEA-LU (*Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users*) was replaced with a new funding mechanism entitled MAP-21 (*Moving Ahead for Progress in the 21st Century*). MAP-21 replaces SAFETEA LU with a similar amount of total funding, but changes the overall number and scope of programs.

The Transportation Enhancements (TE) program was replaced with Transportation Alternatives Program (TAP), and the Recreation Trails Program (RTP) is now also housed under the TAP. MAP-21 emphasizes safety and active transportation with increased allocation to Congestion Management and Air Quality Improvement and Highway Safety Improvement Program (HSIP) funds. Funds for improving infrastructure condition, safety, or mobility and road conditions and performance are also available as a part of the National Highway Performance Program (NHPP) and the Surface Transportation Program (STP).

Transportation Alternatives Program (TAP)

The Transportation Alternatives Program was established to provide for a variety of alternative transportation projects, including many that were previously eligible activities under separately funded programs. Funds may be used for the following activities:

- Construction, planning, and design of on-road and off-road trail facilities for pedestrians, bicyclists, and other non-motorized forms of transportation.
- Construction, planning, and design of infrastructure-related projects and systems that will provide safe routes for non-motorized users, including children, older adults, and individuals with disabilities to access daily needs.
- Conversion and use of abandoned railroad corridors for trails for pedestrians, bicyclists, or other non-motorized transportation users.

Congestion Management and Air Quality Improvement Program (CMAQ)

The CMAQ program serves as a flexible funding source available to State and local governments for transportation projects and programs to help meet the requirements of the Clean Air Act. Bicycle and pedestrian projects will continue to be eligible for CMAQ funding. Examples of eligible uses include the following:

- Bicycle facilities (paths, bike racks, support facilities, etc.) that are not exclusively recreational and reduce vehicle trips.
- Non-construction outreach related to safe bicycle use.

National Highway Performance Program (NHPP)

The NHPP provides funds for the construction of new facilities on the National Highway System (NHS). NHPP projects must support progress toward achievement of national performance goals for improving infrastructure condition, safety, mobility, or freight movement on the NHS. Examples of eligible uses include the following:

- Bicycle transportation and pedestrian walkways.
- Construction, reconstruction, resurfacing, restoration, preservation, or operational improvements of NHS segments.
- Capital and operating costs for traffic and traveler information, monitoring, management, and control facilities and programs.

Surface Transportation Program (STP)

The STP provides flexible funding for projects to preserve and improve the conditions and performance on and Federal-aid highway, bridge and tunnel projects on any public road, and pedestrian and bicycle infrastructure. Examples of some of the STP eligible activities include the following:

- Bicycle transportation and pedestrian walkways.
- Recreational trails projects.
- Construction, reconstruction, rehabilitation, resurfacing, restoration, preservation, or operational improvements for highways and local access roads.
- Surface transportation planning.
- Transportation alternatives (pedestrians, bicyclists, and other non-motorized forms of transportation).
- Intersections with high accident rates or levels of congestion.

For more information visit: https://www.fhwa.dot.gov/map21/funding.cfm

Safe Routes to School (SRTS) Programs

Caltrans administers two separate Safe Routes to School Programs: the State-legislated program (SR2S), and the Federal program (SRTS). Both programs seek to increase the number of children walking and bicycling to school by making it safer for them to do so. In 2012, the Federal SRTS Program was consolidated into the MAP-21 Transportation Alternatives Program (TAP), but is also eligible for Surface Transportation Program (STP) and Highway Safety Improvement Program (HSIP) funds. Some expected outcomes of the program include the following:

- Increased bicycle, pedestrian, and traffic safety around schools;
- More children walking and bicycling to and from schools;

- Decreased traffic congestion around schools;
- Reduced childhood obesity;
- Improved air quality, community safety and security, and community involvement; and
- Improved partnerships among schools, local agencies, parents, community groups, and nonprofit organizations.

A minimum of 70 percent of each year's apportionment will be made available for infrastructure projects with up to 30 percent for non-infrastructure projects.

Infrastructure projects are considered to be engineering projects or capital improvements that will substantially improve safety and the ability of students to walk and bicycle to school. They typically involve the planning, design, and construction of facilities within a two-mile radius from a grade school or middle school. The maximum funding cap for an infrastructure project is $1 million. Caltrans does not set minimum caps. The project cost estimate may include eligible direct and indirect costs. Infrastructure projects should directly support increased safety and convenience for children in K-8 (including children with disabilities) to walk and bicycle to school.

Eligible infrastructure projects may include but are not limited to the following:

- New bicycle trails and paths, bicycle racks, bicycle lane striping and widening, new sidewalks, widening of sidewalks, sidewalk gap closures, curbs, gutters, and curb ramps.
- New pedestrian trails, paths, and pedestrian over and under crossings, roundabouts, bulb-outs, speed bumps, raised intersections, median refuges, narrowed traffic lanes, lane reductions, full or half-street closures, and other speed reduction techniques.
- Included in the category of traffic control devices are new or upgraded traffic signals, crosswalks, pavement markings, traffic signs, traffic stripes, in-roadway crosswalk lights, flashing beacons, bicycle-sensitive signal actuation devices, pedestrian countdown signals, vehicle speed feedback signs, pedestrian activated upgrades, and all other pedestrian- and bicycle-related traffic control devices.

Non-infrastructure projects are education, encouragement, and enforcement activities that are intended to change community behaviors, attitudes, and social norms to make it safer for children in grades K-8 to walk and bicycle to school. Non-infrastructure projects should increase the likelihood of programs becoming institutionalized once in place. Deliverables from a non-infrastructure project must be clearly stated in the application and tangible samples must be attached to the final invoice or progress report (i.e. sample training materials or promotional brochures). The funding cap for a non-infrastructure project is $500,000. Multi-year funding allows the applicant to staff up and deliver their project over the course of four years, therefore reducing overhead and increasing project sustainability.

The Safe Routes to School Program funds non-motorized facilities in conjunction with improving access to schools through the Caltrans Safe Routes to School Coordinator. For more information visit: http://www.dot.ca.gov/hq/LocalPrograms/saferoutes/saferoutes.htm

Rivers, Trails and Conservation Assistance Program (RTCA)

The Rivers, Trails, and Conservation Assistance Program (RTCA) is a National Parks Service program which provides technical assistance via direct staff involvement, to establish and restore greenways, rivers, trails, watersheds, and open space. The RTCS program provides only for planning assistance, as there are no implementation monies available. Projects are prioritized for assistance based upon criteria which include conserving significant community resources, fostering cooperation between agencies, serving a large number of users, encouraging public involvement in planning and implementation and focusing on lasting accomplishments. For more information visit: http://www.nps.gov/orgs/rtca/index.htm

8.3.2 State Funding Opportunities

Recreational Trails Program (RTP)

The Recreational Trails Program (RTP) provides funds annually for recreational trails and trails-related projects. The RTP is administered at the federal level by the Federal Highway Administration and at the state level by the California Department of Parks and Recreation. At the end of 2013, legislation was signed by the Governor creating the new Active Transportation Program and enabled a portion of the RTP funding to remain with California State Parks. Applicants must fund at least 12 percent of the total project cost and the maximum amount of RTP funds allowed for each project is 88 percent of the total project cost. For more information visit: http://www.parks.ca.gov/?page_id=24324

Land and Water Conservation Fund (LWCF)

The Land and Water Conservation Fund (LWCF) allocates money to state and local governments to acquire new land for recreational purposes, including bicycle paths and support facilities such as bike racks. The U.S Recreation and Heritage Conservation Service and the State Department of Park and Recreation administer this funding source.

Cities, counties and districts authorized to acquire, develop, operate, and maintain park and recreation facilities are eligible to apply. Applicants must fund the entire project, and will be reimbursed for 50 percent of costs. Property acquired or developed under the program must be retained in perpetuity for public recreational use. The grant process for local agencies is competitive, and 60 percent of grants are reserved for Southern California. For more information visit: http://www.parks.ca.gov/?Page_id=21360

Active Transportation Program (ATP)

On September 26, 2013, legislation was enacted creating the Active Transportation Program (ATP) in the California Department of Transportation. The ATP consolidates existing federal and state transportation programs, including the Transportation Alternatives Program, Bicycle Transportation Account, and State Safe Routes to School, into a single program with a focus to make California a national leader in active transportation.

The purpose of the ATP is to encourage increased use of active modes of transportation by achieving the following goals:

- Increase the proportion of trips accomplished by biking and walking
- Increase safety and mobility for non-motorized users
- Advance the active transportation efforts of regional agencies to achieve greenhouse gas reduction goals
- Enhance public health
- Ensure that disadvantaged communities fully share in the benefits of the program
- Provide a broad spectrum of projects to benefit many types of active transportation users

The ATP eligible projects include the following:

- Planning, design, and construction of new bikeways
- Improvements to existing bikeways and walkways
- Safe routes to transit projects
- Bike share programs
- Bike-carrying facilities on public transit
- Bike parking
- Bike/pedestrian traffic control devices
- Education programs

Of the ATP funds, 40 percent are awarded to metropolitan planning organizations in urban areas with populations over 200,000, 10 percent are awarded to small urban and rural regions with populations of 200,000 or less, and 50 percent are awarded to projects on a competitive statewide basis. For more information visit: http://www.dot.ca.gov/hq/LocalPrograms/atp/index.html

Environmental Justice (EJ) Grant Program

The Environmental Justice (EJ) grant program promotes the involvement of low-income and minority communities, and Native American tribal governments in the planning for transportation projects. EJ grants have a clear focus on transportation and community development issues to prevent or mitigate disproportionate, negative impacts while improving mobility, access, safety, and opportunities for affordable housing and economic development. These EJ grants help low-income, minority and other under-represented communities get involved in planning for transportation projects. For more information visit: http://www.dot.ca.gov/hq/tpp/offices/ocp/cbtp.html

Community-Based Transportation Planning (CBTP) Grant Program

The Community-Based Transportation Planning (CBTP) grant program promotes transportation and land use planning projects that encourage community involvement and partnership. These grants include community and key stakeholder input, collaboration, and consensus building

through an active public engagement process. CBTP grants support livable and sustainable community concepts with a transportation or mobility objective to promote community identity and quality of life. Each grant displays a transportation and/or land use benefit. For more information visit: http://www.dot.ca.gov/hq/tpp/offices/ocp/cbtp.html

Safe Routes to School (SR2S)

Established in 1999, the state-legislated Safe Routes to School (SR2S) program came into effect with the passage of AB 1475. In 2001, SB 10 was enacted which extended the program for three additional years. In 2004, SB 1087 was enacted to extend the program three more years. In 2007, AB 57 was enacted to extend the program indefinitely.

The SR2S program is primarily a construction program. Projects funded by the program are intended to improve the safety of students who walk or bicycle to school. Construction improvements must be made on public property. Eligible project elements include bicycle facilities, traffic control devices, and traffic calming measures. Up to 10 percent of funding provided for an individual project can be used for non-infrastructure improvements including outreach, education, encouragement, and/or enforcement activities. The maximum reimbursement percentage for any SR2S project is 90 percent. The maximum amount of funds that will be allocated to any single project is $900,000. For more information visit: http://www.dot.ca.gov/hq/LocalPrograms/saferoutes/saferoutes.htm

Transportation Development Act (TDA) Article III (SB 821)

TDA Article III funds are distributed by the State of California and administered at the county level, which can be used by cities for planning and construction of bicycle and pedestrian facilities. SANDAG administers this program and establishes its policies within the San Diego region. These funds are allocated annually on a per-capita basis to both cities and the County of San Diego. Local agencies may either draw down these funds or place them on reserve. SANDAG allocates TDA funds in conjunction with the TransNet program.

TDA Article III funds may be used for the following activities related to the planning and construction of bicycle and pedestrian facilities:

- Engineering expenses leading to construction
- Right-of-way acquisition
- Construction and reconstruction
- Retrofitting existing bicycle and pedestrian facilities, including installation of signage, to comply with the Americans with Disabilities
- Route improvements such as signal controls for bicyclists, bicycle loop detectors, rubberized trail crossings, and bicycle-friendly drainage grates
- Purchases and installation of bicycle facilities such as secure bicycle parking, benches, drinking fountains, changing rooms, restrooms, and showers which are adjacent to bicycle trails, employment centers, park-and-ride lots, and/or transit terminals and are accessible to the general public.

For more information visit: http://www.dot.ca.gov/hq/MassTrans/State-TDA.html

8.3.3 Regional Funding Opportunities

Regional active transportation grant programs come from a variety of sources, including MAP-21, the state budgets, vehicle registration fees, bridge tolls, and local sales tax. Most regional funds are allocated by regional agencies such as SANDAG.

TDA and TransNet Call for Pedestrian and Bicycle Projects

In addition to the TDA revenue that comes from state sales tax, the San Diego region levies an additional half-cent local sales tax to fund transportation projects under the TransNet program. In 2004, TransNet was extended for 40 years by voters. Each year, the SANDAG Board of Directors allocates funds under the Transportation Development Act (TDA) and the TransNet local sales tax program to support non-motorized transportation projects in the San Diego region. For FY 2010, approximately $7.7 million was available for allocation. For more information visit: http://www.sandag.org/index.asp?projectid=354&fuseaction=projects.detail

TransNet Smart Growth Incentive Program (SGIP)

The TransNet Smart Growth Incentive Program (SGIP) funds transportation and transportation-related infrastructure improvements and planning efforts that support smart growth development. This program is a longer-term version of SANDAG's Pilot Smart Growth Incentive Program, which uses funding incentives to encourage coordinated regional planning to bring transit service, housing, and employment together in smart growth development. This program is a longer-term version of SANDAG's Pilot Smart Growth Incentive Program, which uses funding incentives to encourage coordinated regional planning to bring transit service, housing, and employment together in smart growth development. The pilot program distributed $9.6 million in smart growth incentive grants to 13 projects in the San Diego region in June 2013.

The program funds two grant types: capital projects and planning projects. The goal of SGIP is to fund public infrastructure projects and planning activities that will support compact, mixed-use development focused around public transit, and will provide more housing and transportation choices. The projects funded under this program will serve as a model for how good infrastructure and planning can make smart growth an asset to communities in a variety of settings. Grants range from $200,000 to $2,000,000 for capital projects and $50,000 to $400,000 for planning projects. Project screening criteria includes local commitment/authorization, funding commitment, and funding eligibility.

Project Evaluation Criteria include the following:

- Project readiness (level of project development)
- Smart Growth Area land use characteristics (intensity of development; land use and transportation characteristics of project area; urban design characteristics of project area; related land development projects; affordable housing)

- Quality of proposed project (bicycle access improvements; pedestrian access improvements; transit facility improvements; streetscape enhancements; traffic calming features; parking improvements)
- Matching funds
- Low-income household bonus points

For more information visit:
http://www.sandag.org/index.asp?projectid=340&fuseaction=projects.detail

8.3.4 Local Funding Opportunities

New Construction

Future road widening and construction projects are means of providing on-street bicycle facilities. To ensure that roadway construction projects provide bicycle lanes where needed, it is important for an effective review process to be in place so that new roads meet the standards and guidelines presented in this Plan.

Developer Impact Fees

Another potential local source of funding is Development Impact Fees (DIF), typically tied to trip generation and traffic impacts produced by a proposed project. A developer may reduce the number of trips (and hence impacts and cost) by paying for on- and off-site bikeway improvements, which will encourage ingredients to bicycle rather than drive. In-lieu, parking fees may be used to help construct new or improved bicycle parking. Establishing a clear nexus or connection between the impact fee and the project's impacts is critical in a avoiding a potential lawsuit.

Other Opportunities

Local sales taxes, fees, and permits may be implemented as new funding sources for bicycle projects. Volunteer programs may substantially reduce the cost of implementing some routes, particularly multi-use paths. Using groups such as the California Conservation Corp (who offer low-cost assistance) can be effective at reducing project costs. Local schools or community groups may use the bikeway as a project for the year, possibly working with a local designer or engineer. Work parties may be formed to help clear the right of way where needed. A local construction company may donate or discount services. A challenge grant program with local businesses may be a good source of local funding, where corporations "adopt" a bikeway and help construct and maintain the facility. Public/private partnerships may also be utilized as a funding mechanism to implement bicycle related projects and facilities. Bicycle sharing systems, bicycle facilities in new developments, and bicycle facilities in tourist districts are good candidate projects for exploring public/private partnerships for funding.

Table 8-4, **8-5**, and **8-6** summarize some of the available Federal, State, and Regional funding sources, respectively.

Table 8-4 Federal Funding Opportunities

Source	Agency	Available Funding	Eligible Bicycle-Related Activities
MAP-21 Transportation Alternatives Program	US DOT FHWA	$820 million (2014)	Construction, planning, and design of on-road and off-road facilities for pedestrians, bicyclists, and other non-motorized forms of transportation.
MAP-21 Congestion Mitigation and Air Quality Improvement Program	US DOT FHWA	$2.23 billion estimated (2014)	Flexible funding source for transportation projects that improve air quality or reduce pollution such as projects that shift traffic demands to other transportation modes.
MAP-21 Highway Safety Improvement Program (HSIP)	US DOT FHWA	$2.41 billion estimated (2014)	A highway safety improvement project is any strategy, activity or project on a public road that corrects or improves a hazardous road location or feature or addresses a highway safety problem.
MAP-21 National Highway Performance Program (NHPP)	US DOT FHWA	$21.9 billion estimated (2014)	Bicycle transportation projects that improve infrastructure condition, safety, or mobility.
MAP-21 Surface Transportation Program (STP)	US DOT FHWA	$10.1 billion estimated (2014)	Flexible funding source to preserve and improve the conditions and performance on any public road, pedestrian and bicycle infrastructure, and transit capital projects.

Source: Chen Ryan Associates, March 2015

Table 8-5 State Funding Opportunities

Source	Agency	Available Funding	Eligible Bicycle-Related Activities
Recreational Trails Program	CA Dept. of Parks and Recreation	$1.47 million (2014)	Acquisition development, and rehabilitation of trails and trailhead facilities, and the construction of new trails.
Land and Water Conservation Fund (LWCF)	CA Dept. of Parks and Recreation	$6.94 million (2014)	Acquisition, development, or construction of outdoor recreational resources or supporting facilities, or enhancements to existing features or resources.
Active Transportation Program (ATP)	Caltrans	$129.5 million (2014)	Planning, design, and construction of new bikeways, existing bikeways improvements and walkways, safe routes to transit projects, bike share programs, bikes on public transit, bike parking, bike/pedestrian traffic control devices, and education programs.
Environmental Justice (EJ) Grant Program	Caltrans	No 2014 awards	Grants to help low-income, minority and other under-represented communities get involved in planning for transportation projects.
Community-Based Transportation Planning	Caltrans	No 2014 awards	Grants to fund activities that support the transportation planning process: promote community and key stakeholder input, collaboration, and consensus building through an active public engagement process.
Safe Routes to School (SR2S)	Caltrans	$24.25 million (2013)	Funds construction projects to improve the safety of students who walk or bike to school. Projects may include traffic control devices, traffic calming projects, bicycle facilities, public outreach and education/encouragement/ enforcement activities.

Source: Chen Ryan Associates, March 2015

Table 8-6 Regional Funding Opportunities

Source	Agency	Available Funding	Eligible Bicycle-Related Activities
Active Transportation Program (ATP) – Regional	SANDAG	$13 million (2014)	Regional allocation of funds for planning, design, and construction of new bikeways, improvements to existing bikeways and walkways, safe routes to transit projects, bike share programs, bike-carrying facilities on public transit, bike parking, bike/pedestrian traffic control devices, and education programs.
Transportation Development Act (TDA)	SANDAG	2% funds for bike and ped facilities	Planning activities, construction, and maintenance of bicycle facilities. Up to 20% of the cost to restripe Class II bicycle lanes. Secure bicycle parking.
TransNet	SANDAG	½ cent Countywide sales tax	May fund design, right-of-way acquisition, and construction of bicycle facilities or traffic calming projects. Funds may be used for programs that help to encourage bicycling, or provide parking facilities.
Smart Growth Incentive Program (SGIP)	SANDAG	$9.6 million (2013)	Funds transportation-related infrastructure improvements and planning efforts that support smart growth development such as bicycle facilities.

Source: Chen Ryan Associates, March 2015

Appendix A
Solana Beach CATS Community Outreach Report

CIRCULATE SAN DIEGO
Creating excellent mobility choices and vibrant, healthy neighborhoods

1111 Sixth Avenue, Suite 402
San Diego, CA 92101
P 619.544.9255 • F 619.531.9255
www.circulatesd.org

Solana Beach Comprehensive Active Transportation Strategy

Community Outreach Report

As part of the community outreach for the Solana Beach Comprehensive Active Transportation Strategy (CATS) presentations were provided to two school associations with the intent to engage families in the La Colonia de Eden Gardens neighborhood. The first was on March 4th, 2014 from 9:00-10:00 a.m. at the Earl Warren Parent-Teacher-Student Association (PTSA) located at 155 Stevens Avenue, representing Earl Warren Middle School. Ten parents and teachers participated.

On March 13th, 2014 from 9:00-10:00 a.m. at the Solana Beach Parent-Teacher Association (PTA) which took place at Solana Vista Elementary School, 780 Santa Victoria, representing Solana Vista and Skyline Elementary Schools, there were 15 parents and teachers in attendance.

At each PTA/PTSA meeting, a presentation was given reviewing the CATS project and background along with the project Fact Sheet. The presentation covered the project timeline, goals, and future opportunities for community input. This was followed by a brief discussion regarding walking and biking issues seen around the schools and throughout Solana Beach.

Feedback from the Earl Warren PTSA focused mainly on Highway 101:

- The greatest concern was regarding perceived hazards for bicyclists, specifically the fear of cars pulling out from driveways and from on street parking onto the Highway.
- Most parents did not feel safe as a pedestrian on Lomas Santa Fe, especially near Interstate 5.

Similar feedback was heard at the Solana Beach PTA, but their concerns focused on Lomas Santa Fe primarily.

- PTA members expressed that Lomas Santa Fe was unsafe for pedestrians for its entire stretch from I-5 to the coast
- Specifically they highlighted dangerous intersections at Santa Helena in front of the Vons, I-5, Stevens Avenue, and Cedros Avenue.

Fifteen PTA/PTSA members completed the pedestrian survey and five completed the cycling survey in total. The survey data was provided to Chen Ryan Mobility to be incorporated into the overall outreach results for the CATS project. Next steps for the CATS were discussed and parents were asked to stay involved via the website. Many parents planned on sharing the Fact Sheet and website with their families and encouraging people they know to take the survey on the website. Those who engaged in discussion were supportive of the CATS, interested in staying involved in the project, and looking forward to having a more walkable and bikeable community for their children's future.

Appendix B
Intercept Survey Materials

Solana Beach CATS Pedestrian Intercept Survey

Location: _____ Date:_____ Time:_____

Surveyor: _____ Weather: _____
(sunny, cloudy, raining, windy, hot and/or cold)

"Excuse me, may I ask you a few questions about walking? I'm with the City of Solana Beach and we would like to learn about walking preferences and patterns in order to plan for pedestrian related improvements in Solana Beach. This will take less than two minutes and the information will be kept confidential."

1. What best describes the purpose of this trip?

☐ Exercise/Recreation ☐ Work Commute ☐ School ☐ Shopping/Errands ☐ Other _____

2. In the past month, how many times have you walked in Solana Beach?

☐ First time ☐ 0 – 5 times ☐ 6 – 10 times ☐ 11 – 20 times ☐ Daily

3. Please tell us where your trip began, where it will end, and how long it will take?

Origin Intersection/Location: _____

Destination Intersection/Location: _____ **Travel Time:** _____

4. If you were not walking for this trip, how would you be traveling?

☐ Car ☐ Carpool ☐ Transit ☐ Cycling ☐ I would not make this trip

5. Will any part of this current trip be taken on public transit?

☐ Yes ☐ No

6. What do you like about this route? *(check all that apply)*

☐ Accessible/Close ☐ Direct ☐ Lower traffic volumes ☐ Scenic qualities

☐ Level ground ☐ Sidewalks ☐ Separation from traffic ☐ Connection to transit

7. What would you like to see improved along this route? *(check all that apply)*

☐ Wider sidewalks ☐ Better surface ☐ Slower traffic speeds

☐ Pedestrian signage ☐ Better street crossings ☐ Increased separation from traffic

8. What is your age? _____

9. What is your gender?

☐ Male ☐ Female

10. What is the range of your combined household income?

☐ Less than $35,000 ☐ $35,000 to $55,000 ☐ $55,001 to $75,000 ☐ Over $75,000

11. Which one or more of the following describes you? *(check all that apply)*

☐ White/Caucasian ☐ Hispanic/Latino ☐ Black/African American ☐ Decline to state

☐ Asian ☐ Pacific Islander ☐ Native American ☐ Other: _____

12. What is the nearest intersection and zip code to your residence?

Intersection: _____ ***Zip Code:*** _____

Thank you for your participation!

Solana Beach CATS Cycling Intercept Survey

Location: _____ Date:_____ Time:_____

Surveyor: _____ Weather: _____
(sunny, cloudy, raining, windy, hot and/or cold)

"Excuse me, may I ask you a few questions about cycling? I'm with the City of Solana Beach and we would like to learn about cycling preferences and patterns in order to plan for bicycle related improvements in Solana Beach. This will take less than two minutes and the information will be kept confidential."

1. What best describes the purpose of this trip?

☐ Exercise/Recreation ☐ Work Commute ☐ School ☐ Shopping/Errands ☐ Other _____

2. In the past month, how many times have you ridden a bicycle in Solana Beach?

☐ First time ☐ 0 – 5 times ☐ 6 – 10 times ☐ 11 – 20 times ☐ Daily

3. Please tell us where your trip began, where it will end, and how long it will take?

Origin Intersection/Location: _____

Destination Intersection/Location: _____ **Travel Time:** _____

4. If you were not cycling for this trip, how would you be traveling?

☐ Car ☐ Carpool ☐ Transit ☐ Walking ☐ I would not make this trip

5. Will any part of this current trip be taken on public transit?

☐ Yes ☐ No

6. What do you like about this route? *(check all that apply)*

☐ Accessible/Close ☐ Direct ☐ Lower traffic volumes ☐ Scenic qualities

☐ Level ground ☐ Bike lanes ☐ Separation from traffic ☐ Connection to transit

7. What would you like to see improved along this route? *(check all that apply)*

☐ Bike lanes ☐ Better surface ☐ Slower traffic speeds

☐ Bike signage ☐ Better street crossings ☐ Increased separation from traffic

8. What is your age? _____

9. What is your gender?

☐ Male ☐ Female

10. What is the range of your combined household income?

☐ Less than $35,000 ☐ $35,000 to $55,000 ☐ $55,001 to $75,000 ☐ Over $75,000

11. Which one or more of the following describes you? *(check all that apply)*

☐ White/Caucasian ☐ Hispanic/Latino ☐ Black/African American ☐ Decline to state

☐ Asian ☐ Pacific Islander ☐ Native American ☐ Other: _____

12. What is the nearest intersection and zip code to your residence?

Intersection: _____ ***Zip Code:*** _____

Thank you for your participation!

Appendix C
Active Transportation Monitoring Plan Materials

STANDARD SCREENLINE COUNT FORM

Name: _____ Location: _____

Date: _____ Start Time: _____ End Time: _____

Weather: _____

Please fill in your name, count location, date, time period, and weather conditions (fair, rainy, very cold). Count all bicyclists and pedestrians crossing your screen line under the appropriate categories.

- Count for two hours in 15 minute increments.
- Count bicyclists who ride on the sidewalk.
- Count the number of people on the bicycle, not the number of bicycles.
- Pedestrians include people in wheelchairs or others using assistive devices, children in strollers, etc.
- People using equipment such as skateboards or rollerblades should be included in the "Other" category.

	Bicycles		**Pedestrians**		**Others**
	Female	**Male**	**Female**	**Male**	
00-:15					
15-:30					
30-:45					
45-1:00					
1:00-1:15					
1:15-1:30					
1:30-1:45					
1:45-2:00					
Total					

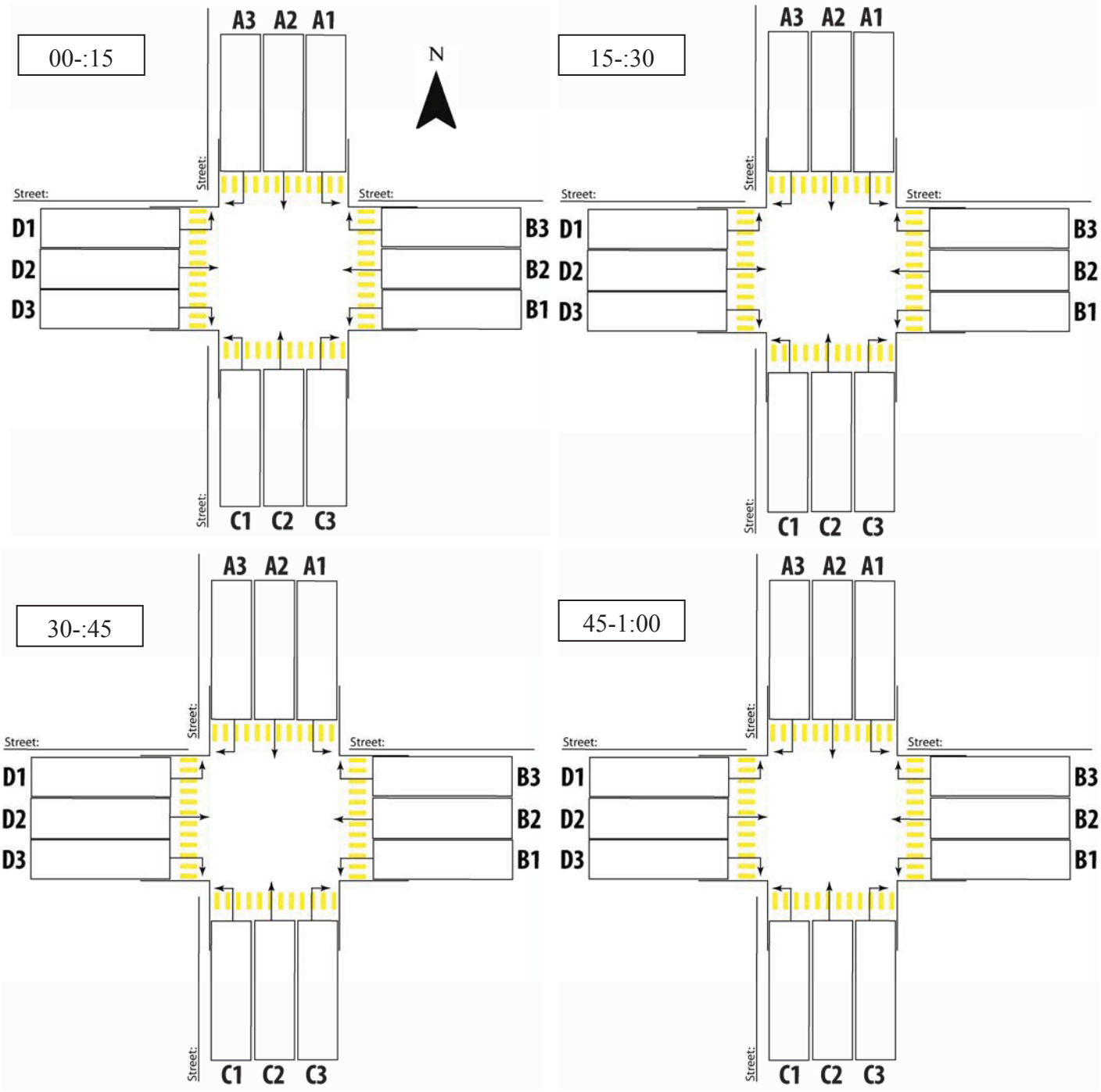
STANDARD BICYCLE INTERSECTION COUNT FORM

Name: _____ Location: _____

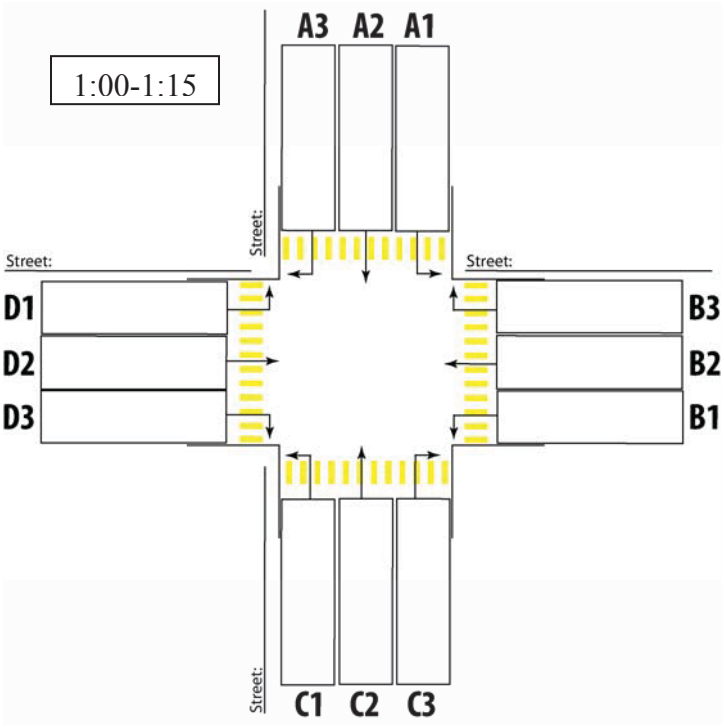
Date: _____ Start Time: _____ End Time: _____
Weather: _____

Please fill in your name, count location, date, time period, and weather conditions (fair, rainy, very cold). Count all bicyclists crossing through the intersection under the appropriate categories.

- Count for two hours in 15-minute increments.
- Count bicyclists who ride on the sidewalk.
- Count the number of people on the bicycle, not the number of bicycles.
- Use one intersection graphic per 15-minute interval.



1:00-1:15



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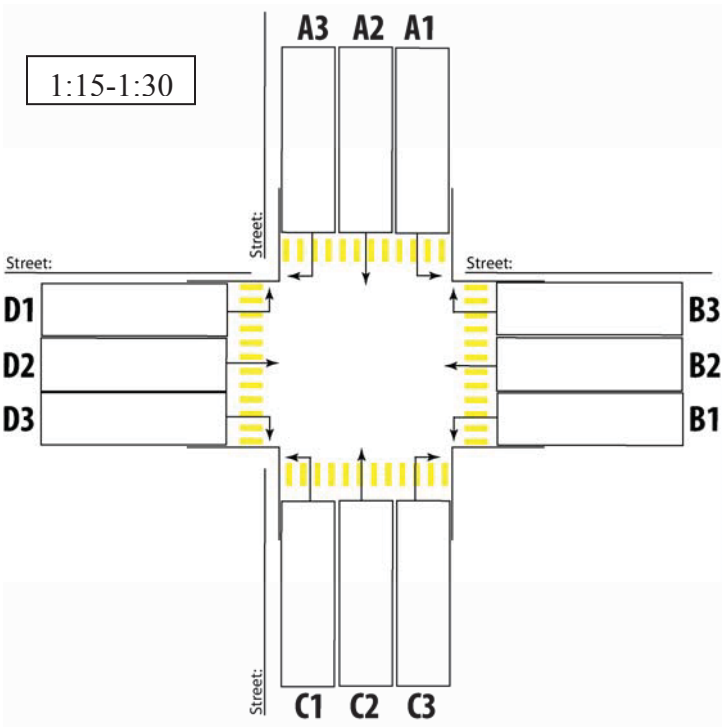

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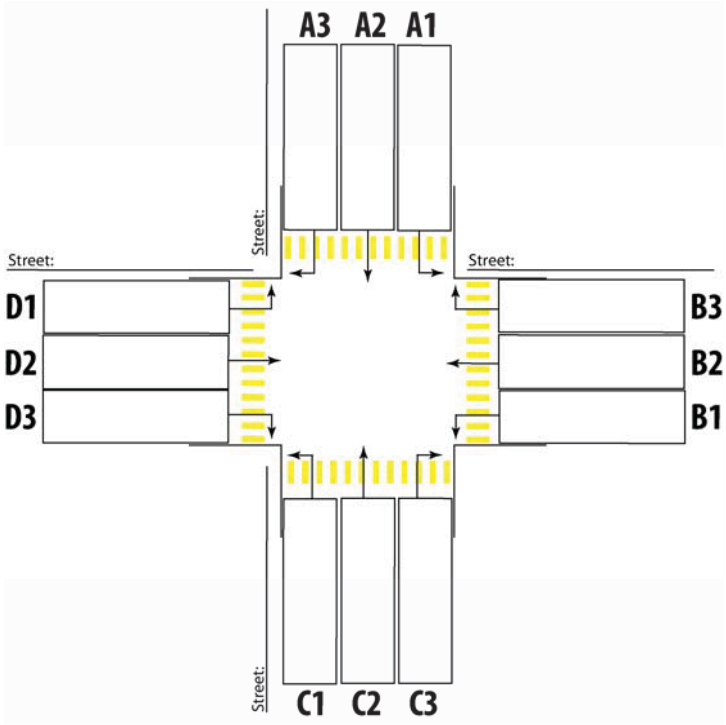
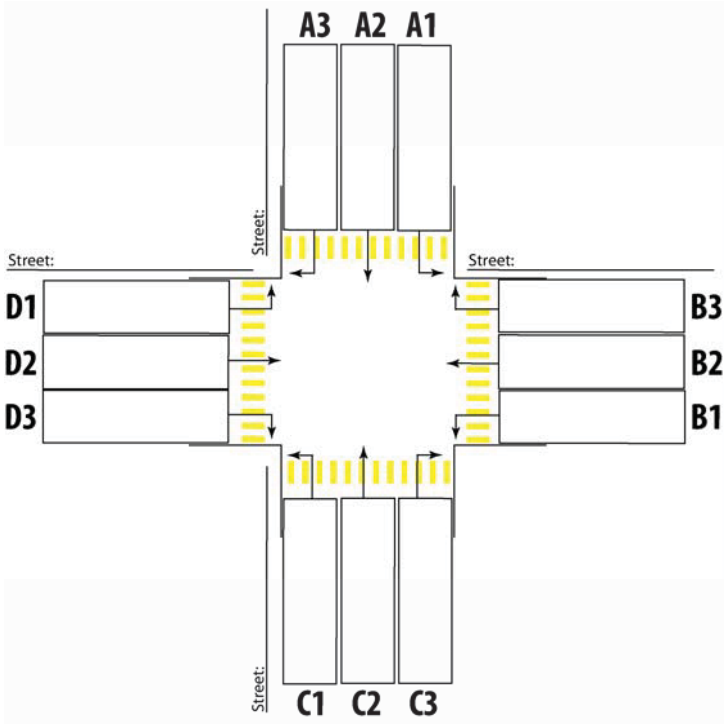


1:45-2:00



Notes: