



City of San Diego Bicycle Master Plan

San Diego, California

FINAL – December 2013

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Table of Contents

Executive Summary.....	1
1 Introduction.....	5
1.1 Setting.....	5
1.2 Why Bicycling?.....	7
1.3 Purpose of the Bicycle Master Plan.....	7
1.4 Plan Contents.....	8
2 Goals and Policies.....	9
2.1 Goals.....	9
2.2 Policies.....	9
3 Existing Conditions.....	16
3.1 Land Use.....	16
3.2 Bikeways.....	19
3.3 Bicycle Parking and End-of-Trip Facilities.....	28
3.4 Multi-Modal Connections.....	34
3.5 Education, Awareness, and Enforcement Programs.....	38
3.6 Constraints and Opportunities.....	40
4 Relationship to Other Plans and Policies.....	43
4.1 State Policies.....	43
4.2 Regional Bicycle Plan.....	44
4.3 San Diego General Plan – Mobility Element.....	44
4.4 San Diego Street Design Manual.....	44
4.5 Community Plans.....	47
5 Needs Analysis.....	61
5.1 Bicycling Demand Modeling.....	61
5.2 Public Input.....	76
5.3 Bicycle Safety and Collision Analysis.....	85
5.4 Commute Patterns.....	86
5.5 Trip Reduction and Potential Air Quality Benefits.....	87
6 Bicycle Facility Recommendations.....	94
6.1 Bikeway Network.....	94

6.2	High Priority Projects	95
6.3	Bike Parking and End-of-Trip Facilities.....	107
6.4	Maintenance.....	109
6.5	Bicycle Signal Detection.....	111
6.6	Signage and Striping.....	112
6.7	Multi-Modal Connections.....	113
6.8	Bicycle Sharing	115
7	Program Recommendations	116
7.1	Education Programs.....	116
7.2	Enforcement	118
7.3	Encouragement Programs.....	118
7.4	Monitoring and Evaluation	120
8	Implementation and Funding	123
8.1	Previous Bicycle-Related Expenditures.....	123
8.2	Cost Estimate for the Proposed Network.....	124
8.3	High Priority Project Cost Estimates.....	125
8.4	Cost Estimates for Maintenance and Operations	168
8.5	Funding Sources.....	169
Appendix A.	BTA Compliance Checklist.....	A-1
Appendix B.	Bike Corral Design Summary	B-1
Appendix C.	Bicycling Demand Gravity Model.....	C-1
Appendix D.	San Diego Regional Bicycle Plan Survey.....	D-1
Appendix E.	Public Workshop Comments	E-1
Appendix F.	Preliminary Network Refinement Process	F-1
Appendix G.	High Priority Project Cost Details.....	G-1
Appendix H.	Extended list of High Priority Projects.....	H-1

List of Figures

Figure 1-1: San Diego Regional Setting.....	6
Figure 3-1: Existing San Diego Land Use.....	17
Figure 3-2: Planned San Diego Land Use.....	18
Figure 3-3: Existing San Diego Bikeways (North).....	25
Figure 3-4: Existing San Diego Bikeways (South).....	26
Figure 3-5: Bicycle Locker Locations and Possible Bike Rack Locations	31
Figure 3-6: Major Activity Centers with Potential End-of-Trip Amenities.....	33
Figure 3-7: San Diego Transit Hubs.....	35
Figure 4-1: San Diego Regional Bicycle Plan, Preferred Bicycle Network.....	46
Figure 5-1: Bicycle Trip Attractor Land Uses.....	62
Figure 5-2: Bicycle Trip Attractor Model Results on the Street Network.....	64
Figure 5-3: Bicycle Trip Generator Model Results.....	68
Figure 5-4: High Intra-Community Bicycle Demand Zones.....	72
Figure 5-5: Circulation Element Roadways within High Intra-Community Bicycle Demand Zones.....	73
Figure 5-6: Activity Centers and Network Systems Developed for the Inter-Community Bicycle Demand Analysis	74
Figure 5-7: Final Inter-Community Demand Scores.....	75
Figure 5-8: Final Bicycle Demand Analysis Results (Intra- and Inter-Community).....	78
Figure 6-1: Proposed Bicycle Network with Classifications (North).....	97
Figure 6-2: Proposed Bicycle Network with Classifications (South).....	98
Figure 6-3: High Priority Bicycle Projects (1).....	101
Figure 6-4: High Priority Bicycle Projects (2).....	102
Figure 6-5: High Priority Bicycle Projects (3).....	103

List of Tables

Table 3-1: California Bikeway Classification System.....	19
Table 3-2: Non-Classified Proposed Bikeways	21
Table 3-3: Mileage of Existing San Diego Bicycle Facilities by Classification.....	22
Table 3-4: List of Existing On-Going Bikeway Projects.....	27
Table 4-1: San Diego Community Plans.....	47
Table 4-2: List of Inconsistencies Between Community Plans and the Bicycle Master Plan.....	Error!
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Table 5-1: Bicycle Trip Attractor Input Variables and Scores.....	62
Table 5-2: Bicycle Trip Generator Input Variables and Scores.....	66
Table 5-3: Survey Respondents' Motivations for Bicycling	80
Table 5-4: Respondents' Recreational verses Utilitarian Trips.....	81
Table 5-5: Survey Respondents' Average One-Way Bicycling Distance.....	81
Table 5-6: Survey Respondents' Bikeway Facility Preferences.....	81
Table 5-7: Improvements that Would Influence Ridership According to Survey Respondents	82
Table 5-8: Survey Respondents' Program Participation	82
Table 5-9: Survey Respondents' Level of Interest in Developing or Expanding Bicycle Programs	83

Table 5-10: San Diego Bicycle-Involved Collisions 2004 – 2008.....	85
Table 5-11: Means of Transportation to Work Data.....	86
Table 5-12: Adjusted Estimates of Current Bicycle Commute and Air Quality Benefits	89
Table 5-13: Future Bicycle Commute and Air Quality Benefits Estimates	91
Table 6-1: Recommended San Diego Bicycle Network	95
Table 6-2: Generalized Bicycle Network Prioritization Factors and Points	99
Table 6-3: Bicycle Facility-Specific Prioritization Factors and Points.....	100
Table 6-4: High Priority Bicycle Projects	105
Table 6-5: Bikeway Maintenance Checklist and Schedule	110
Table 7-1: Bicycle and Pedestrian Staffing in U.S Cities	121
Table 8-1: City of San Diego Bikeways Expenditures, 2006-2012	
Table 8-2: Proposed Bicycle Network Cost Estimates	125
Table 8-3: High Priority Project Cost Estimates	126
Table 8-4: Recommended Bikeway Network, Annual Operation and Maintenance Cost Estimates	168

Executive Summary

The San Diego Bicycle Master Plan is an update to the City's 2002 plan, presenting a renewed vision for bicycle transportation, recreation, and quality of life in San Diego. This vision is closely aligned with the City's 2008 San Diego General Plan's mobility, sustainability, health, economic, and social goals. The bicycle network, projects, policies, and programs included in this document provide the City with a strong framework for improving bicycling through 2030 and beyond. The major components of the Plan are described below.

Goals and Policies

The goals and objectives of the Bicycle Master Plan are derived from the 2008 San Diego General Plan and are strengthened with additional policies that provide specific guidance for achieving an ideal bicycling environment. The goals of the Plan are to create:

- A city where bicycling is a viable travel choice, particularly for trips of less than five miles
- A safe and comprehensive local and regional bikeway network
- Environmental quality, public health, recreation and mobility benefits through increased bicycling



Bicyclist stopped for a traffic light at the Congress Street/Taylor Street intersection

These goals are supported by twelve key policies that will help bicycling become a more viable transportation mode for trips of less than five miles, to connect to transit and for recreation.

Existing Bicycling Conditions

Understanding existing bicycling conditions is critical to identifying appropriate and impactful recommendations and is achieved by reviewing existing land uses, the bicycle network and support facilities, multimodal connections, bicycle programs, and constraints and opportunities.

San Diego's existing bicycle network consists of approximately 72 miles of off-street paved Bike Paths (Class I), 309 miles of Bike Lanes (Class II), 113 miles of Bike Routes (Class III), and 16 miles of freeway shoulder open to bicycling. It is anticipated that the freeway shoulder facilities will be replaced once the proposed network is constructed. San Diego's current network is supported by multimodal connectivity and bike parking; however, there are ample opportunities for strengthening these crucial elements of the city's bicycle system. In 2009, the City revitalized its bicycle education and public awareness efforts with the "Lose the Roaditude" campaign that targets bicyclists, motorists, and pedestrians with the aim of promoting safe roadway behaviors. The campaign highlights hazardous actions such as failing to stop at stop signs and promotes safety measures such as wearing bright colors when bicycling or walking at night.

Relationship to Other Plans and Policies

This Plan includes a summary of legislation and other planning or policy documents from the State of California, San Diego Association of Governments (SANDAG), and the City that are most pertinent to

Executive Summary

bicycling in San Diego. This includes a brief synopsis of important state policies such as California Government Code §65302 and California SB 375 as well as the bicycle-related elements of each of San Diego's currently adopted community plans.

Bicycle Needs Analysis

The Bicycle Master Plan includes an assessment of current bicycling demand and barriers in San Diego and estimates potential future demand and benefits that could be realized through implementation of this Plan. Assessing needs and potential benefits are instrumental to planning a system that serves the needs of all user groups, and is useful when pursuing competitive funding and attempting to quantify future usage and benefits to justify expenditures.

The needs analysis relies on spatial modeling techniques, public input, bicycle collision data, and bicycle commuting statistics to gauge current demand and to establish a baseline against which progress can be measured. The spatial modeling highlights segments of the roadway network with the greatest propensity for bicycle activity compared to other locations in San Diego. Reviewing US Census data reveals that San Diego's bicycle commute mode share is 0.8 percent, which is slightly higher than the county estimate (0.6 percent) and above the national average (0.5 percent) but slightly lower than the state average (0.9 percent). Reviewing the number of total collisions and collisions involving bicyclists in San Diego from 2004 – 2008 shows that San Diego has relatively consistent collision rates over this five-year period and that the proportion of fatal bicycle collisions in San Diego in 2007 was substantially higher at 4.8 percent compared to the statewide average of 2.7 percent and the nationwide average of 1.7 percent. Collectively, the needs analysis validates a robust approach to bicycle facility improvements and programs and provides guidance on where to direct improvements.

Bicycle Facility Recommendations

The Plan's major infrastructure recommendations consist of bikeway facilities, intersections and other spot improvements, as well as bicycle support facilities. Recommended bicycle support facilities and programs include bike parking, routine maintenance, signage, and bicycle signal detection maintenance. The recommended bicycle network consists primarily of on-street facilities, including approximately 878 miles of proposed Bike Lanes and Bike Routes, 40 miles of Bicycle Boulevards, and 7 miles of Cycle Tracks (see Table 3.1 for definitions and illustrations of the California Bikeway Classification System). The Plan also recommends 166 miles of paved multi-use paths. These totals include existing facilities and proposed facilities for a total of 1,090 bicycle facility miles. Note, the implementation of the network will eliminate the need for a freeway shoulder facility. Thus the 16 miles of freeway shoulder has been excluded from the total mileage recommended in this Plan.

The Plan also identifies high priority bicycle projects by applying a prioritization process to the recommended bicycle network. These high priority projects will be considered in the first phase in implementing the recommended bicycle network.



*Bicycle Master Plan Update Public Workshop
Photo credit: Vincent Noto*

The bikeway projects and facility improvements recommended in the Bicycle Master Plan Update will be complemented by programs designed to educate people about bicyclists' rights, responsibilities and safe bicycle operation; connect current and future bicyclists to existing resources; encourage residents to bicycle more frequently; and monitor the performance of the bicycle system and programs.

Bicycle Program Recommendations

The Plan recommends several education, enforcement, encouragement, monitoring, and evaluation efforts that the City will pursue, as well as programs the City currently provides and will continue. Major programmatic recommendations (see Chapter 7) include developing a



Bicyclist riding on Genessee Avenue

bike commute challenge program, instituting CicloSDias, convening a Bicycle Advisory Committee and implementing a bicycle and pedestrian count and annual progress report program. The Plan also recommends maintaining the City's current education programs and Safe Routes to School efforts.

Implementation and Funding

The Plan supports the implementation of this Plan's recommendations by providing planning level cost estimates of the proposed network, more detailed cost estimates associated with the high priority projects and an overview of funding sources that the City will pursue. The cost of completing the proposed bicycle network is estimated to be about \$312 million for total system build out. The estimated cost for implementation of the 40 high priority bicycle projects is approximately \$35 million.

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1 Introduction

The San Diego Bicycle Master Plan (Plan) serves as a policy document to guide the development and maintenance of San Diego's bicycle network, including all roadways that bicyclists have the legal right to use, support facilities, and non-infrastructure programs over the next 20 years.

This updated Plan seeks to build upon the foundation established by the first San Diego Bicycle Master Plan adopted in 2002. The updated Plan provides direction for expanding the existing bikeway network, connecting gaps, addressing constrained areas, improving intersections, providing for greater local and regional connectivity, and encouraging more residents to bicycle more often. As stated in the City of San Diego's General Plan:

“The BMP contains detailed policies, action items, and network maps, and addresses issues such as bikeway planning, community involvement, facility design, bikeway classifications, multi-modal integration, safety and education, and support facilities... The BMP is intended to provide a citywide perspective that is enhanced with more detailed community plan level recommendations and refinements. The BMP also identifies specific bicycling programs and addresses network implementation, maintenance and funding strategies.” (ME-36)

1.1 Setting

San Diego is the largest city in San Diego County and the metropolitan center of the San Diego region. The city's population in 2010 was 1,301,617¹. The San Diego region's estimated 2010 population was 3,095,313², which makes it the third-largest urban area in California³. San Diego encompasses 337 square miles and is the southwestern-most city in the continental United States. The majority of San Diego's western boundary borders the Pacific Ocean and its southern boundary lies along the international border with Mexico. To the north and east, San Diego shares borders with 13 of the other 19 neighboring jurisdictions which comprise the San Diego region. San Diego is connected to the national interstate highway system through Interstates 5, 8, and 15 which, along with a number of other state highways, constitute the regional freeway network. There are also two ports of entry with Tijuana, Mexico.

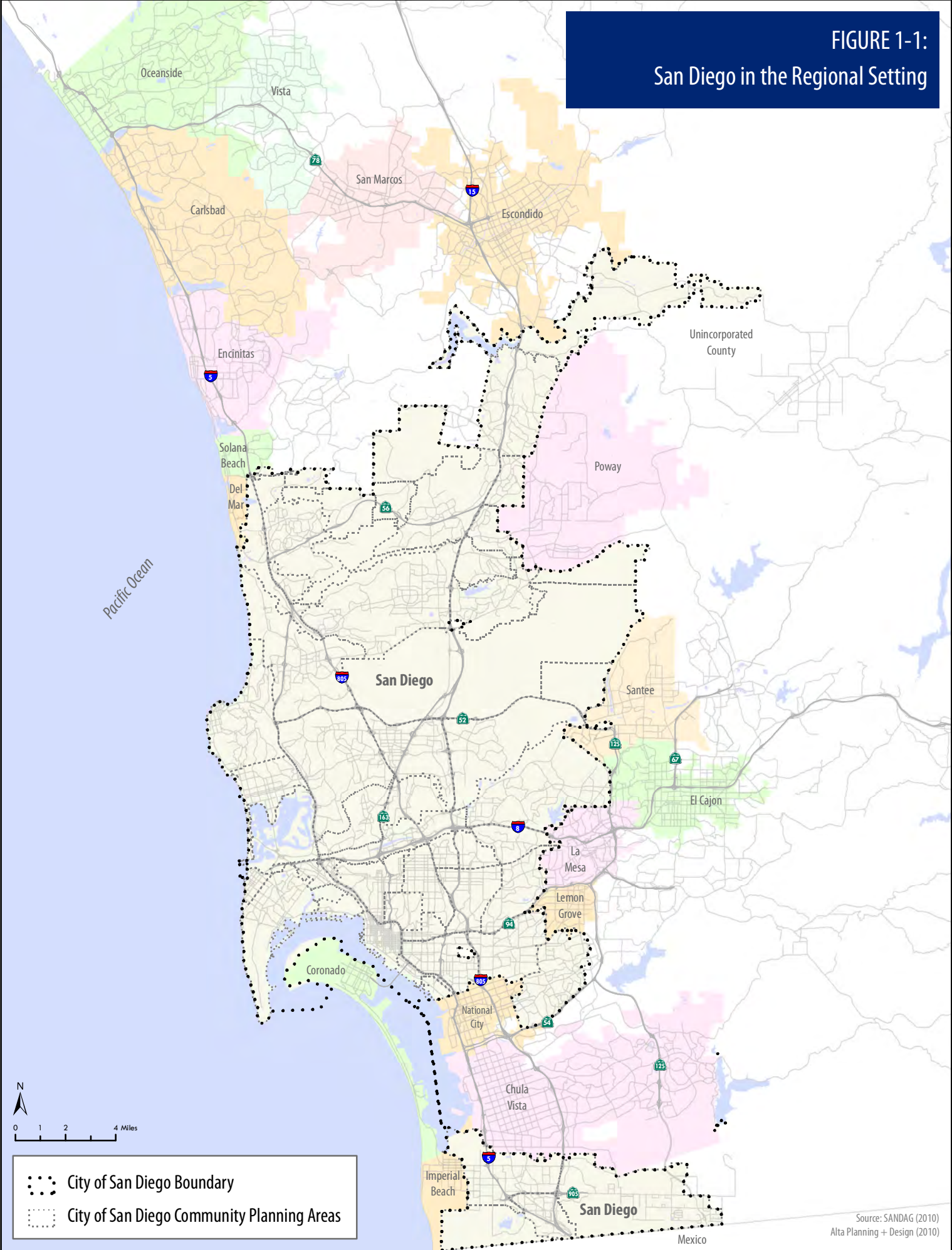
San Diego is divided into 56 Community Planning Areas that stretch across coastal areas, inland hills, and mesas. These communities have developed over distinct time periods and have unique physical, community, and design characteristics that distinguish each of them. Community Planning Groups in each community provide the City with input on planning issues and each group works with City staff to develop a Community Plan that is used as a tool for guiding development and public facilities within its respective boundary. The bicycle recommendations presented in this Plan take into consideration existing facilities, future bicycle facilities desired by each community, and also the recommendations set forth in the San Diego Regional Bicycle Plan. **Figure 1-1** displays San Diego's location within the region, its major freeways, and Community Planning Area boundaries.

¹ United States Census Bureau (2010)

² Ibid.

³ Ibid

FIGURE 1-1:
San Diego in the Regional Setting



Source: SANDAG (2010)
Alta Planning + Design (2010)

1.2 Why Bicycling?

The bicycle is a low-cost and effective means of transportation that is quiet, non-polluting, extremely energy-efficient, versatile, healthy, and fun. Bicycles also offer low-cost mobility to the non-driving public. Bicycling as a means of transportation has been growing in popularity as many communities work to create more balanced transportation systems by giving bicyclists a greater share of the roadway network. In addition, recent national surveys find that more people are willing to cycle more frequently if better bicycle facilities are provided.

San Diego is in a unique position to capitalize on its bicycle-friendly features, such as temperate climate, grid-based street network in the urban core, parks and trails, and scenic vistas to increase the number of residents and visitors who see San Diego via bicycle.



The Bayside Walk Shared-Use Path in Mission Beach

1.3 Purpose of the Bicycle Master Plan

This updated Plan provides a broad vision, strategies, and actions for improvements to bicycling in San Diego. It is important to note that the City of San Diego is building upon the terms of accommodating and encouraging bicycling. This updated Bicycle Master Plan focuses on developing a feasible plan for an interconnected on-street and off-street bicycle network that serves all of San Diego's neighborhoods and provides connections to transit centers, shopping districts, parks, and other local amenities. It should also be noted that the proposed bikeway network in this updated Plan was developed to complement and connect with the proposed network in the San Diego Regional Bicycle Plan. The bikeway facility recommendations are supplemented by recommended support, education, and encouragement programs, including improved maintenance of bikeway facilities, development of wayfinding signage, and support of motorist and bicyclist educational programming. Updating the Plan is important for the following reasons:

Maximize Funding Sources for Implementation. A key reason for updating the Plan is to satisfy requirements of bicycle-related state and federal grant funding programs. In order to qualify for available funding, the State of California requires that applicants have a master plan adopted or updated every five years that includes a number of specific elements related to bicycle commuting, land uses, multi-modal connections, funding, and public input. The City will make its best effort to maintain an updated Bicycle Master Plan, depending upon funding availability. Focused amendments to the Plan will also be considered if refinements are needed as a result of community plan updates. The complete list of required Bicycle Transportation Account (BTA) elements and their locations in this document is provided in **Appendix A: BTA Compliance Checklist**.

Define High Priority Projects. A primary objective of the Plan is to identify high priority bikeway projects based on a combination of demand and deficiencies in the bicycling environment. These high priority projects will undergo preliminary feasibility analysis and costing as part of the Plan effort.

Provide Needed Facilities and Services. San Diego has over five hundred miles of existing bikeways. Many of these on-street facilities provide direct routes for experienced cyclists who are comfortable with riding on

streets with relatively high traffic volumes and moderately high vehicular traffic speeds. However, the existing network has several gaps, does not provide easy north-south access, and has limited facilities that cater to less experienced cyclists. Attracting new cyclists requires developing an interconnected network that provides bicycle access within and between neighborhoods and that meets the needs of all levels of cyclists. This network should be enhanced with support facilities such as clear directional signage and secure bicycle parking at schools, employment centers, and transit stops.

Improve Safety and Encourage Cycling. This Plan provides tools to reduce the crash rate for bicyclists in San Diego through education and enforcement. Encouragement programs are also recommended to motivate San Diego residents to ride to work and school, and for utilitarian trips, exercise, and recreation.

Enhance the Quality of Life in San Diego. Bicycling is a healthy and active form of travel. The development of bicycle facilities provides for complete streets, paths, trails, and activity centers accessible to everyone, and supports sustainable community development. Shifts from motorized travel modes to bicycling can reduce traffic congestion, vehicle exhaust emissions, noise, and energy consumption. A good bicycling environment can also mean good economic sense for businesses in San Diego by providing enjoyable and safe bicycle access to restaurants and stores.

1.4 Plan Contents

The San Diego Bicycle Master Plan is organized as follows:

Chapter 2 documents the goals and policies of the Bicycle Master Plan that provide a vision for future bicycling in San Diego and serve as the foundation for the Plan recommendations.

Chapter 3 provides a description of existing bicycle conditions in San Diego at the time of plan preparation, including the existing bicycle network, support facilities and programs as well as existing land use patterns, activity centers and destinations, constraints, and opportunities.

Chapter 4 provides an overview of the relevant local, regional, and state plans and policies. The Bicycle Master Plan has been developed to ensure consistency with these plans and policies, in accordance with state and federal requirements.

Chapter 5 presents quantitative and qualitative assessments of bicycle demand in San Diego based on GIS modeling, public input, bicycle collision data, and commute statistics. An analysis of potential vehicular trip reduction and air quality benefits is also presented.

Chapter 6 presents the recommended bicycle network, prioritization of the bicycle network, and identification of the high priority projects, as well as support facilities including bicycle parking, end-of-trip facilities, bicycle signal detection, signage and striping, and multimodal connections.

Chapter 7 recommends a combination of education programs, enforcement efforts, encouragement programs, and monitoring and evaluation strategies intended to improve safety, encourage more people to bicycle, and monitor progress.

Chapter 8 provides planning level cost estimates of the proposed network, more detailed cost estimates for the high priority projects, and a summary of funding sources the City will pursue.

2 Goals and Policies

The City's General Plan provides the foundation for all land use and development decisions in the city. It articulates the community's vision of an ideal built environment and contains public policies to direct future land uses toward this ideal state. The Strategic Framework section of the General Plan sets forth details of the City of Villages strategy, establishes the structure of the General Plan, and espouses ten guiding principles, including:

“An integrated regional transportation network of walkways, bikeways, transit, roadways, and freeways that efficiently link communities and villages to each other and to employment centers;” (SF-6)

The San Diego General Plan Mobility Element elaborates upon the vision for mobility in San Diego. The Mobility Element's overarching goal is to advance a balanced, efficient, multi-modal transportation network that minimizes adverse environmental and neighborhood impacts. The Mobility Element contains goals and policies specific to various transportation modes and components of the transportation system, including walking, transit, street and freeway systems, transportation demand management, and bicycling. The most pertinent bicycle-related goals and policies of the Mobility Element form the foundation for the General Plan's goals and policies. As such, they are restated below verbatim. This Plan augments these Mobility Element policies with additional policies to further enhance the state of bicycling in San Diego. Most of this Plan's policies are from the 2002 San Diego Bicycle Master Plan.

The goals portray the desired end-state of bicycling in San Diego, whereas policies describe how the goals will be achieved. The General Plan Action Plan (2009) delineates a strategy for implementing the General Plan. The Action Plan's bicycle-related implementation measures are reflected in Chapter 6 and Chapter 7 along with the other major Plan recommendations.

The City is updating its 2005 Climate Action Plan (CAP). The updated CAP will provide a roadmap for achieving 2020 and 2035 greenhouse gas (GHG) reduction targets. The CAP will identify strategies and measures to achieve this target and introduce approaches to prepare for and adapt to a changing climate. The CAP will identify bicycle mode share percentage goals for 2020 and 2035 and the Bicycle Master Plan will work in concert with the CAP to attain identified goals.

2.1 Goals

- A city where bicycling is a viable travel choice, particularly for trips of less than five miles
- A safe and comprehensive local and regional bikeway network
- Environmental quality, public health, recreation, and mobility benefits through increased bicycling

2.2 Policies

1. Implement the Bicycle Master Plan, which identifies existing and future needs, and provides specific recommendations for facilities and programs over the next 20 years. (Mobility Element, Policy ME-F.1)
 - a. Update the plan periodically as required by the California Department of Transportation (Caltrans), in a manner consistent with General Plan goals and policies. (Mobility Element, Policy ME-F.1.a)
 - b. Coordinate with other local jurisdictions, SANDAG, schools, and community organizations to review and comment on bicycle issues of mutual concern. (Mobility Element, Policy ME-F.1.b)
 - c. Create a bicycle advisory committee that will coordinate with various City agencies, schools,

Chapter 2 | Goals and Policies

- neighboring jurisdictions, SANDAG, and community organizations, and will comment on bicycle issues.
- d. Reference and refine the plan, as needed, in conjunction with community plan updates. (Mobility Element, Policy ME-F.1.c)
 - e. Improve connectivity of the multi-use trail network, for use by bicyclists and others as appropriate. (Mobility Element, Policy ME-F.1.d)
 - f. Fully fund and maintain a City bicycle coordinator position to ensure plan implementation.
 - g. Regularly monitor bicycle-related crash levels, and seek a significant reduction on a per capita basis over the next twenty years.
2. Identify and implement a network of bikeways that are feasible, fundable, and serve bicyclists' needs, especially for travel to employment centers, village centers, schools, commercial districts, transit stations, and institutions. (Mobility Element, Policy ME-F.2)
 - a. Develop a bikeway network that is continuous, closes gaps in the existing system, improves safety, and serves important destinations. (Mobility Element, Policy ME-F.2.a)
 - b. Implement bicycle facilities based on a priority program that considers existing deficiencies, safety, commuting needs, connectivity of routes, and community input. (Mobility Element, Policy ME-F.2.b)
 - c. Recognize that bicyclists use all city roadways.
 - i. Design future roadways to accommodate bicycle travel; and
 - ii. Upgrade existing roadways to enhance bicycle travel, where feasible. (Mobility Element, Policy ME-F.2.c)
 - d. Support bicycle rental opportunities at San Diego and Mission Bays, Balboa Park, transit stations, and other key recreation destinations.
 3. Maintain and improve the quality, operation, and integrity of the bikeway network and roadways regularly used by bicyclists. (Mobility Element, Policy ME-F.3)
 - a. Expand upon the existing destination-based signage system for the bikeway network.
 - b. Provide alternate Bicycle Routes when removing established bikeways.
 - c. Coordinate roadway improvements so that bicycle facilities are not reduced or eliminated in construction zones and are maintained or incorporated into future improvements in order to maintain the existing local and regional bicycle network or provide reasonable alternatives.
 - i. Ensure that detours through or around construction zones are designed safely and conveniently, and are accompanied with adequate signage for cyclists and motorists.
 - ii. Develop a procedure to ensure that all trench work performed within city streets be inspected after construction is completed to ensure that pavement quality is restored to acceptable conditions.
 - d. Ensure impacts to bicycles as a transportation mode receive routine review in environmental assessments.
 - e. Consider use of shared lane markings, also known as "Sharrows" to provide guidance to bicyclists and motorists on roadways that are too narrow for Class II Bike Lanes.
 - f. Consider use of innovative pavement treatment and signage, such as the use of "bike boxes" and colored Bike Lanes in high conflict areas.
 4. Provide safe, convenient, and adequate short- and long-term bicycle parking facilities and other bicycle amenities for employment, retail, multifamily housing, schools and colleges, and transit facility uses. (Mobility Element, Policy ME-F.4)

- a. Continue to require bicycle parking in commercial and multiple unit residential zones. (Mobility Element, Policy ME-F.4.a)
 - b. Provide bicycle facilities and amenities to help reduce the number of vehicle trips. (Mobility Element, Policy ME-F.4.b)
 - c. Provide high volume bicycle parking facilities where demand is high.
 - d. Strengthen requirements for end-of-trip facilities as needed.
5. Increase the number of bicycle-to-transit trips by coordinating with transit agencies to provide safe routes to transit stops and stations, to provide secure bicycle parking facilities, and to accommodate bicycles on transit vehicles. (Mobility Element, Policy ME-F.5)
- a. Include bikeways as part of future light-rail or Bus Rapid Transit corridors with exclusive right-of-way.
 - b. Coordinate with Metropolitan Transit System (MTS) to increase bicycle carrying capacity on buses by installing bicycle racks that accommodate three bicycles on all new buses and whenever racks are replaced on existing buses.
 - c. Coordinate with MTS to educate transit vehicle drivers about operating their vehicles in a manner that is safe and cooperative with bicyclists.
 - d. Investigate potential for bicycle sharing stations/programs (see page 113) in medium/higher density areas (greater than 50 people/acre), especially to facilitate travel to and from transit stations.
6. Develop and implement public education programs promoting bicycling and bicycle safety. (Mobility Element, Policy ME-F.6)
- a. Increase public awareness of the benefits of bicycling and the availability of resources and facilities. (Mobility Element, Policy ME-F.6.a)
 - i. Expand the Bicycle Program Website to include more information about educational material, maps, schedules of upcoming events, and other bicycling-related information.
 - ii. Collaborate with local advocacy and community groups to disseminate bicycle-related information to the public.
 - b. Increase government and public recognition of bicyclists' right to use public roadways. (Mobility Element, Policy ME-F.6.b)
 - c. Engage in a public education campaign to increase drivers' awareness of pedestrians and bicyclists, and to encourage more courteous driving. (Mobility Element, Policy ME-A.3)
 - i. Seek funds for public awareness campaign.
 - ii. Develop Public Service Announcements (PSA's) for distribution through print, audio, and video media.
 - iii. Educate professional drivers on bicyclist's rights and safe vehicle behavior around bicyclists.
 - d. Work with schools and local community groups to seek funds for safe routes to schools programs. Promote "Walking School Bus" efforts where parents or other responsible adults share the responsibility of escorting children to and from school by foot or bicycle. (Mobility Element, Policy ME-A.2.b).

7. Increase government enforcement of bicyclists' equal right to use public roadways.
 - a. Periodically provide bicycle education to City staff involved in decisions regarding bicycle facilities to include traffic engineers, planners, field engineers, field inspectors, street maintenance personnel, and parks and recreation staff.
 - b. Periodically provide bicycle education for law enforcement personnel and increase enforcement of traffic violations by motorists and bicyclists.
 - c. Implement a program that offers bicycle safety training as an alternative to regular traffic school for motorists and bicyclists cited for traffic violations.
 - d. Reinstate the bicycle registration program to deter bicycle theft.
8. Identify the general location and extent of streets, sidewalks, trails, and other transportation facilities and services needed to enhance mobility in community plans. (Mobility Element Policy ME-C.1)
 - a. Identify streets or street segments, if any, where higher levels of vehicle congestion are acceptable in order to achieve vibrant community centers, increase transit-orientation, preserve or create streetscape character, or support other community-specific objectives (Mobility Element, Policy ME-C.1.d).
9. Design an interconnected street network within and between communities, which includes pedestrian and bicycle access, while minimizing landform and community character impacts. (Mobility Element, Policy ME-C.3)
 - a. Identify locations where the connectivity of the street network could be improved through the community plan update and amendment process, the Regional Transportation Plan update process, and through discretionary project review (see also Urban Design Element, Policy UD-B.5). (Mobility Element, Policy ME-C.3.a)
 - b. Ensure that bikeway design includes the latest standards including *AASHTO Guide for the Development of Bicycle Facilities*, the *Manual on Uniform Control Devices (MUTCD)*, and *Caltrans Highway Design Manual, Chapter 1000* and the *City of San Diego Street Design Manual*. However, certain areas may require experimental or other proven non-standard treatments. These treatments should be considered for implementation where feasible.
 - c. Use local and collector streets to form a network of connections to disperse traffic and give people a choice of routes to neighborhood destinations such as schools, parks, and village centers. This network should also be designed to control traffic volumes and speeds through residential neighborhoods. (Mobility Element, Policy ME-C.3.b)
 - i. In newly developing areas or in large-scale redevelopment/infill projects, strive for blocks along local and collector streets to have a maximum perimeter of 1,800 feet. (Mobility Element, Policy ME-C.3.b)
 - ii. When designing modifications/improvements to an existing street system, enhance street or pedestrian connections where possible. (Mobility Element, Policy ME-C.3.b)
 - iii. Ensure that traffic calming efforts are carried out in coordination with the Bicycle Master Plan and will not preclude bicycle access or negatively affect the ability of bicyclists to proceed through an area targeted by traffic calming.

- d. Provide direct and multiple street and sidewalk connections within development projects, to neighboring projects, and to the community-at-large. (Mobility Element, Policy ME-C.3.c)
 - e. Where possible, design or redesign the street network, so that wide arterial streets do not form barriers to pedestrian traffic and community cohesiveness. (Mobility Element, Policy ME-C.3.d)
 - f. Support connections to regional multi-use trails such as the Bayshore Bikeway, the Coastal Rail Trail, and the San Diego River Trail.
10. Improve operations and maintenance on city streets and sidewalks. (Mobility Element, Policy ME-C.4)
- a. Regularly optimize traffic signal timing and coordination to improve circulation. Implement new signal and intersection technologies that improve pedestrian, bicycle, and vehicular safety while improving overall circulation. (Mobility Element, Policy ME-C.4.a)
 - b. Adequately maintain the transportation system through regular preventative maintenance and repair, and life cycle replacement. (Mobility Element, Policy ME-C.4.b)
 - i. Undertake routine maintenance of bikeway facilities, such as sweeping streets, bike lanes and paths. This will include paint and striping, signage, pavement surface maintenance, tree trimming, and other facets of maintaining the operational integrity of the bikeway network.
 - ii. Establish an online program to encourage and empower citizens to report maintenance issues that impact bicyclist safety, track maintenance requests, and add them to scheduled maintenance activities.
 - c. Encourage community participation in planning, assessing, and prioritizing the life cycle management of the circulation system. (Mobility Element, Policy ME-C.4.c)
 - d. When new streets and sidewalks are built and as existing streets and sidewalks are modified, design, construct, operate, and maintain them to accommodate and balance service to all users/modes, including walking, bicycling, transit, high occupancy vehicles (HOVs), autos, trucks, automated waste and recycling collection vehicles, and emergency vehicles. (Mobility Element, Policy ME-C.4.d).
11. Implement best practices for multi-modal quality/level of service analysis guidelines to evaluate potential transportation improvements from a multi-modal perspective in order to determine optimal improvements that balance the needs of all users of the right of way (Mobility Element, Policy ME-c.9).
12. Require new development to have site designs and on-site amenities that support alternative modes of transportation. Emphasize pedestrian and bicycle-friendly design, accessibility to transit, and provision of amenities that are supportive and conducive to implementing TDM strategies such as car sharing vehicles and parking spaces, bike lockers, preferred rideshare parking, showers and lockers, on-site food service, and child care, where appropriate. (Mobility Element, Policy ME-E.6)
13. Implement innovative and up-to-date parking regulations that address the vehicular and bicycle parking needs generated by development. (Mobility Element, Policy ME-G.2)
- a. Adjust parking rates for development projects to consider access to existing and funded transit with a base mid-day service frequency of ten to fifteen minutes, affordable housing

Chapter 2 | Goals and Policies

parking needs, shared parking opportunities for mixed-use development, provision of on-site car sharing vehicles and parking spaces and implementation of TDM plans. (Mobility Element, Policy ME-G.2.a)

- b. Strive to reduce the amount of land devoted to parking through measures such as parking structures, shared parking, mixed-use developments, and managed public parking (see also ME-G.3), while still providing appropriate levels of parking. (Mobility Element, Policy ME-G.2.b)
14. Work with SANDAG to increase the share of regional funding (over the 2030 RTP levels) allocated to pedestrian, bicycle, and transportation systems management projects. (Mobility Element, Policy ME-K.3).

3 Existing Conditions

This chapter describes existing bicycling conditions within the City of San Diego. Information presented in this chapter was obtained via field visits, existing planning documents and data, mapping analyses, and conversations with City and other agency staff. The information is representative of conditions at plan preparation.

3.1 Land Use

Figure 3-1 displays the city of San Diego's existing land uses. San Diego has a large mix of land use types, with the greatest proportion (28 percent) of city land acreage being parks, open space, and recreation areas. Residential uses comprise the second largest use of land (24 percent) and range from low-density suburban to relatively dense multifamily and mixed-use development. Older urban neighborhoods, such as City Heights, Greater North Park, and Uptown, include medium and high density residential, intermixed with commercial land uses. Recently developed areas of the city, such as Rancho Bernardo, Mira Mesa, Carmel Valley, and Tierrasanta, include a mix of high, medium, and low intensity residential and commercial land uses although uses tend to be more segregated in these newer communities. San Diego also has an increasingly vibrant urban downtown core, which in recent years has attracted high-density housing development.

Several large districts of industrial/office/commercial land uses are located in the city, including the Kearny Mesa and University City areas. San Diego is home to many military facilities, including Fort Rosecrans on Point Loma and Miramar Marine Corps Air Station. Three airports currently exist, including San Diego International Airport/Lindbergh Field near downtown, Montgomery Field in Kearny Mesa, and Brown Field in Otay Mesa. Open space reserves currently exist in the form of regional parks and preserves, including Los Penasquitos Canyon Preserve, Mission Trails Regional Park, and Torrey Pines State Reserve.

The City of San Diego General Plan set forth a renewed approach to development with the "City of Villages" strategy. The "City of Villages" strategy emphasizes infill development and redevelopment and envisions focusing growth into mixed-use activity centers that contain transit-oriented and pedestrian-friendly features, including accessible, attractive streets and public spaces. Each "village," defined as "the mixed-use heart of a community where residential, commercial, employment, and civic uses are present and integrated," is intended to embody the unique characteristics of that community (LU-6). The "City of Villages" strategy also calls for high capacity transit corridors to connect all "villages," thereby providing for non-single-occupant vehicle travel across the city. This strategy is introduced in the General Plan Strategic Framework and is central to the Mobility Element theme of a balanced multi-modal and minimally intrusive transportation system. Currently, the potential for villages is being investigated as a part of the community plan update process. In addition, work is progressing on five urban "village" pilot projects. Figure 3-2 shows San Diego's planned land uses.

FIGURE 3-1:
Existing Land Uses in San Diego (2008)

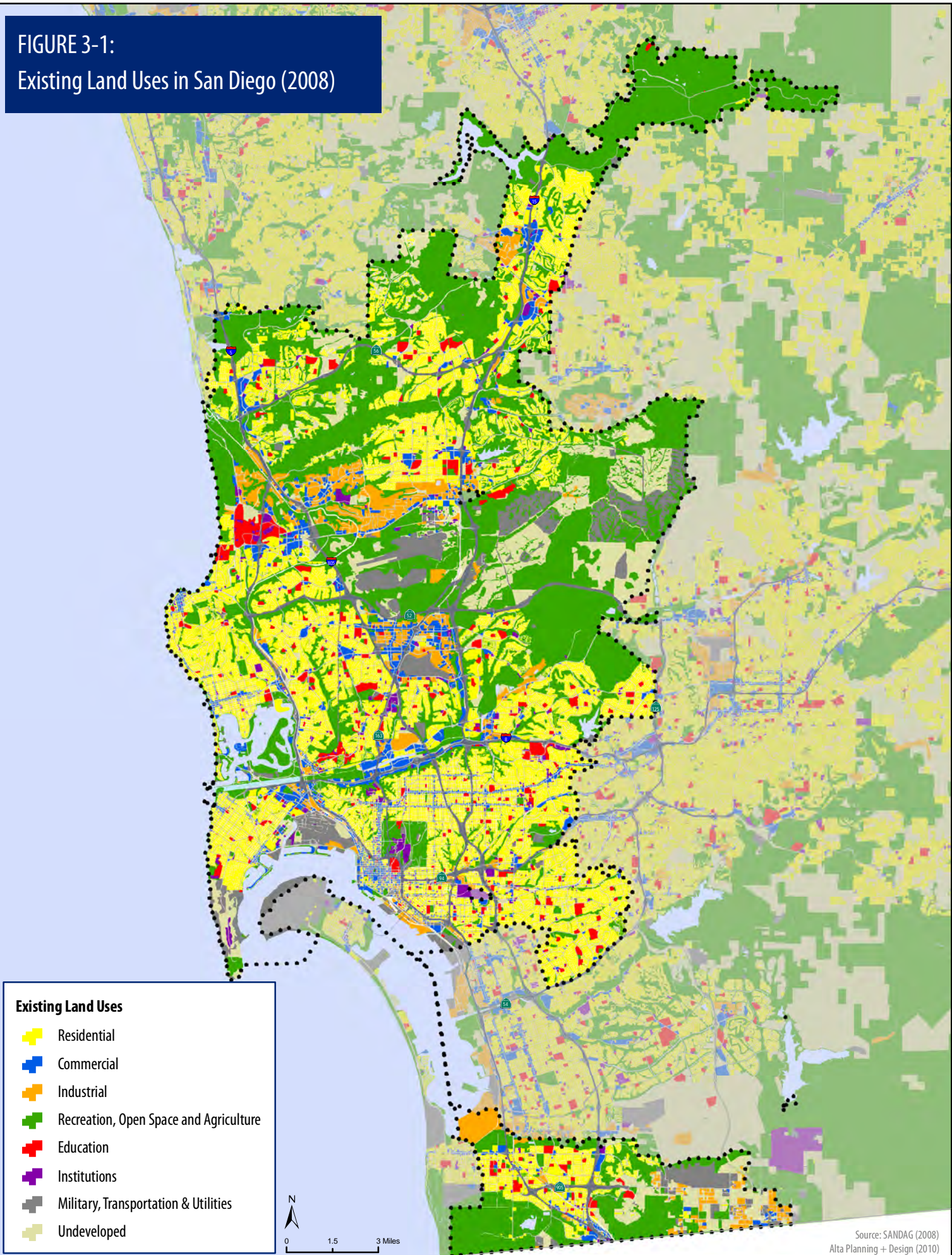
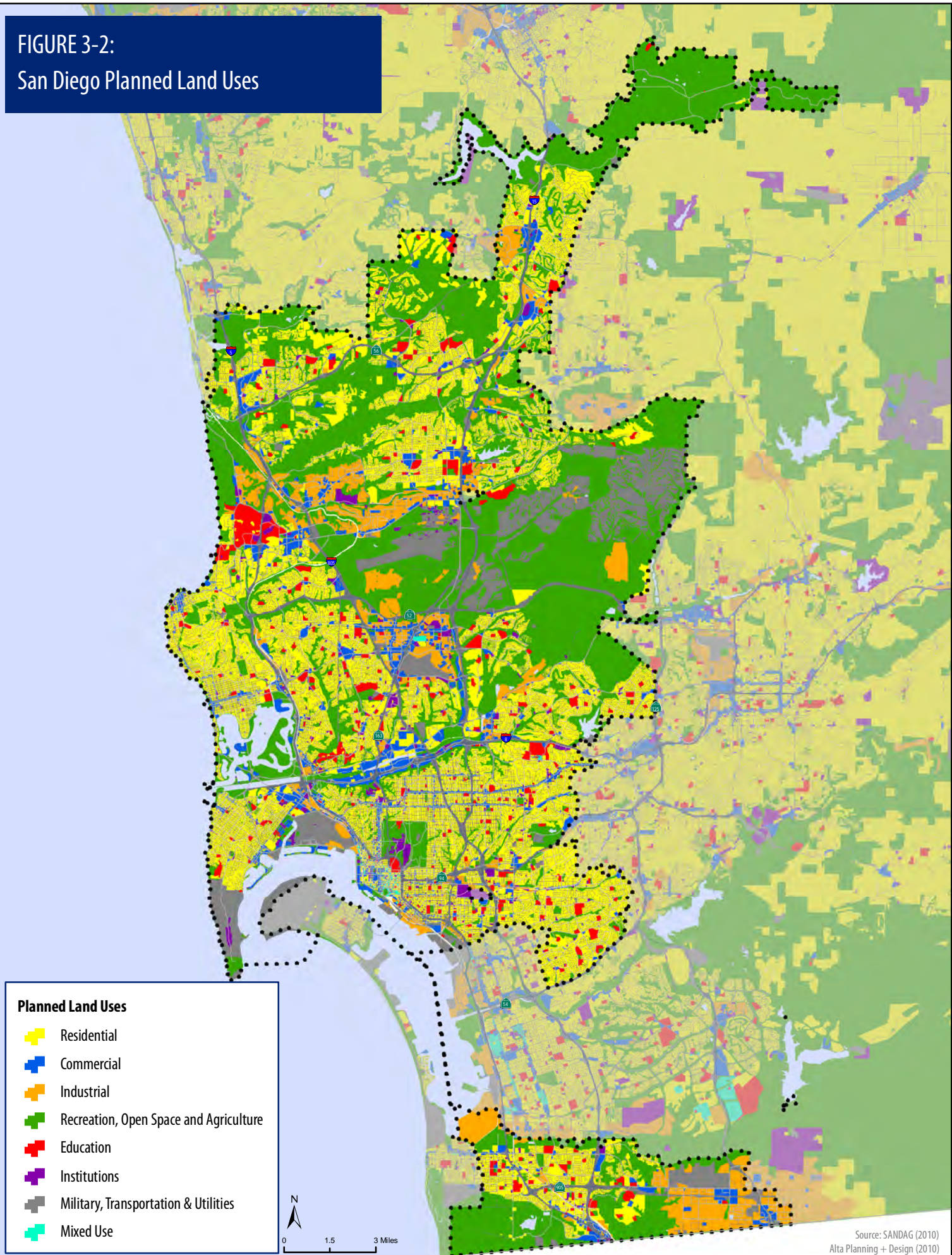


FIGURE 3-2:
San Diego Planned Land Uses



Source: SANDAG (2010)
Alta Planning + Design (2010)

3.2 Bikeways

“Chapter 1000 Bikeway Planning and Design” of the *California Highway Design Manual* identifies three classes of bikeways. Table 3-1 describes these bikeway classes. The City may consider modified bikeway design to better enhance user experience.

Table 3-1: California Bikeway Classification System

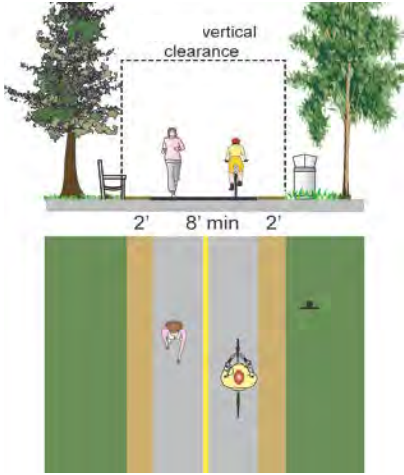


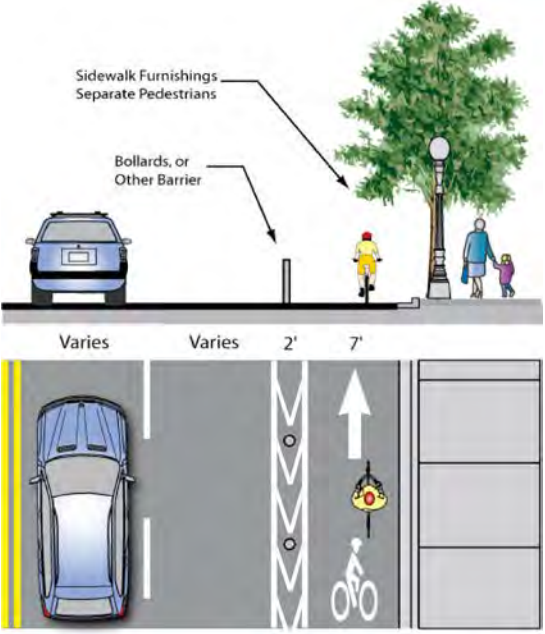
Class Description	Example Graphic
<p>Class I – Bike Path</p> <p>Bike paths, also termed shared-use or multi-use paths, are paved right-of-way for exclusive use by bicyclists, pedestrians, and those using non-motorized modes of travel. They are physically separated from vehicular traffic and can be constructed in roadway right-of-way or exclusive right-of-way. Bike paths provide critical connections in the city where roadways are absent or are not conducive to bicycle travel.</p>	 <p>The diagram illustrates a Class I Bike Path. It shows a cross-section of a paved path with a minimum width of 8 feet in the center, flanked by 2-foot shoulders on both sides. A vertical clearance of at least 8 feet is indicated above the path. The path is shown in a roadway right-of-way, with a car and a cyclist on the road and a pedestrian on the path. A top-down view shows a cyclist riding on the path, with a car and a pedestrian on the road.</p>
<p>Class II – Bike Lane</p> <p>Bike lanes are defined by pavement striping and signage used to allocate a portion of a roadway for exclusive or preferential bicycle travel. Bike lanes are one-way facilities on either side of a roadway. Whenever possible, Bike Lanes should be enhanced with treatments that improve safety and connectivity by addressing site-specific issues, such as additional warning or wayfinding signage.</p>	 <p>The diagram illustrates a Class II Bike Lane. It shows a cross-section of a roadway with a 10-foot to 12-foot wide bike lane and a 5-foot shoulder. An R81 Bike Lane Sign is shown above the lane. The lane is shown in a roadway right-of-way, with a car and a cyclist on the road. A top-down view shows a cyclist riding in the bike lane, with a car and a pedestrian on the road.</p>
<p>Class III - Bike Route</p> <p>Bike routes provide shared use with motor vehicle traffic within the same travel lane. Designated by signs, Bike Routes provide continuity to other bike facilities or designate preferred routes through corridors with high demand. Whenever possible, Bike Routes should be enhanced with treatments that improve safety and connectivity, such as the use of “Sharrows” or shared lane markings to delineate that the road is a shared-use facility.</p>	 <p>The diagram illustrates a Class III Bike Route. It shows a cross-section of a roadway with a 14-foot preferred minimum wide bike lane. A D11-1 Bike Route Sign is shown above the lane. The lane is shown in a roadway right-of-way, with a car and a cyclist on the road. A top-down view shows a cyclist riding in the bike lane, with a car and a pedestrian on the road.</p>

Table 3-2 introduces two forms of bikeways, (Bicycle Boulevards and Cycle Tracks) that are not currently classified by Caltrans. These facility types, along with Class I, II, and III bikeways, constitute the proposed bikeway network presented in **Chapter 6** of this Plan.

Table 3-2: Non-Classified Proposed Bikeways

Bikeway Description	Example Graphic
<p>Bicycle Boulevard</p> <p>Bicycle boulevards are local roads or residential streets that have been enhanced with traffic calming and other treatments to facilitate safe and convenient bicycle travel. Bicycle boulevards accommodate bicyclists and motorists in the same travel lanes, without specific vehicle or bicycle lane delineation. These roadway designations prioritize bicycle travel above vehicular travel. The treatments which create a Bicycle Boulevard, heighten motorists' awareness of bicyclists and slow vehicle traffic, making the boulevard more conducive to safe bicycle and pedestrian activity. Bicycle Boulevard treatments include signage, pavement markings, intersection treatments, traffic calming measures and can include traffic diversions. Bicycle boulevards are not defined as bikeways by Caltrans Highway Design Manual; however, the basic design features of Bicycle Boulevards comply with Caltrans standards.</p>	<p>Choker entrance prohibits motor vehicles from entering the bicycle boulevard</p> <p>Traffic signal enables bicyclists to cross arterial street</p> <p>Loop detector enables bicyclists to activate signal</p> <p>Mini traffic circles and speed humps serve as traffic calming devices</p> <p>Stop signs on cross-streets favor through bicycle movement</p> <p>Stop</p> <p>Stop</p> <p>Raised median prevents motorists from cutting through</p> <p>Median allows bicyclist to cross arterial while preventing vehicles from turning onto the Bicycle Boulevard</p> <p>Bicycle boulevard signs and pavement markings serve as wayfinding devices and reinforce that bicyclists are on a preferred route</p>

Bikeway Description	Example Graphic
<p>Cycle Track</p> <p>A Cycle Track is a hybrid type bicycle facility that combines the experience of a separated path with the on-street infrastructure of a conventional Bike Lane. Cycle tracks are bikeways located in roadway right-of-way but separated from vehicle lanes by physical barriers or buffers. Cycle tracks provide for one-way bicycle travel in each direction adjacent to vehicular travel lanes and are exclusively for bicycle use. Cycle tracks are not recognized by Caltrans Highway Design Manual as a bikeway facility. A Cycle track is proposed as a pilot project along a 7.6-mile segment of the San Diego bikeway network. To provide bicyclists with the option of riding outside of the Cycle Track to position themselves for a left or right turn, parallel bikeways should be added adjacent to Cycle Track facilities whenever feasible.</p>	 <p>The diagram illustrates the layout of a Cycle Track. On the left is a car lane. To its right is a buffer zone labeled 'Bollards, or Other Barrier' with a width of 'Varies'. Next is the 'Cycle Track' itself, which is 7 feet wide and contains a white arrow pointing forward and a bicycle symbol. To the right of the cycle track is a sidewalk area labeled 'Sidewalk Furnishings Separate Pedestrians' with a width of 'Varies'. This area includes a tree, a street lamp, and a pedestrian with a child. Below the diagram, a top-down view shows the car lane, the bollard buffer, the cycle track with its markings, and the sidewalk.</p>

The City of San Diego currently has a developed a bicycle network comprised of Bike Paths, Bike Lanes, and Bike Routes. As of 2010, the City bicycle network contains approximately 511 miles of facility, including about 16 miles of freeway shoulder where Caltrans permits bicycle use. Table 3.3 summarizes existing bicycle facility by classification in the City of San Diego.

Table 3-3: Mileage of Existing San Diego Bicycle Facilities by Classification

Facility Classification	Mileage
Class I	72.3
Class II	309.4
Class III	112.9
Freeway Shoulder	16.1
All Classifications	510.7

Figure 3-3 and Figure 3-4 show the existing network of bikeways within the city. Many Bike Paths are located in Mission Valley, Mission Bay Park, and along the beachfronts in Pacific Beach and Mission Beach. Other Bike Paths of significant length can be found in Carmel Valley, Rancho Penasquitos, Mira Mesa, Rose Canyon, near the San Diego International Airport, and in the Mission Trails Park. Many Class I Bike Paths provide critical links between communities that would otherwise be inaccessible to bicyclists, such as the Rose Canyon and Murphy Canyon paths. These paths are the only convenient bicycle facilities in areas generally accessed by freeways.

Most of the Bike Lane facilities are located in areas of the city developed within the last 30 years and include Rancho Bernardo, Rancho Penasquitos, Sabre Springs, Mira Mesa, University City, Carmel Valley, and Tierrasanta. Some important north-south Class II BikeLanes of significant length include Torrey Pines Road,

Genesee Avenue, Linda Vista Road, Kearny Villa Road, Black Mountain Road, and Harbor Drive. Some significant east-west Class II bikeways include Aero Drive, Friars Road, Mission Gorge Road, and Carmel Mountain Road.

Bike Routes are located along major arterials as well as along quiet neighborhood streets. Class III Bike Routes are located along such roadways as Miramar Road, Rancho Penasquitos Boulevard, Pacific Highway, 4th Street, 5th Street, 6th Street, Camino Ruiz, Saturn Boulevard and Del Sol Boulevard. Neighborhood Bike Routes are located along roadways such as Orange Avenue in City Heights, Gold Coast Drive in Mira Mesa, Fort Stockton Drive in Mission Hills, Hornblend Avenue in Pacific Beach, L Street near Golden Hill, and Iris Avenue in Otay Mesa-Nestor.

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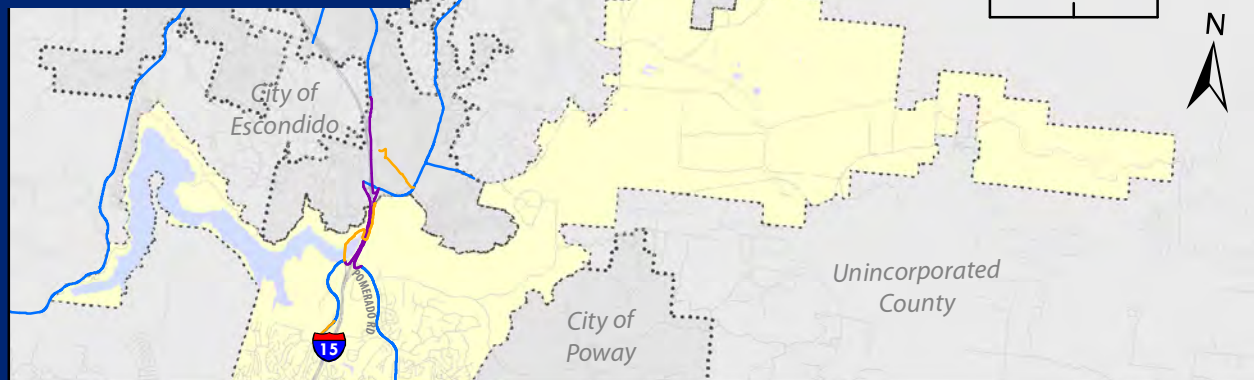
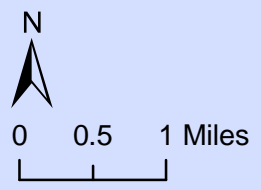
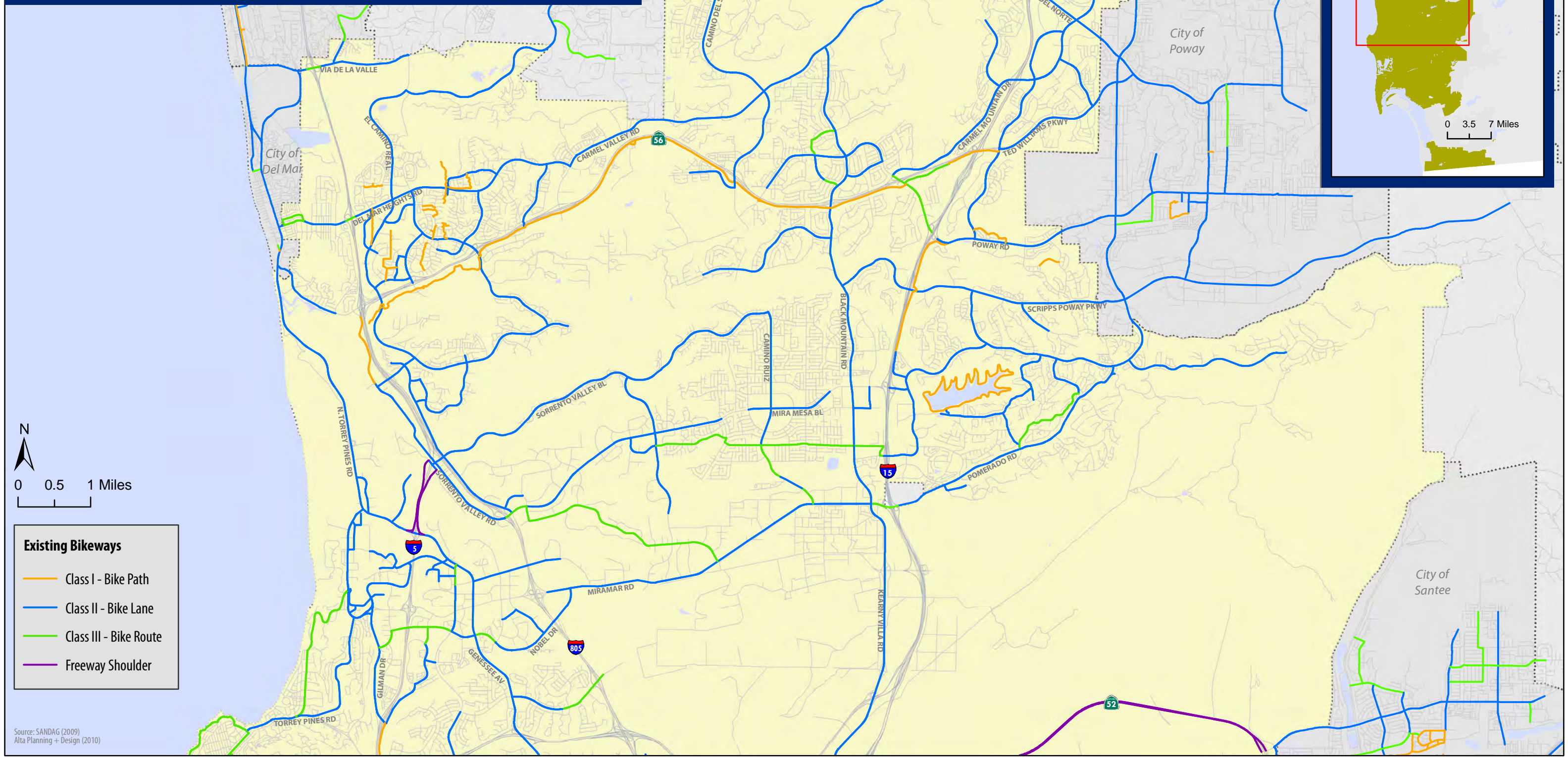
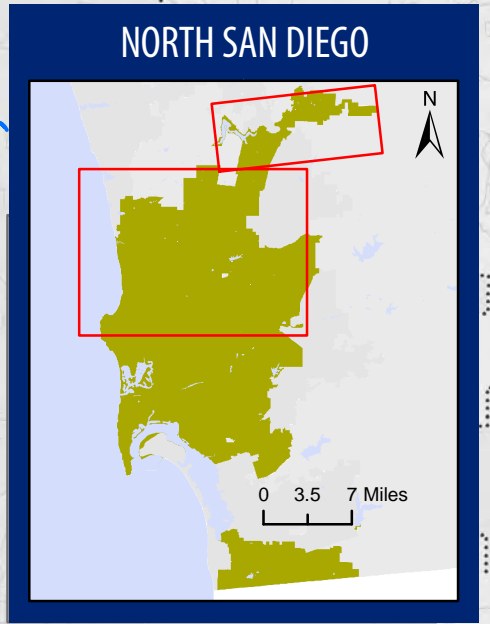


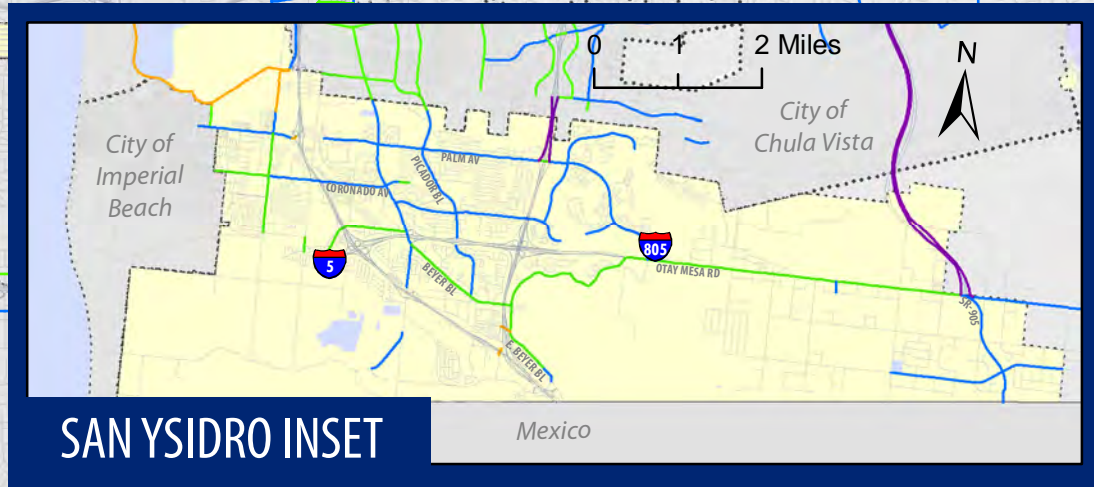
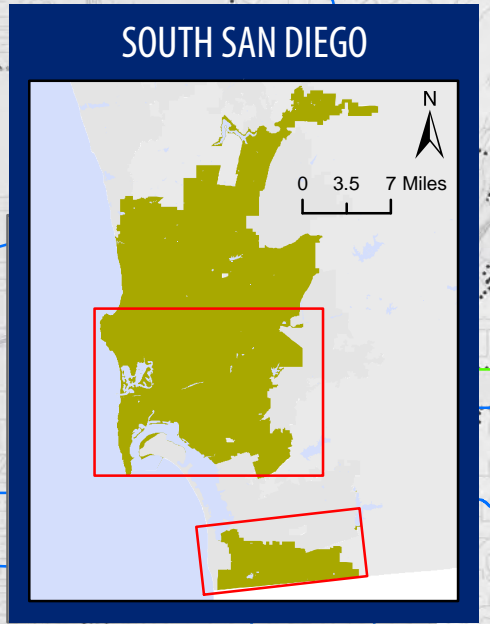
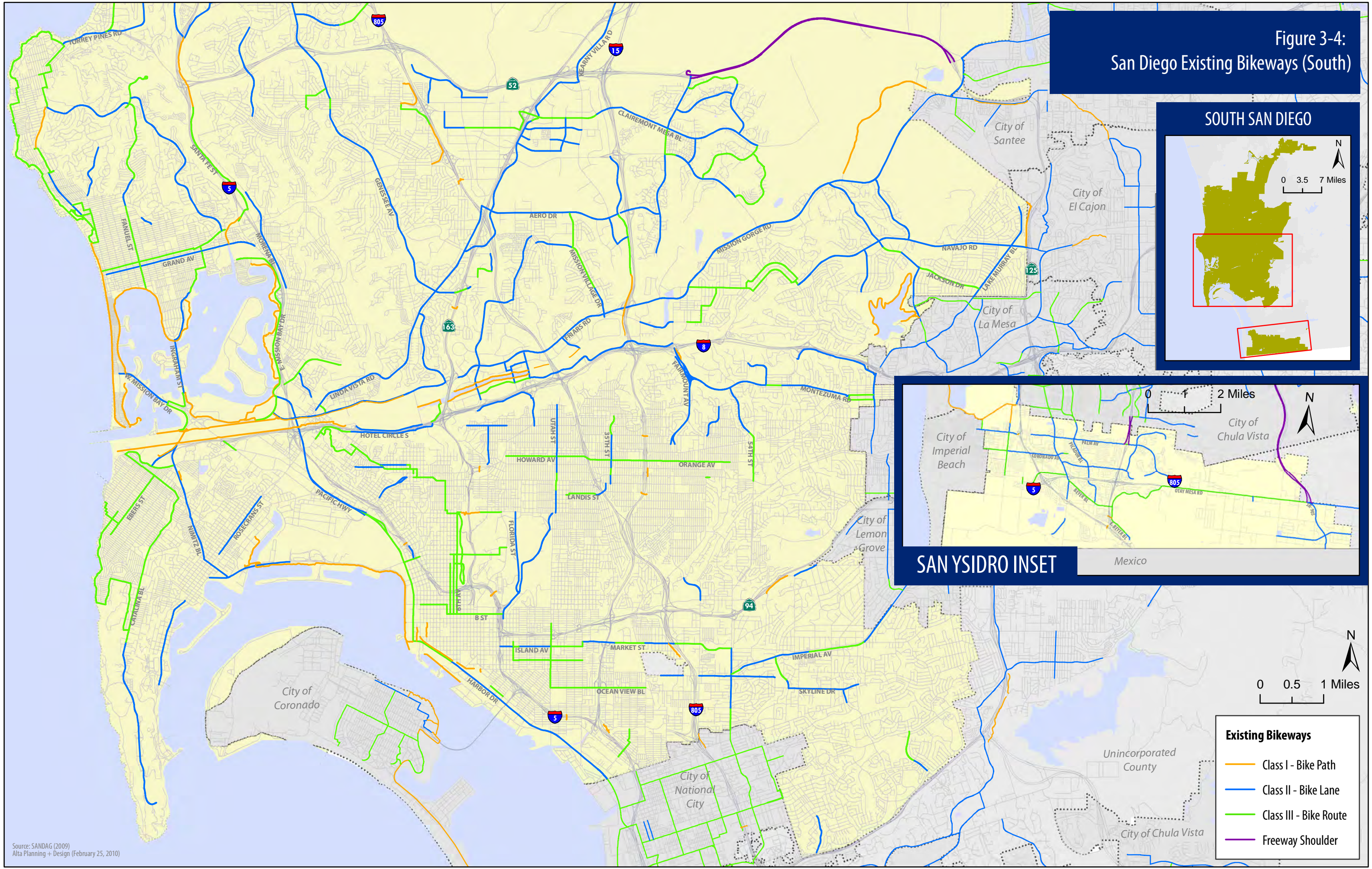
Figure 3-3:
San Diego Existing Bikeways (North)



- Existing Bikeways**
- Class I - Bike Path
 - Class II - Bike Lane
 - Class III - Bike Route
 - Freeway Shoulder

Source: SANDAG (2009)
Alta Planning + Design (2010)

Figure 3-4:
San Diego Existing Bikeways (South)



- Existing Bikeways**
- Class I - Bike Path
 - Class II - Bike Lane
 - Class III - Bike Route
 - Freeway Shoulder

Source: SANDAG (2009)
Alta Planning + Design (February 25, 2010)

Bicyclists are permitted to ride on freeway shoulders along five sections of the freeway system within San Diego, specifically:

- I-5 between Sorrento Valley Road and Genesee Avenue
- I-15 between Via Rancho Parkway in Escondido and West Bernardo Drive/Pomerado Road
- SR-52 between Santo Road and Mast Boulevard in Santee
- I-805 between Palm Avenue and Main Street in Chula Vista
- SR-125 between Birch Road in Chula Vista and Otay Mesa Road

These freeway bikeway links are in areas where there is no viable alternative for bicycle travel. There is no signage along city streets informing bicyclists of the availability of the freeway route.

Table 3-4 shows some of the bikeway projects that either have been completed since the adoption of the city’s 2002 Bicycle Master Plan or are currently in planning or design phases.

Table 3-4: List of Existing On-Going Bikeway Projects

Street/Path	From	To	Class	Approximate Mileage	Current Status
San Diego River Path	Qualcomm Way	Qualcomm Stadium	1	1.0	Planning/Design
San Diego River Path	Qualcomm Stadium	Zion Avenue	1	2.0	Planning/Design
San Diego River Path	Zion Avenue	Princes View Drive	1	2.0	Planning/Design
Jamacha Bike Path	Jamacha Road and Meadowbrook Drive	Woodman Street and Imperial Avenue	1	1.0	Planning/Design
Coastal Rail Trail	Downtown San Diego	Del Mar	1	20.0	Planning/Design
SR- 56	SR- 56 Eastern termini	SR-56 Western termini	1	9.6	Planning/Design
Jacob Dekema Freeway	Governor Drive	Convoy Street	1	3.0	Planning/Design
Interstate 15	Camino del Rio	Landis St	1	2.0	Planning/Design
San Diego River Path	Ocean Beach	Hotel Circle Bike Path	1	3.5	Completed
Lake Hodges Bridge Crossing	Lake Hodges Path	West Bernardo Dr	1	0.2	Completed
SR- 56	Rancho Penasquitos Blvd	I-5	1	9.0	Completed
Bayshore Bikeway	Otay Mesa	Imperial Beach	1	2.5	Completed
Island Avenue	I-5	28 th Street	2	0.8	Completed
35 th Street	Adams Avenue	Wightman Street	2	1.0	Completed
Utah Street	Collier Avenue	Upas Street	2	1.6	Completed
Beyer Boulevard	Smythe Avenue	Otay Mesa Road	2	0.6	Completed
Barnett Avenue	Pacific Hwy and Enterprise Street	Pacific Hwy and Barnett Ave	2	0.25	Completed

Chapter 3 | Existing Conditions

Bicycle Parking and End-of-Trip Facilities

Bicycle parking accommodation is an important component in encouraging widespread bicycle use for utilitarian trips and for commuting. Various forms of bike parking are provided throughout San Diego to support longer and shorter trips, as described in the following sections.

3.2.1 Bike Racks

Bike racks are best used to accommodate visitors, customers, messengers, and others expected to depart within two hours. Bicycle racks provide support for the bicycle but do not include a locking mechanism as a part of the structure. Bicyclists can manually secure their bicycles with their own bike lock. Racks are relatively low-cost devices that typically hold between two and eight bicycles, are secured to the ground, and are located in highly visible areas. They are usually located at schools, commercial locations, and activity centers such as parks, libraries, retail locations, and civic centers.



Bike racks along University Avenue in North Park

The City's standard bike rack is a blue inverted-U rack, which can be found in commercial areas and activity centers throughout the city. The City does not have a current inventory of existing bicycle racks but is in the process of collecting this data. Bicycle racks are often found at the following locations:

- Municipal and state parks
- Municipal and state beaches
- Colleges and universities
- Museums and facilities at Balboa Park
- Municipal libraries
- Shopping centers
- Regional shopping malls
- Government offices and buildings
- Retail and tourist locations in the downtown business and shopping district

Bike racks are usually installed in the public right-of-way at locations requested by citizens and Business Improvement Districts. Each location requested is evaluated for physical conditions, such as sidewalk width and utility conflicts, as well as abutting property owner/business owner approval for installation. In the last Fiscal Year 2013, the city evaluated and installed approximately 150 bike racks at various locations. One hundred bicycle shaped bike racks are currently being ordered for new installations in Fiscal Year 2014. In addition, the city is working with Civic San Diego for 200 new bike rack installations in the downtown area.

3.2.2 Bike Lockers

Bike lockers are used to accommodate long-term parking needs for those expecting to park their bikes for more than two hours, such as employees, students, residents, and transit commuters. This parking should be provided in a secure, weather-protected manner and location.

Lockers can be controlled with traditional key systems or through subscription systems. Subscription locker programs, like e-lockers, allow even greater flexibility with locker use. Instead of restricting access for each patron to a single locker, subscribers can gain access to all lockers within a system, controlled by magnetic access cards. These programs typically have fewer administrative costs because they simplify or eliminate key management and locker assignment. Efforts to expand bike parking at transit stations will be coordinated with SANDAG’s regional bike locker program and with San Diego Metropolitan Transit System (MTS). SANDAG is working toward integrating the Compass Card to enable access to bike lockers

SANDAG provides bike locker facilities throughout the city and county. As of 2009, there were 25 bicycle locker locations throughout the city, primarily at San Diego Trolley stations. These facilities contain 126 lockers and space for the storage of 251 bicycles. Figure 3-5 shows the location of bike lockers and activity centers where bike racks are typically found.



Bike Locker located at the Old Town Transit Center

To continue to expand bike parking, the City of San Diego has a bicycle parking ordinance that requires bike parking to accompany various forms of new development in the city. Chapter 6 of this Plan also outlines a bike parking program to provide additional short-term and long-term parking facilities in new and existing commercial, retail, and employment areas.

3.2.3 On-Street Corrals

Bicycle Corrals (also known as “in-street” bicycle parking) consist of bicycle racks grouped together in a common area within the public right-of-way traditionally used for automobile parking. Bicycle Corrals are reserved exclusively for bicycle parking and provide a relatively inexpensive solution to providing high-volume bicycle parking. Bicycle Corrals can be implemented by converting one or two on-street motor vehicle parking spaces into on-street bicycle parking.

Bicycle Corrals move bicycles off the sidewalks, leaving more space for pedestrians, sidewalk café tables, etc. Bicycle parking does not block sightlines (as large motor vehicles would do), therefore, it may be possible to locate bicycle parking in ‘no-parking’ zones near intersections and crosswalks. Bicycle Corrals can be considered instead of other on-street bicycle parking facilities where:

- High pedestrian activity results in limited space for providing bicycle racks on sidewalks.
- There is a moderate to high demand for short-term bicycle parking.
- Sufficient on-street vehicular parking is provided
- The business community is interested in sponsoring the bicycle corral.



On-street bicycle parking may be installed at intersection corners or at mid-block locations

parking.

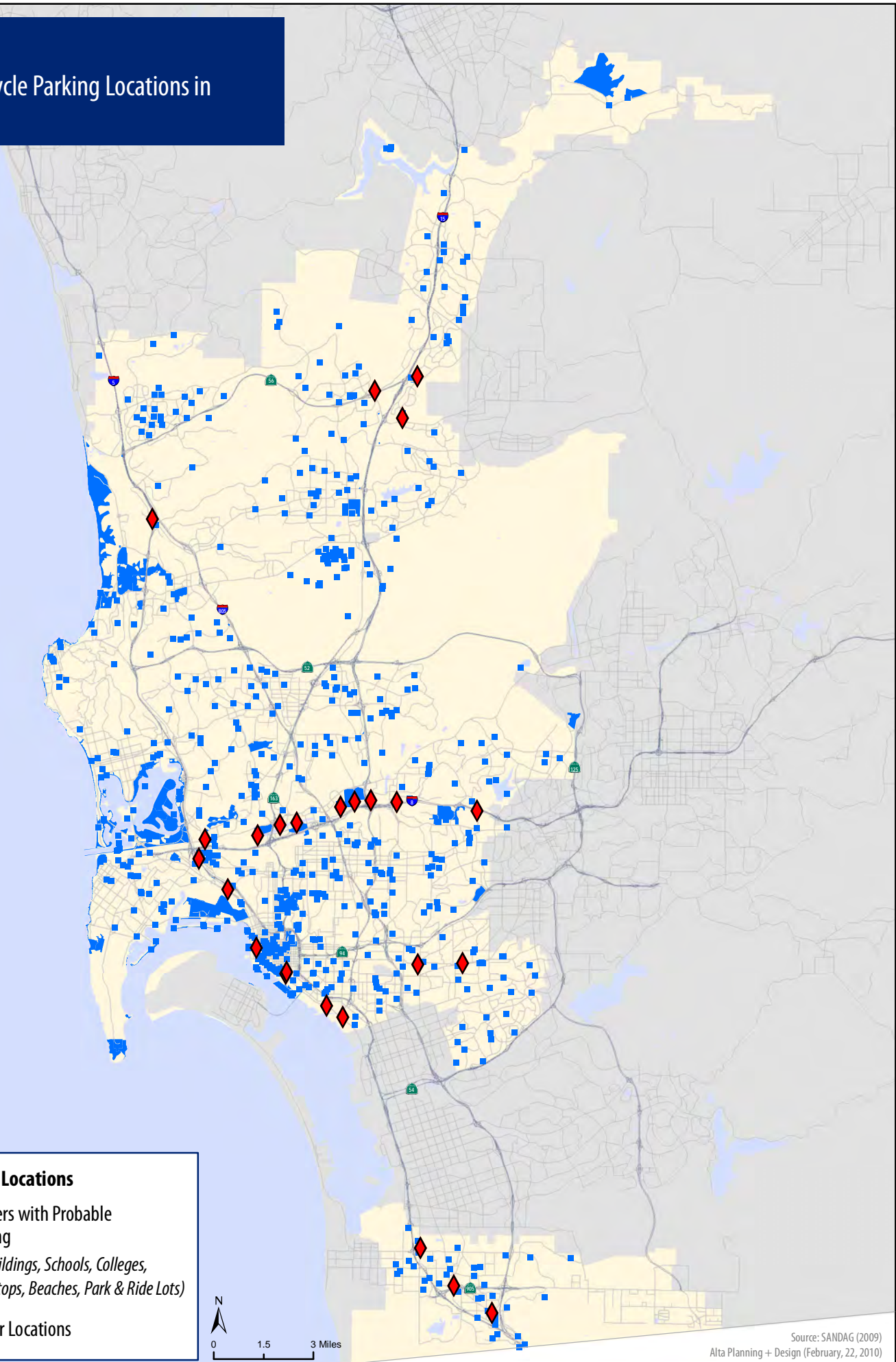
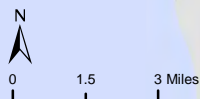
- Sufficient on-street vehicular parking is provided
- The business community is interested in sponsoring the bicycle corral.

The Bicycle Corral location and design specifications are subject to the City of San Diego Transportation Engineering Operations Division, Bicycle Program approval. **Appendix B** presents a design summary of a typical bike corral drawing. Similar to bike rack requests, bike corrals have to be evaluated and supported by the abutting property owner/business owner. In addition, the installation of bike corrals typically requires the removal of one or more motor vehicle parking spaces, which in turn requires support by the Business Improvement District (BID). The BID also purchases the racks for the corrals and provides maintenance and cleaning.

FIGURE 3-5:
Probable Bicycle Parking Locations in San Diego

Bicycle Parking Locations

- Activity Centers with Probable Bicycle Parking
(Parks, Civic Buildings, Schools, Colleges, Major Transit Stops, Beaches, Park & Ride Lots)
- ◆ Bicycle Locker Locations



3.2.4 Innovative High-Volume Bike Parking

Many cities across the United States provide high-volume bicycle parking facilities to enable bicycling to locations with exceptionally high bicycle demand. Innovative structures such as bike oases, on-street bike corrals, and Bike Stations are currently lacking in San Diego. In Chapter 6 recommendations for innovative high-volume bike parking options are outlined. The San Diego Regional Bicycle Plan also provides guidelines for innovative, high-volume parking facilities.

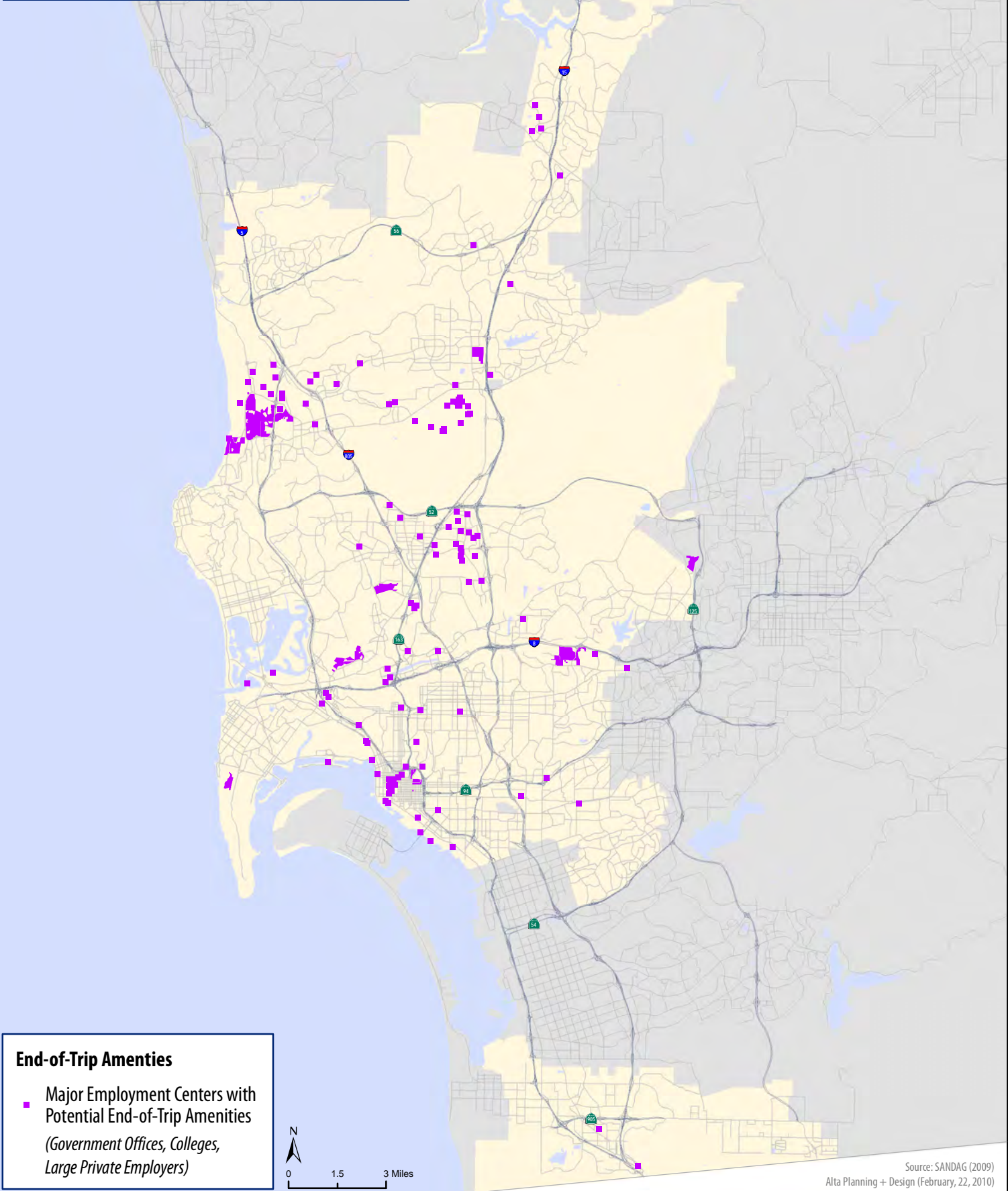
Currently the San Diego County Bicycle Coalition (SDCBC) works with organizations to operate valet bike parking pavilions during major community events such as the Balboa Park Earth Fair and the Miramar Air Show. Valet parking pavilions accommodate a high volume of bicycles and also serve as a bicycle encouragement program. Valet bike parking systems generally work similar to a coat check during an event. The bicyclist gives their bicycle to the attendant, who tags the bicycle with a number and gives the bicyclist a claim stub. When the bicyclist returns to get their bicycle, they present the claim stub and the attendant retrieves their bicycle for them. Locks are not needed. The valet is open for a period before and after the event.

3.2.5 End-of-Trip Amenities

In addition to parking accommodations, many local employers, colleges, and universities provide shower and clothing locker facilities that may be used by bicyclists at the end of their trips to work or school. These amenities contribute to the viability of bicycling as a commute option for many people. There are no City-owned facilities that offer such amenities. However, the City has adopted an ordinance requiring showers and clothing lockers to be provided within developments of a certain size. **Figure 3-6** shows major employment and educational institutions where end-of-trip amenities are most likely to be found.

FIGURE 3-6:

Major Employment Centers with Potential End-of-Trip Amenities in San Diego



End-of-Trip Amenities

- Major Employment Centers with Potential End-of-Trip Amenities
(Government Offices, Colleges, Large Private Employers)

3.3 Multi-Modal Connections

Improving the bicycle-transit link is an important part of making bicycling a part of daily life in San Diego. Linking bicycles with mass transit (bus, trolley, commuter rail, and ferry) overcomes such barriers as lengthy trips, personal security concerns, and riding at night, in poor weather, or up hills. Park & ride locations provide for intermodal travel by bicyclists to carpools and vanpools. Bicycle parking facilities are often placed at these locations to facilitate links to ride-sharing activities. Instead of driving, bicycling to transit benefits communities by reducing taxpayer costs, air pollution, demand for park & ride land, energy consumption, and traffic congestion with relatively low investment costs.

There are four main components of bicycle-transit integration:

- Allowing bicycles on transit vehicles
- Offering bicycle parking at transit stop locations
- Improving bikeway access to transit service
- Encouraging usage of bicycle and transit programs

3.3.1 Public Transit

Currently, all Metropolitan Transit System buses are equipped with bicycle racks that carry up to two bicycles on the front of each bus. Bicyclists may also bring bicycles onto the San Diego Trolley cars. However, the trolley cars are not equipped with racks to secure bicycles during trips. Bicyclists are instructed to stand and hold their bicycles upright in designated locations. This can be awkward for bicyclists, particularly during peak periods. Capacity restraints can also be an issue on the San Diego Trolley during peak periods of the day. Figure 3-7 displays the locations of transit centers where bicycle parking facilities are located in the city.

All existing Amtrak, Coaster, and trolley stations currently have some form of bicycle parking facilities available. They include the following locations:

Amtrak

- Santa Fe Depot

Coaster

- Santa Fe Depot
- Old Town
- Sorrento Valley

San Diego Trolley

- Alvarado Medical Center
- SDSU Transit Center
- Grantville
- Gaslamp Quarter
- Convention Center
- Seaport Village

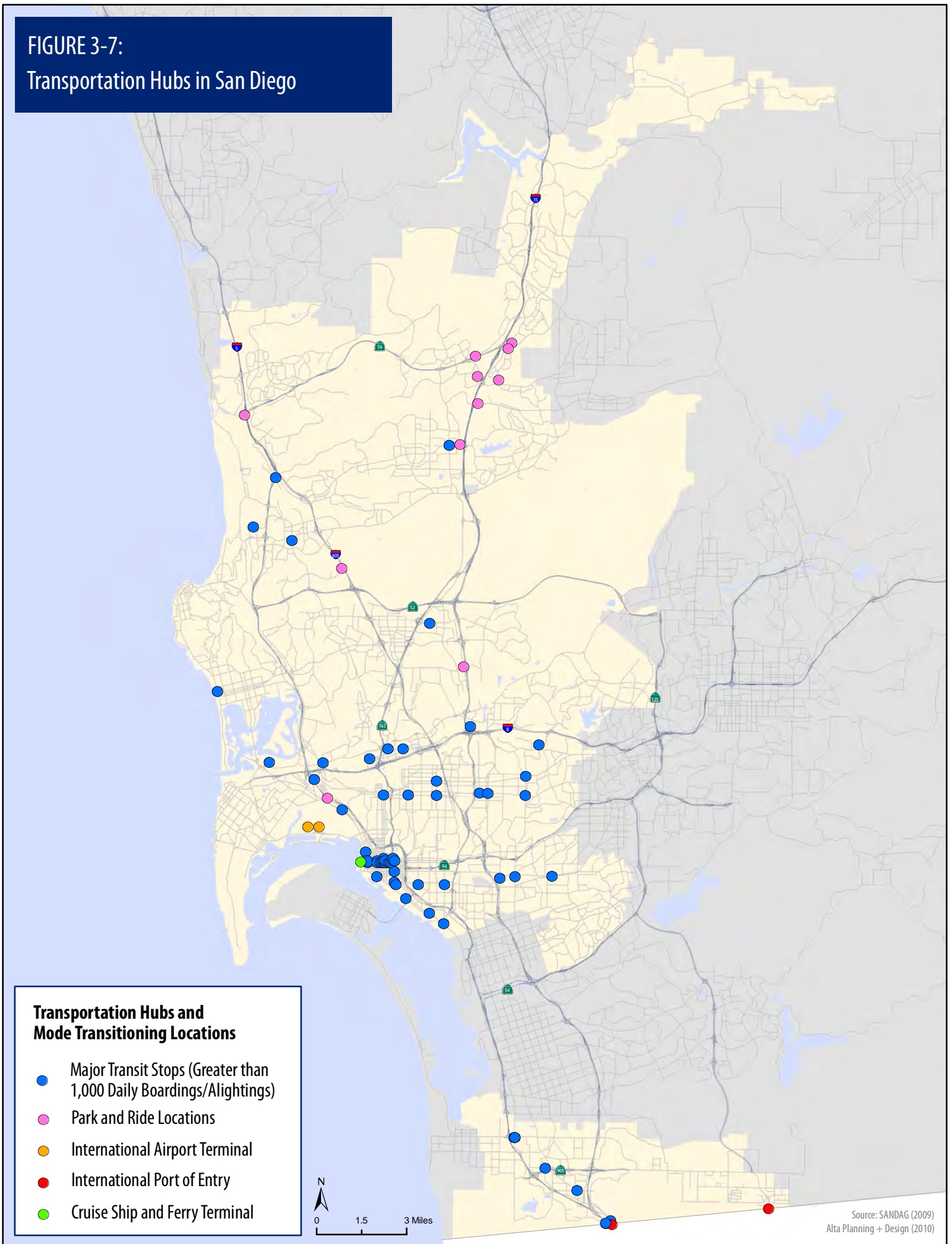
San Diego Trolley (Continued)

- Mission San Diego
- Qualcomm Stadium
- Rio Vista
- Mission Valley Center
- Hazard Center
- Fashion Valley Transit Center
- Morena/Linda Vista
- Old Town Transit Center
- Washington Street
- Middletown
- County Center/Little Italy
- Santa Fe Depot
- American Plaza
- Civic Center
- 5th Avenue
- City College
- Park and Market
- 12th and Imperial
- Barrio Logan
- Harborside
- Palm Avenue
- Iris Avenue
- Beyer Boulevard
- San Ysidro



Bicyclists on Taylor Street next to the Old Town Transit Center

FIGURE 3-7:
Transportation Hubs in San Diego



3.3.2 Park & Ride

Numerous Park & Ride locations in the city offer intermodal connections for bicyclists to carpools and vanpools. Most of these locations are near freeways for those making longer distance trips, and several are located near the northern terminus of the I-15 Carpool/Fastrak lanes in order to facilitate use of the express lanes for carpooling commuters. Park & Ride facilities are found at the following locations:

- Mira Mesa Boulevard at I-15
- Black Mountain Road at Miramar College
- Rancho Carmel Road near Provencal Place
- Taylor Street
- Governor Drive at I-805
- Carmel Valley Road at Sorrento Valley Road
- 47th Street at Castana Street
- 62nd Street at Akins Avenue
- Palm Avenue at Hollister Avenue
- 30th Street at Iris Avenue
- Market Street at Euclid Avenue
- Vista Sorrento Parkway
- Sabre Springs Parkway at Poway Road
- Sabre Springs Parkway at Ted Williams Parkway
- Carmel Mountain Road at Rancho Carmel Drive
- Gilman Drive at I-5
- Seaward Avenue
- Navajo Road at Cowles Mountain Boulevard
- Carmel Mountain Road at Paseo Cardiel
- Carmel Mountain Road at Stoney Creek Road
- Rancho Penasquitos Boulevard at I-15
- Rancho Bernardo Road at I-15
- Carmel Mountain Road at Freeport Road

3.3.3 Ferry Service

The Coronado-San Diego Ferry allows bicycles on board for no additional charge for the trip between the Broadway Pier and Convention Center in downtown San Diego and the Coronado Ferry Landing. The ferry departs from Broadway Pier on the hour from 9:00 AM until 9:00 PM on weekdays, and 10:00 PM on weekends; and from Coronado every half hour from 9:30 AM until 9:30 PM, and 10:30 PM on weekends. Ferry service also serves the San Diego Convention Center, departing the Coronado Ferry Landing every other hour starting at 9:15 AM until 8:15 PM.

3.4 Education, Awareness, and Enforcement Programs

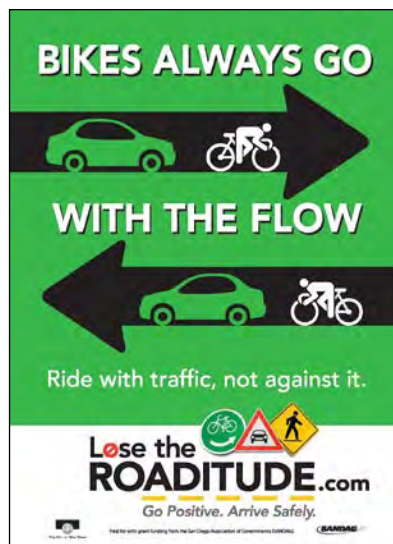
The City’s bicycle education and awareness activities include such initiatives as public awareness campaigns, safety education programs for children, partnering with agencies and organizations in the region to host events and provide literature, and City staff presentations to various organizations.

3.4.1 Public Awareness Campaign

In September 2009 the City, in partnership with SANDAG, launched the “Lose the Roaditude” public awareness campaign. The campaign targets bicyclists, motorists, and pedestrians with the aim of promoting safe roadway behaviors. The campaign is intended to highlight unsafe practices and reinforce the following safety measures:

- Bicycling along with the flow of vehicular traffic
- Wearing bright colors when bicycling or walking at night
- Crossing streets only at crosswalks
- Crossing streets only when pedestrian signals permit
- Looking both ways before crossing a street
- Stopping at red lights and stop signs
- Obeying the speed limits
- Sharing the road when no Bike Lane is present
- Stopping for pedestrians at intersections
- Being courteous toward other roadway users

The campaign relies on billboards, bus panels, transit shelters, circulars, the City TV 24 message board, and the Website <http://www.sandiego.gov/tsw/programs/losetheroaditude/index.shtml> to convey the “Lose the Roaditude” messages.



“Lose the Roaditude” was launched in 2009 with funding from SANDAG

3.4.2 Bicycle Safety Education Program

Every year, the City hosts programs promoting safe and effective bicycling at elementary schools and education centers throughout the City. Working with local bicycle organizations and other cities in San Diego County, the City helps produce Public Service Announcements, as well as the free San Diego County Bike Map, which shows all bicycle routes, path, and lanes throughout the county. The City also provides free literature promoting bike safety, helmet safety, and safe riding skills.

Parts of the current program were modeled after the City's previous safety education program that was carried out through a contractual relationship with Safe Moves.

From mid-1999 through 2000 and 2005, the City contracted with Safe Moves to conduct bicycle and pedestrian safety education in public elementary schools. The program was designed to create positive attitudes towards cycling while teaching personal traffic safety. It consisted of workshops, rodeos, and a helmet program.

The safety education program reached thousands of kids through classroom workshops at elementary, middle, and high schools. The bicycle portion of the course taught:

- Helmet use
- Choosing the right bike
- Proper bicycling clothing
- Recognition and avoidance of common bicycle collisions
- Bicycle maintenance and repair
- Rules, regulations, and ordinances that govern bicyclists
- Bicycle registration
- Using safe Bike Routes to and from school
- Consequences of unsafe bicycle use

Safe Moves also conducted bicycle rodeos at elementary, middle, and high schools designed to develop the following bicycle handling skills:

- Proper braking techniques for hills, wet pavement, sand, rain gutters, debris, car doors
- Proper mounting and dismounting techniques
- Left and right hand turns
- Left hand shoulder check
- Proper turning techniques and avoiding hazards

The third component of the San Diego safety education program consisted of a bike helmet program. Approximately 3,000 helmets were given away to school-aged children during the 18-month program in 1999 and 2000.

Lastly, Safe Moves conducted traffic safety rodeos in high-volume traffic neighborhoods. The target audience for these rodeos was families with school-aged children and neighborhood residents who drove in the area.

3.4.3 Police Department Enforcement

The San Diego Police Department enforces all traffic laws, for bicycles and motor vehicles as part of their regular duties. The police officers ticket violators as they see them and respond to needs and problems as they

arise. Violators include bicyclists who break traffic laws, as well as motorists who disobey traffic laws and make the bicycling environment less safe. The level of enforcement depends on the availability of officers. The Police Department force includes a fleet of 25 bicycle-mounted officers. These officers assist in enforcing traffic laws and have undergone special training in bicycle safety. They are especially qualified to enforce laws as they pertain to bicycles.

3.5 Constraints and Opportunities

With its many ridges, mesas, and canyons, San Diego's topography presents both constraints and opportunities for bicyclists in the city. The many hilly areas of the city can be a hindrance to commuting and recreational cyclists, and the narrow canyons can create chokepoints where automobile traffic becomes concentrated such as at the I-5/I-805 merge or in the I-15 corridor north of Mira Mesa. Many of these chokepoints have bikeway alternatives, parallel to I-5.

Bicycles have been permitted use of the freeway shoulders in some areas, such as along I-5 between Sorrento Valley and Genesee Avenue where a parallel facility for cyclists is not conveniently available. In addition, many arterial streets are not continuous through an area where the freeway has been designated the primary automobile route. Examples include Murphy Canyon Road along I-15 near Friars Road, along SR-94 east of Kelton Avenue, and near the interchange of SR-94 and Home Avenue. In Murphy Canyon and along SR-94 near Kelton, Class I paths have been built to provide vital bicycle linkages, however near SR-94 and Home Avenue, no such linkage exists.



Bicyclists on 30th Street in North Park.

Bike paths have been built along many sections of the freeway system to provide critical bicycle linkages. These include I-15 between Mira Mesa and Sabre Springs, and adjacent to a majority of SR-56. One project, designed in 2010, will provide a critical connection between Mission Valley and Normal Heights via the I-15 corridor.

The city's canyons provide opportunities for Bike Paths in many locations. Many canyon corridors can provide for long stretches of bikeway uninterrupted by busy arterial streets. Such opportunities for canyon corridor bikeways include San Clemente Canyon, Tecolote Canyon, Chollas Canyon, and other small canyons that could provide intra-community linkages in older parts of the city.

Some areas of the city have numerous bikeway facilities and others have very few. Generally, older sections of the city have less bikeway infrastructure than newer areas. For example, Downtown, Southeastern San Diego, the Mid-City communities, and Paradise Hills all have minimal bikeway facilities. One reason for the lack of facilities in older areas of the city is the narrow curb-to-curb street widths that would require reengineering to include Bike Lanes or to provide adequate room for bicycles in a wide curb lane. Most of the streets in these areas also have curbside parking, which can be an obstacle to the implementation of bikeways.

Most areas of the city could benefit from an increase in bikeway mileage, and there are numerous gaps in the existing system, such as along Friars Road near SR-163. Although there are significant amounts of bicycle

facilities in San Diego, more is needed in underserved areas and where there are obvious gaps in the network. Recommendations in this Plan addresses bicycle facility gap issues.

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4 Relationship to Other Plans and Policies

This chapter provides a summary of bicycle-related legislation and other planning or policy documents from the State of California, SANDAG, and the City of San Diego. Legislation, plans, and policies are considered relevant if they directly address bicycle facilities, or if they address land use patterns that affect bicycle planning.

4.1 State Policies

The California Bicycle Transportation Act (1994) is perhaps one of the most important pieces of bicycle-related legislation and requires all cities and counties to have an adopted bicycle master plan in order to qualify to apply for the Bicycle Transportation Account funding source. Caltrans plays an oversight and review role for the Transportation Equity Act for the 21st Century (TEA-21) funding programs for bicycle projects. All of these bicycle-funding programs require approval of a bicycle master plan with specified elements in order to qualify for the programs. Two additional pieces of State legislation were recently adopted and directly relate to bicycle planning at the local and regional levels and are described below.

4.1.1 California Government Code §65302

California Assembly Bill (AB) 1358, also known as the Complete Streets Bill, amended the California Government Code §65302 to require that all major revisions to a city or county's Circulation Element include provisions for the accommodation of all roadway users including bicyclists and pedestrians. Accommodations include bikeways, sidewalks, crosswalks, and curb extensions. The Government Code §65302 reads:

“(2)(A) Commencing January 1, 2011, upon any substantive revision of the circulation element, the legislative body shall modify the circulation element to plan for a balanced, multimodal transportation network that meets the needs of all users of streets, roads, and highways for safe and convenient travel in a manner that is suitable to the rural, suburban, or urban context of the general plan.

(B) For purposes of this paragraph, "users of streets, roads, and highways" means bicyclists, children, persons with disabilities, motorists, movers of commercial goods, pedestrians, users of public transportation, and seniors.”

4.1.2 California SB 375 – Sustainable Communities (2008)

Senate Bill (SB) 375 requires Metropolitan Planning Organizations (MPOs) in California to create a Sustainable Communities Strategy (SCS) as part of each MPO's Regional Transportation Plan. The SCS must identify ways the region will meet the greenhouse gas emissions targets outlined by the California Air Resources Board. One way to help meet the greenhouse gas emissions targets is to increase the bicycle mode share by substituting bicycle trips for automobile trips.

In addition to these policies, the *California Highway Design Manual* contains bikeway design standards and the *California Manual on Uniform Traffic Control Devices (MUTCD)* includes specifications for traffic control devices, signs and pavement markings that must be adhered to in California.

4.2 Regional Bicycle Plan

The San Diego Regional Bicycle Plan was adopted in 2010. The Regional Bicycle Plan proposes a unified bicycle network for the San Diego region by 2050, providing bikeway connections to activity centers, transit facilities, and regional trail systems in addition to bicycle education, marketing/awareness campaigns, encouragement, enforcement, and monitoring and evaluation programs. A significant percentage of the proposed regional bikeway network is within the jurisdiction of the City of San Diego. **Figure 4-1** displays the San Diego Regional Bicycle Plan preferred bicycle network. An Early Action Plan was adopted to implement the Regional Bicycle Plan. The planning process has begun on two projects from the Early Action Plan that are located in the City of San Diego.

4.3 San Diego General Plan – Mobility Element

As presented in Chapter 2, the City of San Diego General Plan’s Mobility Element has a section dedicated to bicycle planning goals and policies. The three overarching goals are:

- A city where bicycling is a viable travel choice, particularly for trips of less than five miles
- A safe and comprehensive local and regional bikeway network
- Environmental quality, public health, recreation and mobility benefits through increased bicycling

The Mobility Element specifically calls out the Bicycle Master Plan as the guiding document for implementation of bikeways, support facilities, and bicycling programs over the next 20 years. Policies under the three overarching goals include identifying and funding bikeways that serve employment centers, village centers, schools, commercial districts, transit stations, and institutions as well as maintaining the network, providing long- and short-term bike parking, increasing bike-transit trips, and developing bicycle education and safety programs.

Several other policies under other goal sections reference bicycling in San Diego. These include increasing bicycling to school programs, providing interconnected streets that provide bicycle access, incorporating bicycle access with traffic calming measures, and including bicycle infrastructure projects and programs in transportation demand management. These goals and policies were considered in the development of this Plan’s overarching policy statements and in the recommendations.

4.4 San Diego Street Design Manual

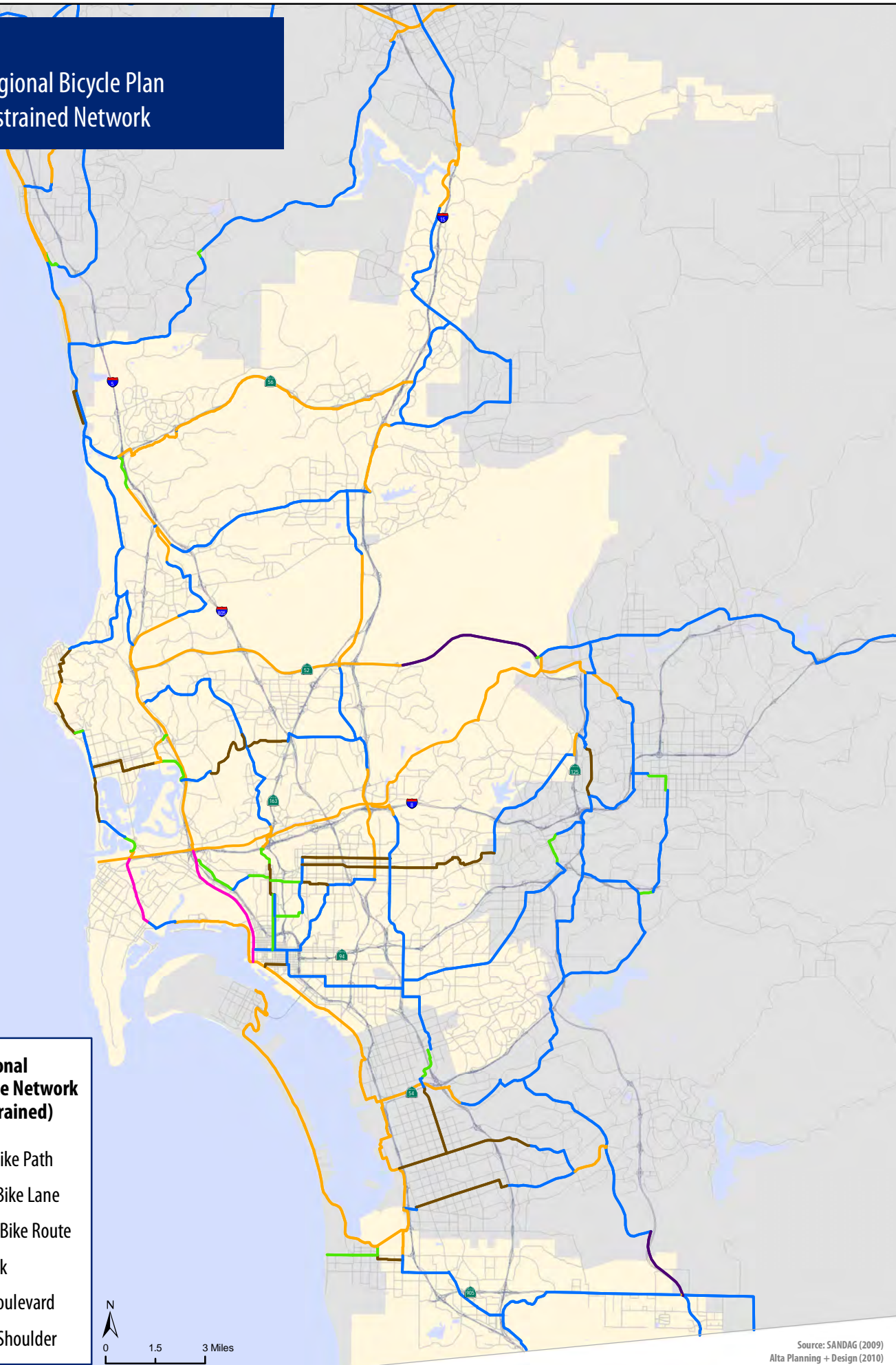
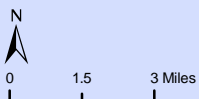
Adopted in 2002, the City of San Diego Street Design Manual provides information and guidance for the design of the public right-of-way. The Street Design Manual is intended to assist in the implementation of the special requirements established through community plans, specific plans, precise plans, or other City Council adopted policy and/or regulatory documents. Related to bicycle facilities, the Street Design Manual includes 6’ Bike Lanes on many of the cross sections for various street types. The Street Design Manual applies primarily to newly developing areas and to older areas that are undergoing revitalization and

redevelopment. Therefore, new and redeveloped streets should be constructed in accordance with the guidance provided by the Street Design Manual and include 6' Bike Lanes whenever feasible.

FIGURE 4-1:
San Diego Regional Bicycle Plan
Revenue Constrained Network

**San Diego Regional
Preferred Bicycle Network
(Revenue Constrained)**

-  Class I - Bike Path
-  Class II - Bike Lane
-  Class III - Bike Route
-  Cycle Track
-  Bicycle Boulevard
-  Freeway Shoulder



4.5 Community Plans

The city of San Diego is comprised of a number of communities that stretch from the coast to inland hills and mesas. These communities have different physical, community, and design characteristics that define one community from another.

The following is a short summary of the goals for each community plan as they relate to bicycle facilities and a description of the proposed bicycle facilities at the time the community plan was adopted. Development of a system of bicycle facilities within this Plan considers community goals, future bicycle facilities for each community, and a regional network that provides continuity and connectivity. The Bicycle Master Plan is a companion item to the City of San Diego General Plan and provides goals and policies for establishing a network. Where community plans provide site specific guidance related to bikeway paths and facilities, the community plan takes precedence. In cases where site specific guidance is absent in a community plan, the Bike Master Plan will take precedence so long as proposed improvements are not inconsistent with the goals and policies of the community plan.

Many of the community plans are dated and some of the facilities mentioned in these plans have been installed since the plans were adopted. Table 4.1 lists the Community Plans and the year of adoption or most recent revision.

Table 4-1: San Diego Community Plans

Community Plan	Adoption Year of Current Plans	Notes
Barrio Logan Community Plan	1978	Undergoing update
Black Mountain Ranch Subarea Plan	1998	
Carmel Mountain Ranch Community Plan	1984	Minor revisions in 1995
Carmel Valley Community Plan	1975	Specific Plans added in 1997
Centre City/Downtown Community Plan	2006	
Clairemont Mesa Community Plan	1989	
College Area Community Plan	1989	
Del Mar Mesa Specific Plan	2000	
East Elliot	2002	
Fairbanks Ranch Country Club Specific Plan	1982	
Greater Golden Hill Community Plan	1990	
Greater North Park Community Plan	1986	Undergoing update
Kearny Mesa Community Plan	2002	
La Jolla Community Plan	2004	
Linda Vista Community Plan	1998	
Midway/Pacific Highway Corridor Community Plan	1991	Undergoing update
Mid-City Communities Plan (City Heights, Eastern Areas)	1998	
Miramar Ranch North	1980	
Mira Mesa Community Plan	1992	Last amended in 2001

Community Plan	Adoption Year of Current Plans	Notes
Mission Beach Precise Plan	1974	Amended in 1982
Mission Valley Community Plan	1984	Update to begin in 2013
Navajo Community Plan	1982	
Normal Heights	1998	
Ocean Beach Local Coastal Program	1991, NA	Undergoing update
Old Town San Diego Community Plan	1987	Undergoing update
Otay Mesa	1981	Undergoing update
Otay Mesa-Nestor Community Plan	1997	
Pacific Beach Community Plan and Local Coastal Program Land Use Plan	1995	
Pacific Highlands Ranch	1998	
Peninsula Community Plan and Local Coastal Program Land Use Plan	1981	Last amended in 1999
Rancho Bernardo Community Plan	1988	
Rancho Encantada	2001	
Rancho Penasquitos Community Plan	1993	
Sabre Springs Community Plan	1982	
San Pasqual Valley Plan	1995	
San Ysidro Community Plan	2000	Undergoing update
Scripps Miramar Ranch Community Plan	1978	
Serra Mesa Community Plan	1977	Last amended in 2000
Skyline-Paradise Hills Community Plan	1987	
Southeast San Diego Community Plan (Encanto)	1987	Undergoing update
Tierrasanta Community Plan	1982	
Tijuana River Valley	1976	
Torrey Highlands	1996	
Torrey Hills	1997	
Torrey Pines	1995	
University Community Plan	1990	
Uptown Community Plan	1988	Undergoing update
Via de la Valle	1984	

Source: City of San Diego Bicycle Master Plan Update 2011

4.5.1 Barrio Logan Community Plan

The Barrio Logan Community Plan update is nearing completion, with public hearings scheduled in mid-2013. The Community Plan includes bicycling related policies to implement the San Diego Bicycle Master Plan and provide secure and accessible bicycle parking at transit location. The Barrio Logan proposed bicycle network presented in the Plan is consistent with the proposed facilities presented in the San Diego Bicycle Master Plan update 2013.

4.5.2 Black Mountain Ranch Sub-Area Plan

This community plan was adopted and approved in 1998. All primary and major roadways within the Black Mountain Ranch area, including the North Village, include plans for Bike Lanes. The plan indicates that appropriate bicycle parking facilities are required at major activity centers and proposes Bike Lanes on the following regional connectors: Camino del Norte, Camino Ruiz, and Carmel Valley Road. Bike lanes currently exist along Carmel Valley Road through the community. Bike lanes also exist along San Dieguito Road, Camino del Sur, and Paseo del Sur.

4.5.3 Carmel Mountain Ranch Community Plan

This plan includes a system of bicycle facilities intended to connect residences with community facilities, services, and open space, and to provide connections between neighborhoods. The 1984 plan recommends safe, accessible pathways within neighborhoods, through open spaces, public utility easements, and along roadways. The plan's bikeway map primarily recommends Bike Lanes along major corridors.

4.5.4 Carmel Valley Community Plan

The current Carmel Valley Community Plan (formerly known as North City West) was adopted in 1975. There are also precise plans for neighborhoods identified in the community plan. The community plan proposes Bike Lanes for the arterial streets of El Camino Real and Del Mar Heights Road to connect to proposed community bicycle and pedestrian paths and Bike Lanes. Bike lanes have been built along El Camino Real and Del Mar Heights Road since this plan was adopted. Additionally, the plan recommends Class I Bike Path connections through cul-de-sacs to prevent circuitous routes. Many of these Bike Path segments have been built. Bike Paths provide connections to the area's open space and to Torrey Pines High School. The plan recommends bicycle racks and lockers and indicates that bicycle racks should be closer to activity centers than the closest vehicle parking space.

4.5.5 Centre City/Downtown Community Plan

The Downtown Community Plan was adopted by City Council in 2006. One goal of the proposed transportation system is to “develop a cohesive and attractive walking and bicycle system within downtown that provides links within the area and to surrounding neighborhoods” (7.2-G-1) with a policy that reads: “Require bike racks and locking systems in all residential projects, multi-tenant retail and office projects, and government and institutional uses” (7.2-P-3). The plan includes a network of streets for Bike Lanes or Bike Paths with connections to the Bayshore Bikeway and surrounding neighborhoods. Civic San Diego, has worked with the City through this BMP update process to ensure the community plan and bicycle plan are consistent. A Downtown Complete Streets Mobility Plan will be prepared to provide specific recommendations including bicycle related recommendations. The plan will designate the type of bicycle facilities on specific streets, provide a series of specific and optional



Bicyclist riding on Harbor Drive in Centre City

street designs including lane widths, use of diagonal or parallel parking, bicycle corrals, widened sidewalks and linear park promenades.

4.5.6 Clairemont Mesa Community Plan

The Clairemont Mesa Community Plan states that its objective is to create a system of Bike Lanes and paths that link parks, recreation areas, schools, and commercial areas throughout the community. The plan proposes many Bike Paths, lanes, and routes with an emphasis on the development of those facilities south of SR-52 and along Genesee Avenue. Genesee Avenue currently has Bike Lanes along the length of the community with the exception of a small segment of Bike Route in the northern part of the community. The plan also recommends that the San Clemente Canyon Bikeway (I-5 to I-805) run along the northern boundary of Marian Bear Memorial Park to ensure that the bikeway does not interfere with biological resources in the canyon park. The San Clemente Canyon Bikeway has not been built. The plan indicates that bikeway signs should include directional signage to lead bicyclists to their desired destinations and that secure bicycle racks should be placed in visible locations near building entrances, and that employers should provide bicycle lockers for employees who commute by bicycle. Bikeways in this area should be directed to serve future trolley and bus transit stations with bicycle racks and lockers at each location.

4.5.7 College Area Community Plan

At the time this plan was adopted in 1989, proposed bikeway facilities included primarily Bike Lanes and Routes, most of which were planned to follow major corridors in the community. The plan also recommends completion of the following bikeway facilities:

- Bike Lanes on College Avenue
- Bike Lanes on El Cajon Boulevard, east from College Avenue
- Bike Route along Alvarado Road from College Avenue to 70th Street
- Bike Lanes on 70th Street between Alvarado Road and Montezuma Road
- Bike Route on Remington Drive west to Dover Drive
- Bike Route along the Plaza Drive right-of-way between College Avenue and 55th Street
- Bike Route on Monroe Street west of Collwood Boulevard
- Upgrade of the Bike Route on Montezuma Road and Collwood Boulevard to Bike Lanes

Currently, the only existing Bike Lanes are along:

- Montezuma Road from the west to east termini, with a segment of Bike Route between 55th Street and Campanile Drive, as proposed in the 1989 plan
- 70th Street, as proposed in the 1989 plan
- Remington Road/55th Street from Hewlett Drive to Montezuma Road
- Collwood Boulevard from Montezuma Road to Monroe Avenue, where it becomes Bike Route through the community's southern boundary
- Alvarado Road from Campus Drive to the community's western boundary

In addition, the plan recommends that all bike facilities should include approved signage; all new commercial or multi-family developments should provide bicycle-parking facilities; and parking facilities should be provided at the San Diego State University (SDSU) Transit Center. Specific suggestions are made for the SDSU campus to provide more bicycle racks, lockers, and improved signage.

4.5.8 Del Mar Mesa Specific Plan

The Del Mar Mesa Specific Plan, adopted in 2000, proposes six-foot wide Bike Lanes on Carmel Mountain Road and Camino Santa Fe. Currently there are no on-street facilities in the community. The plan also proposes a system of multi-use trails adjacent to all Circulation Element roadways. These trails are proposed to accommodate bicyclists, pedestrians and horseback riding activities with a ten-foot right-of-way separated from the roadway by a six-foot landscaped parkway.

4.5.9 East Elliott Community Plan

East Elliot’s Community Plan was revised in 2002, designating the majority of the community sanitary fill and potential landfill. There are no proposed bikeways.

4.5.10 Fairbanks Ranch Country Club Specific Plan

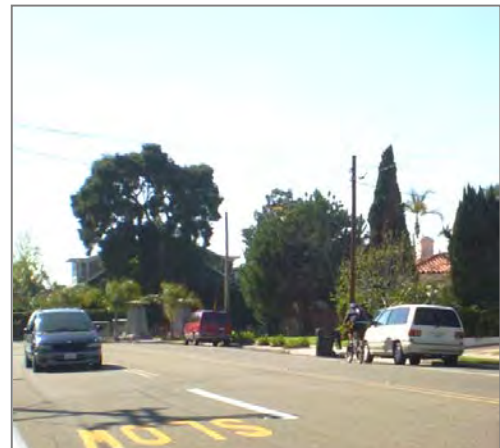
This community plan, adopted in 1982, briefly discusses the deeding of the river valley and adjacent slopes to the City of San Diego and utilizing the remaining open space for possible riding and/or hiking trails.

4.5.11 Greater Golden Hill Community Plan

The most recently revised Greater Golden Hill Community Plan (1990) states that an extensive bikeway system for this area is not feasible due to topography. However, it does recommend developing a bikeway system to provide access within the community, to regional destinations such as Balboa Park, adjacent communities, and four recreational areas (Grape Street picnic area, Golden Hill Park, the 28th Street Strip, and Golden Hill Community Center). The plan recommends extensive signing for bikeway users including destination plates, route signs, and arrows for users to ensure that they are able to follow the designated route. The plan also recommends bicycle parking facilities at major activity centers and transit centers. It has established the goal of reducing traffic in the community by encouraging alternative transportation, including bicycling.

4.5.12 Greater North Park Community Plan

The Greater North Park Community Plan of 1990, states that there are no Bike Lanes in this community. The plan recommends implementing an extensive bikeway system that provides access to community attractions and regional destinations such as Balboa Park and adjacent communities. The plan also recommends bicycle racks and lockers be installed in visible locations with appropriate signage. Since the adoption of the plan, Bike Lanes have been installed along a northern segment of Texas Street into Mission Valley and along the majority of Utah Street. Bike routes currently exist along Howard Street and along the eastern portion of Landis Street.



Bicyclist riding on the Utah Street Bike Lane in North Park

The following roadways are cited as those that should be included in a comprehensive bikeway system:

- Howard Avenue
- Louisiana Street

- Adams Avenue
- Landis Street
- Morley Field Drive
- Upas Street
- Thorn Street
- Juniper Street
- University Avenue at Lincoln Avenue
- Texas Street
- 28th Street
- Utah Street
- Boundary Street
- Niles Street
- Park Boulevard

4.5.13 Linda Vista Community Plan

The Linda Vista Community Plan, adopted in 1998 states a goal of providing safe and pleasant pedestrian walkways and bikeways to connect residential neighborhoods, schools, parks, and commercial areas. The Linda Vista community has a Class I bike path along the south side of Friars Road and Class II bicycle lanes along Linda Vista Road.

4.5.14 Midway/Pacific Highway Corridor Community Plan

The Midway/Pacific Highway Corridor Community Plan and Local Coastal Program Land Use Plan was adopted in 1991 and most recently amended in 2006. This community plan establishes a policy to “promote access to commercial centers, employment sites, and coastal and recreational areas by providing bicycle access along major public thoroughfares.” Additionally, the plan sets forth an Action Plan for implementing the recommended bicycle facilities. The plan proposes Bike Lanes along Rosecrans Street, Midway Drive, Sports Arena Boulevard, Kurtz Street, Pacific Highway, Lytton Street, and Barnett Avenue. Currently, Bike Lanes exist along portions of Rosecrans Street and Pacific Highway.

4.5.15 Mid-City Communities Plan (City Heights, Normal Heights, Eastern Area, Kensington-Talmadge)

A vision statement of the Mid-City Communities Plan is to “encourage and enhance pedestrian and bicycling as effective modes of personal transportation.” The approved bicycle system identifies primarily Class II Bike Lanes along the major roadways including Fairmont Avenue, 54th Street, Chollas Parkway, College Grove, Federal Boulevard, and Monroe Avenue. At present, none of these roadways have Bike Lanes.

4.5.16 Miramar Ranch North Community Plan

An objective of the Miramar Ranch North Plan is to develop a system of bikeways tying into the regional network and connecting to the I-15 pathway. The plan proposes Bike Lanes on Spring Canyon Road, Scripps Ranch Boulevard, and Cypress Canyon; and bicycle parking facilities at schools, industrial areas, parks, and the I-15 / Mercy Road interchange Park & Ride. All of three roadways listed above currently have Bike Lanes.

4.5.17 Mira Mesa Community Plan

The Mira Mesa Community Plan identifies a system of bikeways and standards. Class II Bike Lanes are recommended along major roadways including Carroll Canyon Road, Carroll Road, Miramar Road, Mira Mesa Boulevard, Sorrento Valley Road, Black Mountain Road, Camino Ruiz, and Camino Sante Fe. Most of these facilities have been constructed since this community plan was adopted. Also since that time, the City has planned to close gaps in the Mira Mesa Boulevard Class II facility through the community.

4.5.18 Mission Beach Precise Plan

Due to traffic congestion and lack of adequate parking, biking is a convenient form of transportation in this area. Bicycle activity primarily occurs along a 2-mile stretch along the beach known as the Ocean Front Walk. The Bayside Walk is also a popular multi-use pathway along the shores of Mission Bay. The Plan recommends widening both Ocean Front Walk and the Bayside Walk in order to accommodate the demand for these frequently used multi-use pathways. The Ocean Front Walk has been widened; however, the Bayside Walk has not been widened. The plan also recommends Bike Routes extending the entire length of the community.

4.5.19 Mission Valley Community Plan

An objective of the plan is to “create an intra-community bikeway system which would provide access to the various land use developments within the Mission Valley and connect to the regional system” and to “encourage bicycle use in the Valley.” The plan identifies a bicycle system that utilizes major roadways and offers Class I paths where they can be accommodated. The key components of the bikeway system include connections to Mission Bay, activity centers within Mission Valley, and Mission Hills. The plan recommends support bicycle facilities including installing bicycle sensitive signal detectors at signalized intersections, requiring development fees to improve bicycle facilities, and providing lockers, showers, and changing facilities at major developments in order to encourage bicycling as a convenient mode of transportation.

Since this community plan was adopted, Mission Valley has had an extensive system of Class I Bike Paths developed. Class I facilities now exist on both sides of the San Diego River. Plans are to close gaps in the existing network and extend it easterly into the Navajo community to connect to Mission Trails Regional Park and eventually to the Santee city limit. The City of San Diego plans to eliminate at-grade crossings at major intersections with bridges.

4.5.20 Navajo Community Plan

At the time of its adoption, this community plan identified existing Class II Bike Lanes along Navajo Road and Lake Murray Boulevard. Proposed bicycle facilities include:

- Regional Class I Bike Path from the beach through Mission Valley to Mission Trails Regional Park along the San Diego River (incomplete)
- A 2.0-mile Bike Route along Del Cerro Boulevard.
- A 2.0-mile Bike Route connecting the Allied Gardens Bike Route and the proposed San Diego River route in the vicinity of Zion Avenue (Bike Route exists along Zion Avenue)
- An extension of the Jackson Drive route connecting to the San Carlos Community Center.

Since the time of the adoption of this community plan, three bikeway facilities have been developed, including Class II lanes on Mission Gorge Road and Jackson Drive.

4.5.21 Ocean Beach Local Coastal Program (LCP)

At the time of adoption of the LCP in 1986, there were a limited number of bikeway facilities in Ocean Beach. Now, Class III Bike Routes exist on Voltaire, Abbot, Newport, Cable, and Orchard Avenues, and Sunset Cliffs Boulevard. The program recognizes that bicycling is an important mode of transportation for short trips to stores and to the beach and sets the goal to develop a system of bikeways that links Ocean Beach to surrounding bicycle facilities and to develop an intra-community bikeway network that links various activity centers within Ocean Beach. As a priority, the plan identifies a north-south bikeway through Ocean Beach along the coastline. According to the plan, developing bicycle facilities should minimize potential conflicts between bicycles and cars, both moving and parked. Since this plan was adopted, the Ocean Beach Class I path along the San Diego River has been extended to Robb Field. The Community Plan update is scheduled for completion in 2013.

4.5.22 Old Town San Diego Community Plan

The Plan recommends implementing a design for bikeway corridors along Taylor Street and Pacific Highway. The route is recommended as a Class I Bicycle Path to provide the safety along these high traffic areas. Class III Bike Routes along other streets are recommended instead of Class II Bike Lanes due to the existence of narrow street widths and on-street parking.

4.5.23 Otay Mesa Community Plan

Community Plan update is scheduled for completion in 2013. The Draft Otay Mesa Community Plan acknowledges that cyclists need safe bikeways that are connected to activity centers, and benefit from easy access on public transit, convenient and secure bicycle parking, and other supportive facilities. Further the Otay Mesa Community Plan includes Class I bikeways along Airway Road, Caliente Road, and Beyer Boulevard and Class II bikeways along all new classified streets in Otay Mesa. Additionally, the plan states that bikeways within the village areas should connect to trail heads with access to the canyon system trails and pathways.

4.5.24 Otay Mesa-Nestor Community Plan

A bicycle system adopted in 1979 identifies the Bayshore Bikeway project, which is currently a funded project to extend the Class I Bike Path north through the cities of Chula Vista and National City and will connect with the Silver Strand Bikeway and Coronado to the west. In 2009, a one-mile segment of the Bayshore Bikeway was completed connecting the Saturn Boulevard Bike Path to the Silver Strand Bike Path.

4.5.25 Pacific Beach Community Plan and Local Coastal Program Land Use Plan

Pacific Beach Community Plan identifies a bikeway system for both commuter-oriented use and recreational use consisting of Class I, II, and III facilities. The plan encourages bicycle usage for both leisure and work trips. Developed within a grid roadway network, Pacific Beach lends itself to bicycle commuting. Existing bikeways consists of a Class I Bike Path around Sail Bay (Sail Bay Bikeway Path) that continues around Crown Point at which point bicyclists are directed to a Bike Lane on Crown Point Drive. Other Class I pathways include the very popular Ocean Front Walk along the beach and the Rose Creek Bike Path, which is a regional route linking to University City and the UCSD area to the north.

There is an existing Class II facility shown in Pacific Beach along Soledad Mountain Road, Foothill Boulevard, and Grand Avenue. Future Bikeway maps in the plan identify Bike Lanes along the entire Grand Avenue corridor, connecting the Ocean Front Walk to the Rose Creek Bike Path. Class III Bike Routes are proposed in the community plan for Loring Street, Cass Street, Mission Boulevard, Pacific Beach Drive, Jewel Street, and Lamont Street. A Class III facility currently exists along Hornblend Avenue and serves as an alternate to Garnet and Grand Avenues.

4.5.26 Pacific Highlands Ranch Subarea Plan

In Pacific Highlands Ranch, Bike Lanes are proposed on all cross-sections of roadway types, pending feasibility.

4.5.27 Peninsula Community Plan

The Peninsula Community Plan states that efforts should be made to encourage and facilitate the use of public transportation as an alternative to the automobile. The plan recommends that a bikeway system that provides a systematic network of bikeways between major activity centers be developed that focuses, where practical, on less traveled streets. The plan also recommends that bicycle parking facilities be located at businesses and retail centers and at heavily used beach front and bay front areas. A system of bikeways is identified which includes major streets such as Rosecrans Street, Chatsworth and Nimitz Boulevards, and Canon Street. The plan recommends exploration of a bikeway to connect to the Sunset Cliffs corridor. Since the adoption of this plan, Class II Bike Lanes have been built along Nimitz Boulevard, Cabrillo Memorial Drive, and portions of Rosecrans Street. Class III facilities are located along Catalina Boulevard and several streets near Point Loma Nazarene University.

4.5.28 Rancho Bernardo Community Plan

Recognizing the increased usage of bicycles throughout San Diego, this community plan identifies a system of existing and proposed bikeways. Many of the major roadways in Rancho Bernardo already include Class II lanes, such as Rancho Bernardo Road, Bernardo Center Drive, Camino Del Norte, West Bernardo Drive, Bernardo Heights Parkway and Pomerado Road. In 2009, the Lake Hodges Bike Path bridge was completed, providing improved connections to the city of Escondido. Throughout the community, Class III Bike Routes are proposed for most of the community's street network. The plan identifies the need for bicycle parking facilities and bicycle lockers for employees arriving at major activity centers.

4.5.29 Rancho Encantada Precise Plan

Class II Bike Lanes in Rancho Encantada will follow Pomerado Road and Stonebridge Parkway. Class III Bicycle Routes will accommodate bicycle travel on local residential streets. Bicycle parking facilities are anticipated at the public school/park site.

4.5.30 Rancho Penasquitos Community Plan

The Rancho Penasquitos Community Plan recommends that a bikeway system provide access from residential areas to public facilities, commercial destinations, and link neighborhoods. The plan recommends implementing Class II lanes on all major streets and Class I paths along the County Water Authority's right-of-way and through public parklands including Black Mountain Park and Los Penasquitos Canyon Preserve. In addition, the plan recommends that bike lockers and locking racks be located at major activity and transit

centers. A Class I Bike Path currently exists along the southern edge of the SR-56 freeway from I-5 to Rancho Penasquitos Boulevard.

4.5.31 Sabre Springs Community Plan

This community plan identifies a number of bikeways to provide internal circulation within Sabre Springs and connections to surrounding communities. An existing Class I Bicycle Path is located adjacent to I-15 from Poway Road to near Mira Mesa Boulevard. A planned Class I facility would serve the park south of Penasquitos Creek. Bike Lanes are provided along Poway Road and Sabre Springs Parkway.

4.5.32 San Pasqual Valley Plan

The existing bikeway system in the San Pasqual Valley is limited to the newly constructed Lake Hodges Bike Path connecting Rancho Bernardo with the city of Escondido. The community plan identifies goals that support a bicycle circulation system throughout the Valley with connections to bikeways in adjacent communities. The future widening of major two-lane roads in the community will facilitate bicycle lane improvements. Via Rancho Parkway, Cloverdale Road, San Pasqual Road, and Highland Valley Road are designated to be widened to include Bike Lanes. The plan includes a proposed Class I path along the San Dieguito River climbing through a finger canyon along the steep south slope of the Valley.

4.5.33 San Ysidro Community Plan

The San Ysidro Community Plan proposes a number of bikeways:

- Dairy Mart Road from Beyer Boulevard to Monument Road
- Smythe Avenue from SR-905 to Beyer Boulevard
- Willow Road from San Ysidro Boulevard to Camino de la Plaza with a grade separated crossing of I-5
- Beyer Boulevard between SR-905 and Siempre Viva Road
- Otay Mesa Road between Beyer Boulevard and SR-905
- Camino de la Plaza between Dairy Mart Road and San Ysidro Boulevard
- San Ysidro Boulevard from Dairy Mart Road to Camino de la Plaza
- East Beyer Boulevard from Otay Mesa Road to San Ysidro Boulevard
- Smythe Avenue from Beyer Boulevard to San Ysidro Boulevard
- Border Village Road along the entire length of the proposed couplet
- Camiones Way/I-5 (southbound only) from Camino de la Plaza to the international border
- Virginia Avenue, if the commercial border crossing is closed and reopened as a pedestrian crossing, from Camino de la Plaza to the international border

Additionally, the plan calls for Pacific Coast Bicentennial Bike Route signs and a map and kiosk of the route, a monument at the border encouraging bicycle use, and providing a bicycle only lane at the border crossing. Portions of Class II Bike Lane have been built along Dairy Mart Road, Smythe Avenue, and East Beyer Boulevard. The Community Plan update for San Ysidro started in 2011.

4.5.34 Serra Mesa Community Plan

The Serra Mesa Community Plan states that a community bikeway system should be designated as reflected on the Bikeways Map shown in the plan. Bicycle facilities on Aero Drive, Murphy Canyon Road, Mission Village Drive, and Murray Ridge Road have been built since the adoption of the community plan. The plan

4.5.34 Serra Mesa Community Plan

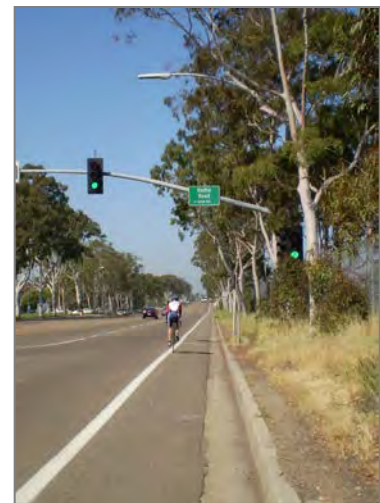
The Serra Mesa Community Plan states that a community bikeway system should be designated as reflected on the Bikeways Map shown in the plan. Bicycle facilities on Aero Drive, Murphy Canyon Road, Mission Village Drive, and Murray Ridge Road have been built since the adoption of the community plan. The plan also suggests improving vehicular/bicycle connections through the use of "bicycle park-bus ride" and "piggy-back" bicycle bus transportation concepts.

4.5.35 Skyline-Paradise Hills Community Plan

This Plan identifies a system of bicycle facilities although none of the facilities at the time of the adoption (1987) of the community plan had been implemented. The proposed bikeway system identifies the development of Class I paths within the Encanto open space area and along Jamacha Road to accommodate both alternative modes of transportation and passive recreational use. Bike Lanes are identified on Paradise Valley Road and Skyline Drive. Class III Bike Route facilities are located along streets such as Potomac Street, Parkside Avenue, Alta View Drive, and Woodman Street.

4.5.36 Scripps Miramar Ranch Community Plan

The Scripps Miramar Ranch Community Plan states that non-motorized transportation shall be accommodated through the development of accessible pathways and/or sidewalks and bikeways along parking strips and sidewalks in all residential areas. A Non-Motorized Circulation Element included in the plan identifies a system of bikeways and hiking and equestrian trails. The bikeways include the highly used Class I Bike Path around Miramar Reservoir and along Interstate 15, which connects with Poway Road to the north. Class II Bike Lanes are identified along the major roads including Carroll Canyon Road, Mira Mesa Boulevard, and Scripps Lake Drive. Class III routes are identified on Mesa Madra Drive, Sunset Ridge Drive, Spring Canyon Road, Pomerado Road, and Avenida Magnifica.



*Bicyclist riding on the Aero Drive
Bike Lane*

4.5.37 Southeastern San Diego Community Plan

This community plan notes that the surface streets provide excellent access to San Diego Bay, Balboa Park, and downtown for both recreational and commuter bicyclists, and most of the roadways are proposed as Bike Routes.

Bike Routes have been designated for 28th Street, L Street, Ocean View Boulevard, and Alpha Street. According to the plan, two Class I paths are located in this area: one parallel to I-805 between Hilltop Drive and the railroad tracks, and one parallel to SR-94 between Kelton Road and 60th Street. A Bike Path exists along SR-94. Currently, Bike Routes exist along segments of Market Street, Imperial Avenue, Valencia Parkway, and Euclid Avenue. Portions of Imperial Avenue, Churchward Street, and Skyline Drive have Bike Lanes.

4.5.38 Tierrasanta Community Plan

Personal health and the environment are some important reasons for bicycling according to the Tierrasanta Community Plan. In response, the plan encourages alternative forms of transportation and a bikeway system for both community and regional needs. The bikeway plan identifies Class II lanes along Clairemont Mesa

Boulevard and Tierrasanta Boulevard. Bike Lanes currently exist along Clairemont Mesa Boulevard and Tierrasanta Boulevard, but not along Spring Canyon Road.

4.5.39 Torrey Highlands Subarea Plan

Torrey Highlands contains several bikeways which travel the span of the community providing access to adjacent communities, including the SR-56 Bike Path, Carmel Valley Road, and Camino del Sur.

4.5.40 Torrey Hills Community Plan

The Torrey Hills Community Plan proposes a network of bicycle facilities through Torrey Hills. These bikeways include Carmel Mountain Road, El Camino Real, Vista Sorrento Parkway, Arroyo Sorrento Road and Carmel Creek Road. The Torrey Hills Community Plan has proposed and built bikeways along Carmel Mountain Road and El Camino Real and along Vista Sorrento Parkway. Class II bicycle facilities also exist on Ocean Air Drive. All streets designated as major streets are proposed to have Class II Bike Lanes with the exception of Vista Sorrento Parkway, south of the Penasquitos Creek crossing, where a Class III Bicycle Route is recommended for this segment. The plan recommends developing a system of bikeways, which includes bicycle storage facilities, that ties into the regional bicycle network.

4.5.41 Torrey Pines Community Plan

Class I and II bicycle facilities have been constructed along the northern portion of Sorrento Valley Road between Carmel Valley Road and the Sorrento Valley Industrial Park. The Coastal Rail Trail alignment is proposed to travel along the Santa Fe railroad right-of-way.

4.5.42 University Community Plan

As of the date of adoption of the community plan (1990), a system of bikeways was already established. Existing Class I Bike Paths include the Rose Canyon Bikeway and portions along North Torrey Pines Road. Class II Bike Lanes include the La Jolla Colony Drive, Palmillas Drive, Arriba Street, Governor Drive, Genesee Avenue, Miramar Road, Eastgate Mall, North Torrey Pines Road, and Nobel Drive. Bicyclists are permitted to utilize the shoulder of Interstate 5 between Sorrento Valley Road to Genesee Avenue. The proposed Coastal Rail Trail project will traverse the University Community.

4.5.43 Uptown Community Plan

Uptown is a popular cycling area due to its proximity to major employment centers and recreation areas. The community is easily accessible to downtown San Diego, Balboa Park, Old Town, and the Embarcadero. Recognizing the advantages of the community to these areas, an objective of the plan is to:

"Develop a comprehensive bikeway system which would not only provide a safe connection between neighborhoods, schools and commercial areas, but which would connect with bikeways in neighboring communities and Centre City."

Existing east-west Class III facilities are located at Presidio Park Drive, Fort Stockton Drive, University Avenue, Third Avenue, and Upas Street. Existing north-south Class III facilities include Goldfinch Street, Reynard Way, Fourth and Sixth Avenues south of Upas Street, and Fifth Avenue south of Juniper Street. The proposed bikeway system includes additional linkages to Old Town, Centre City, and the Middletown area.

The plan states that, whenever possible, bicycle lockers or specified areas for bicycle parking should be provided to cycling employees. Employer incentives that allow flexible hours for bike commuters should be considered.

4.5.44 Via de la Valle Specific Plan

Via de la Valle has a Class II Bike Lane, providing connections between the city of Del Mar and El Camino Real. Class II also exists along San Andres Drive feeding northward into the boundary with unincorporated San Diego County.

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5 Needs Analysis

This chapter presents an overview of current bicycling demand and barriers in San Diego and estimates potential future demand and benefits that could be realized through implementation of this Plan. Elements of this chapter were used to develop the Plan recommendations. They include:

- **Bicycle Demand Modeling** with raster-based spatial modeling to highlight segments of the roadway network with the greatest propensity for bicycle activity compared to other locations in San Diego.
- **Public Input** summarizes public comments collected throughout the planning process to understand current bicyclists' issues and desires.
- **Bicycle Safety and Collision Analysis** presents a summary and analysis of bicycle-related collisions and bicycling safety issues.
- **Commute Patterns** summarizes current commute mode split statistics, according to the US Census Bureau, as an indication of current system usage and to establish a baseline with which to measure progress.
- **Trip Reduction and Potential Air Quality Benefits** were estimated to gauge the potential environmental benefits associated with increasing the bicycle mode split through Plan implementation.

Assessing needs and potential benefits is instrumental to planning a system that serves the needs of all user groups; and is useful when pursuing competitive funding and attempting to quantify future usage and benefits to justify future expenditures.

5.1 Bicycling Demand Modeling

Bicycling demand modeling was used in the planning process to estimate relative demand for bicycle travel across the city based on population characteristics and proximity to land uses associated with higher rates of bicycling activity. In doing so, this tool assisted in identifying roadway segments where investments in bicycle facilities would be most impactful based on anticipated use.

The Plan includes demand modeling on two geographic scales of travel, intra-community travel or “within-community” travel and inter-community or “between-community” travel. The former consists of shorter trips that are taken within a neighborhood or community area; the latter refers to longer trips that are taken between communities or neighborhoods. Demand was modeled at these two scales because there is variation in the strength of factors believed to attract or generate bicycle trips for shorter (less than five miles) versus longer trips. The following sections summarize the demand modeling process and results.

5.1.1 Intra-Community Bicycling Demands

The intra-community bicycle demand model integrates two sub-models, the bicycle trip attractor and bicycle trip generator models, which are designed to identify areas with greater propensity for bicycling due to the intensity of land uses likely to attract or generate a relatively shorter bicycle trip. The variables employed in these sub-models and their corresponding point systems were presented to and discussed with the Project Working Group. National and local bicycle travel behavior surveys were also consulted to form the selection of input variables and their associated points. The City uses similar raster-based spatial modeling approaches

in multiple other planning efforts, including their 2008 General Plan Update Village Propensity Model and the on-going Pedestrian Master Plan Priority Modeling.

5.1.1.1 Bicycle Trip Attractor Model

Table 5-1 presents the bicycle trip attractor model inputs that consist of land uses considered to have a higher potential for attracting bicycle trips, such as schools, beaches, parks, and retail centers. The model inputs, their respective points, and the distance-based weights applied to the inputs are also shown in Table 5-1. Figure 5-1 displays the location of bicycle trip attracting land uses across San Diego. The bicycle trip attracting land uses were buffered by varying distances (as shown in Table 5-1) and then assigned a score.

Table 5-1: Bicycle Trip Attractor Input Variables and Scores

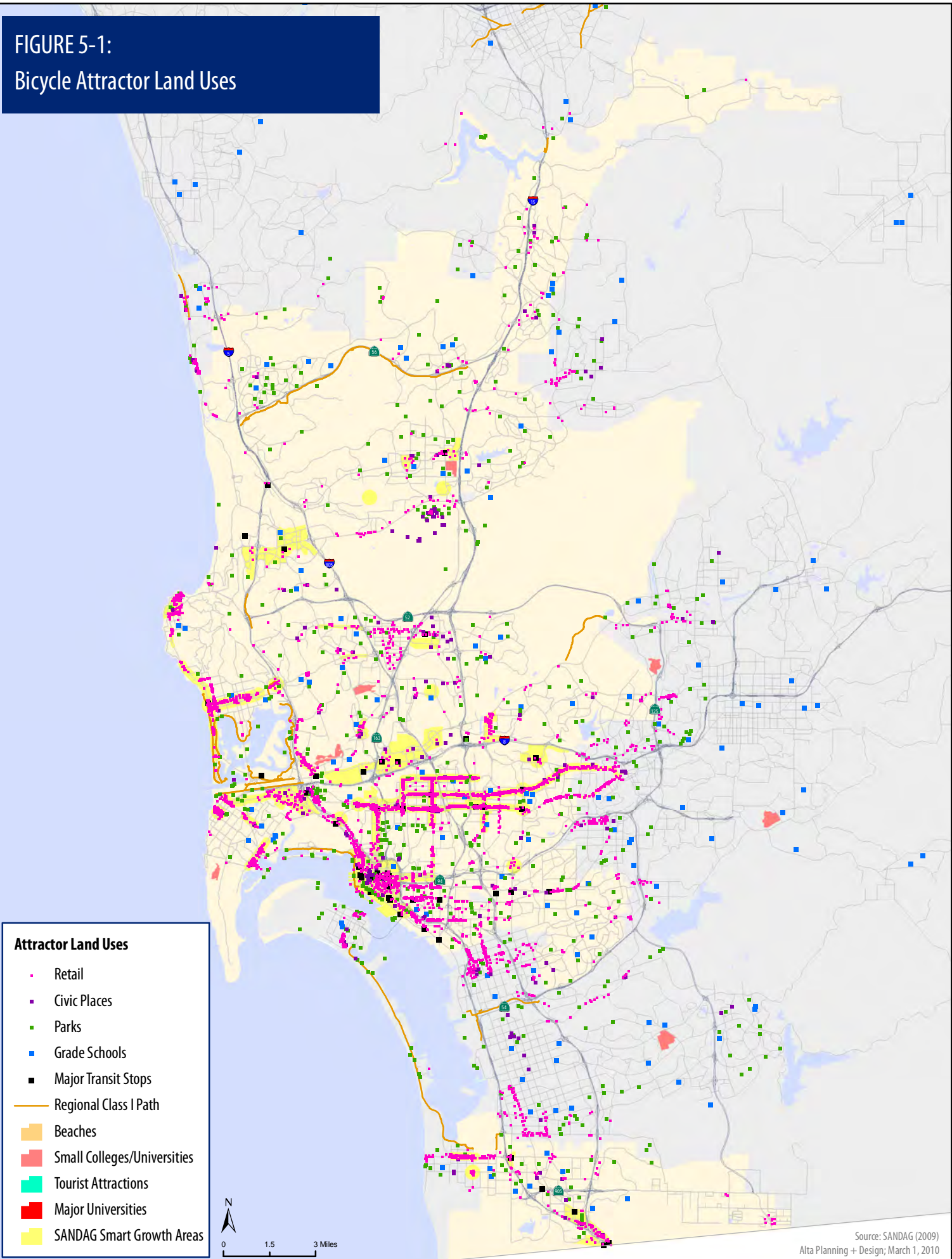
Bicycling Attractors	Points	Weights	Score
Major Universities (SDSU and UCSD)	4	1	4
Beaches & Coastal Parks	4	1	4
Tourist Attractions	4	1	4
Transit (> 1,000 passengers per day)	4	1	4
Regional Class I Bicycle Path	4	1	4
Non-Coastal Parks & Recreation	3	1	3
Small Colleges & Universities	3	1	3
Smart Growth Opportunity Areas	2	1	2
Retail Facilities*	1	1	1
High, Middle, & Elementary Schools	1	1	1
Neighborhood Civic Facilities	1	1	1
Weighting Values Based on Distance to Attractor			
Within ½ mile	1.50	1	1.50
Between ½ and 1 mile	1.00	1	1.00
Between 1 and 1 ½ mile	0.75	1	0.75
Between 1 ½ and 2 miles	0.50	1	0.50
Between 2 and 3 miles	0.25	1	0.25

**Only a single distance-based ranking was applied to Retail Facilities. The area outside of one-quarter mile of retail uses was not included as potential bicycle trip-attracting locations.*

Land use buffers were generated using ArcView’s Network Analyst software resulting in buffers of varying distances around the bicycle trip attracting land uses along the roadway network. Freeways, and other roadways where bicycling is prohibited, were removed from the analysis before generating the street network buffers. Figure 5-2 displays the bicycle trip attractor model results.

Figure 5-1: Bicycle Trip Attractor Land Uses

FIGURE 5-1:
Bicycle Attractor Land Uses



Attractor Land Uses

- Retail
- Civic Places
- Parks
- Grade Schools
- Major Transit Stops
- Regional Class I Path
- Beaches
- Small Colleges/Universities
- Tourist Attractions
- Major Universities
- SANDAG Smart Growth Areas

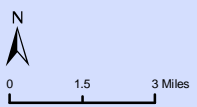
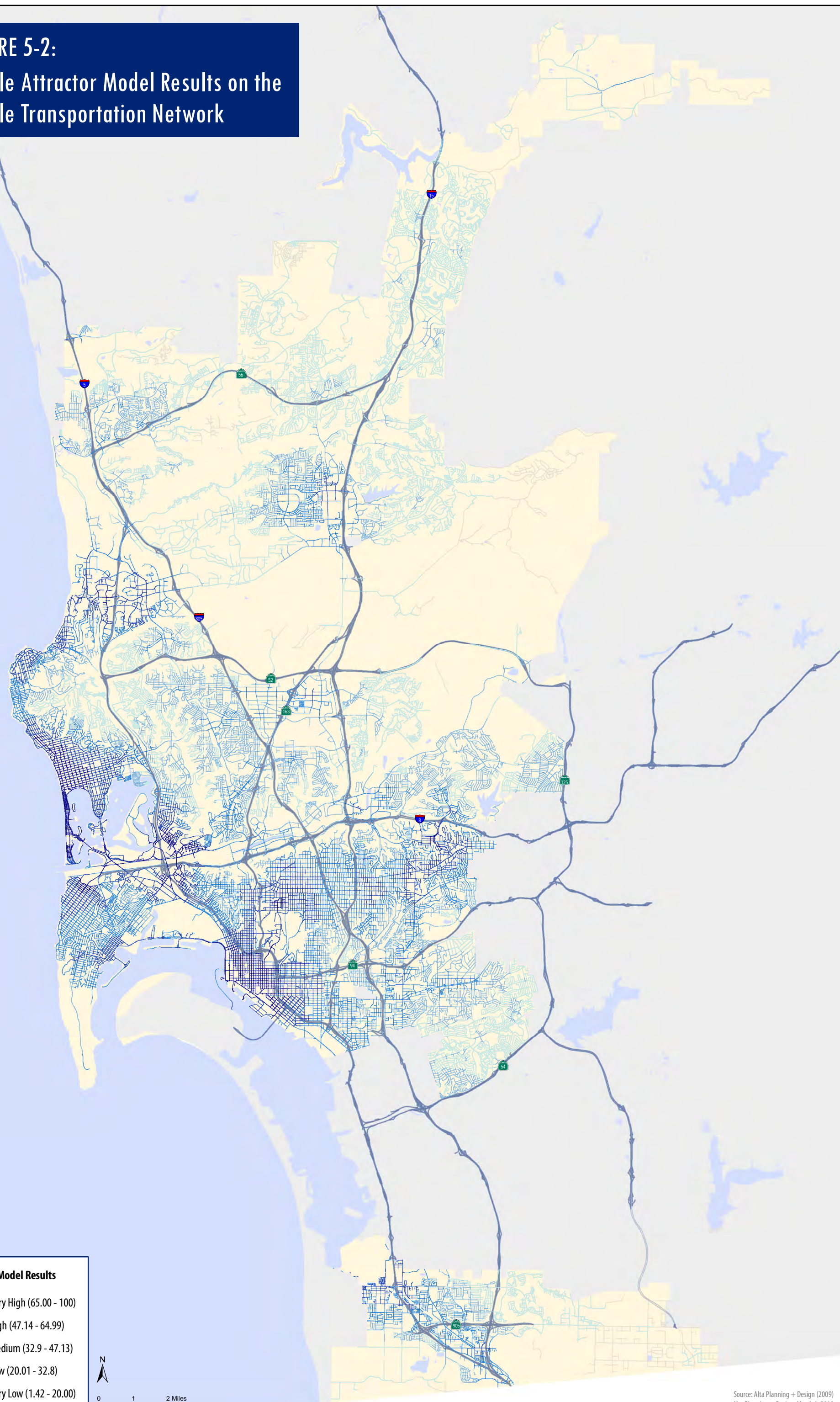


FIGURE 5-2:
Bicycle Attractor Model Results on the
Bicycle Transportation Network



Attractor Model Results

- Very High (65.00 - 100)
- High (47.14 - 64.99)
- Medium (32.9 - 47.13)
- Low (20.01 - 32.8)
- Very Low (1.42 - 20.00)

N

0 1 2 Miles

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5.1.1.2 Bicycle Trip Generator Model

Table 5-2 displays the bicycle trip generator model inputs including total population and employment densities, and the density of sub-populations believed to have potentially higher rates of bicycling, such as households without a vehicle and bicycle commuters.

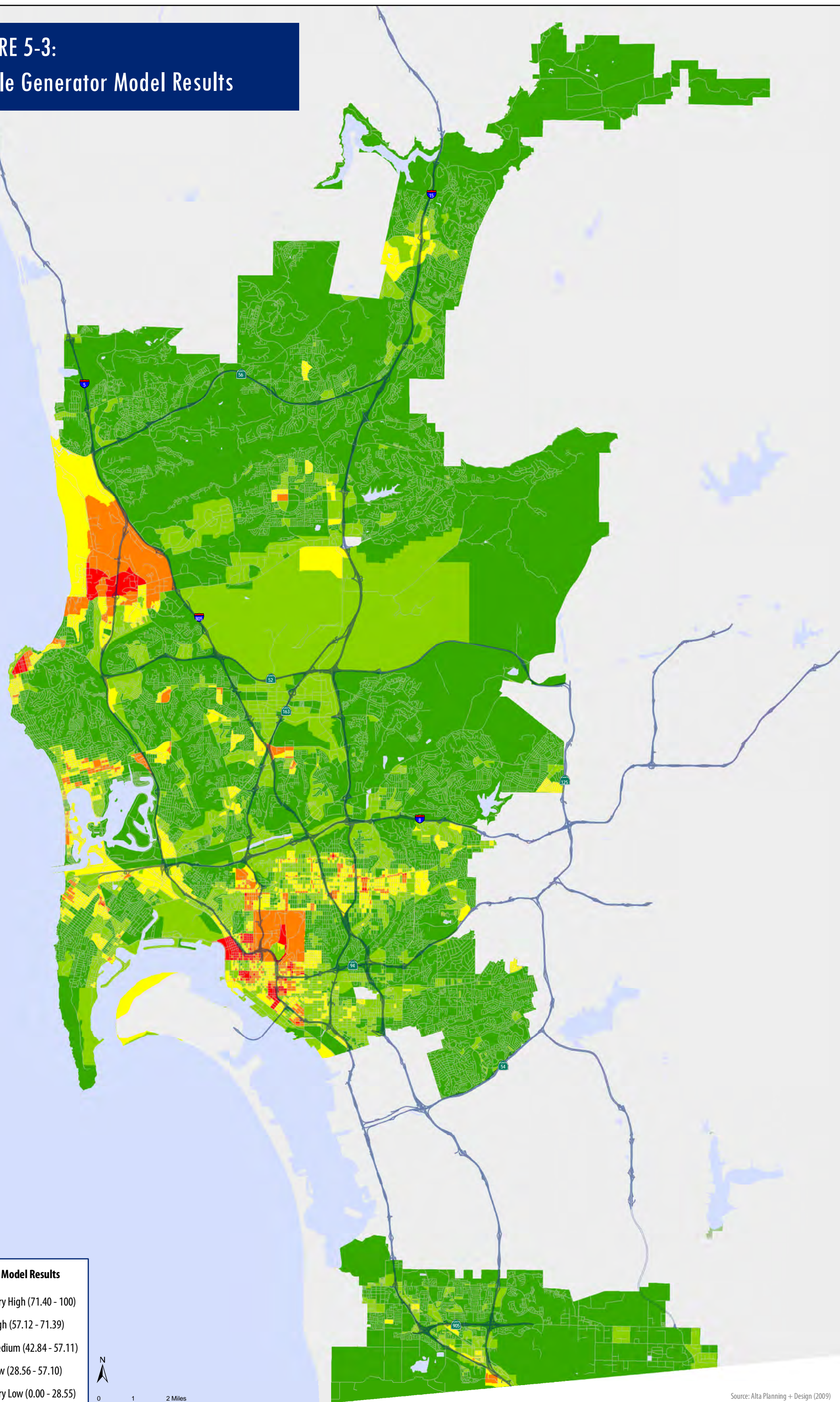
Table 5-2: Bicycle Trip Generator Input Variables and Scores

Bicycling	Points	Weights	Score
Population Density (persons per census block)			
> 40	3		6
25 - 40	2	2	4
< 25	1		2
Employment Density (employees per Traffic Analysis Zone)			
> 15	3		6
5 - 15	2	2	4
< 5	1		2
Zero-Vehicle Households (percent of households by census block)			
≥ 25	3		6
15 – 24.99	2	2	4
5 – 14.99	1		2
Bicycling Commuters (percent of commuters by census block)			
≥ 4	3		6
2 - 3.99	2	2	4
1 – 1.99	1		2
Walk and Transit Commuters (percent of commuters by census)			
≥ 25	3		6
15 – 24.99	2	2	4
5 – 14.99	1		2

Table 5-3 displays the bicycle trip generator model results, which integrates each of the five input variables in a composite raster grid using the point system presented in Table 5-2.

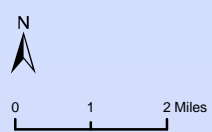
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FIGURE 5-3:
Bicycle Generator Model Results



Generator Model Results

- Very High (71.40 - 100)
- High (57.12 - 71.39)
- Medium (42.84 - 57.11)
- Low (28.56 - 57.10)
- Very Low (0.00 - 28.55)



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5.1.1.3 High Intra-Community Bicycle Demand Zones

Intra-community bicycle demands were then estimated by summing the bicycle trip attractor and trip generator scores associated with each segment of the bicycle transportation network and selecting the highest 50% scoring segments. The top 50% of the bicycle transportation segments were assembled into high bicycle demand zones.

Figure 5-4 displays the results of the combined attractor and generator models on the bicycle transportation network, along with the top 50% scoring segments used to form the high demand intra-community bicycle zones. Key intra-community bicycle demand zones include the University Town Center and UCSD areas, La Jolla, Pacific Beach, Mission Bay, Downtown, Mid-City and San Diego State University areas.

In order to focus these results on high intra-community bicycle demand corridors, only Circulation Element roadways within the high intra-community demand zones were maintained as final scored output from the intra-community demand modeling effort. By focusing on the Circulation Element roadways, this assessment is ensured of capturing important local bicycling destinations. Figure 5-5 displays Circulation Element roadway segments within high intra-community demand zones, along with their final intra-community demand scores.

5.1.2 Inter-Community Bicycling Demands

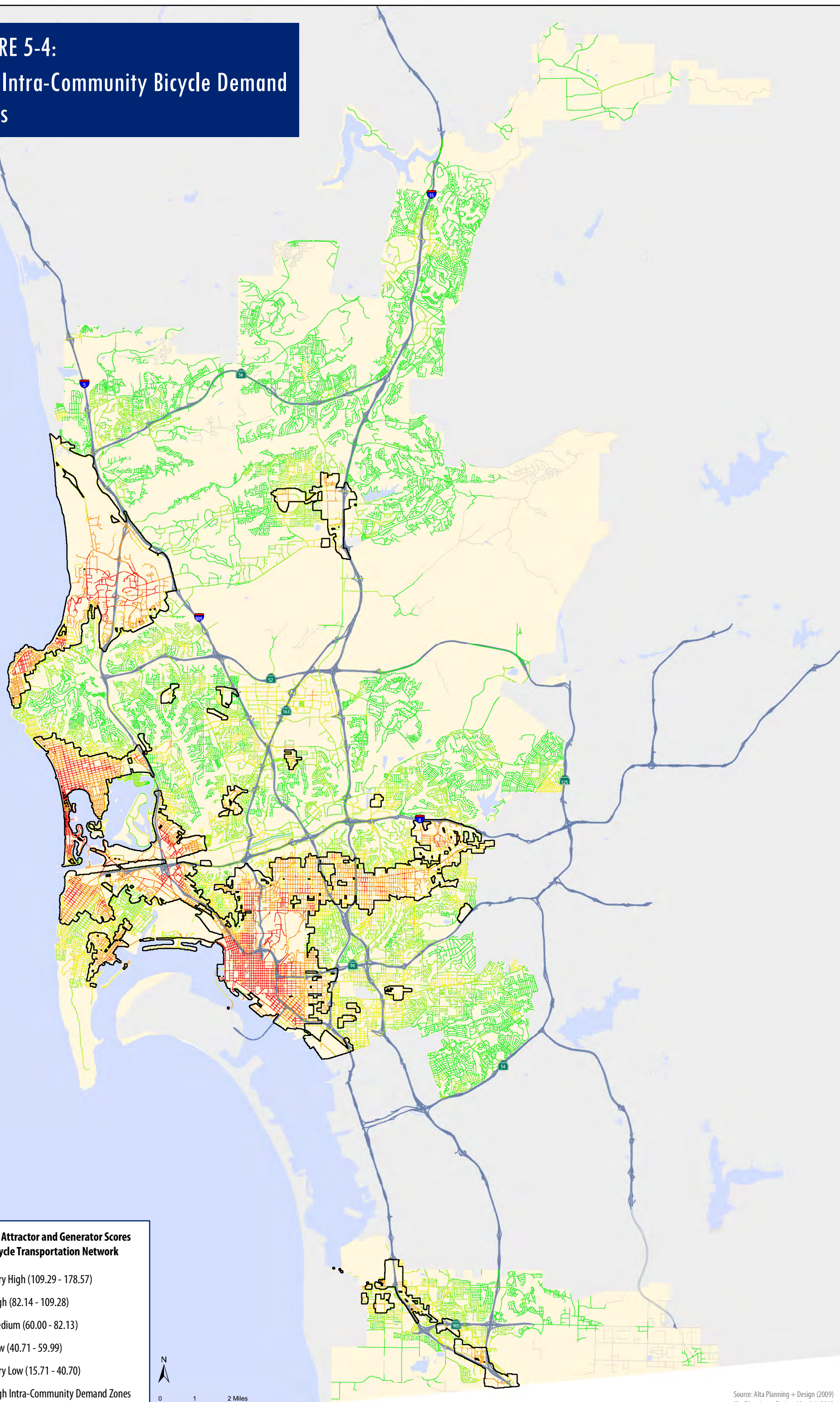
A network-based model intended to capture the demand for longer bicycling trips across the city of San Diego was also employed to assess demand. A gravity model framework was employed to estimate network-based bicycle demands, incorporating consideration of both the intensity of activity centers and the distances between them.

The gravity model posits that activity centers with higher intensity land uses will generate higher demand for travel between them than activity centers with lower intensity land uses. It also posits that activity centers in closer proximity will generate higher demand for travel between them than activity centers farther apart. In sum, intensity of land uses encourages interaction, while distance discourages interaction. This simple theory of human behavior within an urban region has been widely applied to understand and predict travel behavior and the demand for interactions across a metropolitan region.

Application of the gravity model required the development of activity centers and network systems. The activity centers describe the amount and intensity of land uses, while the network system characterizes distances and travel paths between the activity centers. For the purposes of this Plan, SANDAG's Smart Growth Opportunity Areas (SGOAs) and the city of San Diego's High Village Propensity areas were used as the basis for the activity center system, between which travel demand would be estimated. In terms of the network system, ArcView's Network Analyst was employed to develop two shortest path networks between all SGOAs, one along the bicycle transportation network and the other along the network of existing and proposed (2002 Bicycle Master Plan) bicycle facilities. The purpose for conducting two separate shortest path assessments is to capture the varying preferences of bicyclists, including those who prefer taking the most direct route between origins and destinations, and those who prefer routes with bicycle facility. Figure 5-6 displays the activity centers and network systems developed for the inter-community bicycle demand analysis. Figure 5-7 presents the results of the inter-community demand model. Appendix C details the methodology used to develop the bicycling demand gravity model.

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FIGURE 5-4:
High Intra-Community Bicycle Demand
Zones



**Combined Attractor and Generator Scores
on the Bicycle Transportation Network**

- Very High (109.29 - 178.57)
- High (82.14 - 109.28)
- Medium (60.00 - 82.13)
- Low (40.71 - 59.99)
- Very Low (15.71 - 40.70)

□ High Intra-Community Demand Zones

FIGURE 5-5:
Circulation Element Roadways within High Intra-Community Bicycle Demand Zones

Demand Scores on the Circulation Element Roadways

- Very High (8.05 - 12)
- High (6.08 - 8.04)
- Medium (4.46 - 6.07)
- Low (2.49 - 4.45)
- Very Low (0.00 - 2.48)
- High Intra-Community Demand Zones

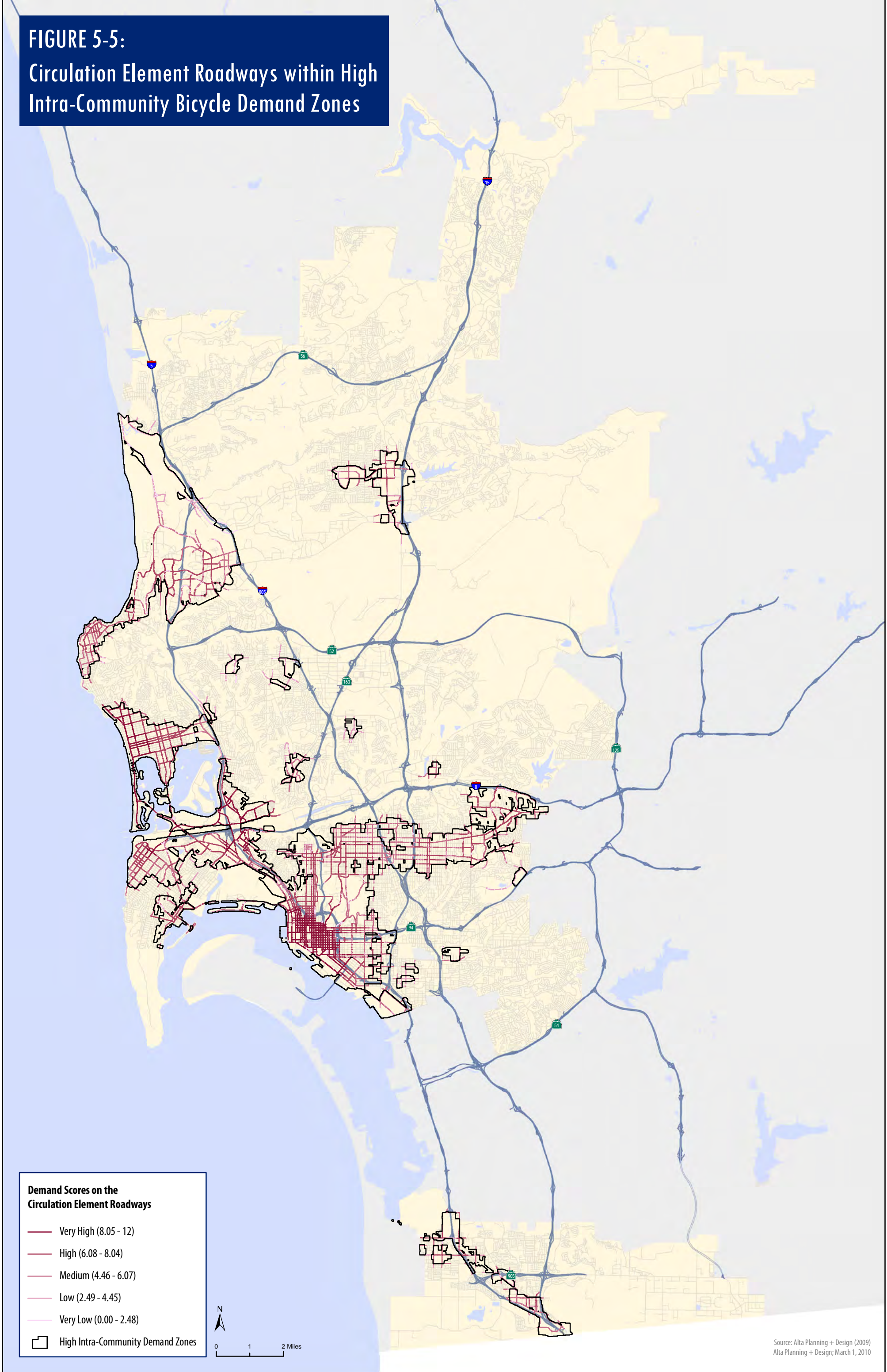
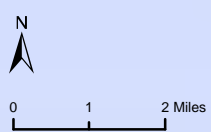
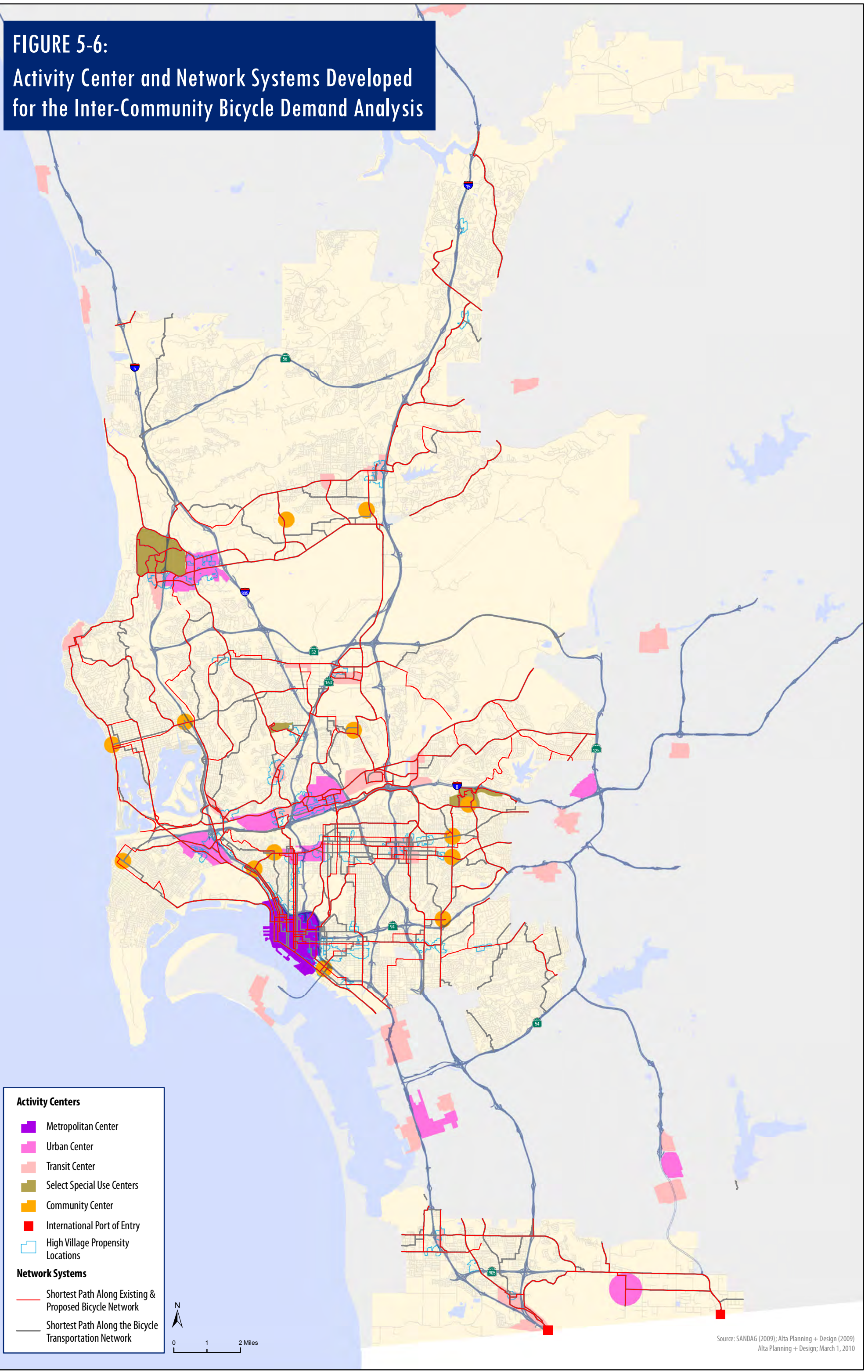
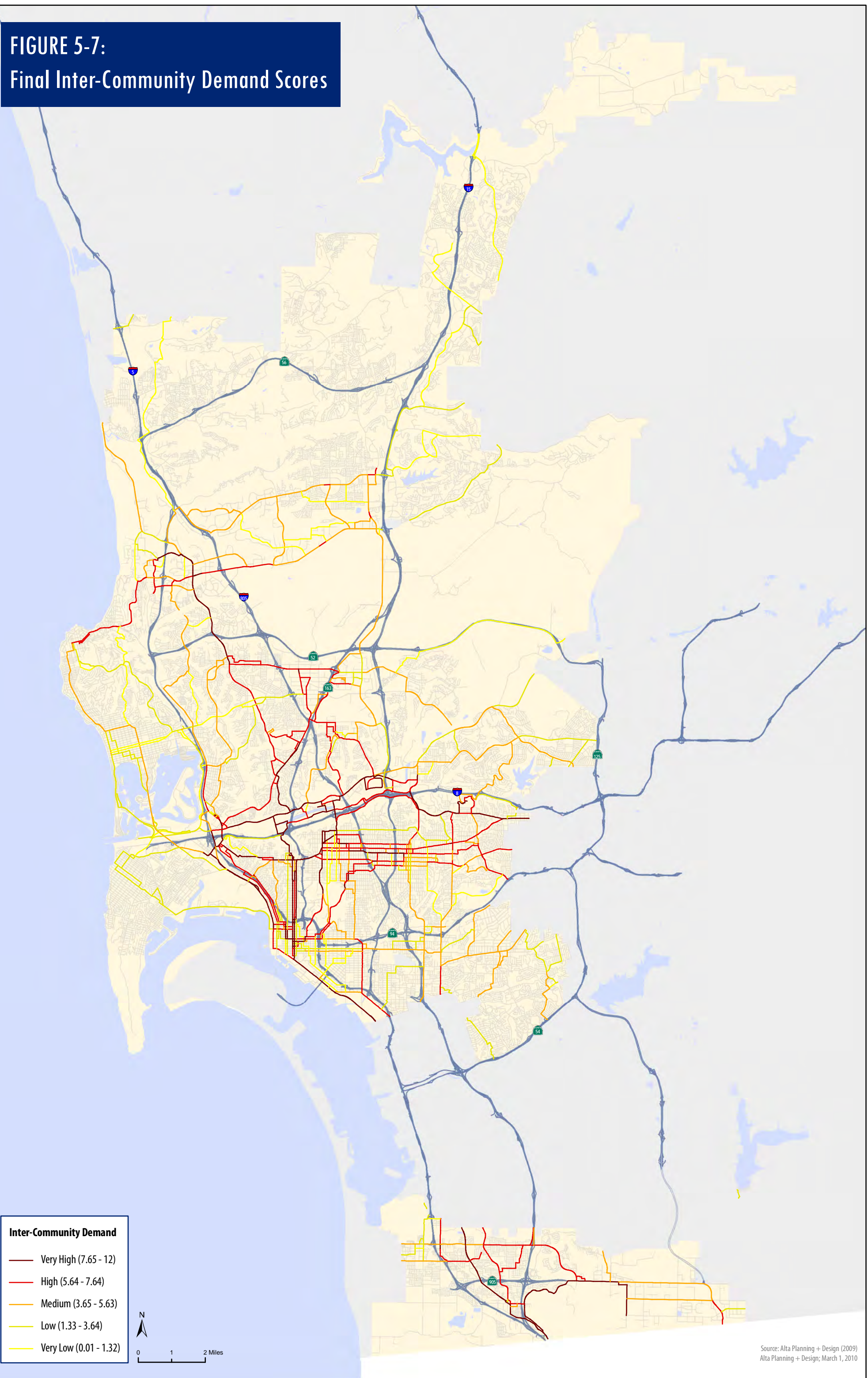


FIGURE 5-6:
Activity Center and Network Systems Developed
for the Inter-Community Bicycle Demand Analysis



Source: SANDAG (2009); Alta Planning + Design (2009)
 Alta Planning + Design; March 1, 2010

FIGURE 5-7:
Final Inter-Community Demand Scores



5.1.3 Combined High Bicycling Demand Zones

The last step in the bicycle demand analysis involved combining the intra-community demand zones (Figure 5-4) and the inter-community demand scores (Figure 5-7). The final bicycle demand score, incorporating both intra-and inter-community travel, ranges from 0 to 24 and is mapped across San Diego in Figure 5-8. This analysis identifies roadway segments with the greatest propensity for bicycling activity taking into consideration demands for shorter and longer trips.

5.2 Public Input

This section summarizes the public outreach effort undertaken as a part of the planning process, and provides a synopsis of San Diego community members' bicycle riding behaviors, attitudes, issues, and recommendations for types of improvements. The input obtained through this extensive outreach effort was integrated into the identification and prioritization of infrastructure and program recommendations presented in Chapters 6 and 7.

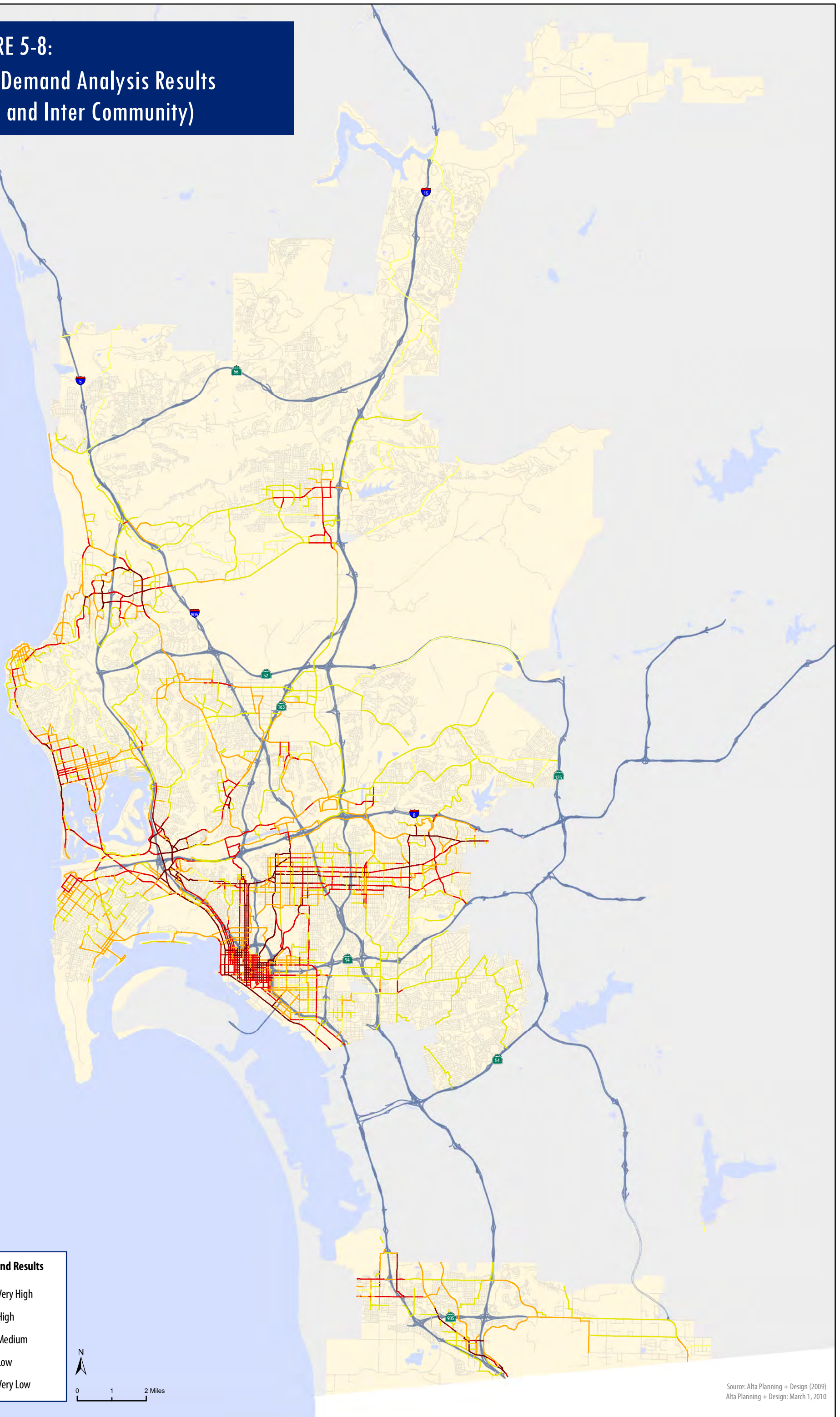
The public involvement strategy entailed convening a Project Working Group (PWG), comprised of two members from the Community Planners Committee, along with representatives from the San Diego County Bicycle Coalition, Centre City Development Corporation, San Diego State University, University of California San Diego, Metropolitan Transit System, San Diego Association of Governments, and California Department of Transportation, in addition to City of San Diego staff. Presentations were made to community and bicycling organizations, facilitating a public workshop, and collecting input on a continual basis via the City's Website. The fact that the Plan's development has overlapped with the San Diego Regional Bicycle Plan also enabled the City to utilize the substantial amount of input collected from San Diego residents via the regional planning process. The San Diego Regional Bicycle Plan survey database contained 985 surveys completed by city of San Diego residents (59 percent of total respondents) according to the residential information provided by survey respondents.

The PWG met five times throughout the planning process to advise the City on the plan's development. The purpose of the PWG meetings was to present work products to the group and ask PWG members to provide substantive input and direction for future project tasks. In particular, the PWG was instrumental in refining the prioritization process presented in Chapter 6.

Another facet of the public outreach process involved attending a combination of bicycle organization and community planning group meetings focused in areas of the city that showed the least representation within the Regional Bicycle Plan public involvement efforts. To encourage participation from San Diego residents who had not participated in the Regional Bicycle Plan effort, the ZIP Codes of San Diego survey respondents were tabulated and the project team pursued attending all community planning area meetings where representation was low. The project team attended the following meetings:

- Kearny Mesa Community Planning Group Meeting (3/18/09)
- Southeastern San Diego Planning Committee Meeting (3/9/09)
- San Ysidro Community Planning Group Meeting (3/17/09)
- Otay Mesa/Nestor Community Planning Committee Meeting (2/11/09)
- Barrio Logan Community Plan Update Workshop (1/15/09)
- San Diego Cyclo-Vets Monthly Meeting (2/23/09)
- San Diego County Bicycle Coalition Board Meeting (2/25/09)

FIGURE 5-8:
Final Demand Analysis Results
(Intra and Inter Community)



Final Demand Results

- Very High
- High
- Medium
- Low
- Very Low

N

0 1 2 Miles

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At these seven meetings, the consultant team presented an overview of the plan project, and distributed and collected bicycle surveys to record community input. The survey distributed during these events was identical to the online survey accessible via the City’s bicycle planning Webpage. This allowed the project team to combine the online survey responses with the responses collected during community meetings. This surveying effort resulted in the collection of a total of 574 surveys as of March 31, 2009, including 513 online surveys and 61 hard copy surveys collected during community meetings. These 574 surveys, along with the 985 surveys collected via the regional planning effort, fed directly into the Plan recommendations. The information obtained via the Regional Bicycle Plan survey is presented in **Appendix D: San Diego Regional Bicycle Plan Survey Data**. The 574 surveys collected through this planning process are summarized in the following section.

5.2.1 Bicycle Survey Results

The bicycle survey consisted of questions about bicyclists’ behaviors, preferences, and deficiencies in the bicycling environment.

Table 5-3 shows that, when asked about their motivations for bicycling, 89.8 percent of survey participants responded that they bicycle for exercise and health reasons, followed by 80.7 percent responding that they also bicycle for enjoyment, and 67.6 percent bicycle for environmental and/or social reasons as well.

Table 5-3: Survey Respondents’ Motivations for Bicycling

Reason	Percent of Responses
For exercise / health reasons	89.8 %
For enjoyment	80.7 %
For environmental and/or social reasons	67.6 %
To get to work	62.7 %
For shopping / errands	44.0 %
To get to school	29.2 %
To get to transit	20.8 %
Other	5.3 %
I don’t bike	2.1 %

Source: San Diego Regional Bicycle Plan Survey (2008)

Respondents’ reasons for bicycling summarized in Table 5-3 are not mutually exclusive. For example, bicyclists may be inclined to bike to work for the health benefits associated with biking and also because they enjoy bicycling. Thus, to better understand what types of bicyclists responded to the survey, respondents were also asked to indicate if the majority of their trips are utilitarian or recreational in nature. Table 5-4 shows that the majority of trips taken by respondents are utilitarian. Table 5-5 shows that respondents’ most common average riding distance for a one-way trip is three to five miles, which is consistent with national averages.

Table 5-4: Respondents’ Recreational versus Utilitarian Trips

Trip Type	Percent of Responses
Utilitarian	64.0 %
Recreational	36.0 %
Total	100 %

Source: San Diego Regional Bicycle Plan Survey (2008)

Table 5-5: Survey Respondents’ Average One-Way Bicycling Distance

Miles	Percent of Responses
Under 2 miles	17.2 %
3 – 5 miles	26.4 %
6 – 10 miles	24.6 %
11 – 24 miles	21.0 %
25 miles and above	10.8 %
Total	100 %

Source: San Diego Regional Bicycle Plan Survey (2008)

Table 5-6 shows that survey participants overwhelmingly preferred off-street Bike Paths, on-street Bike Lanes, and Bike Boulevards to signed routes with no dedicated riding space or unpaved routes. This may reflect the desire for more direct routes for commuting (on arterial Bike Lanes) as well as a desire for more recreational paths for the large number of people who stated that they ride a bicycle primarily for exercise and recreation.

Table 5-6: Survey Respondents' Bikeway Facility Preferences

Bicycle Facility Type	1 Highly Preferred	2	3	4 Not at all Interested
Off-Street Paved Bike Paths	70.6 %	17.7 %	8.2 %	3.5 %
On-Street Bike Lanes	48.8 %	37.6 %	10.7 %	2.9 %
Bike Routes	28.5 %	33.0 %	27.1 %	11.4 %
Unpaved Trails or Dirt Paths	13.4 %	23.2 %	26.7 %	36.7 %
Bicycle Boulevards	45.7 %	29.7 %	17.8 %	6.8 %
Shared Roadways (no bikeway designation or bicycle facility)	7.1 %	9.7 %	22.8 %	60.4 %

Source: San Diego Regional Bicycle Plan Survey (2008)

Table 5-7 shows that 64.2 percent of respondents say that adding more Bike Lanes on major streets would influence their decision to ride, followed closely by more paved (off-street) Bike Paths and increased maintenance of bikeways.

Table 5-7: Improvements that Would Influence Ridership According to Survey Respondents

Improvement	Very Likely	Likely	Somewhat Likely	Somewhat Unlikely	Unlikely	Very Unlikely
More Bike Lanes on Major Streets	64.2 %	21.0 %	9.2 %	1.9 %	1.5 %	2.2 %
More Paved (off-street) Bike Paths	59.6 %	17.9 %	11.9 %	4.3 %	3.4 %	2.9 %
Increased Maintenance	53.9 %	23.2 %	13.9 %	5.7 %	2.1 %	1.2 %
Widen Outside/Curb Lanes on Major Streets	47.7 %	23.2 %	19.3 %	6.2 %	2.8 %	0.8 %
Bicycle Boulevards	47.3 %	24.6 %	16.8 %	4.1 %	4.7 %	2.5 %
More Bike Routes	42.3 %	23.7 %	19.2 %	6.9 %	5.4 %	2.5 %
More Education, Encouragement & Enforcement Programs	35.7 %	18.6 %	23.4 %	9.7 %	7.4 %	5.2 %
Showers and Lockers at Work	34.7 %	18.9 %	21.0 %	6.5 %	10.9 %	7.1 %
More On-Road Bike Signage	27.6 %	22.7 %	24.5 %	13.0 %	8.2 %	4.0 %
More Bicycle Parking/Storage	25.8 %	24.6 %	23.6 %	10.6 %	9.8 %	5.6 %

Source: San Diego Regional Bicycle Plan Survey (2008)

Table 5-8 reports that 83.4 percent of respondents have used bicycle maps and guides, followed in popularity by 64.8 percent of respondents having used bicycle information available in websites.

Table 5-8: Survey Respondents' Program Participation

Program Type	Percent of Responses
Bicycle Maps and Guides	83.4 %
Bicycle Information Websites	64.8 %
Bicycling Incentive Programs	39.7 %
Materials Focused on Bicyclists Rights, Responsibilities, and the Health or Environmental Benefits of Bicycling	35.6 %

Route Planning Services for Bicyclists	29.5 %
Education Programs for Adult Cyclists	18.6 %
Education Programs for Motorists	12.7 %
Education Programs for Elementary, Middle/Junior, and High School Students	12.4 %
Education Programs for Law Enforcement Personnel	2.4 %

Source: San Diego Regional Bicycle Plan Survey (2008)

Table 5-9 shows that 66.2 percent of respondents would be highly interested in a public awareness campaign focused on bicyclists rights, responsibilities, and the health and environmental benefits of bicycling, followed closely by interest in user-friendly bicycle maps and guides and interest in bicycling incentive programs.

Table 5-9 : Survey Respondents’ Level of Interest in Developing or Expanding Bicycle Programs

Program Type	1 Highly Intereste d	2	3	4 Not at all Interested
Public Awareness Campaign Focused on Bicyclists Rights, Responsibilities, and the Health and Environmental Benefits of Bicycling	66.2 %	21.1 %	8.4 %	4.3 %
User-Friendly Bicycle Maps and Guides	58.2 %	29.5 %	7.9 %	4.4 %
Bicycling Incentive Programs	55.9 %	24.6 %	11.7 %	7.8 %
Bicycle Information Websites	54.6 %	28.9 %	12.0 %	4.5 %
Route Planning Services for Bicyclists	51.7 %	29.2 %	13.3 %	5.8 %
Education Programs for Motorists	49.2 %	23.3 %	15.1 %	12.4 %
Education Programs for Elementary, Middle/Junior, and High School Students	47.0 %	27.6 %	13.8 %	11.6 %
Education Programs for Law Enforcement Personnel	39.7 %	25.1 %	19.2 %	16.0 %
Education Programs for Adult Cyclists	34.2 %	33.8 %	19.5 %	12.5 %

Source: San Diego Regional Bicycle Plan Survey (2008)

5.2.2 Public Workshops

The first of two public workshops was held at the Balboa Park Hall of Champions on June 10, 2009. The purpose of the first public workshop was to explain the planning process, familiarize the community with the content of the draft Plan, and collect public comment on the content of the draft Plan. Since this workshop was geared toward presenting information and recording responses, it was held in an open house format. Each station was hosted by a knowledgeable staff person who was able to answer questions and record comments. The input obtained during the workshops assisted with developing the Plan. The first open house was organized into six stations with boards covering the following topics:

- Station 1 – Public Involvement Strategy
- Station 2 – Review of the Current Bicycle Master Plan
- Station 3 – Bicycle Demands Analysis
- Station 4 – Proposed Bicycle Network
- Station 5 – Prioritization Process
- Station 6 – Program Strategies

Approximately 125 people attended the first workshop, which was more than twice the number of people who attended the 2002 Bicycle Master Plan public workshop held in 2001.

A second public open house was held on May 20, 2010, to present and collect public feedback on the draft Plan recommendations. About 100 people attended the second open house also held at the Hall of Champions. The second open house was organized into five stations covering the following recommendation categories:

- **Station 1 – Citywide Bicycle Network** displayed the proposed bikeway network citywide along with information about the proposed bikeway facility types.
- **Station 2 – Program and Bike Parking Recommendations** presented education, encouragement, enforcement, monitoring, and evaluation recommendations as well as bike parking recommendations.
- **Station 3 – North San Diego Bicycle Network** provided a more detailed view of the proposed bicycle network within the northern portion of San Diego and highlighted the top priority bicycle projects in north San Diego.
- **Station 4 – Central San Diego Bicycle Network** presented a more detailed view of the proposed bicycle network within the central portion of San Diego and delineated the top priority bicycle projects in central San Diego.



*June 10, 2009 Bicycle Master Plan Update public workshop
Photo credit: Vincent Noto*



May 20, 2010 Bicycle Master Plan Update public

- **Station 4 – Central San Diego Bicycle Network** presented a more detailed view of the proposed bicycle network within the central portion of San Diego and delineated the top priority bicycle projects in central San Diego.
- **Station 5 – South San Diego Bicycle Network** displayed a more detailed view of the proposed bicycle network within the southern portion of San Diego and highlighted the top priority bicycle projects in south San Diego.

The public comments recorded on comment cards and easel paper tablets during each of the public workshops are presented in **Appendix E: Public Workshop Comments**.

5.3 Bicycle Safety and Collision Analysis

Table 5-10 presents the number of collisions and collisions involving bicyclists in the city of San Diego for five consecutive years: 2004, 2005, 2006, 2007, and 2008. This information was obtained from the California Highway Patrol’s Statewide Integrated Traffic Records System (SWITRS) Website, which provides collision information by jurisdiction. As the table shows, fatal bicycle-related collisions on average account for nearly 5 percent of all fatal collisions. On average, almost 6 percent of collisions resulting in injuries involved bicyclists. Bicycle-involved collision rates seem to be relatively constant over the five-year period for San Diego, with the exception of a significant increase in bicycle-related injuries in 2008 (8.4 percent). The 512 bicycle-involved injury collisions reported is high in relation to the totals reported for the other years and also high relative to the total number of injury collisions reported for 2008. Fatal bicycle collisions also increased significantly in 2005 (7.1 percent); however, the numbers of fatal collisions reported declined to lower levels in the years following 2005, indicating that no trend can be asserted.

Safety is a major concern for both existing and potential bicyclists. For those who ride, safety is typically an on-going concern or even a distraction. For those who do not ride, it is one of the most compelling reasons not to ride. Nationwide, the total number of reported cyclist fatalities has dropped by 14 percent since 1997, with 814 fatalities reported in 1997 and 698 fatalities reported in 2007. Another 44,000 cyclists were injured in traffic collisions in 2007. These numbers account for 2 percent of all persons killed in traffic crashes and 2 percent of all people injured in traffic collisions in 2007. Of all California traffic fatalities in 2007, 2.7 percent (109) were cyclist fatalities. This is significantly higher than the nationwide average of 1.7 percent. Cyclist fatalities in California represent a fatality rate of 2.98 per million residents.

Table 5-10: San Diego Bicycle-Involved Collisions 2004 – 2008

Year	Total Collisions		Total Bicycle-Related Collisions		Bicycle-Related Percent of Total Fatal	Bicycle-Related Percent of Total Injury
	Fatal	Injury	Fatal	Injury		
2004	98	7,449	5	430	5.1%	5.8%
2005	98	7,124	7	421	7.1%	5.9%
2006	102	9,583	3	397	2.9%	4.1%
2007	84	6,516	4	392	4.8%	6.0%
2008	81	6,123	3	512	3.7%	8.4%
Total	463	36,795	22	2,152	4.8%	5.8%

higher fatality and injury rates than other age groups (2.4 fatalities per million population, about 4 percent higher than the overall cyclist fatality rate (2.31 per million population), and 281 injuries per million population, almost twice the injury rate for cyclists of all ages.)⁴

The proportion of collisions involving fatalities and bicyclists in San Diego was substantially higher at 4.8 percent compared to the statewide average of 2.7 percent and the nationwide average of 1.7 percent. It should be noted that the national injury rate does not take into account the potential for higher per capita bicycle injury and fatality rates in communities with higher than average cycling rates. San Diego’s bicycle commuting mode share is consistent with California’s (0.9 percent) and higher than the national average of 0.5 percent.⁵ This may provide partial explanation for why the bicycle fatality collision rate is higher than the national average however it does not explain the severity of the bicycle-related collision proportion relative to bike mode share and total collisions in San Diego. Overall, these statistics indicate that San Diego requires a robust approach to bicycle safety improvements and programs.

5.4 Commute Patterns

Understanding how many people bicycle in San Diego is central to developing a baseline against which to measure success and is also imperative information to include in grant applications. This section presents United States Census “Commuting to Work” data as an indication of current bicycle system usage. A major objective of any bicycle facility enhancement or encouragement program is to increase the “bicycle mode split” or percentage of people who choose to bike rather than drive alone. Every saved vehicle trip or vehicle mile represents quantifiable reductions in air pollution and can help lessen traffic congestion. Due to the unstable nature of congestion, even small reductions in the number of vehicles on the road can dramatically improve congestion. Table 5-11 presents commute to work data estimates reported by the 2006-2008 US Census 2006 – 2008 American Community Survey for the City of San Diego and, for comparative purposes, the United States, California, and County of San Diego.

Table 5-11: Means of Transportation to Work Data

Mode	United States	California	San Diego County	City of San Diego	
				Percent	Number
Bicycle	0.5%	0.9%	0.6%	0.9%	5,318
Drove Alone – car, truck or van	75.8%	72.9%	74.7%	75.0%	460,884
Carpool - car, truck or van	10.6%	12.0%	10.9%	9.7%	59,432
Transit	4.9%	5.2%	3.4%	4.1%	25,281
Walked	2.8%	2.8%	3.0%	3.1%	18,986
Other Means	1.4%	1.4%	1.3%	1.1%	7,365
Worked at Home	4.0%	4.8%	6.1%	6.1%	37,317
Total	100%	100%	100%	100%	614,583

Source: U.S. Census Bureau, 2006-2008 American Community Survey

⁴ NHTSA National Center for Statistics and Analysis, 2007 Traffic Safety Facts “Bicyclists and Other Cyclists” DOT HS 810 986

⁵ U.S. Census Bureau, 2006-2008 American Community Survey 3-Year Estimates

According to the estimates shown in Table 5-II, 0.9 percent of San Diego residents commute predominately by bicycle. This estimated bicycle mode share is slightly higher than the county estimate and above the national estimate but slightly lower than the state estimate. However, it is important to note that this figure likely underestimates the true amount of bicycling that occurs in San Diego for several reasons. First, data reflects respondents' dominant commute mode and therefore does not capture trips to school, for errands, or other bike trips that would supplant vehicular trips. Also, US Census data collection methods only enable a respondent to select one mode of travel, thus excluding bicycle trips if they constitute part of a longer multimodal trip.

The next section of this chapter presents a more realistic estimate of the bicycle mode share in the city based on adjustments for the likely under-estimations. The next section also estimates the potential number of future bicycle commuters in San Diego and calculates the reductions in vehicle-based air pollution that would result from increasing the number of cyclists in San Diego.

5.5 Trip Reduction and Potential Air Quality Benefits

Replacing vehicular trips with bicycle trips has a significant impact on reducing human-generated greenhouse gases (GHGs) in the atmosphere that contribute to climate change. Fewer vehicle trips and Vehicle Miles Traveled (VMTs)⁶ translates into fewer mobile source pollutants, such as carbon dioxide, nitrogen oxides and hydrocarbons, being released into the air. This section first discusses the status of San Diego's air quality and then estimates potential air quality improvements that could be realized through implementation of this Plan.

5.5.1 Air Quality in San Diego

The City of San Diego lies within the San Diego Air Basin, which is regulated by the Air Pollution Control District (District) of the County of San Diego. The 4,255 square-mile San Diego Air Basin is monitored for several air pollutants, including ozone, carbon monoxide, nitrogen dioxide and fine particles (PM10 and PM2.5).

Though air pollution in San Diego has improved dramatically in the last thirty years, and pollution levels meet the federal standards, pollution still exceeds the maximum allowable state limits for some portion of the year. In 2008, the city exceeded state eight-hour ozone standards four days of the year and exceeded the state ozone one-hour standard one day of the year. The city exceeded the state annual arithmetic mean PM 2.5 standard by 0.3 micrograms, exceeded the state annual arithmetic mean PM10 standard by 6.2 micrograms, and exceeded the state 24-hour PM10 standard by 3.0 micrograms.⁷

According to the San Diego Air Pollution Control District's 2008 Report, motor vehicles are responsible for approximately 46 percent of ozone (smog) emissions. Reducing VMTs by providing residents safe and functional ways to get to work, school, or shopping without using a motor vehicle will aid in reducing the amount of these pollutants produced by motor vehicles.

⁶ Vehicle Miles Traveled is a measurement of the extent of motor vehicle operation, a sum of all miles traveled by motor vehicles over a given period.

⁷ 2008 San Diego Air Pollution Control Board Annual Report.

5.5.2 Future Ridership and Potential Air Quality Benefits

This section presents a revised estimate of current bicycling levels in San Diego using US Census data along with several adjustments for likely Census underestimations. This section also presents forecast future bicycle ridership for the city along with forecast trip reduction and air quality benefits associated with bicycle trips replacing automobile trips. While these revised estimates and forecasts are ambitious, they are important to building a case for investing in bicycle facilities and programs over time.

By supplementing US Census and SANDAG data with estimates of bicycle mode share for students and transit riders, this Plan estimates that the actual current number of daily bicycle commuters in San Diego is closer to 47,399 riders, making 94,799 daily trips and saving an estimated 29,061 vehicle trips per weekday. The calculations behind this estimate are described in **Table 5-12**.

Table 5-13 quantifies the estimated increase in bicyclists and resulting reduction in VMTs in San Diego assuming completion of the bicycle network by the year 2030. It is predicted that upon completion of the proposed regional bicycle network, the total number of work, transit-bicycle commuters could increase from the current estimate of 47,399 to 112,378, resulting in an estimated decrease of 1,714 pounds of hydrocarbons per weekday, 1,197 pounds of mono-nitrogen oxides (NOx) per weekday, 1,711 pounds of PM10 (particulate matter) per year, and 121,397,271 pounds of carbon dioxide (CO2) per year. Predicted increases in cycling are based on increases in cycling on newly built bikeways in San Francisco, California; Portland, Oregon; and Seattle, Washington.⁸

⁸ San Francisco experienced a 61% corridor increase at 20% network completion, translating to 305% adjusted increase. Portland saw 137% corridor increases at 50% system completion, translating to 274% adjusted increase. Seattle saw 90% corridor increase at 35% system completion, translating to 257% adjusted increase. This translates into an average 279% increase upon system completion. Adjusted increase reflects the projected amount of bicycling that will occur when the system is completed, based on studies of communities with completed or nearly completed bikeway systems. Corridor increases refers to the average increase in bicycling in the corridors in each city, before and after bikeways were installed. System completion refers to the percent completion of the citywide bikeway network in each city.

Table 5-12: Adjusted Estimates of Current Bicycle Commute and Air Quality Benefits

Current Commuting Statistics and Estimates		Source/Calculation
City of San Diego Population	1,336,865	SANDAG 2008 Total Population Estimate
Number of Employed Persons	668,022	2006-2008 ACS 3-Year Estimates, US Census
Bicycle-to-Work Mode Share	0.9%	2006-2008 ACS 3-Year Estimates, US Census
Number of Bicycle Commuters	6,012	Employed persons multiplied by bike-to-work mode share
Work-at-Home Mode Share	6.1%	2006-2008 ACS 3-Year Estimates, US Census
Estimated Work-at-Home Bicycle Commuters	20,375	Assumes 50% of population working at home makes at least one bicycle trip per day
Existing Transit-to-Work Mode Share	4.1%	2006-2008 ACS 3-Year Estimates, US Census
Estimated Transit-Bicycle Commuters	6,847	Employed persons multiplied by transit mode share. Assumes 25% of transit riders access transit by bicycle.
School Children Grades K-8	135,535	2006-2008 ACS 3-Year Estimates, US Census
Estimated School Children Bicycling Mode Share	2.0%	National Safe Routes to School surveys (2003)
Estimated School Bicycle Commuters	2,711	School children population multiplied by school children bike mode share
Number of College Students in Region	114,546	2006-2008 ACS 3-Year Estimates, US Census
Estimated College Student Bicycling Mode Share	10.0%	National Bicycling & Walking Study, Federal Highway Administration (FHWA), Case Study No. 1, 1995. Review of bicycle commute share in seven university communities (10%)
Estimated College Bicycle Commuters	11,455	College student population multiplied by college student bicycling mode share
Adjusted Current Estimated Total Number of Daily Bicycle Commuters	47,399	Total of bike-to-work, transit, school, and college bicycle commuters. Does not include recreation or utilitarian.
Adjusted Current Estimated Total Daily Bicycle Trips	94,799	Total bicycle commuters x 2 (for round trips)
Current Vehicle Miles and Trip Reductions Estimates		Source/Calculation
Reduced Vehicle Trips per Weekday	29,061	Assumes 73% of bicycle trips replace vehicle trips for adults/college students and 53% for school children Based on survey results from 10 California cities conducted by Alta between 1990 and 1999, L.A. Countywide Policy Document survey (1995), and National Bicycling & Walking Study, FHWA, 1995.
Reduced Vehicle Trips per Year	7,584,906	Reduced number of weekday vehicle trips multiplied by 261 (weekdays in a year).
Reduced Vehicle Miles per Weekday	222,431	Assumes average round trip travel length of 8 miles for adults/college students and 1 mile for schoolchildren
Reduced Vehicle Miles per Year	58,054,452	Reduced number of weekday vehicle miles multiplied by 261 (weekdays in a year).

Current Vehicle Miles and Trip Reductions Estimates (Continue)		Source/Calculation
Reduced Hydrocarbons (pounds/weekday)	667	Daily mileage reduction multiplied by 1.36 grams per reduced mile (Emissions rates from EPA report 420-F-05-022 "Emission Facts: Average Annual Emissions and Fuel Consumption for Gasoline-Fueled Passenger Cars and Light Trucks." 2005.)
Reduced PM10 (pounds/weekday)	3	Daily mileage reduction multiplied by 0.0052 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)
Reduced PM2.5 (pounds/weekday)	2	Daily mileage reduction multiplied by 0.0049 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)
Reduced NOX (tons/weekday)	466	Daily mileage reduction multiplied by 0.95 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)
Estimated Current Air Quality Benefits		Source/Calculation
Reduced CO (pounds/weekday)	6,081	Daily mileage reduction multiplied by 12.4 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)
Reduced CO2 (pounds/weekday)	180,949	Daily mileage reduction multiplied by 369 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)
Reduced Hydrocarbons (pounds/year)	174,064	Yearly mileage reduction multiplied by 1.36 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)
Reduced PM10 (pounds/year)	666	Yearly mileage reduction multiplied by 0.0052 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)
Reduced PM2.5 (pounds/year)	627	Yearly mileage reduction multiplied by 0.0049 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)
Reduced NOX (tons/year)	121,589	Yearly mileage reduction multiplied by 0.95 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)
Reduced CO (pounds/year)	1,587,053	Yearly mileage reduction multiplied by 12.4 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)
Reduced CO2 (pounds/year)	47,227,630	Yearly mileage reduction multiplied by 369 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)

Table 5-13: Future Bicycle Commute and Air Quality Benefits Estimates

Current Commuting Statistics and Estimates		Source/Calculation
City of San Diego Population	1,656,257	SANDAG 2030 Total Population Forecast
Number of Employed Persons	1,010,157	SANDAG 2030 Total Employed Persons Forecast
Bicycle-to-Work Mode Share	2.7%	Assumption based on the experiences of other major cities
Number of Bicycle Commuters	27,274	Employed persons multiplied by bike-to-work mode share
Work-at-Home Mode Share	10.0%	Estimate based on historic work-at-home population growth
Estimated Work-at-Home Bicycle Commuters	50,508	Assumes 50% of population working at home makes at least one bicycle trip per day
Existing Transit-to-Work Mode Share	4.1%	Estimate based on historic transit-to-work trends
Estimated Transit Bicycle Commuters	10,354	Employed persons multiplied by transit mode share. Assumes 25% of transit riders access transit by bicycle.
School Children Grades K-8	181,297	SANDAG 2030 Population Forecasts
Estimated School Children Bicycling Mode Share	2.5%	Assumes increase in usage based on SR2S efforts and network development
Estimated School Bicycle Commuters	4,532	School children population multiplied by school children bike mode share
Number of College Students in Region	140,781	Estimate based on historic percent population
Estimated College Student Bicycling Mode Share	14.0%	National Bicycling & Walking Study, FHWA, Case Study No. 1, 1995. Review of bicycle commute share in seven university communities (10%)
Estimated College Bicycle Commuters	19,709	College student population multiplied by college student bicycling mode share
Adjusted Current Estimated Total Number of Daily Bicycle Commuters	112,378	Total of bike-to-work, transit, school, and college bicycle commuters. Does not include recreation or utilitarian.
Adjusted Current Estimated Total Daily Bicycle Trips	224,756	Total bicycle commuters x 2 (for round trips)
Current Vehicle Miles and Trip Reductions Estimates		Source/Calculation
Reduced Vehicle Trips per Weekday	73,571	Assumes 73% of bicycle trips replace vehicle trips for adults/college students and 53% for school children Based on survey results from 10 California cities conducted by Alta between 1990 and 1999, L.A. Countywide Policy Document survey (1995), and National Bicycling & Walking Study, FHWA, 1995.
Reduced Vehicle Trips per Year	19,202,012	Reduced number of weekday vehicle trips multiplied by 261 (weekdays in a year).
Reduced Vehicle Miles per Weekday	571,752	Assumes average round trip travel length of 8 miles for adults/college students and 1 mile for school children
Reduced Vehicle Miles per Year	149,227,306	Reduced number of weekday vehicle miles multiplied by 261 (weekdays in a year).

Chapter 5 | Needs Analysis

Estimated Current Air Quality Benefits		Source/Calculation
Reduced Hydrocarbons (pounds/weekday)	1,714	Daily mileage reduction multiplied by 1.36 grams per reduced mile (Emissions rates from EPA report 420-F-05-022 "Emission Facts: Average Annual Emissions and Fuel Consumption for Gasoline-Fueled Passenger Cars and Light Trucks." 2005.)
Reduced PM10 (pounds/weekday)	7	Daily mileage reduction multiplied by 0.0052 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)
Reduced PM2.5 (pounds/weekday)	6	Daily mileage reduction multiplied by 0.0049 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)
Reduced NOX (tons/weekday)	1,197	Daily mileage reduction multiplied by 0.95 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)
Reduced CO (pounds/weekday)	15,630	Daily mileage reduction multiplied by 12.4 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)
Reduced CO2 (pounds/weekday)	465,124	Daily mileage reduction multiplied by 369 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)
Reduced Hydrocarbons (pounds/year)	447,426	Yearly mileage reduction multiplied by 1.36 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)
Reduced PM10 (pounds/year)	1,711	Yearly mileage reduction multiplied by 0.0052 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)
Reduced PM2.5 (pounds/year)	1,612	Yearly mileage reduction multiplied by 0.0049 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)
Reduced NOX (tons/year)	312,540	Yearly mileage reduction multiplied by 0.95 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)
Reduced CO (pounds/year)	4,079,475	Yearly mileage reduction multiplied by 12.4 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)
Reduced CO2 (pounds/year)	121,397,271	Yearly mileage reduction multiplied by 369 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)

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6 Bicycle Facility Recommendations

The recommended improvements for the San Diego Bicycle Master Plan consist of bikeway network facilities, intersection and other spot improvements, and bicycle support facilities. Recommended bicycle support facilities and programs include bike parking, routine maintenance, signage, and bicycle signal detection maintenance. The recommended network consists primarily of on-street facilities, including 1090 miles of paved multi-use paths, proposed Bike Lanes, Bike Routes, Bicycle Boulevards, and Cycle Tracks. These totals include existing facilities and proposed facilities.

San Diego's numerous open spaces, parks, temperate weather, and relatively compact downtown help to make bicycling in San Diego an effective transportation and recreation option at any time of the year. The recommendations included in this chapter will help to enhance San Diego's status as a great place to bicycle.

6.1 Bikeway Network

A comprehensive bikeway network improves bicyclists' level of safety, convenience, and access to key destinations. Planning a bikeway network enables the City to prioritize and seek funding to construct bicycle facilities where they will provide the greatest benefit to bicyclists and the community-at-large. It is important to note that bicyclists are legally entitled to ride on all city streets, whether the streets are a part of the designated bikeway network or not.

6.1.1 Bicycle Network Identification Process

Developing the recommended bicycle network involved four key steps. First, the city's existing facilities were combined with facilities identified in the following parallel planning documents:

- San Diego Bicycle Master Plan (2002)
- San Diego Downtown Community Plan (2006)
- San Diego Regional Bicycle Plan (2010)

Together, the existing and planned networks served as a foundation for the development of the recommended bicycle network. Next, this network comprised of existing and planned facilities was augmented with the network identified via the demand analysis presented in Chapter 5 (**Figure 5-8**). The bicycle demand analysis systematically identified roadway segments with high bicycle demand that do not currently have bicycle facility and were not proposed for bicycle facilities in any of the currently adopted plans. Third, this network was manually refined to ensure continuity and basic sensibility. Finally, the network was further refined with input from the community and City staff. **Appendix F** details the methodology used to develop the bicycle network.

6.1.2 Proposed Bicycle Network with Classifications

Figure 6-1 and **Figure 6-2** display the proposed bicycle network with classifications. The proposed facility classifications are based on the proposed 2002 Bicycle Master Plan, Downtown Community Plan, San Diego Regional Bicycle Plan network classifications, public input, and input from City staff including detailed input from City Planning & Community Investment staff. Proposed classifications are expected to be used as a guide and may change at implementation. The City of San Diego will strive to construct Class I facilities when

possible. Table 6-1 summarizes the proposed bicycle network miles including existing, proposed bikeways, and change in facility type.

Table 6-1: Recommended San Diego Bicycle Network

Facility Type	Miles of Existing	Miles of Proposed Unbuilt	Total Miles of Facility
Class I – Bike Path	72.3	94.1	166.4
Class II – Bike Lane	309.4	140.6	450.0
Class III – Bike Route	112.9	171.2	284.1
Class II or III (TBD)	--	143.4	143.4
Freeway Shoulder	16.1	-	-16.1*
Bicycle Boulevard	0	39.4	39.4
Cycle Track	0	6.6	6.6
Totals	510.7	595.3	1,089.9

Source: Alta Planning + Design, April 2011

*Facility will not be needed after construction of recommended network and is excluded from total facility miles.

As shown in Table 6-1, there are approximately 511 miles of existing facilities with the majority being Bike Lanes. The recommended bicycle network includes recommendations for an additional 595 miles of bicycle facilities, for a future network totaling almost 1,090 miles.

6.2 High Priority Projects

The high priority bicycle projects were identified through a planning prioritization process applied to the proposed bicycle network. It is important to note that all projects identified in the Bike Master Plan are important projects and once implemented will create a safe and comprehensive bikeway network. A planning prioritization process was applied to identify 40 high priority projects; This process is described in the following section and is expected to be refined over time. However, the list may change over time due to changing bicycle patterns, implementation opportunities and constraints, the development of other transportation system facilities, updated collision data, bike counts, population density, and funding availability. In addition to the high priority projects, implementing valuable network connections in communities with high transit ridership such as Mid-City and San Ysidro is a priority for the City of San Diego.

6.2.1 Prioritization Process

The bicycle network was prioritized based on key indicators of demand, deficiencies, and implementation factors in order to guide network implementation phasing. The project prioritization was completed in a two phase process, the first of which focused on more demand-driven factors and a second phase which addressed key implementation factors. The demand driven prioritization factors include bicycle demands, bicycle network gaps, public input gathered through the outreach process, overlap with the proposed regional bicycle

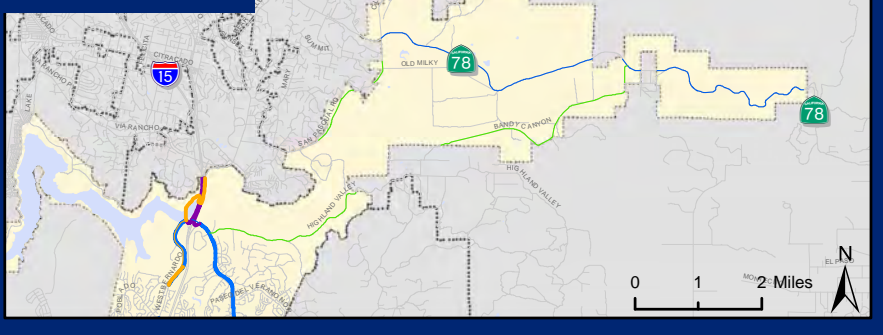
Chapter 6 | Bicycle Facility Recommendations

network, and bicycle crashes. Data on these factors were entered into a Geographic Information System (GIS) along with their respective priority points.

Appendix F presents a detailed description of the methodology used for the first phase of the prioritization process.

Table 6-2 summarizes the prioritization inputs and point values assigned to each factor considered in the first phase of the prioritization process, which were finalized after extensive review and input from the Project Working Group.

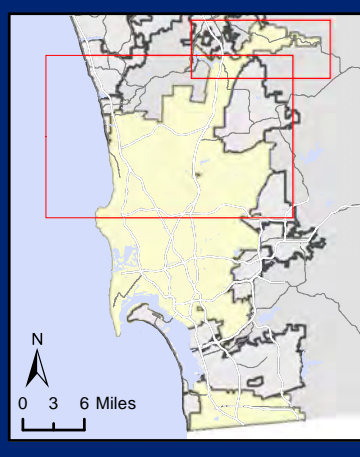
SAN PASQUAL INSET



0 1 2 Miles



NORTH SAN DIEGO



0 3 6 Miles



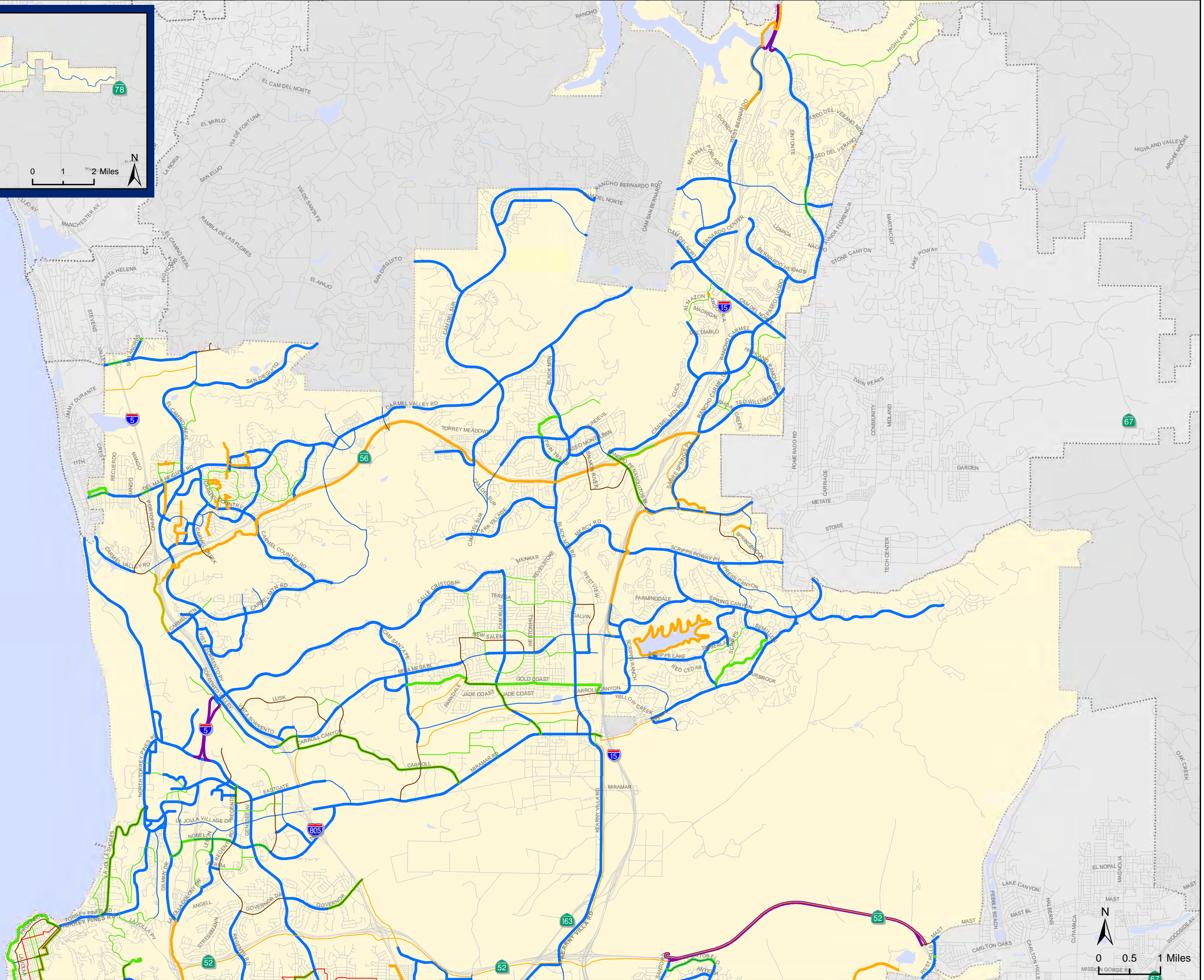
FIGURE 6-1: SAN DIEGO BICYCLE MASTER PLAN

PROPOSED BICYCLE NETWORK WITH CLASSIFICATIONS (NORTH)

Proposed Bicycle Network Classifications

Proposed	Existing
Class I - Bike Path	Class I - Bike Path
Class II - Bike Lane	Class II - Bike Lane
Class III - Bike Route	Class III - Bike Route
N/A Freeway Shoulder	Freeway Shoulder
Class II or III	
Bicycle Boulevard	
Cycle Track	












Source: SANDAG (2009), Alta Planning + Design (June, 2012)



0 0.5 1 Miles

**FIGURE 6-2:
SAN DIEGO BICYCLE MASTER PLAN**
PROPOSED BICYCLE NETWORK
WITH CLASSIFICATIONS
(SOUTH)

Proposed Bicycle Network Classifications

Proposed	Existing
 Class I - Bike Path	 Existing Class I - Bike Path
 Class II - Bike Lane	 Existing Class II - Bike Lane
 Class III - Bike Route	 Existing Class III - Bike Route
 N/A Freeway Shoulder	 Existing Freeway Shoulder
 Class II or III	
 Bicycle Boulevard	
 Cycle Track	

Source: SANDAG (2009), Alta Planning + Design (June, 2012)

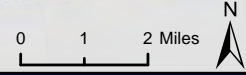
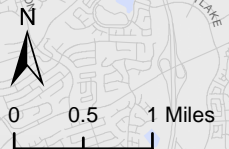
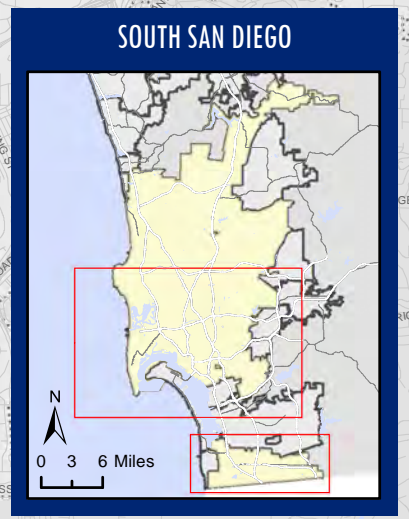
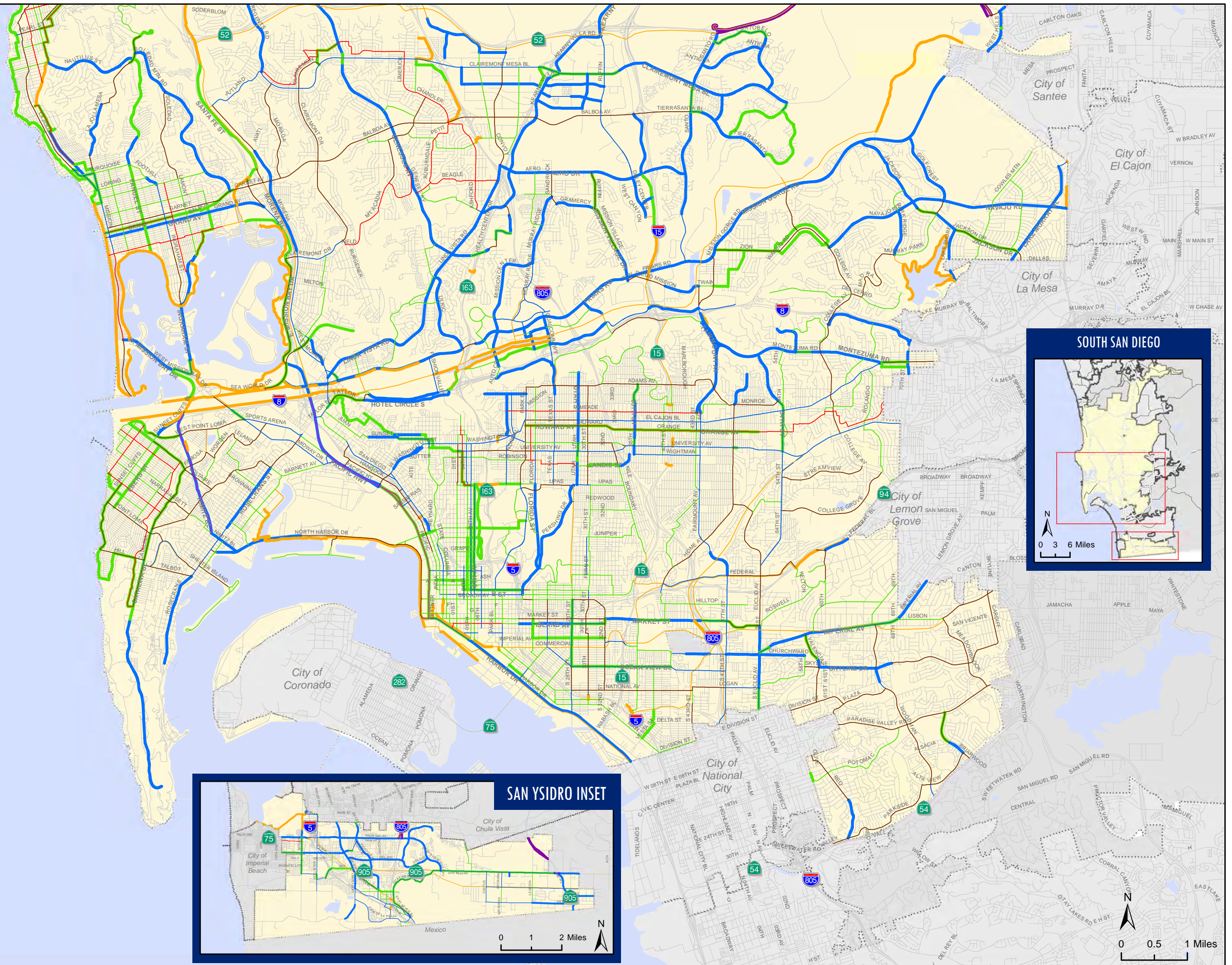


Table 6-2: Generalized Bicycle Network Prioritization Factors and Points

Prioritization Factor	Point Range
Combined Demand (Inter- and Intra-Community)	0 to 24
Bicycle Facility Gaps	0 to 6
Bicycle Crashes	0 to 6
Public Comment	0 or 3
Overlap with Proposed Regional Network	0 to 3

The top 25 percent of demand-driven priority roadway segments were then combined with the City’s current bicycle Capital Improvement Project list, and a list of projects provided by the San Diego County Bicycle Coalition, many of which were already identified through the first phase of the prioritization process. The second phase of the prioritization process was applied to the list of potential projects derived from these three sources.

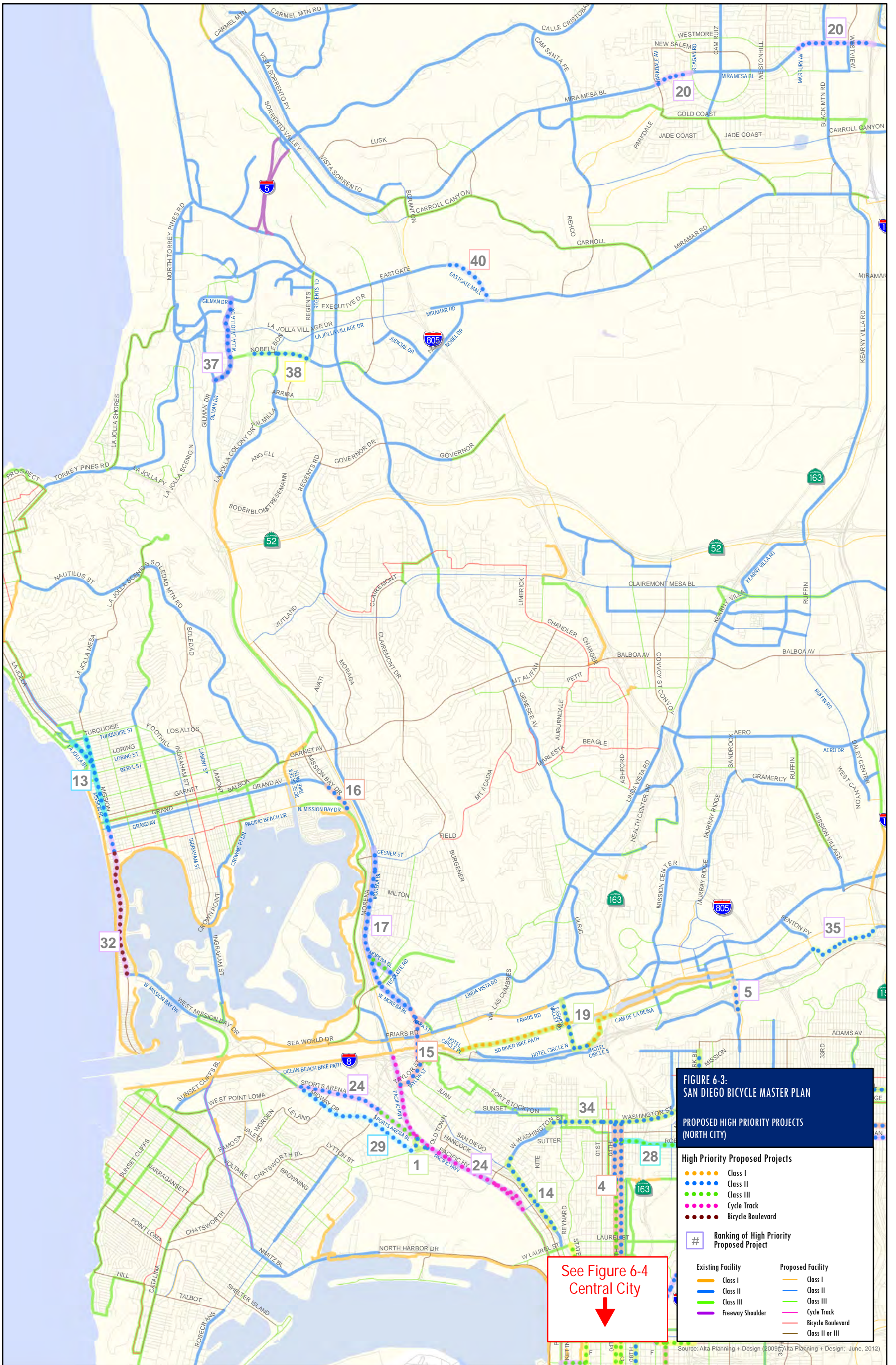
As noted above, the second phase of the prioritization process focused on implementation-oriented factors, such as project readiness, public right-of-way impacts, project cost, parking impacts, and other considerations. Table 6-3 summarizes these implementation-oriented prioritization factors and describes the scoring process that was utilized for each factor. Finally, the project scores from the two prioritization phases described above were tabulated to generate an overall project score for each project. All projects were ranked based upon their respective overall project scores.

Table 6-3: Bicycle Facility-Specific Prioritization Factors and Points

Implementation Prioritization Factor	Point Range
<p>Critical Network Connectivity: projects that either have no viable Bicycle Route alternative within 1 mile or provide a connection shorter than 0.5 mile between 2 existing bicycle facilities received 5 points. If neither of these attributes applies, the project received 0 points.</p>	0 or 5
<p>Unfunded Amount of Project Cost was ranked as follows:</p> <p>Less than \$50,000 = 5 points \$50,000 to \$100,000 = 4 points \$100,000 to \$500,000 = 3 points \$500,000 to \$1,000,000 = 2 points \$1,000,000 to \$2,000,000 = 1 point Greater than \$2,000,000 = 0 point</p>	0 to 5
<p>Parking Impacts were assessed using the following equation: $5 - [(\# \text{ of spaces displaced} / 5) \times 0.1]$</p> <p>Note: Negative scores were not assessed to projects with a high amount of parking impacts - the lowest score that a project received is 0 points.</p>	0 to 5
<p>Right-of-Way (ROW) Impacts:</p> <p>No lane or curb impacts = 3 points Minor lane or curb impacts = 2 points Moderate amount of lane or curb impacts = 1 point Significant lane or curb impacts = 0 points</p>	0 to 3
<p>Project Funding:</p> <p>Fully Funded = 2 Partially Funded = 1 Not At All Funded = 0</p>	0 to 2

6.2.2 High Priority Bicycle Projects

Figure 6-3, Figure 6-4, and Figure 6-5 display the high priority projects based upon the prioritization process described above and refined through the public review process. These high priority projects were presented to the public via the project Website and during the public open house held on May 20, 2010.



**FIGURE 6-3:
SAN DIEGO BICYCLE MASTER PLAN**

**PROPOSED HIGH PRIORITY PROJECTS
(NORTH CITY)**

High Priority Proposed Projects

- Class I
- Class II
- Class III
- Cycle Track
- Bicycle Boulevard

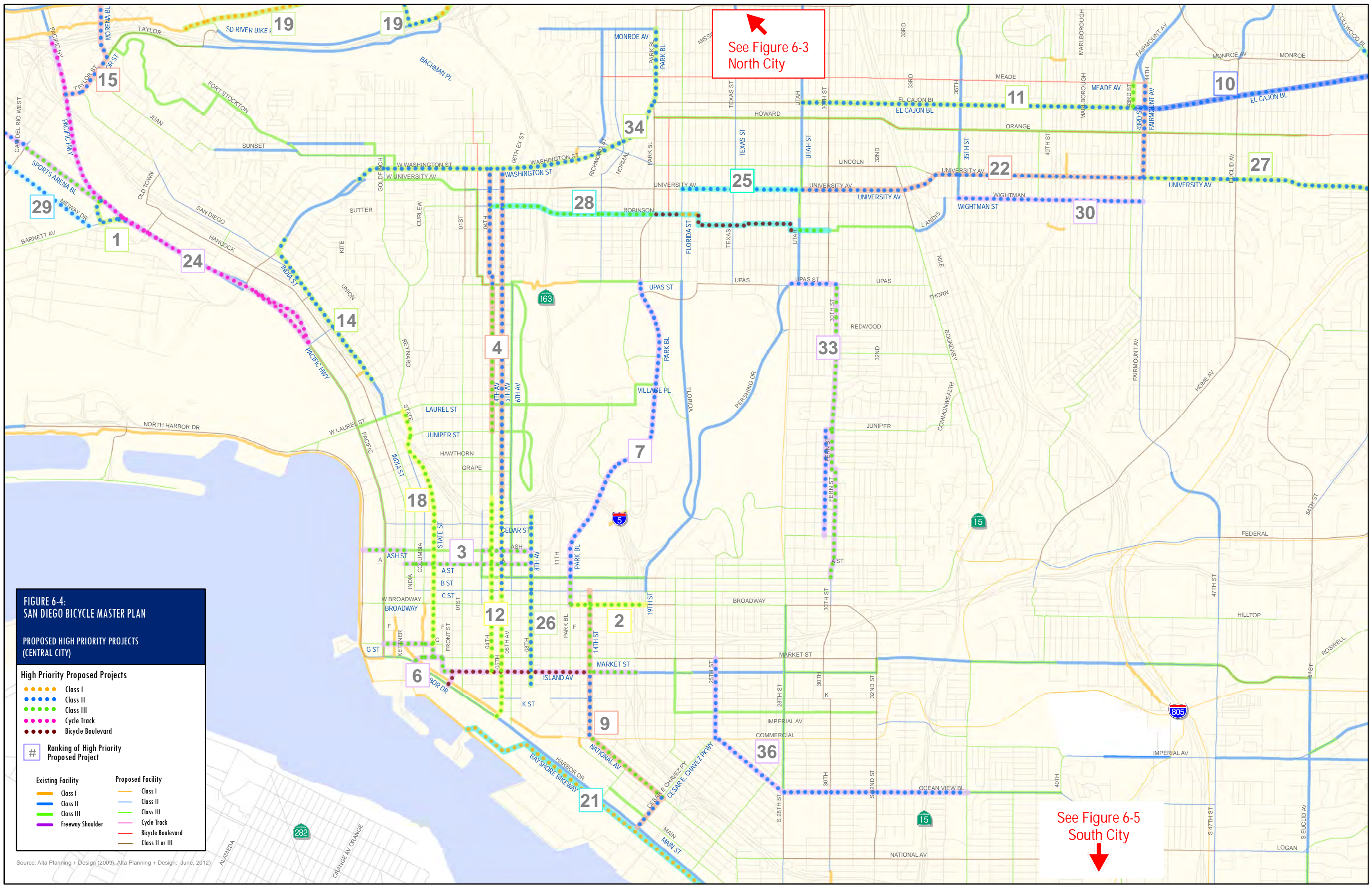
Ranking of High Priority Proposed Project

Existing Facility Class I	Proposed Facility Class I
Existing Facility Class II	Proposed Facility Class II
Existing Facility Class III	Proposed Facility Class III
Existing Facility Freeway Shoulder	Proposed Facility Cycle Track
	Proposed Facility Bicycle Boulevard
	Proposed Facility Class II or III

Source: Alta Planning + Design (2009) / Alta Planning + Design, June, 2012

See Figure 6-4
Central City

↓



See Figure 6-3
North City

See Figure 6-5
South City

**FIGURE 6-4:
SAN DIEGO BICYCLE MASTER PLAN**

**PROPOSED HIGH PRIORITY PROJECTS
(CENTRAL CITY)**

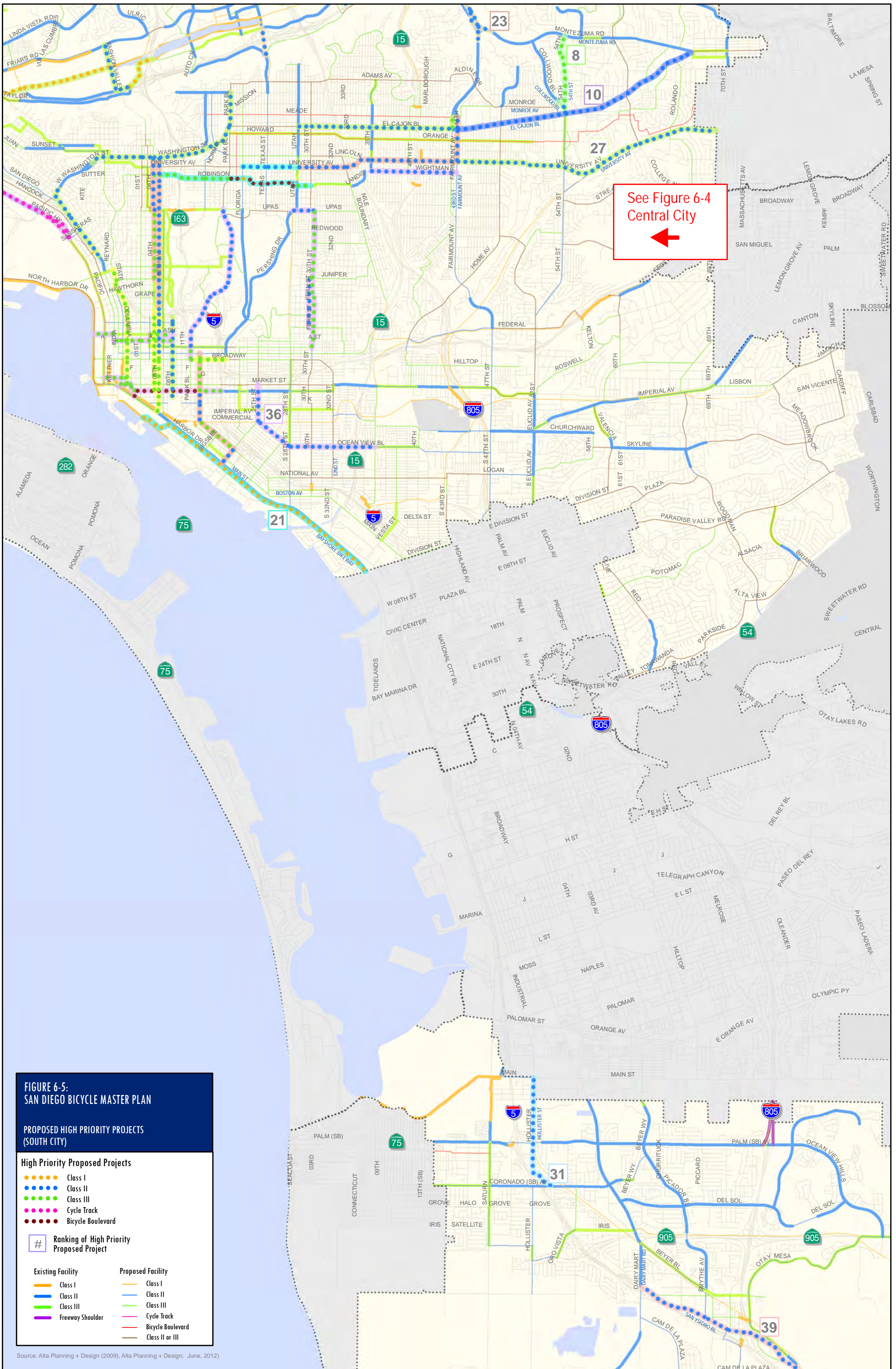
High Priority Proposed Projects

- Class I
- Class II
- Class III
- Cycle Track
- Bicycle Boulevard

Ranking of High Priority Proposed Project

Existing Facility Class I	Proposed Facility Class I
Existing Facility Class II	Proposed Facility Class II
Existing Facility Class III	Proposed Facility Class III
Existing Facility Freeway Shoulder	Proposed Facility Cycle Track
	Proposed Facility Bicycle Boulevard
	Proposed Facility Class II or III

Source: Alta Planning + Design (2009), Alta Planning + Design, June, 2012



See Figure 6-4
Central City
←

FIGURE 6-5:
SAN DIEGO BICYCLE MASTER PLAN

**PROPOSED HIGH PRIORITY PROJECTS
(SOUTH CITY)**

High Priority Proposed Projects

- Class I
- Class II
- Class III
- Cycle Track
- Bicycle Boulevard

Ranking of High Priority Proposed Project

Existing Facility	Proposed Facility
Class I	Class I
Class II	Class II
Class III	Class III
Freeway Shoulder	Cycle Track
	Bicycle Boulevard
	Class II or III

Source: Alta Planning + Design (2009), Alta Planning + Design, June, 2012

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Table 6-4 defines the high priority projects' extents, proposed facility type(s), and project mileage. Each of these high priority projects are also displayed on an individual project sheet that includes a description of the project area and issues; a listing of recommended improvements; a planning-level cost estimate; and an overview map of the project area with existing and proposed bicycle facilities. Chapter 8 presents the high priority bicycle project sheets.

In regards to the prioritization process, it should be noted that the purpose of the ranking process is to create a recommended prioritized list of projects for implementation. The project list and ranking are flexible concepts based on needs analysis and ease of implementation that serve as guidelines. The list may change over time due to changing bicycle patterns, implementation opportunities and constraints, and the development of other transportation system facilities.

Table 6-4: High Priority Bicycle Projects

Location	From	To	Proposed Facility	Segment Miles	Project Miles
Pacific Hwy and Barnett Ave	Enterprise Rd	Barnet Ave	Class II; spot treatments	.026	0.26
Broadway	Park Blvd	19th Street	Class III	0.41	0.41
Ash Street	N. Harbor Dr	Kettner Blvd	Class III	0.23	0.23
4th Ave	Washington Street	Elm Street	Class II; Class III	1.41	3.1
5th Ave	Washington Street	Elm Street	Class II	1.69	
Texas Street/Qualcomm Way	Camino del Rio North	Camino del Rio South	Class II; spot treatments	0.69	0.69
G Street	Harbor Drive	State Street	Class III	0.27	1.71
State Street	G Street	Market Street	Class III	0.08	
Market Street	Harbor Drive	Union Street	Class III	0.16	
Union Street	Market Street	Island Avenue	Class III	0.07	
Front Street	Island Avenue	Harbor Drive	Bicycle Boulevard	0.08	
Island Avenue	Front Street	I-5	Bicycle Boulevard	1.05	
Park Blvd	Upas Street	Broadway	Class II; Class III	1.88	
54th Street	Montezuma Rd	El Cajon Blvd	Class II; Class III	0.96	1.05
Collowood Boulevard	Monroe Avenue	54 th Street	Class II	0.09	
14th Street	C Street	Commercial Street	Class II/Class III	0.79	1.53
National Ave	Commercial Street	Cesar E. Chavez Pkwy	Class III	0.52	
Cesar E. Chavez Pkwy	National Ave	Harbor Drive	Class II	0.22	
El Cajon Blvd	43rd Street	Montezuma Rd	Class II	2.88	2.88
El Cajon Blvd	Utah Street	43rd Street	Class II	1.73	1.86
43 rd Street	Meade Avenue	El Cajon Boulevard	Class III	0.13	
4th Ave	Elm Street	Island Ave	Class III	0.93	2.11
5th Ave	Elm Street	Harbor Dr	Class II/Class III	1.18	
Mission Blvd	Turquoise Street	Grand Ave	Class II	1.01	1.01
India Street	Washington Street	Olive Street	Class II	0.87	0.98
Washington Street	India Street	0.1miles east of India Street	Class II	0.11	
Morena Blvd	W. Morena Blvd	Taylor Street	Class II	1.06	1.47
Napa Street (spur)	Morena Blvd	Linda Vista Rode	Class II	0.09	
Taylor Street	Morena Blvd	Pacific Hwy	Class II	0.32	

Chapter 6 | Bicycle Facility Recommendations

Location	From	To	Proposed Facility	Segment Miles	Project Miles
E. Mission Bay Dr	Interstate 5	Grand Ave	Class II	1.24	1.24
Morena Blvd	Gesner Street	W. Morena Blvd (S)	Class II	2.44	2.44
State Street	Columbia Street	Market Street	Class III	1.31	1.31
Fashion Valley Road	Friars Road	Hotel Circle N.	Class II	0.55	
Hotel Circle N.	Fashion Valley Road	Hotel Circle S.	Class II	0.3	
San Diego River Bike Path	Hotel Circle Place	Fashion Valley Road	Class I	1.21	2.54
Camino de la Reina	Hotel Circle South	S. San Diego River Bike Path	Class I	0.48	
Mira Mesa Blvd	Parkdale Rd	Interstate 15	Class II (gap closures)	1.13	1.13
Bayshore Bikeway	Embarcadero Path	National City City limits	Class I	3.24	3.24
University Avenue	Utah Street	Fairmount Ave	Class II	1.8	1.8
Fairmount Ave and Montezuma Rd	Camino del Rio South	Talmadge Canyon Row	Class II; spot treatments	2.2	2.2
Pacific Hwy	Ocean Beach Bike Path	Sassafras Street	Cycle Track	2.36	2.36
University Avenue	Florida Street	Utah Street	Class II	0.65	0.65
8th Ave	Date Street	J Street	Class II	0.94	0.94
University Avenue	Fairmount Ave	La Mesa City limit	Class II	2.13	2.13
Robinson Ave	4th Street	Alabama Street	Class III; Class I	1.23	1.97
Landis Street	Alabama Street	30th Street	Bike Blvd	0.74	
Midway Dr	W. Point Loma Bl	Barnett Ave	Class II	1.42	1.42
Wightman Street	Swift Avenue	Fairmount Ave	Class II	1.07	1.07
Hollister Street	Main Street	Coronado Av	Class II	1.36	1.63
Outer Road	Hollister Street	Coronado Av	Class II	0.27	
Mission Blvd	Grand Ave	W. Mission Bay Dr	Class II/Bike Blvd	1.59	1.59
30th Street	Upas Street	B Street	Class III	1.54	
Fern Street	Juniper Street	B Street	Class II	0.68	4.47
Upas Street	28 th Street	30 th Street	Class III	2.25	
Washington Street	University Avenue	Normal Street	Class II	2.01	
Normal Street	Washington Street	El Cajon Blvd	Class II	0.19	2.59
Park Boulevard	El Cajon Blvd	Madison Av	Class III	0.39	
Camino del Rio North	Mission City Pkwy	Interstate 15	Class II	1.29	1.29
25th Street	Market Street	Commercial Street	Class II	0.44	1.89
Ocean View Blvd	Commercial Street	36th Street	Class II	1.45	
Villa La Jolla Dr	Gilman Dr (N)	Gilman Dr (S)	Class II	0.97	0.97
Nobel Dr	Interstate 5	Regents Rd	Class II	0.67	0.67
W. San Ysidro Blvd	Dairy Mart Rd	Southern terminus of San Ysidro Blvd	Class II	2.2	2.2
Eastgate Mall	Olson Dr	Miramar Road	Class II	0.61	0.61
				Total Miles	65.52

Source: Alta Planning + Design, April 2011

6.3 Bike Parking and End-of-Trip Facilities

Bike parking and end-of-trip facilities are essential components of a bicycle system. Facilities such as bike parking racks, and showers and lockers for employees, further improve safety and convenience for bicyclists. Facility recommendations presented in this chapter are divided into the following categories: standard bike parking, high-capacity bike parking, end-of-trip amenities, and multimodal connections.

Additional parking facilities are proposed in new and existing commercial, retail, and employment areas. Bicycle parking recommendations include the City's standard inverted-U bike racks, lockers, high-capacity bike parking such as Corrals, and a proposed Bike Station at the Santa Fe Depot. Some of these recommendations would be implemented by the City of San Diego as the lead agency, and other recommendations, such as bike locker retrofits and upgrades, may be undertaken by SANDAG and require coordination with the City of San Diego.

Bicyclists need secure, well-located bicycle parking to support nearly all utilitarian and many recreational bicycle trips. Lack of parking can be a major obstacle to using a bicycle. A robust bicycle parking program is one of the most important strategies that jurisdictions can apply to enhance the bicycling environment. The program can improve the bicycling environment and increase the visibility of bicycling in a relatively short time.

6.3.1 Standard Bicycle Parking

Over the last several years, the City has installed bike racks by request on sidewalks and parkways throughout the city; however, there are still many locations where parking is either insufficient or lacking. In addition to responding to citizens' requests for bicycle racks in the public right-of-way, the City will expand the program to include a schedule for installing bicycle parking based on proximity to land uses that attract bicycle trips including transit hubs and activity centers. **Figure 3-5, Figure 3-6 and Figure 3-7 in Chapter 3** display key transit and activity centers where bike parking and end-of-trip amenities are expected to be present. The City is completing an inventory of bike parking, and will regularly update this inventory, continue securing funding to install bike parking, and develop a schedule to install bike parking in all locations identified in **Figure 3-5, Figure 3-6, and Figure 3-7** that lack bike parking facilities.

The City will also include bicycle storage standards in the *City of San Diego Standard Drawings* or *City of San Diego Landscape Technical Manual* for implementation at major employment centers, schools, transit centers, park-and-ride lots, bus routes, shopping centers, stadiums, and public and semi-public recreational areas.

Public bicycle parking programs can also be coordinated with property owners of commercial buildings to supply parking for employees and visitors. The City has an existing ordinance that requires bicycle parking in new commercial developments. These bicycle parking requirements are specified in the Municipal Code Sections 142.0525, 142.0530, and 142.0560. The City continues to ensure compliance with these regulations through the development review process.

6.3.2 High Volume Bicycle Parking

Where bicycle parking demand is high, more formal structures and larger facilities should be provided. Several options for high-volume bicycle parking are outlined below.

6.3.2.1 On-Street Bike Parking Corral

A relatively inexpensive solution to providing high-volume bicycle parking is to convert one or two on-street motor vehicle parking spaces into on-street bicycle parking. Bike racks are installed in the street and protected from motor vehicles with removable curbs and bollards. These facilities move bicycles off the sidewalks, and leave space for sidewalk café tables or pedestrians. Bicycle parking does not block sightlines like motor vehicles do, so it may be possible to locate bicycle parking in no-parking zones near intersections and crosswalks.



Bike parking Corral in Portland, Oregon

6.3.2.2 Bike Oasis

Bike Oases are installed on curb extensions and consist of attractive covered bike parking and an information panel. Portland's Bike Oases, for example, provide parking space for ten bikes. Bike and walking maps are installed on the information panel.

6.3.2.3 Bike Station

Bike Stations serve as one-stop bicycle service centers for bicycle commuters. They include 24-hour secure bicycle parking and may provide additional amenities such as a store to purchase items (helmets, raingear, tubes, patch kits, bike lights, and locks), bicycle repair facilities, showers and changing facilities, bicycle rentals, and information about biking. Some Bike Stations provide free bike parking, while others charge a fee or require membership.

Bike Stations have been installed in several cities in California, including Long Beach, San Francisco, Los Angeles, and Berkeley, as well as out of state cities of Chicago, and Seattle.

A Bike Station at the Santa Fe Depot is proposed to serve the large number of commuters who work in the downtown area. The Santa Fe Depot is a historic site that serves as a regional and local transit hub, with San Diego Trolley service, a Coaster Station, and an Amtrak Station. In addition to its multimodal significance, this site is ideal for a Bike Station because it is situated in the downtown business district and offers attractive outdoor and indoor public areas. There are currently bike racks and two SANDAG bike lockers located at the station, which provide four locker spaces for bicyclists. Establishment of a Bike Station would provide additional bike parking as well as other amenities that would help to support bicyclists as they commute and make connections to other modes of transportation.



Bike oasis parking area in Portland, Oregon

The following amenities should be considered for the Bike Station:

- Attended bicycle parking
- Bicycle rental establishment
- Accessory shop
- Bicycle repair shop
- Changing rooms
- Shower and locker facilities

6.3.3 End-of-Trip Facilities

End-of-trip facilities such as restrooms, changing rooms, showers, and storage for bicycling clothes (helmet and other gear) are especially important for cyclists who commute to work.



Bike station in Long Beach, California

The City will continue to implement its requirements for showers and lockers specified in the Municipal Code Sections 142.0530, and these shall be imposed upon all new development projects. Specific locations of proposed bicycle amenities are not mapped in this Bicycle Master Plan. Future amenity locations will be identified as the municipal code is enforced on individual development projects.

In order to ensure bicycle parking and amenity requirements are met per the Municipal Code, the City will evaluate the development review process and forms, and if necessary, make changes to the process to strengthen compliance with bicycle facility requirements. Improving the process may also include specific trainings for Development Services' personnel to better integrate bicycle facility requirements into the development review process.

6.4 Maintenance

Public workshop participants identified improved maintenance of San Diego's bikeways as a very high priority. Both on-street and off-street bikeways require regular maintenance. Typical tasks include repairing damaged and potholed roadway surfaces, clearing plant overgrowth and debris, and sweeping Bike Lanes and Bike Paths. Although these tasks are generally associated with routine roadway maintenance, on-street bikeways require specialized maintenance and, in general, greater attention to detail. Bicycles are more susceptible than motor vehicles to roadway irregularities such as potholes and loose gravel. For example, after repaving, a roadway lip between a gutter pan and asphalt does not affect a motor vehicle, but can easily catch a bicycle tire and possibly result in a cyclist losing control of the bicycle.

6.4.1 Bicycle-Oriented Maintenance Policy

The City's Street Division routinely sweeps streets based on schedules that can be viewed and downloaded from the City's website (<http://www.sandiego.gov/stormwater/services/sweepschedules.shtml>). Maintenance schedules should also be developed for Class I Bike Paths. Resurfacing specifications should be developed and maintained as the City performs street improvements or when companies require the trenching of certain streets for a period of time. Compaction standards should be developed to ensure that the settlement of pavement does not occur, especially within zones that have been trenched for some purpose.

Maintenance requirements for all roadways in the city are outlined in the City of San Diego’s Standard Drawings. Maintenance access on Bike Paths can be achieved using standard City pick-up trucks on the pathway itself. Sections with narrow widths or other clearance restrictions are clearly marked. Class I Bike Path maintenance includes cleaning, resurfacing and restriping the asphalt path, repairs to crossings, cleaning drainage systems, trash removal, and landscaping. Underbrush and weed abatement should be performed once in the late spring and again in mid-summer. In addition, these same maintenance treatments should be performed on Class II and Class III facilities. These facilities are prioritized to include an accelerated maintenance plan that is already a part of the City’s ongoing street maintenance. A maintenance schedule and checklist is provided in Table 6-5.

Trenching has become a major issue regarding roadway and bikeway maintenance in the City of San Diego. Trenching most often occurs in the bicyclists’ path of a street and/or in the Bike Lane on those streets that have these facilities. The typical construction location in the roadway makes trenching a major maintenance issue for bicyclists. Field inspection should be increased to ensure that the condition of post-construction roadway surfaces is the same or better than the surface condition before construction commenced.

Utility and fiber-optic company trenching should be coordinated so that the number of trenching activities is minimized. Construction treatments for bicyclists will be implemented during times of construction activities that affect bicycle travel on streets. Detour and warning signage need to be implemented, and efforts to maintain riding space for bicyclists will be made through construction zones.

When streets are resurfaced, the City’s Street Division will coordinate with the Traffic Engineering Division to determine the best striping plan for streets when they are restriped after resurfacing projects. If a segment of roadway slated to be resurfaced is identified as a proposed bikeway in the Bicycle Plan, efforts will be made to provide space for bicycle travel either as a Bike Lane or a Bike Route with a widened curb lane.

Table 6-5: Recommended Bikeway Maintenance Checklist and Schedule

Item	Frequency
Sign Replacement/Repair	1 - 3 years
Pavement Marking Replacement	1 - 3 years
Tree, Shrub & Grass Trimming/Fertilization	5 months - 1 year
Pavement Sealing/Potholes	5 - 15 years
Clean Drainage System	1 year
Pavement Sweeping	Weekly-Monthly/As needed
Shoulder and Grass Mowing	Weekly/As needed
Trash Disposal	Weekly/As needed
Lighting Replacement/Repair	1 year
Graffiti Removal	Weekly-Monthly/As needed
Maintain Furniture	1 year
Fountain/Restroom Cleaning/Repair	Weekly-Monthly/As needed
Pruning	1 - 4 years
Bridge/Tunnel Inspection	1 year
Remove Fallen Trees	As needed
Weed Control	Monthly/As needed
Maintain Emergency Telephones, CCTV	1 year

Item	Frequency
Maintain Irrigation Lines	1 year
Irrigate/Water Plants	Weekly-Monthly/As needed

Roadways that are regularly traveled by bicyclists will be swept more frequently and otherwise maintained regardless of whether a specific bikeway designation exists on those roadways.

The City of San Diego is considering the following specific measures when evaluating its street maintenance and repair policies to ensure that they reflect the needs of bicyclists:

Street sweeping. As motor vehicles travel along the roadway, debris is pushed to the outside lanes and shoulder. Debris also collects at the center of intersections. Street sweeping on these roadways will include removing debris on the shoulder and at intersections.

Minor repairs and improvements. Potholes and cracks along the shoulder of roadways primarily affect bicyclists and need be repaired within a timely manner. All repairs will be flush to the existing pavement surface.

Street resurfacing. When streets with bikeways are resurfaced, utility covers, grates and other in-street items can be brought up to the new level of pavement. Similarly, the new asphalt can be tapered to meet the gutter edge and provide a smooth transition between the roadway and the gutter pan.

Actively coordinate with maintenance workers. The City should ensure that maintenance workers are aware of new bicycle related maintenance policies. Maintenance workers should be involved in the development of bicycle related maintenance policies in order to ensure that City staff and maintenance workers understand each other’s needs and limitations. After establishing policies, the City should follow up with the maintenance staff to verify compliance and to modify policies or provide additional support, if necessary, to ensure future compliance.

6.4.2 Bicycle Facility Maintenance Program Funding

Bicycling is an integral part of San Diego’s transportation network, and maintenance of the bikeway network is part of the ongoing maintenance program for all city transportation facilities. As such, bikeway network maintenance should receive an appropriate allocation of the City’s transportation maintenance funds.

6.5 Bicycle Signal Detection

In-pavement loop detectors are used at signalized intersections to trigger a traffic light when a roadway user approaches the intersection. California law (AB 1581) requires that all new traffic actuated traffic signals respond to the presence of bicycles and motorcyclists. The City of San Diego has received TDA/TransNet funding to install bicycle detection systems and pavement markings at 20 signalized intersections in San Diego to improve bicycling safety. The following recommendations are intended to build on the city’s bicycle detection at signalized intersections.

6.5.1 Bicycle Loop Detector Installation

The City is committed to continue to seek funding and install bicycle loop detectors at signalized intersections, particularly during roadway construction.

6.5.2 Bicycle Loop Detector Calibration

While bicycle detector loops facilitate faster and more convenient bicycle trips, if they aren't calibrated properly, or stop functioning, they can frustrate cyclists waiting for signals to change, unaware that the loop is not working. The City is responsible for ensuring that all bicycle loops are operable.

6.6 Signage and Striping

All bikeway signage on public roadways in San Diego will conform to the signage identified in the *2010 California Manual on Uniform Traffic Control Devices (California MUTCD)*. These documents give specific information on the type and location of signage for bicycle facilities in California. For example, design guidelines are provided in the MUTCD for transitioning from a bicycle lane to a right turn only lane using optional dotted lines on the roadway to delineate the Bike Lane conflict zone and a "BEGIN RIGHT TURN LANE YIELD TO BIKES" sign (R4-4).

Innovative signage can be developed for a number of reasons – as a standardized warning system, to assist with unique wayfinding, or to help lend a sense of place to a community. Some innovative signage is developed to increase awareness that bicyclists may use the full travel lane and to alert motorists to the proper response. Any signs to be installed on public roadways in California must be approved by Caltrans. New experimental designs can be utilized after approval. This continuing process of developing better wayfinding or safety-warning signs is important for designing safer and more enjoyable bicycling facilities, as well as improving the overall transportation system.



Standard destination signs can be customized to reflect San Diego's character.

6.6.1 "Share The Road" Signage

For all Class III Bike Route implementation, the City will install "SHARE THE ROAD" signs (MUTCD W16-1) along with the standard "BIKE ROUTE" signage (MUTCD D11-1).

6.6.2 Designated Bikeway Signs

The installation of bikeway signs on all designated bicycle facilities is important to heighten motorist awareness of cyclists and help cyclists find their way. The City will ensure that all bikeways are signed per the *2010 California MUTCD*.

6.6.3 Bicycle Boulevard Signage

All recommended Bicycle Boulevards will be equipped with bicycle boulevard identification, wayfinding, and warning signage. The City will develop distinctive signage that identifies Bicycle Boulevards as such and encourages their use by bicyclists. Destination signage will also be used along Bicycle Boulevards to provide bicyclists with direction, distance or estimated travel times to key destinations including transit stations, commercial districts, recreational areas, schools and universities. The City will also install warning signs along Bicycle Boulevards to alert motorists and cyclists of road condition changes including turns in Bicycle Boulevards, ends of Bicycle Boulevards, upcoming traffic calming features, and traffic control devices.



Bike Route signage with wayfinding/directional information.

The City is considering modifying its existing wayfinding system so that it is more consistent and distinct. A city-wide wayfinding system could include all bikeway types including Bicycle Boulevards, and be similar in character to the bicycle boulevard signage. A signage plan, such as Oakland, California's, will be developed to ensure that the signage is complete, coherent and does not result in sign clutter.

6.7 Multi-Modal Connections

Measures to providing a convenient connection for bicyclists to continue their trips on public transit vehicles include three key elements, providing bicycle access to transit stops, providing bicycle parking facilities at transit stops and accommodating bicycles on trains, trolleys, and buses. The City of San Diego takes part in the first two of these three elements by ensuring that the proposed bikeway network connects to existing transit stops and providing bicycle parking at major train, trolley, and bus transit stops.

6.7.1 Bicycle Access to Major Transit Centers

Recommendations for improving bicycle access to transit stops include:

- All actuated traffic signals near San Diego's existing and future trolley stations and major bus transfer centers should be able to be activated by cyclists. Actuation can be provided in left-turn lanes as well as through lanes. If the actuation is provided by a push button, it will be oriented toward the street, and allow cyclists to push the button without dismounting.
- Streets in which transit stations are located should include bicycle facilities that are designed to ensure access to the transit station is safe, direct, and does not conflict with motor vehicles.
- Destination signs indicating direction and distance to transit stops should be located on sidewalks, bikeways, and major arterials.
- Local area maps showing bicycle and pedestrian facilities and local destinations should be posted at transit stations.
- Warning signs notifying drivers of bicycle and pedestrian crossing should be installed at transit stop driveway crossings, bikeway crossings, pathway crossings, and other places with potential user conflicts. Similarly, appropriate regulatory signage should be installed for cyclists and pedestrians.
- Safe, direct, and well-marked routes should be provided for cyclists and pedestrians through the station area to the platform, sidewalks, bikeways, ticketing area, and bike parking.

6.7.2 Bicycle Parking at Transit Stops

Providing ample secure bicycle parking at transit stops is essential to increasing bicycle mode share to transit. Bicycle parking, including racks and SANDAG lockers, is currently provided at San Diego transit stations.

In general, bicycle parking will be provided as close to bus stops as possible, without restricting pedestrian flow or ADA access. Signs will be placed directing cyclists to parking locations, and if "no bicycle parking" signs are used, they will be accompanied with signs directing cyclists to bicycle parking locations.

When evaluating bicycle parking demand, The City will take into account the quality and placement of parking supplies. If underused bike parking is moved to a more secure, visible and convenient location, use of the parking may increase. The following improvements have been shown to increase bicycle parking usage:

- Moving bike racks and lockers to locations that are more visible to potential users

Chapter 6 | Bicycle Facility Recommendations

- Moving bike racks to locations that are more convenient to other services, such as customer service windows
- Improving signage to let transit passengers know the process for renting bicycle lockers
- Advertising bicycle parking services in local bicycle publications

Figure 3-7 in Chapter 3 displays transit hubs in San Diego. The City will prioritize installing short- and long-term bike parking facilities at all transit hubs where currently lacking, as a part of an expanded City bicycle parking program proposed in the Bicycle Parking section of this chapter.

6.8 Bicycle Sharing

Bike Share programs can provide safe and convenient access to bicycles for short trips, such as running errands during lunch, and transit-work trips. The international community has experimented with Bike Share programs for nearly 40 years. Bike Share programs, such as systems in Paris and Lyon, France, help increase cycling mode share, serve as a missing link in the public transit system, reduce a city's travel-related carbon footprint and provide additional 'green' jobs related to system management and maintenance. In the US, many cities are looking into Bike Share programs, though they have not yet been widely implemented. Downtown San Diego and San Diego's beach communities are excellent candidates for a bicycle sharing pilot program due to relatively flat topography and high volume of visitors to these areas.



CycleStation Bike Share Program.

Source: Alta Planning + Design

Until recently, Bike Share programs worldwide experienced low to moderate success; in the last 5 years, innovations in technology have given rise to a new (third) generation of technology-driven Bike Share programs. These new Bike Share programs can dramatically increase the visibility of cycling and lower barriers to use by requiring only that the user have a desire to bike and a credit card or phone.

Existing and proposed Bike Share programs employ a wide variety of technologies, and “lessons learned” are being continually applied to new systems. For a Bike Share program to be successful it is important that the correct technology and package of services involved be mated to the unique challenges that each program faces. For this reason it is strongly recommended that before considering implementation of a Bike Share program, to have an independent assessment of community needs, economics, technologies, logistical issues, service area, and other challenges faced in an implemented system.

The City of San Diego issued a Request for Sponsorship through its Corporate Partnership Program in September 2012 and subsequently selected DecoBike to implement the City's bike share program. DecoBike is responsible for all aspects of the bike sharing program including financing, building out, marketing, operating and maintaining a complete bike sharing system in the City of San Diego. To compliment the bike sharing program a circular destination route to popular landmarks is under development. Public outreach has taken place to identify the station locations. Significant program coverage is expected. Phase I of the bike sharing program is expected in early 2014 with approximately 180 station locations and 1,800 custom bikes in San Diego's Downtown area.

7 Program Recommendations

The bikeway projects and facility improvements recommended in the Bicycle Master Plan will be complemented by programs designed to educate people about bicyclists' rights and responsibilities and safe bicycle operation, connect current and future bicyclists to existing resources, encourage residents to bicycle more frequently, and monitor the performance of the bicycle system and programs.

This chapter outlines several potential programs the City is pursuing, as well as programs the City currently provides and will continue to provide. Recommendations presented in this chapter are divided into the following four categories: education programs, enforcement, encouragement programs, and monitoring and evaluation.

7.1 Education Programs

This section covers future efforts to educate bicyclists and motorists, and efforts to increase the use of bicycles as a transportation alternative. Most education and encouragement programs and activities will likely be cooperative efforts between City of San Diego departments, San Diego Unified School District, and local bicycle organizations such as the San Diego County Bicycle Coalition (SDCBC). The City is also exploring a partnership with Safe Moves, a nationally recognized non-profit organization specializing in traffic safety for children and adults.

7.1.1 Existing Education Programs

The City will continue to offer its existing programs including the Pedestrian and Bicycle Safety Education Program and Safety and Traffic Education Program which are described in Chapter 3, and will seek secure, regular funding sources to continue to support these programs.

In prior years, the City of San Diego obtained funding to help support adult bicycling courses provided by SDCBC League of American Bicyclists Certified Instructors. While the focus of the Safety and Traffic Education Program is to raise awareness and promote safe interactions between all roadway user groups, there is also a need for cycling courses that provide in-depth training on topics such as riding in traffic skills and hazard avoidance techniques. Learning how to ride safely encourages people to ride more confidently, more often, and along more routes.

Adult bicycling courses can be made available to individual members of the public such as the series offered by the SDCBC and also to existing groups such as employees of a local business, City employees, and university or college students.

7.1.2 Bicycle User Maps

Bicycle user maps serve an important role in bicycle education efforts by presenting bicycle facilities. The user handbooks may include a circulation map of neighborhood amenities like parks, schools, libraries, and community centers; suggested routes to schools; bicycle shops, maintenance facilities, and emergency facilities. The maps can also include general cycling tips, helmet wear instructions, street crossing instructions, and emergency numbers.

7.1.3 Traffic Ticket Diversion Classes

The City is considering offering education in the form of ticket diversion programs where traffic offenders can take a course in lieu of citations or fines or in exchange for fee reductions. Classes are geared toward motorists, bicyclists, and pedestrians who are violators of bicycle and pedestrian-related traffic laws. Participants learn about laws pertaining to bicycle and pedestrian traffic and receive instruction on how to safely interact with other roadway user groups. Programs are frequently initiated through partnerships between the City and non-profit bicycle organizations that conduct the trainings. For example, the City Prosecutors Office in Tucson, Arizona will dismiss a cyclist's traffic citation if he or she submits proof of completing the Road 1 Safety class offered by the Pima County Bicycle and Pedestrian Program. In Marin County, California, bicycle traffic violators are eligible for citation fee reductions by attending a bicycle safety course taught by the Marin County Bicycle Coalition. The classes are provided ten times per year in English and Spanish at various locations throughout Marin County. The Marin County Superior Court refunds a portion of the fee upon successful completion of the class.

Implementing a diversion program in San Diego will require coordination with the City Attorney's and District Attorney's offices.

7.1.4 Safe Routes to School

The City of San Diego has been successful in securing Safe Routes to School grant funds to improve walking and bicycling conditions surrounding various schools, particularly in the Mid-City, Southeastern, and San Ysidro neighborhoods. Robust Safe Routes to Schools programs use a variety of strategies to improve safety and encourage walking and bicycling to school. These strategies are often referred to as the "Four Es."

- Education: programs designed to teach children about traffic safety, bicycle and pedestrian skills, and traffic decision-making.
- Encouragement: programs that make it fun for kids to walk and bike. These programs may be challenges, incentive programs, regular events (e.g. "Walk and Bike Wednesdays") or classroom activities.
- Engineering (Design): physical projects that are built to improve walking and bicycling conditions.
- Enforcement: law enforcement strategies to improve driver behavior near schools.

Programs generally address the safety concerns of parents by encouraging greater enforcement of traffic laws, educating the public, and redesigning streets to be safer. Identifying and improving routes for children to walk or bicycle to school is one of the most effective means of reducing morning traffic congestion and addressing existing safety problems. Safe Routes to School efforts also promote health by encouraging active transportation. School commute programs that are joint efforts of the City and school district, with parent organizations adding an important element, are usually the most effective.

The City continues to pursue Safe Routes to School efforts and encourages schools in San Diego to conduct individual evaluations of school commute patterns, identify corridor and crossing improvements within walking and biking distance of the school, and to identify improvements to the drop-off/pick-up system. School commute routes are local in nature and require extensive and detailed examination of patterns and conditions and local input.

The City will also coordinate annual walk and bike to school counts in the city to document and encourage Safe Routes to School efforts.

The Safe Routes to School program will continue to actively involve students' parents and will focus on making it safer for students to bicycle and walk to school.

7.2 Enforcement

In order to encourage safe cycling in San Diego, facility improvements must be accompanied by enforcement of California Vehicle Code regulations pertaining to bicycling. The City of San Diego currently enforces bicycle-related violations of the California Vehicle Code.

7.2.1 Police Department Enforcement Efforts

The City of San Diego Police Department will continue to perform enforcement of vehicle statutes relating to bicycle operation. A particular focus will be on obstructions of bicycle facilities, individuals riding the wrong direction, or riding on the sidewalk, as these behaviors increase the chance that a cyclist will be involved in a collision. Enforcement of vehicle laws related to bicycling can serve as an educational tool, as some individuals may simply not understand that they are breaking the law and putting themselves at risk. The Police Department also offers online education "Safety Sam," geared toward children and traffic safety. The Police Department is considering attending local bicycle rodeos coordinated by non-profit and other organizations to answer questions and show support for the events (The Police Department enforcement and program efforts are briefly described in Chapter 3, Section 3, Education, Awareness and Enforcement Programs).

7.2.2 Police Officer Trainings

The entire San Diego police force, particularly traffic officers, will receive regular trainings in bicycling issues. Currently, only a subset of the police force receives training to patrol on-bicycle which includes bicycle safety training. Developing training videos could be an initial step in providing bicycling issues training. An example of an effective video training for police officers is the "Traffic Enforcement for Bicyclist Safety" video for Chicago police officers that was developed through a partnership between the Chicago Police Department and the Chicago Department of Transportation.

7.3 Encouragement Programs

Encouragement programs are vital to the success of the San Diego bicycle system. Encouragement programs' primary purpose is to persuade people to shift from driving to bicycling, which helps reduce traffic congestion and air pollution, as well as improve the quality of life in San Diego. Community support is needed to ensure the long-term success of encouragement programs. Strategies for community involvement will be important to ensure broad-based support – which translates into political support – to help secure financial resources. Involvement by the private sector in raising awareness of the benefits of bicycling can range from small incremental activities by non-profit groups, to efforts by the largest employers in the city. Specific programs are described below.

7.3.1 Bicycle Friendly Business Program

Bicycle friendly business programs recognize employers that foster a more bicycle friendly climate for employees and customers. The program honors innovative bike-friendly efforts and provides technical assistance and information to help companies and organizations become even better for bicyclists. This new initiative complements the League's Bicycle Friendly Community (BFC) program, which has been recognizing cities and towns for their bicycle friendliness since 2003. A Bicycle Friendly Business (BFB) is a corporation, organization, association, or nonprofit that actively promotes bicycling for transportation, recreation, exercise, and sport. A BFB practices social responsibility by weaving bicycling into the business culture and gives employees the opportunity to be active stewards of their personal and environmental health through bicycling.

7.3.2 Bicycle Friendly Communities

Bicycle-friendly community programs use a combination of infrastructure projects and local policies to encourage bicycle ridership. Stakeholders focused around a community core, like a school, business district, neighborhood or community planning area, can implement the policies contained in this section. The City can expand upon its efforts by creating a local bicycling committee to represent their interests at local government meetings, performing regular bike counts to justify local funding for bicycle related improvements, and organizing bicycling-oriented events. As part of a Bicycle Friendly Community neighborhood program, the City of San Diego will consider administering a recognition program similar to the League of American Bicyclist's BFC program and could include multiple recognition levels, such as bronze, silver, gold and platinum. Through this program, neighborhoods throughout the city could apply for recognition as a bicycle-friendly community. Evaluation criteria for the BFC include factors such as bicycling facilities, bicycling rates, and bicycle oriented businesses. This program would require additional City resources, although it will be administered by the city Bicycle Coordinator, which is recommended below as a full-time position.

7.3.3 Bike Commuter Challenge Program

The City is considering developing a bike commute challenge program modeled after the Oregon-based Bicycle Transportation Alliance Bike Commute Challenge. These programs engage workplaces and employees in a friendly competition to see who can document the most bicycling or walking trips taken for commuting or other utilitarian purposes. Registration and trip tracking are generally managed in a user-friendly online interface. Winners could be announced to the press during an annual wrap-up celebration. This program would complement the SANDAG iCommute Diamond Awards which honors organizations and individuals in the region that promote alternative travel options such as vanpooling, carpooling, use of public transit, walking, and biking and the iCommute Week Carpool Challenge.

7.3.4 CicloSDias

Ciclovías are periodic street closures that create a temporary park that is open to the public for bicycling, walking, roller skating, dancing, etc. They have been very successful at raising enthusiasm for alternative travel modes internationally and are gaining popularity in the US. Ciclovía," which translates to English as "bike path" was coined in Bogota, Columbia, a city that began experimenting with its model Ciclovía initiative in 1974 as a response to the congestion and pollution of city streets.



Sunday Parkways in Portland, Oregon

CicloSDias San Diego is modeled after similar car-free events held in cities around the world, including New York, San Francisco and Los

Angeles. CicloSDias is about connecting communities and giving people a break from the stress of car traffic. CicloSDias San Diego will bring families outside of their homes to enjoy car free streets.

7.3.5 Bicycling Information Website

The City's Website will include a bicycling information page that provides information about safety, reporting roadway and bikeway problems, the Bicycle Master Plan, bicycle facility construction updates, and links to other local resources, including the SANDAG iCommute Website, local bicycling groups, classes, and events.

7.3.6 Bike-to-Work and Bike-to-School Days

The City of San Diego will continue to participate in the annual Bike-to-Work Day in May, in conjunction with the California Bike-to-Work Week activities. City staff will host "energizer" stations along key local commuter routes. The City will also consider working with local schools and sponsoring or supporting local Walk and Bike to School Days held annually in conjunction with schools' programs. This could include the International Walk and Bike to School Day, held in early October each year.

7.4 Monitoring and Evaluation

Monitoring and evaluating a city's progress toward becoming bicycle-friendly is critical to ensuring that programs and facilities are effective and to understanding changing needs. Maintaining consistent staff positions, count programs, reporting on progress, and convening advisory committees are methods for monitoring efforts and for holding agencies accountable to the public.

7.4.1 Multi-Modal Section

To assist with implementation of the many projects and programs recommended in this chapter, the City's Transportation Engineering Operations Division within the Transportation & Storm Water Department has created a Multi-Modal section to streamline the design and implementation of bicycle infrastructure and the Bicycle Master Plan. The Multi-Modal section is currently focusing on the following to promote bicycling

within the City of San Diego; enhancing striping, signage and markings for bicycle facilities, designing new green bike lanes, the installation of pedestrian hybrid beacon and detection equipment, addressing bicycle infrastructure and increasing public outreach and encouragement for bicycling.

The 2010 *Benchmarking Report* published by the Alliance for Biking & Walking⁹ surveyed the 50 largest U.S. cities, including San Diego, to collect comprehensive background data related to bicycling and walking in the U.S. The survey included a question on bicycle and pedestrian staff and the results indicated that all but two of the forty cities that answered the question have bicycle and pedestrian staff. Furthermore, the survey revealed that cities with more than four staff dedicated to bicycle issues have ten times the bicycle commuting rates of cities without staff and higher Bicycle Friendly Community status recognition from the League of American Bicyclists. Table 7-1 shows the number of full-time bicycle and pedestrian staff in ten of the cities surveyed and the equivalent number of staff per one million people.

Table 7-1: Bicycle and Pedestrian Staffing in U.S Cities

City	Number of Full-time Staff*	Staff /1 million people*
San Diego, CA	1.8	1.4
Long Beach, CA	1.0	2.2
Fresno, CA	3.0	6.4
Oakland, CA	3.8	10.7
San Jose, CA	5.0	5.4
San Francisco, CA	14.0	18.3
Seattle, WA	6.0	10.4
Austin, TX	12.0	16
Portland, OR	15.0	27.2
Minneapolis, MN	19.3	55.0

Source: 2010 *Benchmarking Report*, Alliance for Biking & Walking

*Data are based on the 3-year average number of full-time-equivalent staff from 2006 -2008

7.4.2 Bicycle Advisory Committee

Create a Bicycle Advisory Committee (BAC) that will coordinate with various City agencies, schools, neighboring cities, SANDAG, community planning groups, and community organizations, and will provide input on bicycle issues in San Diego. The BAC is generally composed of representatives from bicycling organizations, such as the San Diego County Bicycle Coalition, bicycle shops, riding clubs, transportation agencies, universities, colleges, and community members-at-large in order to provide perceptiveness from a broad cross-section of the bicycling community.

7.4.3 Count Program and Annual Report

Collect bicycle and pedestrian counts annually as a part of a regional effort to record bicycle and pedestrian activity levels. The bicycle and pedestrian count program will be administered annually and capture all types

⁹ Alliance for Biking & Walking, *Bicycling and Walking in the United States 2010: Benchmarking Report*. Available at: <http://www.peoplepoweredmovement.org/site/>

of bicycle and pedestrian trips including trips for recreation, commuting to work and for other utilitarian purposes. Bicycle and pedestrian counts and assessments will also be conducted whenever a local land development project requires a traffic impact study. A long-term financing source will be identified to guarantee the longevity of the program.

The City is considering participating in the National Bicycle & Pedestrian Documentation Project by following the data collection model and submitting data collected to contribute to this growing source of national data on bicycle and pedestrian usage. The City will also consider publishing or working with local agencies to produce bi-annual or periodic report cards similar to the San Francisco State of Cycling Report to document the City's progress toward increasing bicycle activity. New York City also conducts regular bicycle counts (10 counts per year since 2008) and prepares an annual report, the NYC Commuter Cycling Indicator, which presents data trends in bicycle commuting since 1980. This report can be found online at <http://www.nyc.gov/html/dot/html/bicyclists/nycbicyclescrct.shtml>.

7.4.4 Strategic Implementation Plan

The City of San Diego City Council approved Council Resolution R-308024 on March 11, 2013 committing the City of San Diego to “being a City where bicycling is a safe and viable travel choice” and further declaring that the “City will prioritize and encourage the planning and development of bicycle-friendly projects, streets, and neighborhoods for both commuter and recreation riders”.

To further address the City of San Diego's commitment to prioritizing citywide bicycle infrastructure improvements, a strategic implementation plan will be established by Fiscal Year 2015 and utilized for implementation of the bicycle network and evaluation of the bike program. The Transportation & Storm Water Department will establish specific performance measures, and a review of accomplishments will be performed. Performance measures may include items such as SANDAG bike counts, an evaluation of the number of network miles, green lanes, buffered bike lanes, number of bike racks installed, number of miles of lane diets, and the number of miles paved and restriped lanes. The Transportation and Storm Water Department will also evaluate the opportunity to prioritize infrastructure improvements in “high quality transit areas,” which include Smart Growth areas, Major Employment areas and Urban Corridors identified in the Climate Action Plan.

8 Implementation and Funding

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

- An overview of bicycle-related expenditures between 2006 and 2012
- Planning level cost estimates for the entire proposed network
- Detailed cost estimates for the high priority projects
- Cost estimates for maintenance and operations
- An overview of funding sources that the City will pursue

8.1 Previous Bicycle-Related Expenditures

The City of San Diego has had several projects funded over the past six years. Table 8-1 identifies specific projects funded in Fiscal Year 2006 to Fiscal Year 2012, the communities in which they are located, and the amount of the expenditures.

Table 8.1 City of San Diego Bikeways Expenditures FY 2006 to FY 2012

Project	Communities	Amount
54th Street and Euclid Avenue Bike Lanes and Routes	Southeastern San Diego, College Area	\$130,000
Balboa Avenue/Tierrasanta Blvd. Bikeway	Clairemont Mesa, Kearny Mesa, Tierrasanta	\$250,000
Bayshore Bikeway	Otay Mesa/Nestor	\$996,410
Bicycle Loop Detectors	Citywide	\$83,500
City Bicycle Master Plan	Citywide	\$275,000
Coastal Rail Trail	Torrey Pines, University	\$839,950
Congress Street Bicycle Facility	Old San Diego	\$50,000
Darkwood Canyon Connector Study for SR-56 Bike Path	Rancho Penasquitos	\$41,106
Kearny Villa Road Bike Lane Improvements	Kearny Mesa	\$300,000
Kearny Villa Road Bike Path Study	Kearny Mesa	\$100,000
Minor Bicycle Facilities	Citywide	\$354,500
Mission Trails Regional Park/Mission Bay Bike Path	Mission Valley/Navajo	\$201,500
Ocean Beach Bike Path/Hotel Circle North Bikeway Design	Mission Valley, Ocean Beach	\$3,058,884
Pacific Highway Bike Route	Midway/Pacific Highway Corridor	\$7,594
Park Boulevard Bicycle Facility	Uptown, Greater North Park	\$75,000
Poway Road - Class I Bicycle Lane	Sabre Springs	\$1,600,000
Rancho Bernardo Bikeway	Rancho Bernardo	\$250,000

Rose Creek Bikeway	Mission Bay Park, Pacific Beach	\$6,800,000
Ruffin Road/Murphy Canyon Road Bikeway Project	Kearny Mesa	\$155,254
Safety in Traffic Education Program (STEP)	Citywide	\$224,150
San Diego River Bike Path	Mission Valley, Navajo	\$255,849
San Diego River Multi-Use Path	Mission Valley	\$1,740,000
Interstate 15 Bikeway	Mid-City	\$2,507,275
State Route 56 Bike Interchanges	Rancho Penasquitos, Pacific Highlands Ranch, Del Mar Mesa, Torrey Highlands, Black Mountain Ranch	\$3,100,000
Taylor Street – Bikeway	Old San Diego	\$219,092
University Avenue at Alabama Street Bicycle and Pedestrian Safety Improvements	Greater North Park	\$520,000
Via La Jolla Drive Bicycle Route	La Jolla	\$10,000
Vista Sorrento Parkway Bike Lanes	Mira Mesa, Torrey Pines	\$602,478
TOTAL		\$24,747,542

Source: City of San Diego Website, <http://www.sandiego.gov/fm/annual/index.shtml>

8.2 Cost Estimate for the Proposed Network

Table 8-2 summarizes cost estimates for the proposed bicycle network recommended in this Plan. Unit cost estimates were obtained from the Transportation and Storm Water Department. The cost of completing the proposed bicycle network is estimated to be about \$248 million for Bike Path projects, \$3 million for Cycle Track projects, \$56 million for Bike Lane and Bike Route projects, and \$4.9 million for Bicycle Boulevard projects, for a combined total system build out cost of about \$312 million. Cost estimates include costs for survey and design, construction, administration, and contingencies.

Table 8-1: Proposed Bicycle Network Cost Estimates

Facility Type	Unit Cost*	Miles of Unbuilt Proposed	Total Cost Estimate per Facility Type
Class I – Bike Path	\$2,640,000	94.1	\$248,490,000
Class II – Bike Lane	\$30,000	99.3	\$2,980,000
Class II– Bike Lane w/ Issues	\$273,000	41.5	\$11,275,000
Class III – Bike Route	\$14,800	171.2	\$2,535,000
Class II or III (TBD)	\$273,000	143.4	\$32,154,000
Bicycle Boulevard	\$124,000	39.4	\$4,881,000
Cycle Track	\$451,200	6.6	\$2,983,000
Total		595.3	\$312,298,000

Source: Alta Planning + Design, April 2011

Note: *Unit costs were developed by averaging the costs by facility type associated with the high priority projects.

8.3 High Priority Project Cost Estimates

Table 8-3 displays cost estimates for the high priority Bicycle Projects. As shown, the total cost for implementation of these projects would be approximately \$35 million. The following high priority Project Sheets provide a project description, related issues, and the cost estimate for each of the high priority Bicycle Projects. Appendix G provides the cost details of the high priority projects. Appendix H presents the extended list of the high-priority projects, which were prioritized in the top 1/3 of all proposed projects.

Regarding implementation of the high priority projects, the list of projects is not intended to be implemented in sequential order from 1 to 40. Implementation for all projects identified in the Plan will be affected by such factors as funding availability, project complexity, project completion times and public input. The designated community planning groups are expected to provide input regarding routes within their respective communities for implementation. The Capital Improvement Program (CIP) prioritization policy (Council Policy 800-14) may also affect the order in which the high priority projects are implemented.

It should also be noted that high priority projects may be grouped together to create small bikeway sub-systems within communities and neighborhoods in the city. Grouping of projects is recommended for funding purposes and for completing the proposed bikeway network in a particular neighborhood. As part of the high priority project grouping, it is also recommended that complementary bicycle facilities and systems, such as bicycle parking, bicycle sharing systems, and bicycle maps, be considered.

8.3.1 Implementation Program

8.3.1.2 Bicycle Improvements with Street Resurfacing

The City of San Diego has a network of approximately 2,800 centerline miles of streets and the City's Streets Division relies in part on a Pavement Management System to generate an Overall Condition Index (OCI) for every section of roadway in the City. Pavement condition data such as distress (cracking), rutting, and roughness are collected on all streets and input into the Pavement Management System to generate the OCI.

The OCI is then used in conjunction with other variables such as traffic volume, type of road, maintenance history, other capital project conflicts and allocated funding levels to prioritize a list of streets to pave. The City's Transportation & Storm Water Department closely follows street resurfacing efforts and implements bicycle improvements in conjunction with resurfacing. This close coordination has allowed the City to implement lane diets, create green bike lanes, repaint bicycle lanes, install sharrows, and install new Class II bicycle lanes.

8.3.1.3 City of San Diego Capital Improvements Program

Each year, the City of San Diego adopts a Capital Improvements Program (CIP) budget that focuses on activity anticipated to occur in the upcoming fiscal year. The allocation of budget is based on a fund source analysis that takes into account project needs and priorities. San Diego City Council Policy 800-14, CIP Prioritization, outlines the process for scoring and prioritizing projects. The intent of the Prioritization Policy is to establish an objective process for ranking CIP projects for funding. Briefly, the policy states that:

- Projects within restricted funding categories will compete only with projects within the same funding category.
- Projects will compete only with projects within the same asset type (project type).
- Projects will compete only with projects within the same level of completion or project development phase (planning, design, and construction).
- Project Priority Scores will be updated as the condition of the project changes or other information becomes available.
- Low scoring projects may proceed due to unique funding source restrictions.

Prioritization factors for transportation projects include such factors as health and safety, mobility, project cost and grant funding opportunity, and project readiness. The CIP projects include multi-modal improvements including bicycle projects.

8.3.1.4 San Diego Association of Governments Early Action Program

The San Diego Association of Governments (SANDAG) has adopted an Early Action Program (EAP) with an overall goal to implement Regional Bicycle Network High Priority Projects within 10 years. SANDAG has taken the first step toward approving \$200 million to fund the EAP in the next 10 years. A total of 29 projects are expected to be funded with the \$200 million. Of the 29 projects, 19 are located within the City of San Diego. City of San Diego staff will be coordinating closely with SANDAG over the next 10 years to implement the bicycle projects located in San Diego. 11 of the 40 high priority projects identified in this Plan overlap with SANDAG's EAP.

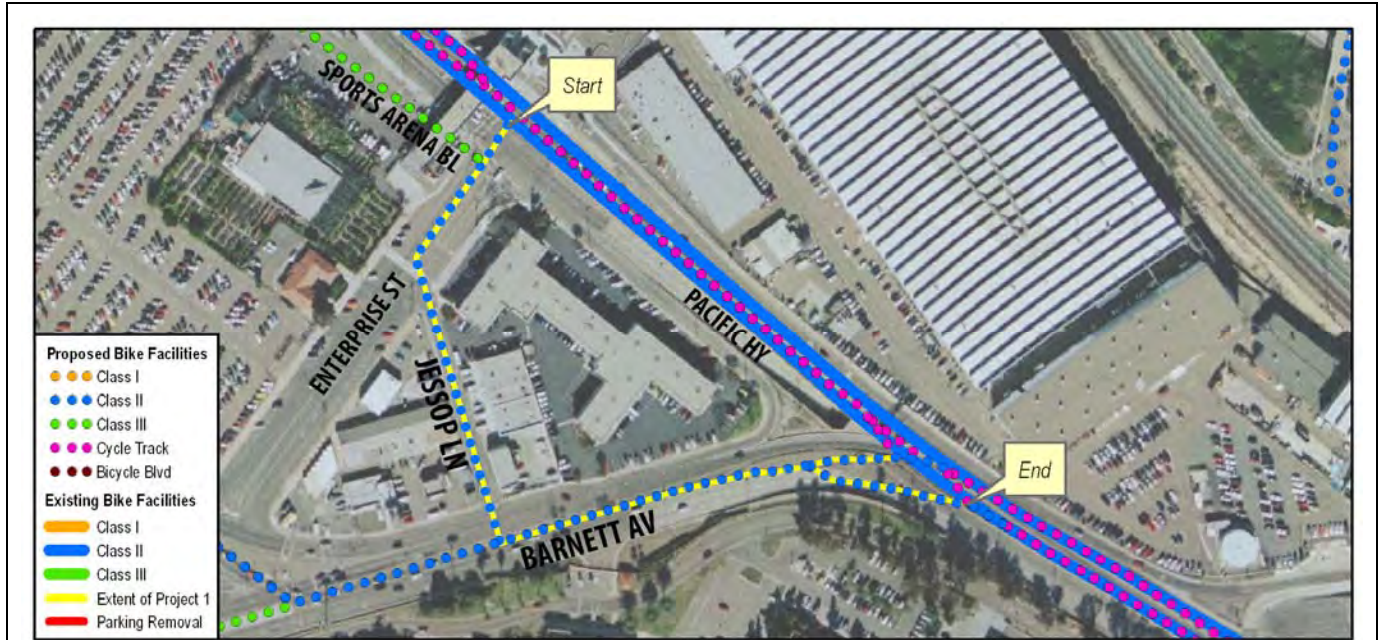
Table 8-2: High Priority Project Cost Estimates

ID	Project Description	Cost
1	Pacific Highway and Barnett Avenue	N/A
2	Broadway: Park Boulevard to 19 th Street	\$43,682
3	West Ash Street: North Harbor Dr to Kettner Blvd; Ash Street: 3 rd Av to 8 th Av; and A Street: India St to 8 th Av	\$38,163
4	4 th Avenue: Washington Street to Juniper Street; and 5 th Avenue: Washington Street to Elm Street	\$ 334,688
5	Texas Street/ Qualcomm Way: Camino Del Rio N to Camino Del Rio S	\$3,417,851
6	Marina District to East Village – Along G Street, Market Street, and Island Avenue	\$104,508
7	Park Boulevard: Upas Street to Broadway	\$2,693,933
8	54 th Street: Montezuma Road to El Cajon Boulevard; and Collwood Boulevard: Monroe Avenue to 54 th Street	\$46,965
9	14 th Street: C St to Commercial St; National Avenue: Commercial St to Cesar E. Chavez Pkwy; and Cesar E. Chavez Parkway: National Av to Harbor Dr	\$91,411
10	El Cajon Boulevard: 43rd Street to Montezuma Road	\$476,772
11	El Cajon Boulevard: Utah Street to 43rd Street; and 43rd Street: Meade Avenue to El Cajon Boulevard	\$482,790
12	4 th Avenue: B Street to Island Avenue; and 5 th Avenue: Elm Street to Harbor Drive	\$59,182
13	Mission Boulevard: Turquoise Street to Grand Avenue	\$210,851
14	India Street: Washington Street to Olive Street	\$195,051
15	Morena Boulevard: W. Morena Boulevard to Taylor Street, and Taylor Street: Morena Boulevard to Pacific Highway	\$957,755
16	Mission Bay Drive: Grand Avenue to North Mission Bay Drive via Onramp to Southbound Interstate 5	\$218,999
17	Morena Boulevard: Gesner Street to Tecolote Road; West Morena Boulevard: Morena Boulevard to Linda Vista	\$516,843
18	State Street: Columbia Street to Market Street	\$37,576
19	Mission Valley San Diego River Bike Path and Fashion Valley Road: Friars Road to Hotel Circle South	\$3,780,799
20	Mira Mesa Boulevard: Parkdale Avenue to Reagan Road; and Mira Mesa Boulevard: Marbury Avenue to I-15	\$1,053,811
21	Bayshore Bikeway: Embarcadero Path to National City city limits	\$2,178,239
22	University Avenue: Utah Street to Fairmont Avenue	\$465,183
23	Fairmont Avenue and Montezuma Avenue intersection	\$349,081
24	Pacific Highway: Ocean Beach Bike Path to Sassafras St	\$5,890,372
25	University Avenue: Florida Street to Utah Street	\$152,705
26	8 th Avenue: Date Street to J Street	\$83,147
27	University Avenue: Fairmont Avenue to La Mesa city limit	702,621
28	Robinson Avenue/Landis Street: 4 th Avenue to 30 th Street	\$720,883
29	Midway Drive: West Point Loma Boulevard to Barnett Avenue	\$4,104,796
30	Wightman Street: Swift Avenue to Fairmount Avenue	\$257,638

ID	Project Description	Cost
31	Hollister Street: Main Street to Outer Road and Outer Road: Hollister Street to Coronado Avenue	\$1,449,136
32	Mission Boulevard: Grand Avenue to West Mission Bay Drive	\$400,366
33	Upas Street: 28 th Street to 30 th Street; 30 th Street: Upas Street to B Street; and Fern Street: Juniper Street to Beech Street	\$109,366
34	Washington Street: University Avenue to Normal Street; Normal Street: Washington Street to Park Boulevard; and Park Boulevard: El Cajon Boulevard to Madison Avenue	\$1,254,908
35	Camino Del Rio N: Mission City Parkway to Interstate 15	\$93,090
36	25 th Street: Market Street to Commercial Street and Ocean View Boulevard: Commercial Street to 36 th Street	\$274,217
37	Villa La Jolla Drive: Gilman Drive (N) to Gilman Drive (S)	\$925,089
38	Nobel Drive: Interstate 5 to Regents Road	\$46,566
39	San Ysidro Boulevard: Dairy Mart Road to the southern terminus of San Ysidro Boulevard	\$402,822
40	Eastgate Mall: Olson Drive to Miramar Road	\$92,851
Total High Priority Project Costs		\$34,714,706

Source: City of San Diego Bicycle Master Plan Update 2013

Project 1 – Pacific Highway and Barnett Avenue Spot Treatments



Project Description

This project serves the Midway-Pacific Highway corridor by providing Class II bicycle facilities along Enterprise Street from Pacific Highway to Jesop Lane, along Jesop Lane from Enterprise Street to Barnett Avenue, and along Barnett Avenue from Jesop Lane to Pacific Highway. This high priority project is over a quarter mile long and provides a Class II loop around the industrial areas near the intersection of Pacific Highway and Barnett Avenue. This project connects to local bus Route 10 and express bus Routes 30 and 150.

This corridor has relatively high travel speeds (45 mph) and high traffic volumes (between 18,400 and 40,600 ADT). This segment had two reported bicycle crashes from 2002 and 2007.

This project has been implemented by the City as of the publication date of this Plan.

This high priority project ranked 1st with an average weighted prioritization score of 41.0 points.

Proposed Improvements

- Roadside signage on post
- Class II pavement markings

Cost

Costs are omitted because this project has been completed as part of the City's Capital Improvement Program.

Project 2 – Broadway: Park Boulevard to 19th Street



Project Description

This project serves bicycle demands between the communities of Centre City and Golden Hill by providing enhanced Class III bicycle facilities with sharrows along Broadway from Park Boulevard to 19th Street. This high priority project is nearly a half mile long and connects Golden Hill residential neighborhoods to key downtown land uses, including major employment, shopping, and tourist attractions. This project provides access to local bus Route 2 and express bus Routes 30, 50, 150, and 210.

In order to implement this project, removing parking or reconfiguring existing lanes or median would not be necessary.

Bicycling issues along this project corridor include narrow travel lanes and high volumes of bus traffic. This segment experiences traffic volumes between 4,800 and 8,600 ADTs. In addition, this segment had seven reported bike crashes from 2002-2007.

This high priority project ranked 2nd with an average weighted prioritization score of 39.5 points.

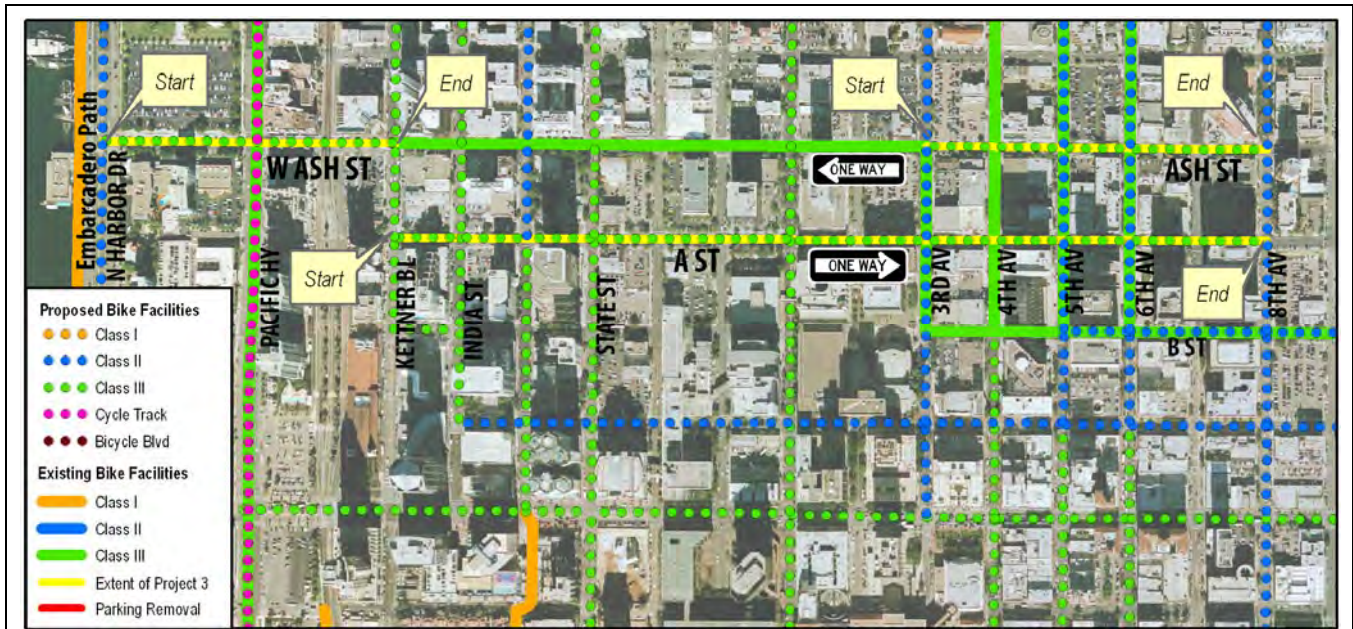
Proposed Improvements

- | | |
|------------------------------------|----------|
| ▪ Roadside signage on post | \$3,000 |
| ▪ Class III pavement markings | \$12,000 |
| ▪ Bicycle Detector Loops | \$3,600 |
| ▪ Other construction related costs | \$25,082 |

Cost

43,682

**Project 3 – West Ash Street: North Harbor Drive to Kettner Boulevard;
Ash Street: 3rd Avenue to 8th Avenue; and
A Street: Kettner Boulevard to 8th Avenue**



Project Description

This project serves the bicycle demands of the Little Italy and Cortez Hill communities in Centre City by providing Class III bicycle facilities along West Ash Street from North Harbor Drive to Kettner Boulevard, along Ash Street from 3rd Avenue to 8th Avenue, and along A Street from Kettner Boulevard to 8th Avenue. This high priority project is over one mile long and connects Centre City residential neighborhoods to the existing Class I bicycle path along the harbor. It also provides connections between key downtown land uses including major employment, shopping, and tourist attractions. This project provides access to local bus routes (Routes 2, 3, 11, 83, and 923), express bus routes (Routes 20, 30, 50, 120, 150, and 210), premium express routes (Routes 810, 820, 850, and 860), the Blue Line trolley line and the Coaster commuter rail.

In order to implement this project, removing parking or reconfiguring existing lanes or median would not be required.

Bicycling issues along this project corridor include nine reported bike crashes from 2002-2007, posted traffic speeds of 25 mph and volumes of 6,600 to 17,300 ADT's.

This high priority project ranked 3rd with an average weighted prioritization score of 37.2 points.

Proposed Improvements

- Roadside signage on post \$3,750
- Class III shared-lane pavement markings \$12,500
- Other construction related costs \$21,913

Cost

\$38,163

Project 4 – 4th Avenue: Washington Street to Juniper Street and 5th Avenue: Washington Street to Elm Street



Project Description

This project serves bicycle demands between the uptown neighborhoods of Hillcrest and Banker’s Hill by providing Class II bicycle facilities along 4th Avenue from Washington Street to Upas Street and along 5th Avenue from Washington Street to Elm Street. This project also provides Class III facilities along 4th Avenue from Upas Street to Juniper Street. This high priority project is over three miles long and connects the relatively dense residential neighborhoods of Hillcrest and Banker’s Hill to key downtown land uses, such as major employment and shopping centers, and recreational and cultural land uses in Balboa Park. These bike facilities provide connections to local bus Routes 1, 3, 10, 11, and 83 and express bus Route 120.

In order to implement this project, it would be necessary to narrow existing travel lanes to 11 feet and narrow parking lanes to 7 feet to provide necessary space for Class II bike facilities along 4th and 5th Avenues.

This segment had 26 reported bike crashes from 2002-2007.

This high priority project ranked 4th with an average weighted prioritization score of 37.1 points.

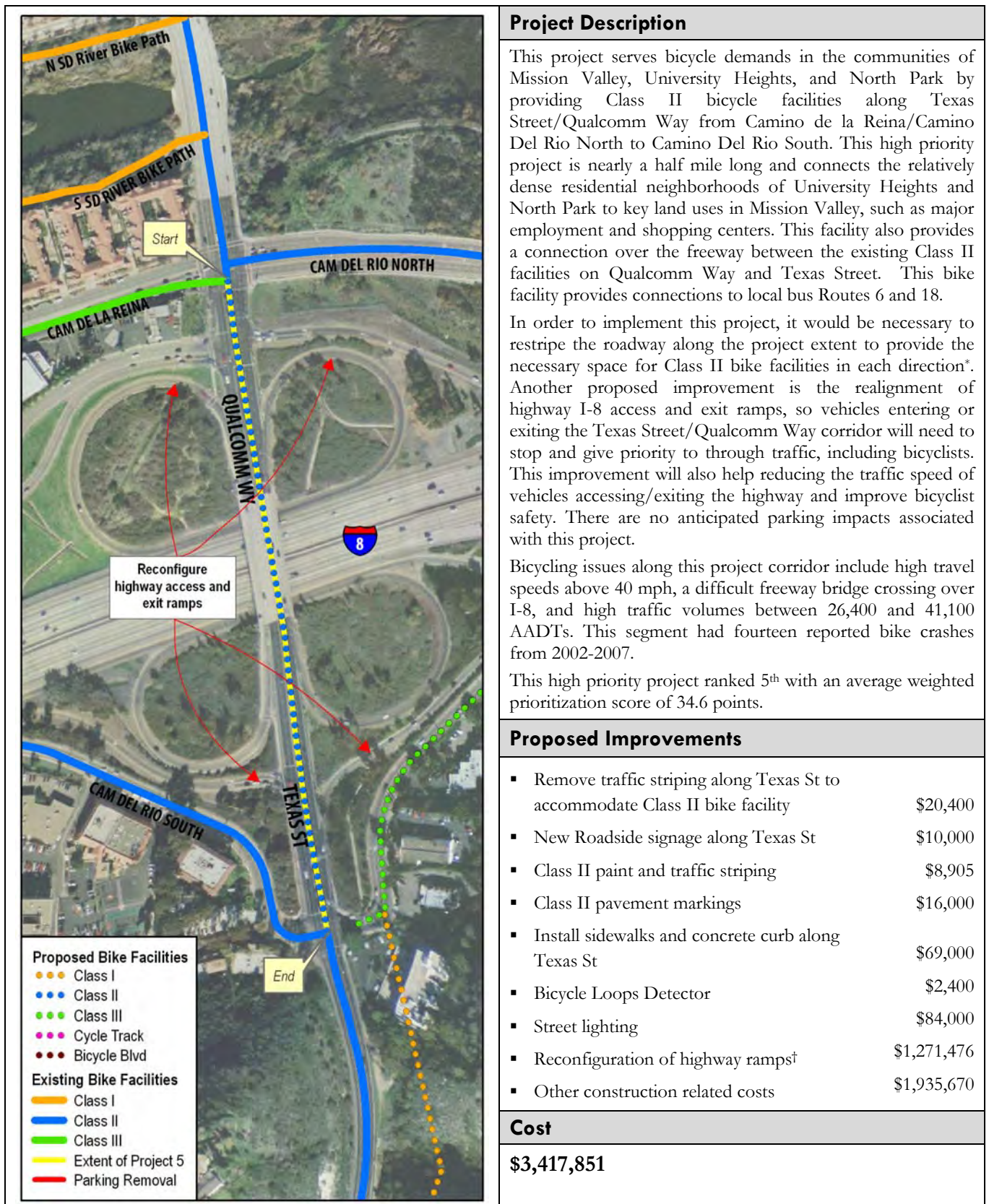
Proposed Improvements

Remove traffic striping along 4 th and 5 th Avenues to accommodate Class II bike facilities	\$73,740
New Roadside signage along 4 th & 5 th Avenues	\$9,500
Class II paint and traffic striping	\$39,942
Class II and III pavement markings	\$13,500
Bicycle Detector Loops	\$13,200
Other construction related costs	\$184,806

Cost

\$334,688

Project 5 – Texas Street/Qualcomm Way: Camino de la Reina/Camino Del Rio North to Camino Del Rio South



*No loss of travel lanes

[†] This improvement is in Caltrans right-of-way and would need to be coordinated with Caltrans.

Project 6 – Marina District to East Village along G Street, Market Street, and Island Avenue



Project Description

This project serves bicycle demands through the Centre City neighborhoods of Harbor, Gaslamp, and East Village by providing Class III bicycle facilities along West G Street from Pacific Highway to State Street, along State Street from West G Street to West Market Street, along West Market Street from Harbor Drive to Union Street, along Union Street from West Market Drive to Island Avenue, and along Island Avenue from Front Street to 14th Street and from 14th Street to Interstate 5. This project also provides Bicycle Boulevard facilities along Front Street from Harbor Drive to Island Avenue and along Island Avenue from Front Street to 14th Street. This high priority project is nearly two miles long and connects the dense residential and commercial neighborhoods near Petco Park and City College in the east to key land uses and transit opportunities in the west, including Seaport Village, the Orange Line, San Diego Harbor, and the Bayshore Bikeway. In conjunction with multiple other high priority projects, this project will greatly enhance the connectivity of the Centre City bicycle network.

In order to implement this project, removing parking or reconfiguring existing lanes or median would not be required.

Posted traffic speeds along this corridor are 25 mph. This segment had nine reported bike crashes from 2002-2007.

This high priority project ranked 6th with an average weighted prioritization score of 32.6 points.

Proposed Improvements

- | | |
|---------------------------------------|----------|
| • Roadside signage on post | \$16,000 |
| • Class III pavement markings | \$10,000 |
| • Bicycle Boulevard pavement markings | \$18,500 |
| • Other construction related costs | \$60,008 |

Cost

\$104,508

Project 7 – Park Boulevard: Upas Street to Broadway



Project Description

This project serves bicycle demands between the communities of North Park, Balboa Park, and Centre City by providing Class II bicycle facilities along Park Boulevard from Upas St. to B St. and Class III facilities from B St. to Broadway. This high priority project is nearly two miles long and connects the relatively dense residential neighborhoods of Hillcrest and North Park to key downtown land uses and recreational and cultural land uses in Balboa Park. This bike facility provides connections to local bus Routes 7 and 923 and the Blue Line and Orange Line City College trolley station.

In order to provide the necessary space for Class II bike facilities, it would be necessary to narrow the width of existing raised median by 2 feet on each side along Park Blvd between Upas and B Streets, including removing the entire median portion between Upas St. and Zoo Pl. There are no anticipated parking impacts associated with this project.

Bicycling issues along this project corridor include travel speeds of approximately 40 mph, a difficult freeway crossing at I-5, and difficult topography on the north side of I-5. This segment had 13 reported bike crashes from 2002-2007.

This high priority project ranked 7th with an average weighted prioritization score of 32.5 points.

Proposed Improvements

Remove traffic striping along Park Boulevard to accommodate Class II bike facility	\$56,460
Roadside signage on post	\$7,250
Class II traffic striping	\$36,699
Class II & III pavement markings	\$12,000
Install concrete curb	\$575,440
Bicycle detector loops	\$9,600
Street lighting	\$294,000
Other construction related costs	\$1,702,484

Cost

\$2,693,933

Project 8 – 54th Street: Montezuma Road to El Cajon Boulevard and Collwood Boulevard: Monroe Avenue to 54th Street



Project Description

This project serves bicycle demands between the College Area, City Heights, and Talmadge by providing Class III bicycle facilities along 54th St. from Montezuma Road to Collwood Blvd, by upgrading the existing Class III bicycle facilities to Class II facilities along 54th St. from Collwood Blvd to El Cajon Blvd, and by upgrading the existing Class III bicycle facilities to Class II facilities along Collwood Blvd from Monroe Ave. to 54th St. This high priority project is over a mile long and connects the College and Mid-City communities to key land uses including San Diego State University. This project provides connections to local bus Routes 1, 11, 15, and 955.

In order to implement this project, it would be necessary to restripe travel lanes on the segment from Collwood Blvd to El Cajon Blvd to provide the necessary space for Class II bike facilities*. There are no anticipated parking impacts associated with this project.

Bicycling issues along this project corridor include three reported bike crashes from 2002-2007, posted traffic speeds of 25 mph and volumes of approximately 3,000 to 3,200 ADTs along 54th Street. However, as 54th merges with Collwood Blvd south to El Cajon Blvd, posted traffic speeds increase to 35 mph and volumes increase to approximately 21,800 to 26,900 ADTs, creating difficult intersections at 54th St with Collwood Blvd and El Cajon Blvd. The gradient along portions of 54th Street is also quite steep for bicycle travel.

This high priority project ranked 8th with an average weighted prioritization score of 31.6 points.

Proposed Improvements

Remove traffic striping along 54 th St to accommodate Class II Bike Facility	\$2,760
Roadside signage on post	\$3,750
Class II paint and traffic stripe	\$3,588
Class II & III pavement markings	\$7,500
Bicycle Loop Detector	\$2,400
Other construction related costs	\$26,967

Cost

\$46,965

* No loss of travel lanes.

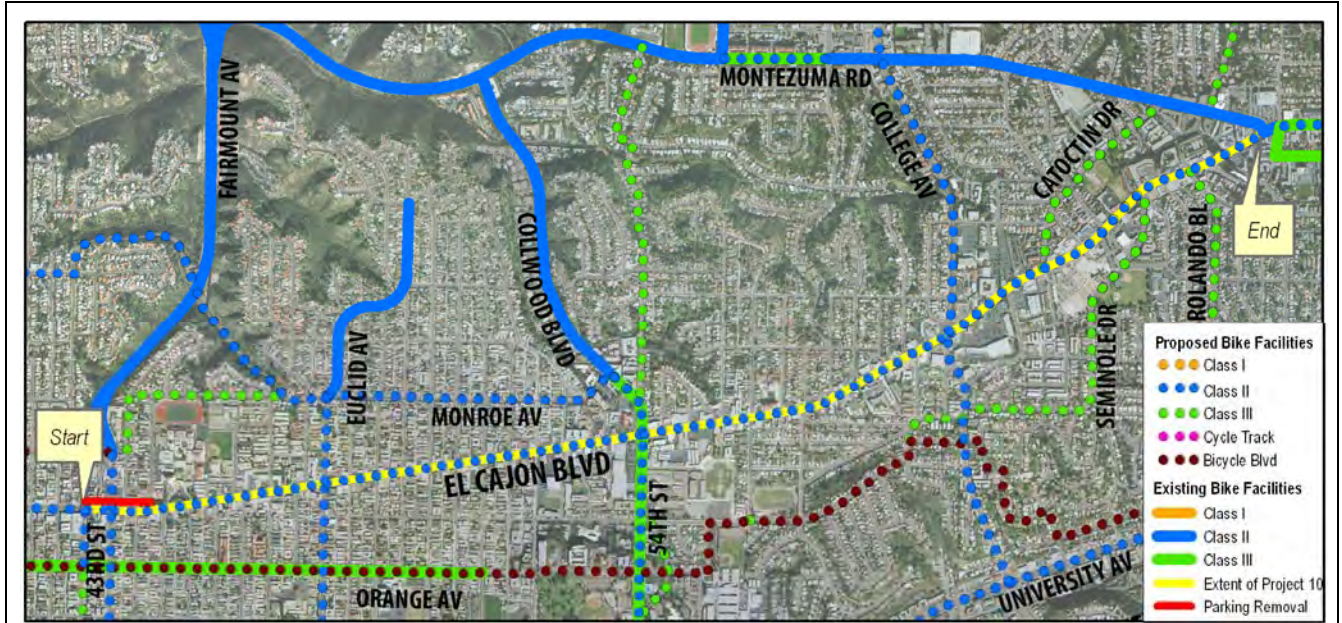
**Project 9 – 14th Street: C Street to Commercial Street;
National Avenue: Commercial Street to Cesar E. Chavez Parkway; and
Cesar E. Chavez Parkway: National Avenue to Harbor Drive**



Project Description	
<p>This project serves bicycle demands between the Centre City neighborhoods of East Village and Barrio Logan by providing Class III bicycle facilities along 14th St. from C St. to Island Ave and along National Ave from Commercial St. to Cesar E. Chavez Parkway, and Class II bicycle facilities along 14th St. from Island Avenue to Commercial St. and along Cesar E. Chavez Pkwy from National Avenue to Harbor Drive. This high priority project is over a mile and a half long and connects the residential and commercial neighborhoods of East Village with Barrio Logan. It also serves local bus Routes 3, 5, 901, and 929 and express bus Route 210.</p> <p>In order to implement this project, it would be necessary to restripe the roadway along 14th St. between Island Ave and Commercial St, and the segment along Cesar E. Chavez Pkwy to provide the necessary space for Class II bike facilities*. There are no anticipated parking impacts associated with this project.</p> <p>Bicycling issues along this proposed project include three bicycle crashes between 2002 and 2007.</p> <p>This high priority project ranked 9th out with an average weighted prioritization score of 31.6 points.</p>	
Proposed Improvements	
<ul style="list-style-type: none"> ▪ Roadside Signage on post ▪ Class II paint and traffic striping ▪ Class II pavement markings ▪ Class III pavement markings ▪ Other construction related costs 	<p>\$10,000</p> <p>\$8,923</p> <p>\$8,000</p> <p>\$12,000</p> <p>\$52,488</p>
Cost	
<p>\$91,411</p>	

*No loss of travel Lanes.

Project 10 – El Cajon Boulevard: 43rd Street to Montezuma Road



Project Description

This project serves travel demands through the Mid-City neighborhoods of Kensington, Talmadge, Teralta East, Colina Del Sol, El Cerrito, and Rolando by providing Class II bicycle facilities along El Cajon Boulevard from 43rd Street to Montezuma Road. This high priority project is nearly three miles long and connects the residential neighborhoods of Mid-City and College Area with existing and proposed bicycle lanes west to North Park and Uptown, local bus routes (1, 13, 15, 856, 936, 955), and north to San Diego State University. In conjunction with multiple other high priority projects, this project will greatly enhance the connectivity of the bicycle network between the Mid-City and College area communities.

In order to implement this project, it would be necessary to restripe the roadway throughout the entire project extent to provide the necessary space for Class II bike facilities in each direction*. The segment between Fairmount and Highland Avenues would require the removal of 17 parking spaces.

Issues along this project area include high traffic speeds (45-55 mph), high traffic volumes along the western leg near Fairmont Avenue, and thirty-eight bicycle crashes from 2002-2007.

This high priority project ranked 10th with an average weighted prioritization score of 31.4 points.

Proposed Improvements

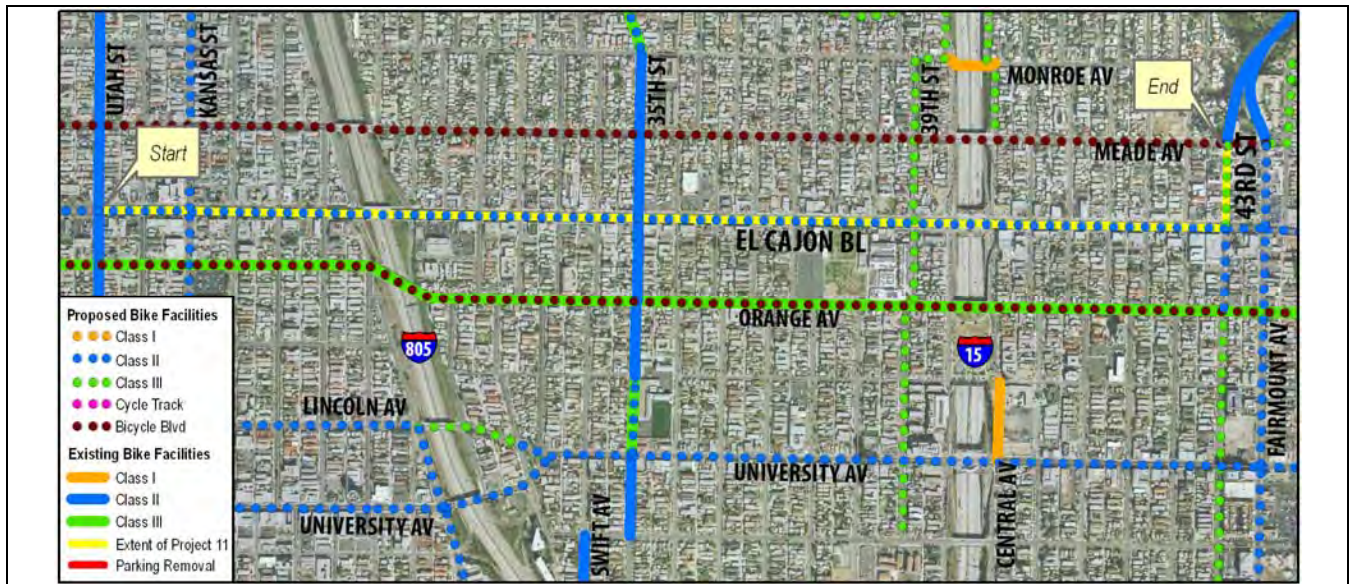
▪ Remove traffic stripe to accommodate Class II bike facilities	\$91,098
▪ Roadside signage on post	\$17,000
▪ Class II traffic striping	\$59,214
▪ Class II pavement markings	\$27,000
▪ Bicycle loops detector	\$19,200
▪ Other construction related costs	\$263,260
▪ Remove parking spaces between Fairmount Avenue and Highland Avenue	17 spaces

Cost

\$476,772

* No loss of travel lanes.

Project 11 – El Cajon Boulevard: Utah Street to 43rd Street and 43rd Street: Meade Avenue to El Cajon Boulevard



Project Description

This project serves bicycle demands through North Park, City Heights, Normal Heights, and Kensington by providing a Class II bicycle facility on El Cajon Boulevard from Utah Street to 43rd Street and a Class III bicycle facility along 43rd Street from Meade Avenue to El Cajon Boulevard. This high priority project is nearly two miles long and connects the residential and commercial districts of North Park to those in Kensington and to key land use destinations including San Diego State University. This bike facility follows portions of local bus Routes 1, 6, 13, 15, and 966, and provides connections to local bus Route 2 and express bus Routes 210 and 960.

In order to implement this project, it would be necessary to restripe the roadway along El Cajon Boulevard between Utah Street and 43rd Street to provide the necessary space for Class II bike facilities*. There are no anticipated parking impacts associated with this project.

Bicycling issues along El Cajon Boulevard include high travel speeds of 30 to 40 mph and high traffic volumes from 23,000 to 36,000 ADTs. 43rd Street also has a high posted travel speed of 30 mph and traffic volumes of approximately 23,500 ADTs. This segment had 38 total reported bike crashes between 2002 and 2007.

This high priority project ranked 11th with an average weighted prioritization score of 31.3 points.

Proposed Improvements

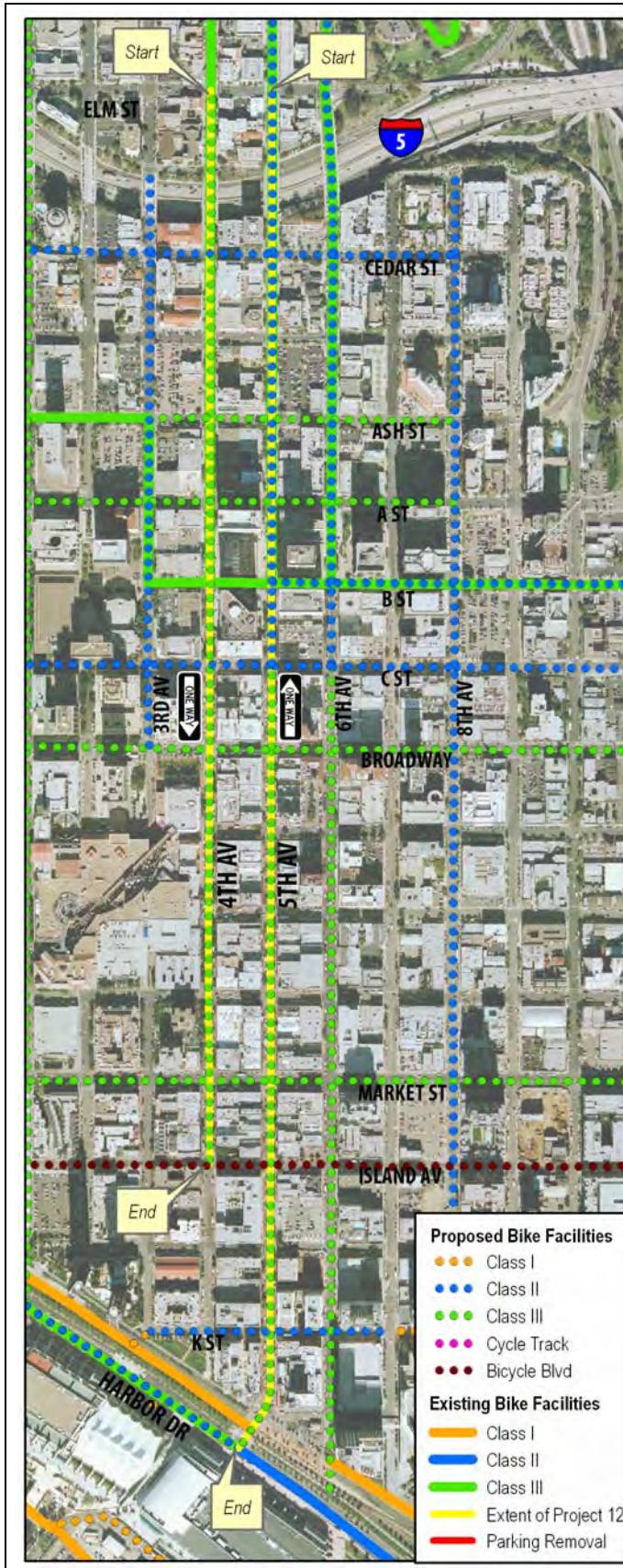
▪ Remove traffic striping to accommodate Class II bike facilities	\$112,020
▪ Roadside signage on post	\$13,500
▪ Class II traffic striping	\$48,087
▪ Class II & III pavement markings	\$27,000
▪ Bicycle loops detector	\$15,600
▪ Other construction related costs	\$266,583

Cost

\$482,790

*No loss of travel lanes.

Project 12 – 4th Avenue: Elm Street to Island Avenue and 5th Avenue: Elm Street to Harbor Drive



Project Description

This project serves bicycle demands between the communities of Uptown and Centre City by providing Class II bicycle facilities along 5th Avenue from Elm Street to C Street and Class III facilities along 4th Avenue from Elm Street to Island Avenue and along 5th Avenue from C Street to Harbor Drive. As shown, there is an existing Class III facility along 4th Avenue from Elm Street to B Street. This project segment is included because the existing facilities are substandard in this location and require improvement. This high priority project is over a mile and a half long and connects the relatively dense residential neighborhoods of Uptown to key downtown land uses, such as major employment and shopping centers. These bike facilities provide connections to local bus Routes 2, 3, 7, 15, 901, 923, and 929; express bus Routes 20, 30, 50, 120, 150, and 210; and premium express bus Routes 810, 820, 850, and 860.

In order to implement this project, it would be necessary to restripe the roadway along 5th avenue from C Street to Harbor Drive to provide necessary space for Class II bike facilities*. There are no anticipated parking impacts associated with this project.

Bicycling issues along this project corridor include travel speeds of approximately 25 to 35 mph, and traffic volumes between 5,400 and 19,900 ADTs. This segment had nineteen reported bike crashes from 2002-2007.

This high priority project ranked 12th with an average weighted prioritization score of 31.3 points.

Proposed Improvements

▪ Roadside signage on post	\$8,750
▪ Class II paint and traffic striping	\$1,950
▪ Class II & III pavement markings	\$14,500
▪ Other construction related costs	\$33,982

Cost

\$59,182

*No loss of travel lanes.

Project 13 – Mission Boulevard: Turquoise Street to Grand Avenue



Project Description

This project serves bicycle demands between La Jolla and Pacific Beach by upgrading existing Class III bicycle facilities to Class II along Mission Boulevard from Turquoise Street to Law Street, and by providing Class II bicycle facilities along Mission Boulevard from Law Street to Grand Avenue. This high priority project is over a mile long and connects the southern residential and commercial districts of La Jolla with residential and commercial districts in Pacific Beach and to recreational beach and bay destinations. This project provides connections to local bus Routes 8, 9, and 27, and the express bus Route 30.

In order provide the necessary space for Class II bike facilities in each direction it would be necessary to restripe the roadway throughout the entire project extent to two travel lanes in each direction with two-way left turn lane. In addition, parking lanes in each side of the street would be provided along the segment between Turquoise St and Felspar St.

Bicycling issues along the proposed project include twenty-nine bicycle crashes between 2002 and 2007. Posted traffic speeds are 35 mph and volumes are between 7,700 and 27,100 AADTs along Mission Boulevard.

This high priority project ranked 13th of the top 40 with an average weighted prioritization score of 31.0 points.

Proposed Improvements

- | | |
|--|-----------|
| ▪ Remove traffic striping along Mission Blvd to accommodate Class II bike facilities | \$38,400 |
| ▪ Roadside signage on post | \$10,000 |
| ▪ Class II and traffic striping | \$9,581 |
| ▪ Class II pavement markings | \$21,000 |
| ▪ Bicycle loops detector | \$10,800 |
| ▪ Other construction related costs | \$121,070 |

Cost

\$210,851

Project 14 – India Street from Washington Street to Interstate 5 Underpass



Project Description

This project serves travel demands between Uptown and Center City through the neighborhoods of Midtown, Little Italy, and Columbia by providing Class II bicycle facilities along India Street from Washington Street to Olive Street. This project is nearly one mile long and connects the residential neighborhood of Midtown in the north to key entertainment and downtown land uses, as well as to local bus Routes (11, 30, 50, 83), and the Blue Line and Orange Line trolley.

In order to implement this project, it would be necessary to restripe India Street to one travel lane in each direction and remove on-street parking between Upas St. and Redwood St and between West Palm St. and Olive St. to provide necessary space for a Class II bike facility.

Bicycling issues along the proposed project include relatively high travel speeds (35-40 mph) along India Street. There have also been ten bicycle crashes from 2002-2007.

This high priority project ranked 14th with an average weighted prioritization score of 30.64 points.

Proposed Improvements

- | | |
|---|-----------|
| Remove traffic striping to accommodate Class II bike facilities | \$55,230 |
| Roadside signage on post | \$8,000 |
| Class II paint and traffic striping | \$7,924 |
| Class II pavement markings | \$9,500 |
| Bicycle loop detector | \$2,400 |
| Other construction related costs | \$111,997 |
| Remove parking spaces along India Street | 48 Spaces |

Cost

\$195,051

Project 15 – Morena Boulevard: W. Morena Boulevard to Taylor Street and Taylor Street: Morena Boulevard to Pacific Highway



Project Description

This project serves bicycle demands between Linda Vista, Mission Valley, Old Town, and Midway by providing Class II bicycle facilities along Morena Blvd from West Morena Blvd to Taylor St., along Napa St. from Morena Blvd to Linda Vista Road, and along Taylor St. from Morena Blvd to Pacific Highway. This high priority project is nearly a mile long and connects important land uses, including the Old Town Transit Center and commercial districts west of I-5. This bike facility provides connections to local bus Routes 8, 9, 10, 14, 28, 35, 44, and 105; express bus Routes 30 and 150; the Green Line trolley; and the Coaster commuter rail service.

In order to implement this project, the following improvements are necessary to provide the required space for Class II facilities in each direction:

- Morena Blvd: widen the northbound side between West Morena Blvd and Napa St by 6 feet, narrow existing raised median between Napa St. and Linda Vista Rd, and stripe existing 4 feet shoulders as Class II bike facilities.
- Widen north side of Napa St by 10 feet.
- Taylor St: remove existing raised median between San Diego Ave. and Juan St., widen the south side of the street between Sunset St. and Morena Blvd, and restripe the entire length of Taylor St. for two lanes in each direction and Class II bike facilities.

Bicycling issues along this project corridor include relatively high travel speeds of approximately 35 mph, and traffic volumes along Morena Blvd from 30,000 to 40,000 ADTs and along Taylor St. from 15,000 to 25,000 ADTs. This segment has a difficult freeway crossing at the I-8, and has had fifteen reported bike crashes from 2002-2007.

This high priority project ranked 15th with an average weighted prioritization score of 30.3 points.

Proposed Improvements

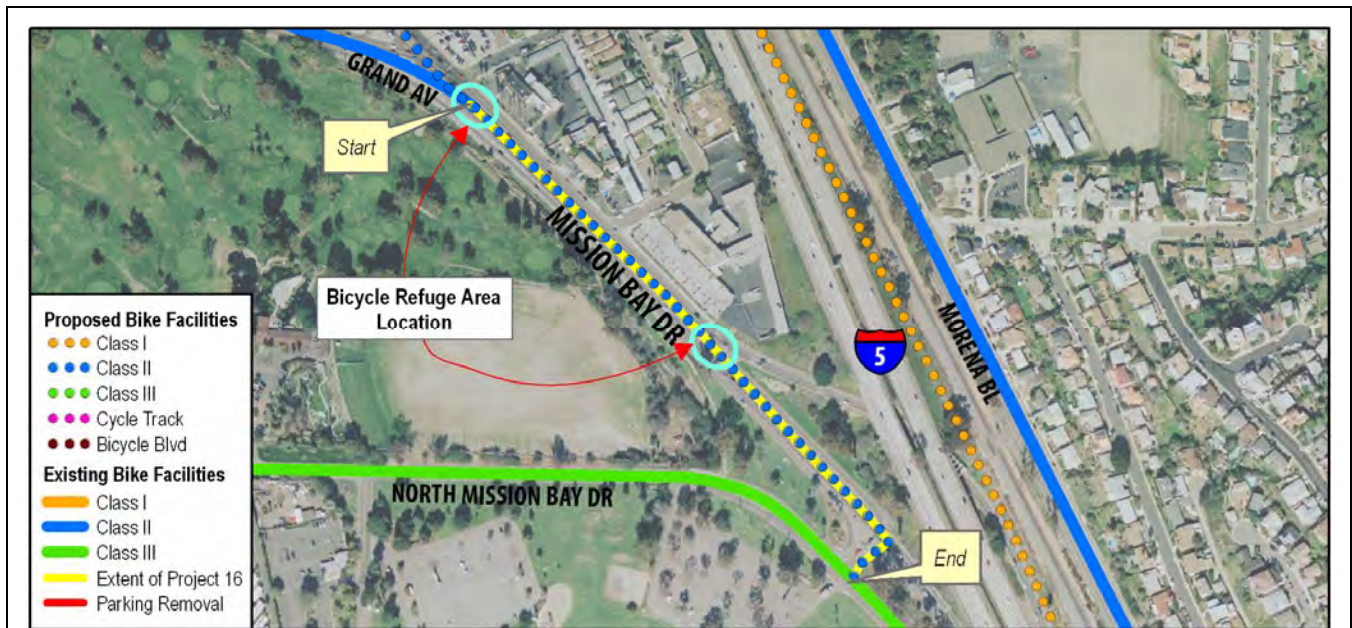
▪ Remove traffic striping to accommodate Class II bike facility	\$34,440
▪ Install asphalt pavement (6")	\$133,920
▪ Install concrete sidewalk with curb & gutter	\$187,600
▪ Roadside signage on post	\$5,000
▪ Class II and traffic striping	\$9,861
▪ Class II pavement markings	\$9,000
▪ Bicycle loop detectors	\$8,400
▪ High conflict treatment*	\$5,000
▪ Other construction related costs	\$564,534

Cost

\$957,755

*High Conflict Treatment includes colored bicycle lanes, warning signs and pavement markings.

Project 16 – Mission Bay Drive: Grand Avenue to North Mission Bay Drive via Onramp to Southbound Interstate 5



Project Description

This project serves bicycle demand between the communities of Pacific Beach and Mission Bay Park by providing Class II bicycle facilities along Mission Bay Drive from Grand Avenue to North Mission Bay Drive via the onramp to southbound Interstate 5. This high priority project is nearly a half mile long and connects Pacific Beach and Mission Bay residential neighborhoods to the existing Class III bicycle path along the North Mission Bay Drive. It also provides connections to key recreational land uses including SeaWorld, Fiesta Island, and Mission Bay. This project provides access to local bus Route 30.

In order to implement this project, it would be necessary to restripe the roadway throughout the entire project extent to provide the necessary space for Class II bike facilities*. In addition, this project proposes the construction of two refuge areas (raised medians) in the two locations where the Class II bike lanes merge with connecting ramps. This treatment improves pedestrian and bicyclist safety by providing an area to wait for a sufficient gap in traffic to proceed.

Bicycling issues along this project corridor include relatively high traffic speeds between 35 and 45 mph and high traffic volumes between 32,500 and 55,800 ADTs. Six bike crashes were reported from 2002-2007.

This high priority project ranked 16th with an average weighted prioritization score of 30.1 points.

Proposed Improvements

▪ Remove traffic striping along Mission Bay Dr to accommodate Class II bike facility	\$13,800
▪ New Roadside signage along Mission Bay Drive	\$2,500
▪ Class II and traffic striping on Mission Bay Drive	\$8,938
▪ Class II pavement marking on Mission Bay Drive	\$5,000
▪ Bicycle refuge area on Mission Bay Drive	\$70,000
▪ Bicycle loop detector	\$4,200
▪ Other construction related costs	\$114,561

Cost

\$218,999

* No loss of travel lanes.

**Project 17 – Morena Boulevard: Gesner Street to Tecolote Road;
West Morena Boulevard: Morena Boulevard to Linda Vista Road**



Project Description

This project serves bicycle demands along the western edges of Clairemont Mesa and Linda Vista by providing Class II bicycle facilities along Morena Boulevard from Gesner Street to West Morena Boulevard and along West Morena Boulevard from Morena Boulevard (N) to Morena Boulevard (S). This project also provides Class III facilities along Morena Boulevard from West Morena Boulevard to Knoxville Street and Class II facilities from Knoxville Street to Tecolote Road. This high priority project is over two miles long and connects the residential neighborhoods of Clairemont Mesa and Linda Vista with the Linda Vista Trolley Station and commercial areas. The project also connects with several stops along local bus Route 105.

In order to implement this project, it would be necessary to restripe roadway to two travel lanes in each direction throughout the entire extent of the project to provide the necessary space for Class II bike facilities. Additionally, it would be necessary to remove 35 parking spaces on West Morena Blvd between Morena Blvd and Knoxville St.

Bicycling issues along the proposed project include high travel speeds between 35 and 45 mph and traffic volumes between 10,200 and 19,500 AADTs. Seven bicycle crashes were reported between 2002 and 2007.

This high priority project ranked 17th with an average weighted prioritization score of 29.9 points.

Proposed Improvements

Remove traffic striping along Morena Blvd to accommodate Class II bike facilities	\$131,340
Roadside signage on post	\$22,250
Class II and traffic stripe	\$31,967
Class II pavement markings	\$31,500
Bicycle loop detector	\$14,400
Other construction related costs	\$285,386
Remove parking spaces	35 spaces

Cost

\$516,843

Project 18 – State Street: Columbia Street to Market Street



Project Description

This project serves bicycling demands through the neighborhoods of Little Italy and Downtown by providing Class III bicycle facilities along State Street from Columbia Street to Market Street. This high priority project is over a mile long and runs along the borders of the residential neighborhood of Little Italy in the north connecting them to downtown San Diego and key land uses in the south including shopping, dining, and employment opportunities. This project provides connections to local bus Routes 2, 901, 923, and 992; express bus Routes 30, 150, and 210; premium express Routes 810, 820, 850, and 860; and the Blue Line and the Orange Line trolley.

In order to implement this project, removing parking or reconfiguring existing lanes or median would not be required.

Posted speeds along the corridor are between 25 and 30 mph. There were no bicycle related crashes during the period between 2002 and 2007.

This high priority project ranked 18th with an average weighted prioritization score of 29.6 points.

Proposed Improvements

- | | |
|------------------------------------|----------|
| ▪ Roadside signage on post | \$8,000 |
| ▪ Shared lane pavement markings | \$8,000 |
| ▪ Other construction related costs | \$21,576 |

Cost

\$37,576

Project 19 – Mission Valley San Diego River Bike Path and Fashion Valley Road: Friars Rd to Hotel Circle South



Project Description

This project serves intra-community bicycle demands in Mission Valley by providing Class I bicycle facilities along the San Diego River Bike Path from Hotel Circle Place to the western terminus of the Fashion Valley Bike Path (at Fashion Valley Road), Class II facilities along Fashion Valley Road from Friars Road to Hotel Circle North, along Hotel Circle North from Fashion Valley Road to Hotel Circle South, and by upgrading the existing Class III bicycle facilities to Class I facilities along Camino de la Reina from Hotel Circle North to the western terminus of the existing Class I South San Diego River Bike Path. This project also proposes closing a short gap in the existing Class II facility along Hotel Circle South near the intersection with Hotel Circle North. This high priority project is approximately two and a half miles long and provides a critical connection of the Class I South San Diego River Bike Path and the Fashion Valley Bike Path west to the Ocean Beach Bike Path. This project provides connections to local bus Routes 6, 14, 25, 41, and 928; express bus Routes 20 and 120; premium express Routes 810, 820, 850, and 860; and the Green Line trolley.

In order to implement this project it would be necessary to narrow the width of the existing travel lanes along Fashion Valley Boulevard, restripe Hotel Circle North to eliminate two way left turn lane and widened a section of Hotel Circle North near the intersections with I-8 and Camino de La Reina in order to provide the necessary space for Class II bike facilities. There are no anticipated parking impacts associated with this project.

Bicycling issues along this project corridor include traffic speeds of 25 mph along Camino de la Reina and 35 mph along Fashion Valley Road and Hotel Circle South, and traffic volumes from 9,100 to 18,700 AADT's along Camino de la Reina, approximately 13,300 AADT's along Fashion Valley Road, and from 17,000 to 23,400 AADT's along Hotel Circle North. This segment reports a total of two bicycle crashes from 2002 – 2007.

This high priority project ranked 19th with an average weighted prioritization score of 29.6 points.

Proposed Improvements

<ul style="list-style-type: none"> ▪ Remove traffic striping along Fashion Valley Road to accommodate Class II bike facilities \$27,000 ▪ Roadside signage on post \$6,250 ▪ Install asphalt pavement 1,551,300 ▪ Class II & I and traffic striping \$19,580 	<ul style="list-style-type: none"> ▪ Class II pavement markings \$12,000 ▪ Street lighting \$280,000 ▪ Bicycle loop detector 4,800 ▪ Other construction related costs \$1,879,869
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Cost

\$3,780,799

Project 20 – Mira Mesa Boulevard: Parkdale Avenue to Reagan Road; and Mira Mesa Boulevard: Marbury Avenue to I-15



Project Description

This project serves bicycle demands between Mira Mesa and Scripps Miramar Ranch by providing Class II bicycle facilities along Mira Mesa Boulevard from Parkdale Avenue to Reagan Road and from Marbury Avenue to I-15. This high priority project is over a mile long and connects the residential and commercial communities of Mira Mesa and Scripps Ranch to major employment and shopping centers and to Mira Mesa High School. This project provides connections to local bus Routes 31, 921, and 964; express bus Routes 20 and 210; and premium express Routes 810, 820, 850, and 860.

In order to implement this project, it would be necessary to narrow the existing raised median between Parkdale Ave and Reagan Rd to 10 feet wide and eliminate the median nose at each intersection. For the segment between Marbury Ave and Interstate 15, it would be necessary to restripe the roadway to provide the necessary space for Class II bike facilities in each direction*. Additionally, the City could coordinate with Caltrans/SANDAG to include bike improvements as part of the I-15/Mira Mesa Blvd interchange project. There are no anticipated parking impacts associated with this project.

Bicycling issues along this project corridor include high traffic speeds of 45 mph, high traffic volumes between 44,300 and 58,400 ADTs, a difficult freeway crossing at the I-15 southbound ramps, and fifteen reported bicycle crashes from 2002-2007.

This high priority project ranked 20th with an average weighted prioritization score of 29.0 points.

Proposed Improvements

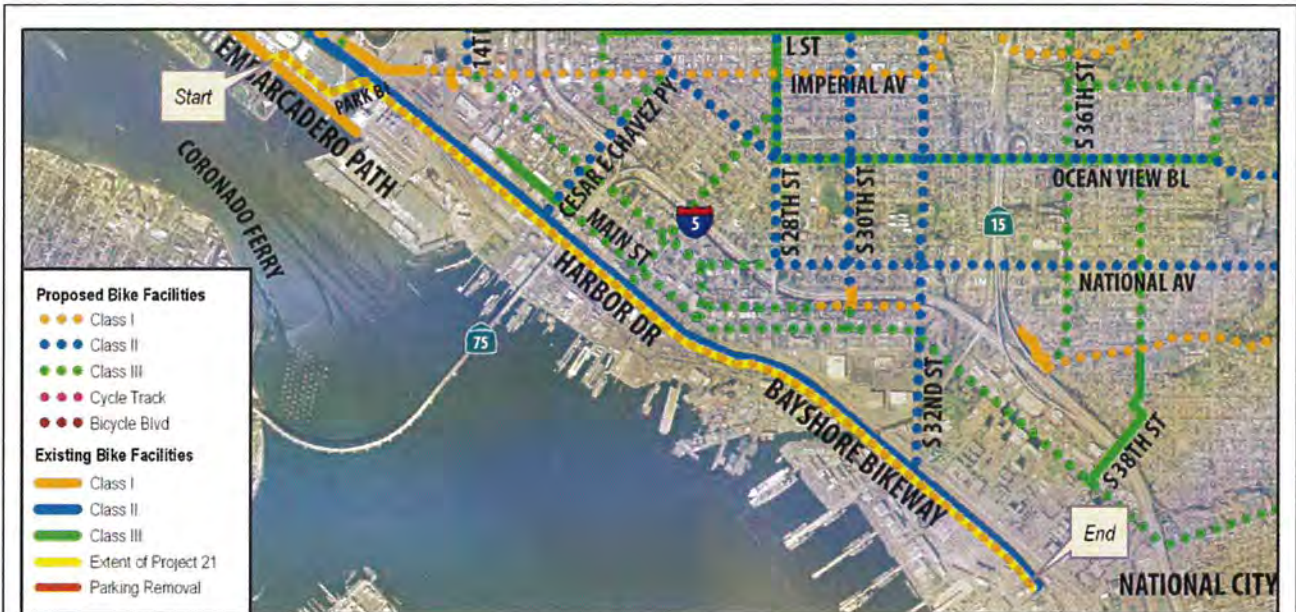
▪ Remove traffic striping to accommodate Class II bike facilities	\$60,600	▪ Roadside signage on post	\$2,000
▪ Remove asphalt pavement	\$11,070	▪ Install concrete curb and gutter	\$147,600
▪ Remove concrete sidewalk	\$11,070	▪ Class II and traffic striping	\$19,695
▪ Remove concrete curb	\$18,450	▪ Class II pavement markings	\$4,000
▪ Highway landscaping	\$200,000	▪ Bicycle loop detector	\$4,800
▪ Install asphalt pavement	\$59,040	▪ Other construction related costs	\$515,486

Cost

\$1,053,811

* No loss of travel lanes along this segment.

Project 21 – Bayshore Bikeway: Embarcadero Path to National City- City Limits



Project Description

This project serves travel demands between the neighborhoods of Marina, Barrio Logan and the 32nd Street Naval Station by providing Class I bicycle facilities along the Bayshore Bikeway from the Embarcadero Path to the city limit of National City, running directly adjacent and parallel to the Class II facility on Harbor Drive. This high priority project is over three miles long and connects the southern 5th Street terminus, Petco Park, and San Diego Convention Center in the north to key land uses in the south, including manufacturing and naval employment centers, as well as the residential neighborhoods of Barrio Logan. It also serves as the sole north-south bikeway in the west between San Diego and National City. This project provides connections to local bus Routes 901 and 929, and runs parallel to the Blue Line trolley. The level topography of the Bayshore Bikeway is amenable to bicycle facilities.

In order to implement this project, it would be necessary to acquire additional ROW from adjacent properties throughout the entire project extent to build the Class I bike path throughout the entire project extent.

This high priority project ranked 21st with an average weighted prioritization score of 28.5 points.

Proposed Improvements

- | | |
|------------------------------------|-------------|
| • Install Class I asphalt pavement | \$1,094,848 |
| • Roadside Signage | \$7,500 |
| • Class I centerline striping | \$11,120 |
| • Other construction related costs | \$1,064,771 |

Cost

\$2,178,239

Project 22 – University Avenue: Utah Street to Fairmount Avenue



Project Description

This project serves bicycle demands between the communities of North Park, Normal Heights, and City Heights by providing Class II bicycle facilities along University Avenue from Utah Street to Fairmount Avenue. This high priority project is nearly two miles long and connects the dense residential neighborhoods of North Park, Normal Heights, and City Heights to key land uses including Balboa Park to the southwest, Mission Valley to the northwest, and San Diego State University to the northeast. This project provides access to local bus routes (Routes 2, 6, 7, 10, 13, 965, and 966) and express bus routes (Routes 210 and 960).

In order to implement this project, it would be necessary to restripe University Avenue throughout the entire project extent for two-lane in each direction with a two-way left turn lane, parking on one side, and Class II bike facilities in each direction. Additionally, it would be necessary to remove a total of 158 parking spaces along University Avenue between Utah Street and 41st Street.

Bicycling issues along this project corridor include moderate travel speeds of approximately 25 to 35 mph, two difficult freeway crossings at I-805 and SR 15, and traffic volumes between 16,200 and 30,800 ADTs. This segment had forty-two reported bike crashes from 2002-2007.

This high priority project ranked 22nd with an average weighted prioritization score of 28.4 points.

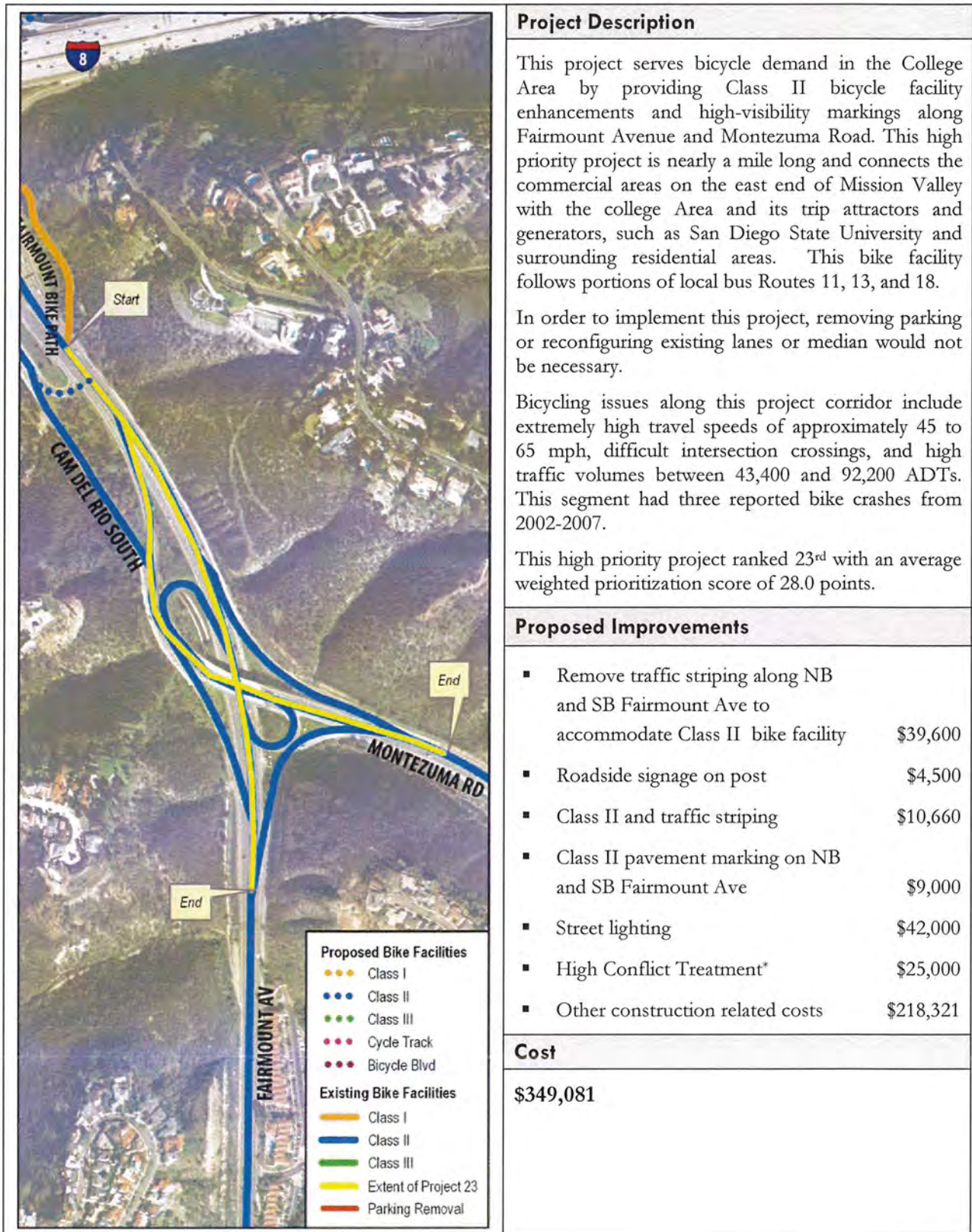
Proposed Improvements

▪ Remove traffic striping along University Avenue to accommodate Class II bike Facilities	\$85,770
▪ Roadside Signage on post	\$33,750
▪ Class II and traffic striping	\$33,202
▪ Class II pavement markings	\$34,000
▪ Bicycle loop detectors	\$21,600
▪ Other construction related costs	\$256,861
▪ Remove parking spaces along University Avenue	158 spaces

Cost

\$465,183

Project 23 – Fairmount Avenue and Montezuma Road: Class II spot treatments



Project Description

This project serves bicycle demand in the College Area by providing Class II bicycle facility enhancements and high-visibility markings along Fairmount Avenue and Montezuma Road. This high priority project is nearly a mile long and connects the commercial areas on the east end of Mission Valley with the college Area and its trip attractors and generators, such as San Diego State University and surrounding residential areas. This bike facility follows portions of local bus Routes 11, 13, and 18.

In order to implement this project, removing parking or reconfiguring existing lanes or median would not be necessary.

Bicycling issues along this project corridor include extremely high travel speeds of approximately 45 to 65 mph, difficult intersection crossings, and high traffic volumes between 43,400 and 92,200 ADTs. This segment had three reported bike crashes from 2002-2007.

This high priority project ranked 23rd with an average weighted prioritization score of 28.0 points.

Proposed Improvements

Remove traffic striping along NB and SB Fairmount Ave to accommodate Class II bike facility	\$39,600
Roadside signage on post	\$4,500
Class II and traffic striping	\$10,660
Class II pavement marking on NB and SB Fairmount Ave	\$9,000
Street lighting	\$42,000
High Conflict Treatment*	\$25,000
Other construction related costs	\$218,321

Cost

\$349,081

* High Conflict Treatment includes colored bicycle lanes, warning signs and pavement markings.

Project 24 – Pacific Highway: Ocean Beach Bike Path to Sassafras Street



Project Description

This project serves bicycle demands between the communities of Mission Valley, Old Town, and Midway by upgrading the existing Class II bicycle facilities to Cycle Track facilities along Pacific Highway from the Ocean Beach Bike Path to Washington Street, and upgrading the existing Class III facilities to Cycle Track facilities along Pacific Highway from Washington Street to Sassafras Street. This high priority project is over two miles long and connects the existing Class I Ocean Beach Bike Path and key shopping land uses in Mission Valley to residential and commercial districts in Old Town, commercial districts in Midway, and the San Diego International Airport. This bike facility provides connections to local bus Routes 10, 28, and 35, and express bus Routes 30 and 150.

Bicycling issues along this project corridor include high travel speeds of approximately 45 to 65 mph, two difficult freeway crossings at I-8 and I-5, and traffic volumes between 6,900 and 58,200 ADTs. This segment had ten reported bike crashes from 2002-2007.

This high priority project ranked 24th with an average weighted prioritization score of 28.0 points.

Proposed Improvements

- Remove traffic striping to accommodate Class I bike facility
- Roadside signage on post
- Class I and traffic striping
- Class I pavement markings
- Traffic signal modification
- Bicycle loop detectors
- High Conflict Treatment¹
- Other construction related costs
- Remove parking spaces

Cost

¹ High Conflict Treatment includes colored bicycle lanes, warning signs and pavement markings.

Project 25 – University Avenue: Florida Street to Utah Street



Project Description

This project serves the intra-community bicycle demands of North Park by providing Class II bicycle facilities along University Avenue from Florida Street to Utah Street. This high priority project is over a half mile long and connects the relatively dense North Park residential neighborhoods to the existing facilities on Utah Street to the east and to commercial districts in Hillcrest to the west. This project provides access to local bus Routes 7, 10, and 966.

In order to implement this project, it will be necessary to restripe University Avenue throughout the entire project extent for two lanes in each direction with a two-way left turn lane, parking on one side and Class II bike facilities in each direction. Additionally, it would be necessary to remove a total of 83 parking spaces along University Avenue between Florida Street and Idaho Street.

Bicycling issues along this project corridor include twenty-six reported bike crashes from 2002-2007, posted traffic speeds of 25 mph and volumes of approximately 19,700 ADTs.

This high priority project ranked 25th with an average weighted prioritization score of 27.6 points.

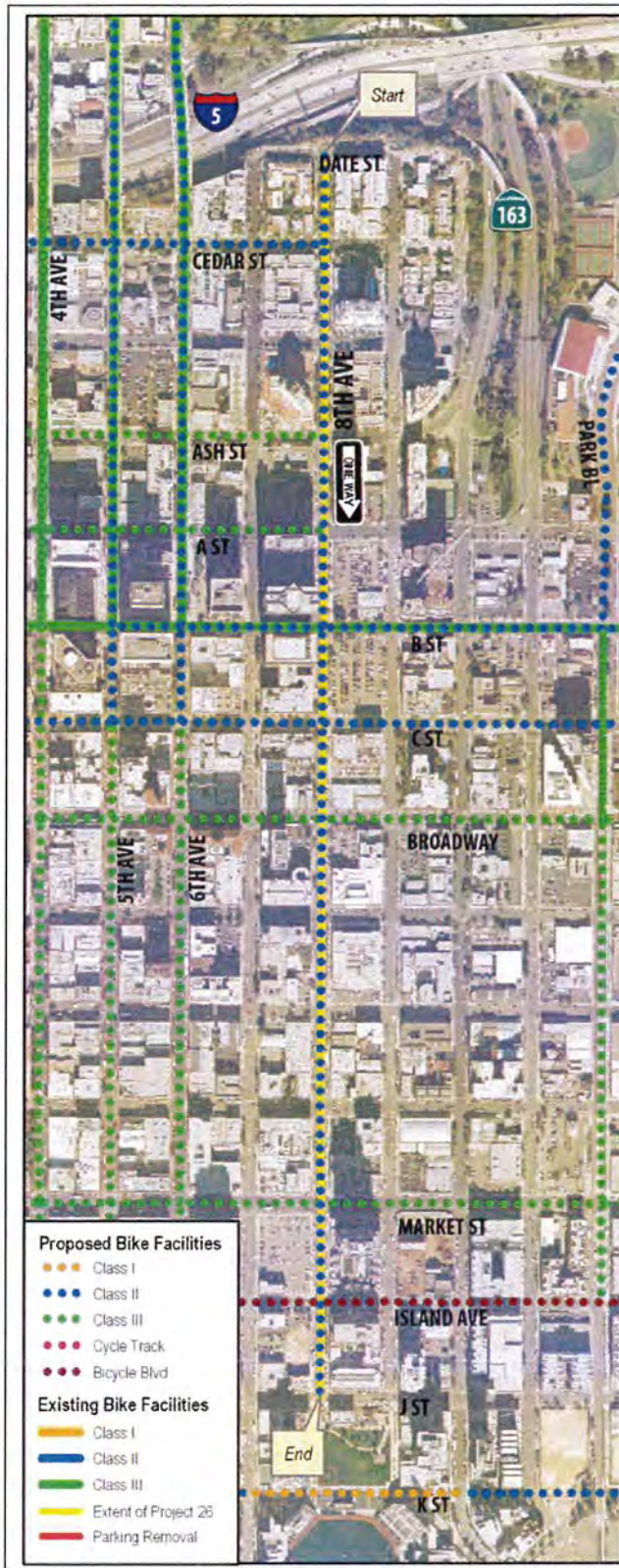
Proposed Improvements

▪ Remove traffic striping along University Avenue to accommodate Class II bike facilities	\$30,690
▪ Roadside signage on post	\$8,250
▪ Class II traffic striping	\$11,082
▪ Class II pavement markings	\$9,000
▪ Bicycle loop detectors	\$6,000
▪ Other construction related costs	\$87,683
▪ Remove parking spaces along University Avenue	83 parking spaces

Cost

\$152,705

Project 26 – 8th Avenue: Date Street to J Street



Project Description

This project serves bicycle travel demand between the Center City neighborhoods of Cortez Hill, Columbia, and East Village by providing Class II bicycle facilities along 8th Avenue from Date Street to J Street.

This high priority project is approximately one mile long and connects relatively dense residential neighborhoods and Balboa Park in the north with many downtown key land uses including major bus and trolley transit stations, employment centers, and PETCO Park in the south. This project provides connections to local bus Routes 2, 3, 7, 11, 15, 901, 923, and 929; express bus Routes 20, 30, 50, 150, and 210; premium express Routes 810, 820, 850, and 860; and the Blue Line and the Orange Line trolley.

In order to implement this project, it will be necessary to restripe 8th Avenue throughout the entire project extent to provide the necessary space for Class II bike facilities in the direction*. There are no anticipated parking impacts associated with this project.

Bicycling issues along this corridor include challenging gradients north of B Street and one bicycle crash reported from 2002 to 2007.

This high priority project ranked 26th with an average weighted prioritization score of 27.5 points.

Proposed Improvements

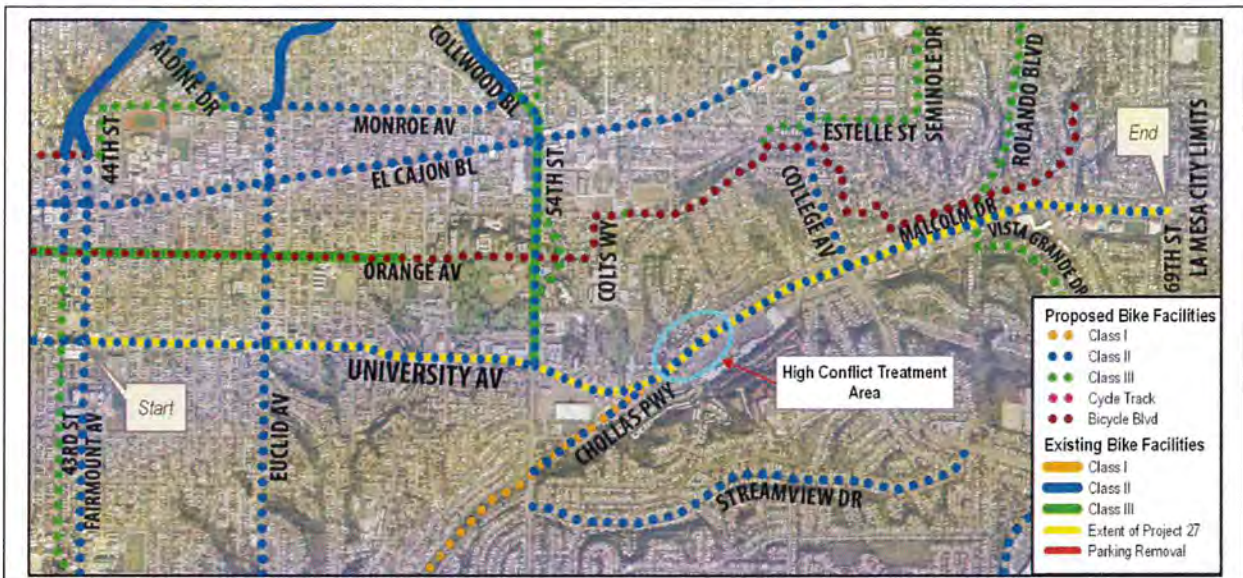
- | | |
|------------------------------------|-----------|
| ▪ Roadside Signage | \$7,500 |
| ▪ Class II and traffic striping | \$12,904 |
| ▪ Class II pavement markings | \$15,000 |
| ▪ Other construction related costs | \$ 47,743 |

Cost

\$83,147

*No loss of travel lanes.

Project 27 – University Avenue: Fairmount Avenue to La Mesa City Limits



Project Description

This project serves travel demands between the City Heights and Eastern Area communities by providing Class II bicycle facilities along University Avenue from Fairmount Avenue to the La Mesa city limit. This high priority project is over three miles long and connects the Mid-City residential neighborhoods along the University Avenue mixed use corridor, improving access to employment and shopping opportunities, as well as bus transit. This project corridor also provides connections to local bus Routes 7, 10, 13, 856, 936, and 955.

In order to implement this project, it will be necessary to restripe University Avenue throughout the entire project extent for two lanes in each direction with a two-way left turn lane and parking lanes to provide the necessary space for Class II bike facilities in each direction. In addition, it would be necessary to remove the existing raised median along some segments of the project between Winona Ave and La Mesa City Limits to maintain the roadway configuration described above.

Bicycling issues along the proposed project include thirty-four bicycle accidents between 2002 and 2007, travel speeds of 35 to 40 mph and traffic volumes between 15,700 and 27,000 ADTs.

This high priority project ranked 27th with an average weighted prioritization score of 27.5 points.

Proposed Improvements

▪ Remove traffic striping along University Ave to accommodate Class II bike facilities	\$101,007	▪ Class II pavement markings	\$15,000
▪ Install asphalt pavement (6")	\$74,616	▪ Bicycle loop detectors	\$10,800
▪ Roadside signage on post	\$18,250	▪ High Conflict Area Treatment*	\$7,500
▪ Class II and traffic striping	\$46,045	▪ Other construction related costs	\$429,403

Cost

\$702,621

* High Conflict Treatment includes colored bicycle lanes, warning signs and pavement markings.

Project 28 – Robinson Avenue/Landis Street: 4th Avenue to 30th Street



Project Description

This project serves bicycle demand between the Uptown community of Hillcrest and the North Park community by providing Class III bicycle facilities along Robinson Avenue from 4th Avenue to Park Boulevard; bicycle boulevard facilities along Robinson Avenue from Park Boulevard to Alabama Street, including a Class I connector over the canyon between Florida Street and Alabama Street, bicycle boulevard facilities on Landis Street from Alabama Street to Utah Street, and Class III bicycle facilities on Landis Street from Utah Street to 30th Street. This high priority project is nearly two miles long and connects to the existing Class III facilities on Landis Street. This project also connects the relatively dense North Park and Hillcrest residential neighborhoods to key land uses including major employment and shopping areas. This project provides access to local bus Routes 1, 2, 3, 7, and 966, and express bus Route 120.

In order to implement this project, it will be necessary to build a Class I connector over the canyon at Robinson Avenue between Florida St. and Alabama St. At each stop controlled intersection located on Landis St, the stop sign should be placed on the crossing street to give priority to through traffic along the bicycle boulevard. Additionally, a traffic circle at the intersection of Landis Street and Utah Street is recommended to reduce vehicle speeds and improve the safety of the bike facilities. A total of 25 parking spaces would need to be removed along Arizona Street and 28th Street.

Bicycling issues along this project corridor include travel speeds of approximately 30 mph, a difficult freeway crossing at SR 163, and traffic volumes ranging from approximately 4,600 to 13,600 ADTs. This segment has also had eleven reported bike crashes from 2002-2007. This high priority project ranked 28th with an average weighted prioritization score of 27.2 points.

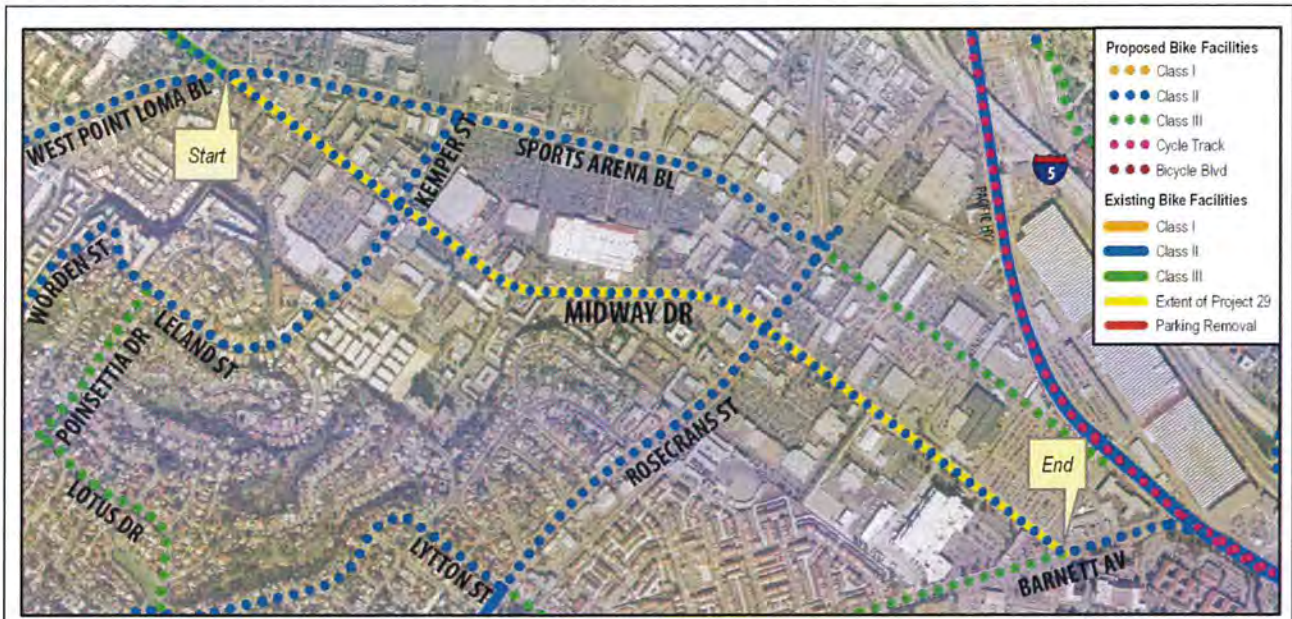
Proposed Improvements

Remove traffic striping to accommodate the bicycle boulevard facilities	\$4,062	New pavement markings	\$52,000
Remove existing road signage	\$3,000	Bicycle loop detectors	\$5,400
Install new sidewalk with curb & gutter	\$58,760	City Street Lighting	\$14,000
Roadside signage on post	\$31,000	Class I bike facility construction	\$202,895
Traffic-calming, Class I, and traffic striping	\$1,252	Other construction related costs	\$348,514
		Remove parking spaces	25 spaces

Cost

\$720,883

Project 29 – Midway Drive: West Point Loma Boulevard to Barnett Avenue



Project Description

This project serves bicycle demand between the communities of Point Loma and Midway by providing Class II bicycle facilities along Midway Drive from West Point Loma Boulevard to Barnett Avenue. This high priority project is nearly a mile and a half long and connects Point Loma residential neighborhoods to the commercial districts in Midway and other key land uses, such as major employment and shopping areas. This project provides access to local bus Routes 8, 9, 28, and 35.

In order to implement this project, it would be necessary to widen one side of Midway Dr throughout the entire project extent using existing public ROW and restripe the roadway to provide the necessary space for Class II bike facilities in each direction. At each signalized intersection (7 total), the traffic signal should be modified to be navigable by bicyclists. There are no anticipated parking impacts associated with this project.

Bicycling issues along this project corridor include travel speeds of approximately 35 mph and traffic volumes ranging from approximately 25,100 to 27,100 ADTs. This segment had nineteen reported bike crashes from 2002-2007.

This high priority project ranked 29th with an average weighted prioritization score of 27.1 points.

Proposed Improvements

▪ Remove traffic striping to accommodate Class II bike facilities	\$90,240	▪ Modify traffic signals on each intersection	\$525,000
▪ New roadside signage on post	\$4,750	▪ Widen one side of Midway Dr to provide room for Class II bike facilities in each direction	\$797,120
▪ Class II and traffic striping	\$29,328	▪ Install sidewalks with curb & gutter	\$601,600
▪ Class II pavement marking	\$20,000	▪ Other construction related costs	\$1,958,358
▪ Bicycle loop detectors	\$8,400		
▪ Install street lighting	\$70,000		

Cost

\$4,104,796

Project 30 – Wightman Street: Swift Avenue to Fairmount Avenue



Project Description

This project serves bicycle demand between the communities of Normal Heights and City Heights by providing Class II bicycle facilities along Wightman Street from Swift Avenue to Fairmount Avenue. This project also closes a Class II gap between Swift Avenue and 35th Street. This high priority project is approximately one mile long and connects Normal Heights and City Heights residential neighborhoods to the existing Class II bicycle lanes along 35th Street and Swift Avenue. It also provides connections between key land uses including employment, commercial, and recreational areas. This project provides access to local bus Routes 13, 965, and 966, and express bus Routes 210 and 960.

In order to implement this project, it will be necessary to restripe Wightman St and remove 155 parking spaces throughout the entire project extent to provide the necessary space for Class II bike facilities.

Bicycling issues along this project corridor include a difficult freeway crossing at I-15 and volumes of 5,600 to 8,300 ADT. Posted traffic speeds are 25 mph. This segment had six reported bike crashes from 2002-2007.

This high priority project ranked 30th with an average weighted prioritization score of 26.5 points.

Proposed Improvements

Remove traffic striping along Wightman St to accommodate Class II bike facilities	\$63,720
New roadside signage along Wightman St.	\$7,000
Class II and traffic striping	\$17,258
Class II pavement marking	\$25,000
Bicycle loop detectors	\$2,400
Other construction related costs	\$142,260
Remove parking spaces along Wightman St	155 spaces

Cost

\$257,638

Project 31 – Hollister Street: Main Street to Outer Road and Outer Road: Hollister Street to Coronado Avenue



Project Description

This project serves the intra-community bicycle demand of Otay Mesa-Nestor by providing Class II bicycle facilities along Hollister Street from Main Street to Outer Road and along Outer Road from Hollister Street to Coronado Avenue. This high priority project is nearly a mile and a half long and connects to key land uses, such as major employment, residential, entertainment, and recreational areas. This bike facility follows portions of local bus Routes 901, 932, 933, and 934.

In order to implement this project, it would be necessary to widen one side of Hollister St between Main St. and Outer Rd, using existing public ROW, remove 18 parking spaces along Hollister St and remove 60 parking spaces along Outer Rd to provide the necessary space for Class II bike facilities in each direction.

Bicycling issues along this project corridor include travel speeds of approximately 30 to 35 mph, and volumes ranging from approximately 5,400 to 12,200 ADTs. This segment had one reported bike crash from 2002-2007.

This high priority project ranked 31st with an average weighted prioritization score of 26.5 points.

Proposed Improvements

Remove traffic striping along Hollister and Outer Rd St to accommodate Class II bike facilities	\$59,400
New Roadside signage on post	\$5,000
Class II and traffic striping	\$21,580
Class II pavement marking	\$10,000
Bicycle loop detector	\$2,400
Install box culvert	\$50,000
Install new asphalt pavement (6")	\$594,580
Other construction related costs	\$706,176
Remove vehicle parking spaces	78 Spaces

Cost

\$1,449,136

Project 32 – Mission Boulevard: Grand Avenue to West Mission Bay Drive



Project Description

This project serves bicycle demands between Pacific Beach and Mission Beach by providing Class II bicycle facilities along Mission Blvd from Grand Ave. to Pacific Beach Dr. and Bicycle Blvd facilities along Mission Blvd from Pacific Beach Dr. to West Mission Bay Dr. This high priority project is over a mile and a half long and connects the residential and commercial districts of Pacific Beach and Mission Beach to key land uses including recreational uses and other beach and bay destinations. This project provides connections to local bus Routes 8 and 9, and to express bus Route 30.

In order to implement this project, it would be necessary to restripe the segment between Grand Ave. and Pacific Beach Blvd to provide the necessary space for class II facilities in each direction. For the segment between Pacific Beach Dr. and West Mission Bay Drive, removing the striped median is recommended and restriping the roadway to create bicycle boulevard facility. At each signalized intersection (3 total), the traffic signal should be modified to be navigable by bicyclists.

There were 29 bicycle crashes reported along this segment between 2002 and 2007.

This high priority project ranked 32nd with an average weighted prioritization score of 26.4 points.

Proposed Improvements

▪ Remove traffic striping along Mission Boulevard to accommodate Class II bike facilities	\$100,920
▪ Roadside signage on post	\$9,750
▪ Bicycle Boulevard and Class II pavement markings	\$3,000
▪ Class II and traffic striping	\$14,625
▪ Bicycle loop detectors	\$6,000
▪ Signal modification	\$45,000
▪ Other construction related costs	\$221,071

Cost

\$400,366

**Project 33 – Upas Street: 28th Street to 30th Street;
30th Street: Upas Street to B Street; and
Fern Street: Juniper Street to Beech Street**



Project Description

This project serves bicycle demands between the communities of North Park and Golden Hill by providing Class II bicycle facilities along Upas Street from 28th Street to 30th Street and along 30th Street from Juniper Street to Beech Street. This project also provides Class III facilities along 30th Street from Upas Street to Juniper Street, along Fern Street from Juniper Street to Beech Street, and along 30th Street from Beech Street to B Street. This high priority project is nearly two and a half miles long and connects the relatively dense residential neighborhoods of North Park and Golden Hill to the existing Class II facilities at the northeast corner of Balboa Park along Pershing Drive and Utah Street. This project also provides connections to key land uses, such as major employment and shopping centers to the northwest and southwest, and recreational and cultural land uses in Balboa Park. This bike facility provides connections to local bus Routes 2 and 966.

In order to implement this project, it will be necessary to restripe Upas St., and 30th St. to provide the necessary space for Class II bike facilities in each direction*. In addition, it would be necessary to remove 8 parking spaces along Upas Street.

Bicycling issues along this project corridor include ten reported bike crashes from 2002-2007. Posted traffic speeds are 20 to 30 mph and traffic volumes range from 2,200 to 12,800 ADTs.

This high priority project ranked 33rd with an average weighted prioritization score of 26.2 points.

Proposed Improvements

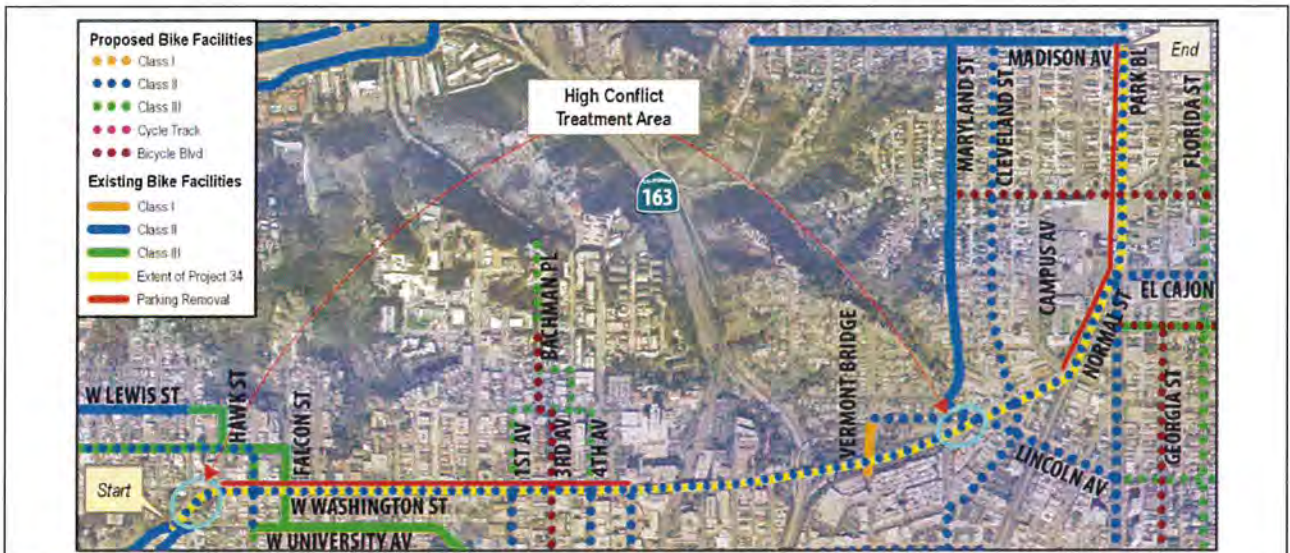
Remove traffic striping to accommodate Class II bike facilities	\$6,498
Roadside Signage on post	\$17,500
Class II and Class III pavement markings	\$16,000
Class II and traffic striping	\$5,370
Bicycle loop detectors	\$1,200
Other construction related costs	\$62,798
Remove vehicle parking spaces	8 Spaces

Cost

\$109,366

*No loss of travel lanes.

**Project 34 – Washington Street: University Avenue to Normal Street;
Normal Street: Washington Street to Park Boulevard; and
Park Boulevard: El Cajon Boulevard to Madison Avenue**



Project Description

This project serves bicycle demands between Midtown, Mission Hills, Hillcrest, University Heights, and North Park by providing Class II bicycle facilities along Washington Street from University Avenue to Normal Street, along Normal Street from Washington Street to Park Boulevard, and along Park Boulevard from El Cajon Boulevard to Madison Avenue. This high priority project is over two miles long and connects the communities of Uptown and North Park to key land uses including employment centers, shopping centers, UCSD Medical Center, Hillcrest, and Mercy Hospital. This project provides access to local bus routes (Routes 1, 3, 10, 15, 83, and 11), express bus routes (Routes 20 and 120), and premium express routes (Routes 810, 820, 850, and 860).

In order to implement this project, it would be necessary to widen both sides of Washington Street between University Ave. and Hawk Street, repave existing shoulder where necessary and stripe to provide Class II bike facilities in each direction; remove parking along Normal Street and restripe for Class II bike facilities; and restripe Park Boulevard for two lanes in the southbound direction and for one lane in the northbound direction, remove parking on one side, and Class II bike facilities in each direction. It would be necessary to remove 308 parking spaces.

Bicycling issues along this project corridor include travel speeds of 30 mph along Park Boulevard, and speeds of 35 to 55 mph along Washington Street. Washington Street also has high traffic volumes (23,100 to 43,200 ADTs). This segment has had twenty-one reported bike crashes from 2002-2007.

This high priority project ranked 34th with an average weighted prioritization score of 26.0 points.

Proposed Improvements

▪ Remove traffic striping to accommodate Class II bike facilities	\$76,560	▪ Class II paint and traffic striping	\$35,113
▪ Install asphalt pavement (6")	\$21,840	▪ Class II pavement markings	\$28,000
▪ Install retaining wall along Washington Ave (btw University Ave and Hawk St)	\$405,000	▪ Bicycle loop detectors	\$14,400
▪ Roadside signage on post	\$14,000	▪ High conflict treatment*	\$10,000
		▪ Remove vehicle parking spaces	308 spaces
		▪ Other construction related costs	\$649,995

Cost

\$1,254,908

* High Conflict Treatment includes colored bicycle lanes, warning signs and pavement markings.

Project 35 – Camino Del Rio North: Mission City Parkway to Interstate 15



Project Description

This project serves the intra-community bicycle demands of the Mission Valley community by providing Class II bicycle facilities and closing a gap along Camino Del Rio North from Mission City Parkway to Interstate 15 (0.4 miles west of Ward Road). This high priority project is over one half mile long and connects existing Class II bicycle paths along Camino Del Rio North to the east and west of the project. It also provides connections between key land uses including major employment, shopping centers, and Qualcomm Stadium. This project provides access to local bus Route 18.

In order to implement this project, it would be necessary to restripe Camino del Rio North throughout the entire project extent for one lane in each direction with Class II bike lanes in each direction. There are no anticipated parking impacts associated with this project.

Posted traffic speeds along this corridor are 35 mph and traffic volumes are 10,200 ADTs. There were no reported bike crashes from 2002-2007.

This high priority project ranked 35th with an average weighted prioritization score of 25.4 points.

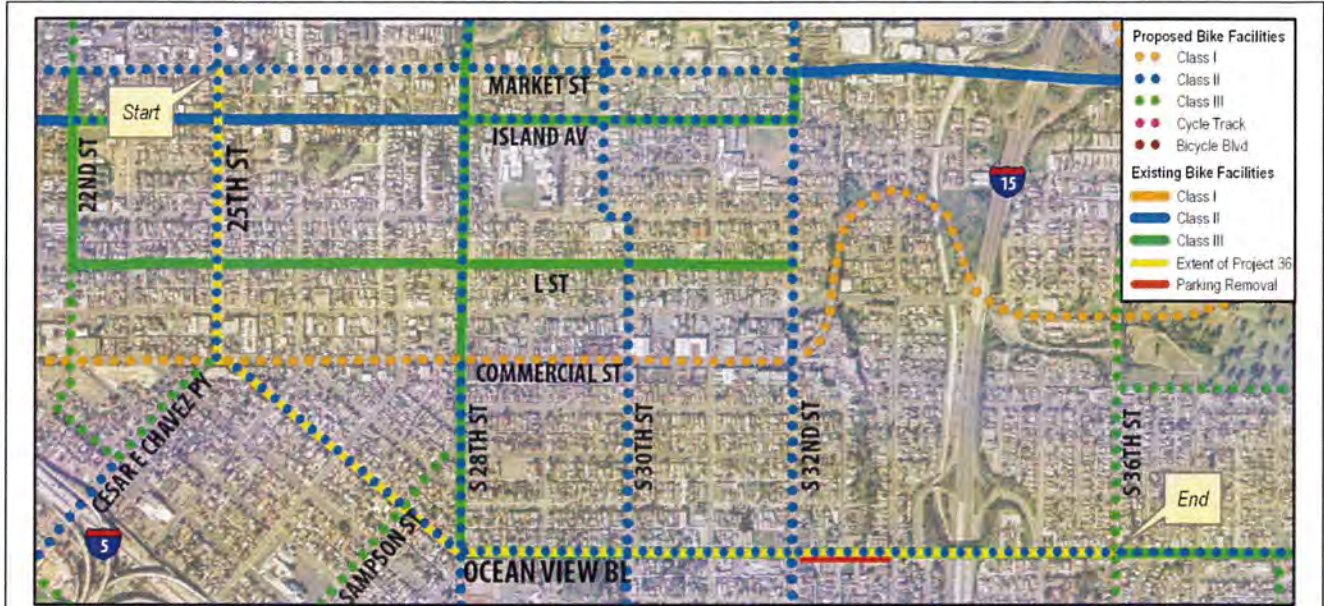
Proposed Improvements

▪ Remove traffic striping to accommodate Class II bike facilities	\$20,406
▪ Roadside signage on post	\$9,000
▪ Class II paint and traffic striping	\$6,632
▪ Class II pavement markings	\$3,000
▪ Bicycle loop detectors	\$600
▪ Other construction related costs	\$53,452

Cost

\$93,090

Project 36 – 25th Street: Market Street to Commercial Street and Ocean View Boulevard: Commercial Street to 36th Street



Project Description

This project serves bicycle demands between the communities of Centre City and Southeastern by providing Class II bicycle facilities along 25th Street from Market Street to Commercial Street and along Ocean View Boulevard from Commercial Street to 36th Street. This high priority project is nearly two miles long and connects Centre City and Southeastern neighborhoods to the existing Class II bicycle lane along Island Avenue and existing Class III facilities along L Street and 28th Street. It also provides connections between key downtown land uses including major employment, shopping centers, and tourist attractions. This project provides access to local bus Routes 3, 4, and 5, and the Orange Line trolley.

In order to implement this project, it would be necessary to restripe 25th street between Market Street and Commercial Street to one travel lane in each direction, a two-direction left turn lane, parking lane on both sides and Class II bike lanes in each direction and restripe Ocean View Blvd between Commercial St. and 36th St. to one travel lane in each direction, parking lane on both sides and Class II bike lanes in each direction. In addition, it would be necessary to remove 10 parking spaces along Ocean View Blvd between 32nd Street and 33rd Street.

Bicycling issues along this project corridor include twelve reported bike crashes from 2002-2007. Posted traffic speeds are 25 to 30 mph and traffic volumes range between 4,100 to 18,300 ADTs.

This high priority project ranked 36th with an average weighted prioritization score of 25.4 points.

Proposed Improvements

Remove traffic striping to accommodate Class II bike facilities	\$42,117
Roadside signage on post	\$13,000
Class II paint and traffic striping	\$21,321
Class II pavement markings	\$26,000
Bicycle loop detectors	\$12,000
Construction related costs	\$159,779
Remove vehicle parking spaces	10 spaces

Cost

\$274,217

Project 37 – Villa La Jolla Drive: Gilman Drive (N) to Gilman Drive (S)



Project Description

This project serves bicycle demands in the La Jolla and University communities by installing Class II facilities along Villa La Jolla Drive from Gilman Drive (N) to Nobel Drive and upgrading the existing Class III bicycle facilities to Class II facilities along Villa La Jolla Drive from Nobel Drive to Gilman Drive (S). This high priority project is nearly a mile long and connects the residential and commercial districts near La Jolla Village Square to key land uses including the VA Hospital and UCSD. This project provides connections to local bus Routes 41, 201, 202 and 921; express bus Routes 30 and 150; and NCTD Breeze Route 301.

In order to implement this project, it would be necessary to restripe Villa la Jolla Drive throughout the entire project extent to provide the necessary space for Class II bike facilities in each direction*. In addition, it would be necessary to remove 89 parking spaces along Villa La Jolla Drive between La Jolla Drive and Villa Mallorca.

Bicycle issues along this project corridor include nine reported bicycle crashes from 2002-2007, posted travel speeds of 35 to 50 mph, traffic volumes between 10,000 and 50,100 ADTs, and difficult topography along Villa La Jolla Drive north of La Jolla Village Drive.

This high priority project ranked 37th with an average weighted prioritization score of 24.4 points.

Proposed Improvements

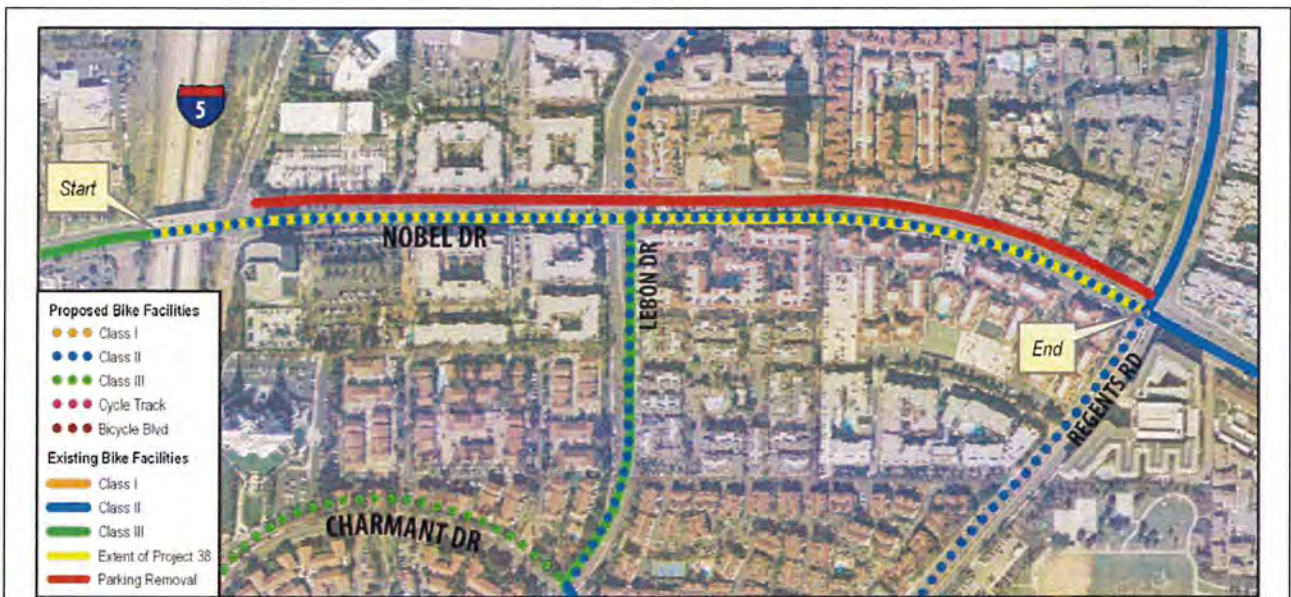
Remove traffic striping to accommodate class II bike facilities	\$24,660
Install asphalt pavement (6")	\$89,600
Install concrete curb	\$56,000
Install sidewalk (4")	\$49,200
Roadside signage on post	\$11,500
Class II and traffic striping	\$11,557
Class II pavement marking	\$16,000
Bicycle loop detectors	\$7,200
Lighting (City Street)	\$140,000
Fire hydrant assembly	\$6,000
Other construction related costs	\$513,372
Remove vehicle parking spaces	89 spaces

Cost

\$925,089

*No loss of travel lanes.

Project 38 – Nobel Drive: Interstate 5 to Regents Road



Project Description

This project serves bicycle demand between the communities of La Jolla and University by providing Class II bicycle facilities along Nobel Drive from Interstate 5 to Regents Road. This high priority project is over one half mile long and connects La Jolla and University neighborhoods to the existing Class II bicycle lanes along Regents Road and Nobel Drive east of the project area. It also provides connections between key land uses including major employment, shopping areas, and the University of California at San Diego. This project provides access to local bus Route 201 and 202.

In order to implement this project, it would be necessary to restripe Nobel Drive throughout the entire project extent to provide the necessary space for Class II bike facilities in each direction*. In addition, it would be necessary to remove 185 parking spaces along Nobel Drive.

Bicycling issues along this project corridor include high travel speeds of approximately 45 to 50 mph, a difficult freeway crossing at I-5, and traffic volumes between 18,600 and 25,500 ADTs. This segment had three reported bike crashes from 2002-2007.

This high priority project ranked 38th with an average weighted prioritization score of 23.9 points.

Proposed Improvements

▪ New Roadside signage along Nobel Drive	\$3,000
▪ Class II and traffic striping on Nobel Drive	\$4,628
▪ Class II pavement marking on Nobel Drive	\$5,000
▪ Bicycle loop detectors	\$7,200
▪ Other construction related costs	\$26,738
▪ Remove vehicle parking spaces	185 spaces

Cost

\$46,566

* No loss of travel lanes.

Project 39 –San Ysidro Boulevard: Dairy Mart Road to the southern terminus of San Ysidro Boulevard



Project Description

This project serves bicycle demands through central San Ysidro to the International Border Crossing by providing Class II bicycle facilities along San Ysidro Boulevard from Dairy Mart Road to the southern terminus of San Ysidro Boulevard. This high priority project is over two miles long and connects the residential and commercial districts of San Ysidro with existing and proposed bicycle lanes, key land uses including local bus Routes 929 and 932 and the Blue Line trolley, and the international border with Mexico.

In order to implement this project, it would be necessary to restripe the roadway and remove existing painted median throughout the entire project extent to provide the necessary space for Class II bike facilities. In addition, it would be necessary to remove 18 parking spaces between Cottonwood Road and E. San Ysidro Blvd.

Bicycling issues along the proposed project include seven bicycle crashes between 2002 and 2007 and a difficult freeway crossing at the I-5 Ramps.

This high priority project ranked 39th with an average weighted prioritization score of 23.7 points.

Proposed Improvements

▪ Remove traffic striping to accommodate Class II bike facilities	\$105,360
▪ Roadside signage on post	\$12,000
▪ Class II and traffic striping	\$24,635
▪ Class II pavement markings	\$24,000
▪ Bicycle loop detectors	\$14,400
▪ Other construction related costs	\$222,427
▪ Remove vehicle parking spaces	18 spaces

Cost

\$402,822

Project 40 – Eastgate Mall: Olson Drive to Miramar Road



Project Description

This project serves the intra-community bicycle demands of University by providing Class II bicycle facilities along Eastgate Mall from Olson Drive to Miramar Road. This project closes a gap in bicycle facilities along this segment. This high priority project is over one mile long and connects University neighborhoods to the existing Class II bicycle lanes along Miramar Road and Eastgate Mall. It also provides connections between key land uses including major employment, shopping areas, and the University of California at San Diego. This project provides access to local bus Route 31.

In order to implement this project, it would be necessary to restripe the entire project extent to one travel lane in each direction, parking on one side and Class II bike facilities in each direction. In addition, a two-way left turn lane should be included for the segment between Olson Dr. and Eastgate Ct.

Bicycling issues along this project corridor include high travel speeds of approximately 50 mph and traffic volumes of approximately 14,000 ADT. This segment had no reported bike crashes from 2002-2007.

This high priority project ranked 40th with an average weighted prioritization score of 23.4 points.

Proposed Improvements

▪ Remove traffic striping to accommodate Class II bike facilities	\$23,886
▪ Roadside signage on post	\$2,500
▪ Class II paint and traffic striping	\$7,550
▪ Class II pavement markings	\$5,000
▪ Bicycle loop detectors	\$600
▪ Other construction related costs	\$53,315

Cost

\$92,851

8.4 Cost Estimates for Maintenance and Operations

The total annual maintenance cost of the bicycle network, as shown in Table 8-4 is estimated at approximately \$4.4 million per year when fully implemented. Bicycle facility maintenance costs are based on per-mile estimates, which cover labor, supplies, and amortized equipment costs for weekly trash removal, monthly sweeping, and bi-annual resurfacing and repair patrols. Other maintenance costs include restriping Bike Lane lines, sweeping debris, and tuning signals for bicycle sensitivity.

As part of the normal roadway maintenance program, extra emphasis will be put on keeping the Bike Lanes and roadway shoulders clear of debris and keeping vegetation overgrowth from blocking visibility or creeping into the roadway. The other typical maintenance costs for the bikeway network include the maintenance of signage, striping, and stencils.

Table 8-3: Recommended Bikeway Network, Annual Operation and Maintenance Cost Estimates

Facility/Program	Unit Cost ¹	Description	Miles	Cost	Notes
Class I Maintenance (including Cycle Track)	\$17,000	Annual Cost per Mile	173.0	\$2,941,000	Lighting and debris and vegetation overgrowth removal
Class II Maintenance (including facility classified as Class II or Class III)	\$2,000	Annual Cost per Mile	593.4	\$1,186,800	Repainting lane stripes and stencils, sign replacement as needed
Class III Maintenance (including Bicycle Boulevard)	\$1,000	Annual Cost per Mile	323.5	\$323,500	Sign and shared use stencil replacement as needed
Avg. Cost/Year			1090	\$4,451,300	

Source: City of San Diego Bicycle Master Plan Update 2013

1. Unit costs based on Alta Planning + Design experience with similar bikeway systems, and “Trails for the 21st Century: Planning, Design and Management Manual for Multi-Use Trails,” published by the Rails-to-Trails Conservancy, 2001.

8.5 Funding Sources

Potential funding sources for bicycle projects, programs, and plans can be found at all levels of government. This section covers federal, state, regional, and local sources of bicycle funding, as well as some non-traditional funding sources that may be used for bicycle projects. All the projects are recommended to be implemented over the next two to twenty years, or as funding is made available. The more expensive projects may take longer to implement. In addition, many funding sources are highly competitive, and therefore it is impossible to determine exactly which projects will be funded by which funding sources.

8.5.1 Federal Funding

The primary federal source of surface transportation funding, including bicycle and pedestrian facilities, is SAFETEA-LU, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users. SAFETEA-LU is the fourth iteration of the transportation vision established by Congress in 1991 with the Intermodal Surface Transportation Efficiency Act (ISTEA) and renewed in 1998 and 2003 through the Transportation Equity Act for the 21st Century (TEA-21) and the Safe, Accountable, Flexible, and Efficient Transportation Equity Act of 2003 (SAFETEA). Also known as the Federal Transportation Bill, the \$286.5 billion SAFETEA-LU bill passed in 2005 and authorizes federal surface transportation programs for the five-year period between 2005 and 2009. As of September 30, 2009, SAFETEA-LU has expired, though the bill's programs have been kept alive at a 30% reduction in funding by Congress through a series of continuing resolutions.

Administration of SAFETEA-LU funding occurs through the State (Caltrans and the State Resources Agency) and through regional planning agencies. Most, but not all, of these funding programs are oriented toward utilitarian transportation versus recreation, with an emphasis on reducing auto trips and providing inter-modal connections. SAFETEA-LU programs require a local match of 11.47%.

Specific funding programs under SAFETEA-LU include, but are not limited to:

- Congestion Mitigation and Air Quality (CMAQ)
- Recreational Trails Program
- Safe Routes to School Program
- Transportation, Community, and System Preservation Program

These and other federal funding sources are summarized in the following sections.

8.5.1.1 Congestion Mitigation and Air Quality Improvement Program

Congestion Mitigation and Air Quality Improvement funds are programmed by the Federal Transportation Bill for projects that are likely to contribute to the attainment of a national ambient air quality standard, and congestion mitigation. These funds can be used for a broad variety of bicycle and pedestrian projects, particularly those that are developed primarily for transportation purposes. The funds can be used either for construction of bicycle transportation facilities and pedestrian walkways or for non-construction projects related to safe bicycle and pedestrian use (maps, brochures, etc.). The projects must be tied to a plan adopted by the State of California and SANDAG.

8.5.1.2 Recreational Trails Program

The Recreational Trails Program of SAFETEA-LU provides funds to states to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. Examples of trail uses include bicycling, hiking, in-line skating, and equestrian use. In California, the funds are administered by the California Department of Parks and Recreation. Recreational Trails Program funds may be used for:

- Maintenance and restoration of existing trails
- Purchase and lease of trail construction and maintenance equipment
- Construction of new trails, including unpaved trails
- Acquisition of easements or property for trails
- State administrative costs related to this program (limited to seven percent of a state's funds)
- Operation of educational programs to promote safety and environmental protection related to trails (limited to five percent of a state's funds)

In 2009, \$4.6 million was available to California jurisdictions through the Recreational Trails Program. More information is available at

www.fhwa.dot.gov/environment/rectrails/index.htm.

8.5.1.3 Safe Routes to School (SRTS) Program

Authorized under Section 1404 of SAFETEA-LU, the Safe Routes to School (SRTS) Program came into effect in August, 2005. Consistent with other federal-aid programs, each State Department of Transportation (DOT) is held responsible for the development and implementation of grant funds made available to the states through this new program throughout the life of SAFETEA-LU. Some expected outcomes of the program include:

- 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.
- 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.

8.5.1.3.1 SRTS Infrastructure Projects

Infrastructure projects are 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.

Eligible projects may include but are not limited to:

- 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. Also includes 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.

Infrastructure projects should directly support increased safety and convenience for children in K-8 (including children with disabilities) to walk and bicycle to school.

8.5.1.3.2 SRTS NON-Infrastructure Projects

Non-infrastructure projects are education, encouragement, and enforcement activities that are intended to change community behavior, 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.

8.5.1.4 Transportation, Community, and System Preservation Program (TCSP)

Implementation grants under the TCSP Program are intended to provide financial resources to states, metropolitan planning organizations, local governments, and tribal governments to enable them to carry out activities that address transportation efficiency while meeting community preservation and environmental goals. Examples of such policies or programs include spending policies that direct funds to high-growth regions of the country, urban growth boundaries to guide metropolitan expansion, and “green corridors” programs that provide access to major highway corridors for areas targeted for efficient and compact development.

8.5.1.5 Land and Water Conservation Fund

The Land and Water Conservation Fund 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 Fund is administered by the National Parks Service and the California Department of Parks and Recreation and has been reauthorized until 2015.

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.

In 2009, approximately \$1.25 million was allocated to fund recommended projects in California.

8.5.1.6 Rivers, Trails and Conservation Assistance Program

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 RTCA 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.

8.5.1.7 Transportation Enhancement (TE) Activities

Transportation Enhancement (TE) Activities are a subset of federal Surface Transportation Program funds whose aim is to help expand travel choice and enhance the transportation experience. Included in the list of activities eligible for funding are the provision of pedestrian and bicycle facilities and the provision of pedestrian and bicycle safety and educational activities. California's annual allocation of TE funds through the end of the SAFETEA-LU bill was \$74.5 million. In 2007, about \$6.7 million dollars of federal TE funds were spent in the San Diego region, mostly on pedestrian and bicycle projects.

8.5.1.8 Regional Surface Transportation Program

The Regional Surface Transportation Program (RSTP) is a block grant program established by the State of California utilizing federal funding made available for surface transportation projects. Though most of this funding gets earmarked for highway and transit projects, pedestrian and bicycle projects are still eligible to receive funds from this source. In California, \$225 million (76%) of RSTP funds are allocated annually to California's 11 largest urbanized areas with populations greater than 200,000 people. Under the RSTP, the San Diego Association of Governments (SANDAG) is authorized to prioritize and approve projects that receive RSTP funds in the San Diego region. Agencies can transfer funding from other federal transportation sources to the RSTP program in order to gain more flexibility in the way the monies are allocated.

8.5.2 State Funding Programs

This section summarizes the primary state bicycle project and planning funding sources.

8.5.2.1 Bicycle Transportation Account

The State of California Bicycle Transportation Account (BTA) is an annual statewide discretionary program that is available through the Caltrans Bicycle Facilities Unit for funding bicycle projects. Available as grants to local jurisdictions, the emphasis is on projects that benefit bicycling for commuting purposes. As of 2009, the BTA makes \$7.2 million available each year. The local match is a minimum of 10% of the total project cost.

BTA projects are intended to improve safety and convenience for bicycle commuters, and can include, but are not limited to, any of the following:

- New bikeways serving major transportation corridors
- New bikeways removing travel barriers to potential bicycle commuters
- Secure bicycle parking at employment centers, park-and-ride lots, rail and transit terminals, and ferry docks and landings
- Bicycle-carrying facilities on public transit vehicles
- Installation of traffic control devices to improve the safety and efficiency of bicycle travel
- Elimination of hazardous conditions on existing bikeways
- Planning
- Improvement and maintenance of bikeways

Eligible project activities include project planning, preliminary engineering, final design, right-of-way acquisition, and construction and/or rehabilitation.

8.5.2.2 Environmental Enhancement and Mitigation Program (EEMP)

Environmental Enhancement and Mitigation Program (EEMP) funds are allocated to projects that offset environmental impacts of modified or new public transportation facilities including streets, mass transit guideways, park-n-ride facilities, transit stations, tree planting to equalize the effects of vehicular emissions, and the acquisition or development of roadside recreational facilities, such as trails. State gasoline tax monies fund the EEMP, which annually allocates \$10 million for mitigation projects.

8.5.2.3 Office of Traffic Safety (OTS) Grant

Office of Traffic Safety Grants (OTS) fund safety programs and equipment. Bicycle and pedestrian safety is a specifically identified as a priority. This category of grants includes enforcement and education programs, which can encompass a wide range of activities, including bicycle helmet distribution, design and printing of billboards and bus posters, other public information materials, development of safety components as part of physical education curriculum, or police safety demonstrations through school visitations.

The grant cycle typically begins with a request for proposals in October, which are due the following January. In 2006, OTS awarded \$103 million to 290 agencies.

8.5.2.4 Recreational Trails Program (RTP)

The Recreational Trails Program provides funds to states to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. Examples of trail uses include hiking, bicycling, in-line skating, equestrian use, and other non-motorized as well as motorized uses.

Recreational Trails Program funds may be used for:

- Maintenance and restoration of existing trails
- Development and rehabilitation of trailside and trailhead facilities and trail linkages
- Purchase and lease of trail construction and maintenance equipment
- Construction of new trails (with restrictions for new trails on federal lands)
- Acquisition of easements or property for trails
- State administrative costs related to this program (limited to seven percent of a state's funds)

- Operation of educational programs to promote safety and environmental protection related to trails (limited to five percent of a state's funds)

8.5.2.5 Safe Routes to School (SR2S) Program

Established in 1999, the state-legislated Safe Routes to School (SR2S) program came into effect with the passage of Assembly Bill (AB) 1475. In 2001, Senate Bill (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. And in 2007, AB 57 was enacted to extend the program indefinitely. Seven cycles of the SR2S program have been completed. The list of awarded projects is typically announced in the fall.

The goals of the program are to reduce injuries and fatalities to school children and to encourage increased walking and bicycling among students. The program achieves these goals by constructing facilities that enhance safety for pedestrians and bicyclists, primarily students in grades K-12 who walk or bicycle to school. By enhancing the safety of the pathways, trails, sidewalks, and crossings, the likelihood of attracting and encouraging other students to walk and bicycle increases.

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. Improvements can be made on public school grounds providing the cost is incidental to the overall cost of the project. The program typically provides approximately \$25 million annually statewide. The maximum reimbursement percentage for any SR2S project is ninety percent. The maximum amount of SR2S funds that will be allocated to any single project is \$900,000.

Eligible project elements include bicycle facilities, traffic control devices, and traffic calming measures. Up to 10% of funding provided for an individual project can be used for outreach, education, encouragement, and/or enforcement activities. Regarding funding projections, the 2008 cycle is anticipated to provide \$48.5 million in funding. A letter from the Safe Routes to School National Partnership to the California Air Resources Board recognized that awards were part of “the volatile state budget process.”

This California SR2S program should not be confused with the Federal Highway Administration’s (FHWA) Safe Routes to School (SRTS) program authorized under SAFETEA-LU. Although both programs have similar goals and objectives, their funding source, local funding match requirements, and other program requirements are different (see the following section).

8.5.2.6 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. The TDA/TransNet program is described in the next section.

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 Act (ADA)
- Route improvements such as signal controls for bicyclists, bicycle loop detectors, rubberized rail crossings, and bicycle-friendly drainage grates
- Purchase 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.

8.5.3 Regional Funding Sources

Regional bicycle grant programs come from a variety of sources, including MAP 21, the state budget, vehicle registration fees, bridge tolls, and local sales tax. Most regional funds are allocated by regional agencies such as SANDAG. SANDAG has instituted an Active Transportation Grant Program to encourage local jurisdictions to plan and build facilities that promote multiple travel choices for residents and connectivity to transit, schools, retail centers, parks, work, and other community gathering places. The grant program also encourages local jurisdictions to provide bicycle parking, education, encouragement, and awareness programs that support pedestrian and bicycle infrastructure. In the 2012 grant cycle, there was \$8.8 million in Active Transportation funding available for capital projects, and \$2.2 million for non-capital projects. Of the funding awarded in the 2012 grant cycle, the City was awarded a total of \$600,000 for planning projects and over \$934,000 for capital projects. With the approval of SANDAG's EAP, beginning in 2014, approximately \$1 million per year will be available to fund local Active Transportation projects.

8.5.3.1 TDA and TransNet Call for Pedestrian and Bicycle Projects

In addition to TDA revenue which comes from state sales tax, the San Diego region levies an additional ½ 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. These funds serve as part of the Regional Housing Needs Incentive Program. The *Implementation Guidelines for SANDAG Regional Housing Needs Assessment Memorandum* (Board Policy No. 33) sets forth guidelines for incentives related to the Regional Housing Needs Assessment (RHNA) for the 2005-2010 Housing Element cycle. Eligibility for the TDA/TransNet bicycle and pedestrian funds depend upon compliance with Board Policy No. 033, TDA Project Eligibility, and TransNet Project Eligibility.

In addition to the eligibility requirements, if applicable, certain SANDAG Claim Requirements must be met. The application must be completed and received in early February.

8.5.3.2 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. The pilot program distributed \$22.5 million in grants to 16 smart growth projects in the San Diego region in 2005.

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 models 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 include:

- Local commitment/authorization
- Funding commitment
- Funding eligibility

Project Evaluation Criteria include:

- 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

8.5.4 Local Funding

8.5.4.1 New Construction

Future road widening and construction projects are means of providing Bike Lanes and sidewalks. So that roadway construction projects provide these facilities where needed are appropriate and feasible, it is important that an effective review process is in place so that new roads meet the standards and guidelines presented in this Plan.

8.5.4.2 Impact Fees

Another potential local source of funding is Development Impact Fees (DIFs), 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 residents 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 avoiding a potential lawsuit.

8.5.4.3 Mello-Roos

Bike paths, lanes, and pedestrian facilities can be funded as part of a local assessment or benefit district. Defining the boundaries of the benefit district may be difficult unless the facility is part of a larger parks and recreation or public infrastructure program with broad community benefits and support.

8.5.4.4 Other

Local sales taxes, fees, and permits may be implemented, requiring a local election. Parking meter revenues may be used according to local ordinance. Volunteer programs may substantially reduce the cost of implementing some of the proposed bikeways. 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 or pedestrian project 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.

Other opportunities for implementation will appear over time, which may be used to implement the system.