

VI. 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 868 miles of proposed bike lanes, bike routes, bicycle boulevards, and cycle tracks. The plan also recommends 170 miles of paved multi-use paths. These totals include existing facilities and proposed unbuilt 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.

Recommended 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.

Bicycle Network Identification Process

The proposed bicycle network was identified through a process that considered existing facilities, planned facilities, and bicycling demand, as listed below:

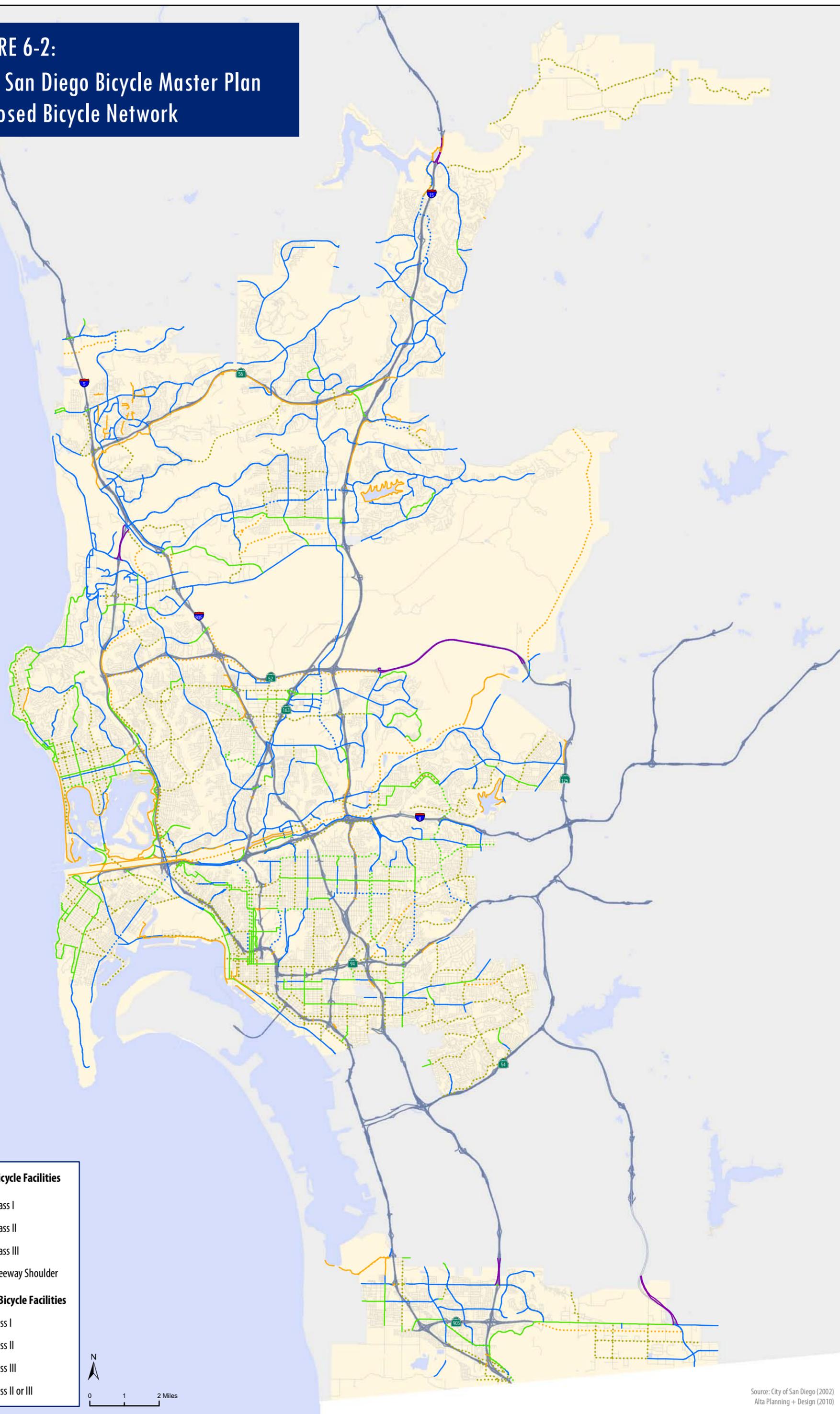
- Existing Bicycle Facilities (2009)
- San Diego Bicycle Master Plan (2002)
- San Diego Downtown Community Plan (2006)
- San Diego Regional Bicycle Plan (2009)

Together, these four networks served as a starting point for the development of the updated bicycle network. **Figures 6-2, 6-3 and 6-4** display the bicycle networks proposed in each of the planning documents listed above. **Figure 6-5** displays the combination of these four networks. This preliminary bicycle network comprised of existing facilities and planned facilities was then enhanced with the network identified via the demand analysis, as presented in Chapter 5 (Figure 5-16). In other words, the bicycle demand analysis allowed for systematic identification of high bicycle demand roadway segments that do not currently have bicycle facility and were not proposed for bicycle facilities in any of the currently adopted plans.

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FIGURE 6-2:
2002 San Diego Bicycle Master Plan
Proposed Bicycle Network



Existing Bicycle Facilities

- Class I
- Class II
- Class III
- Freeway Shoulder

Proposed Bicycle Facilities

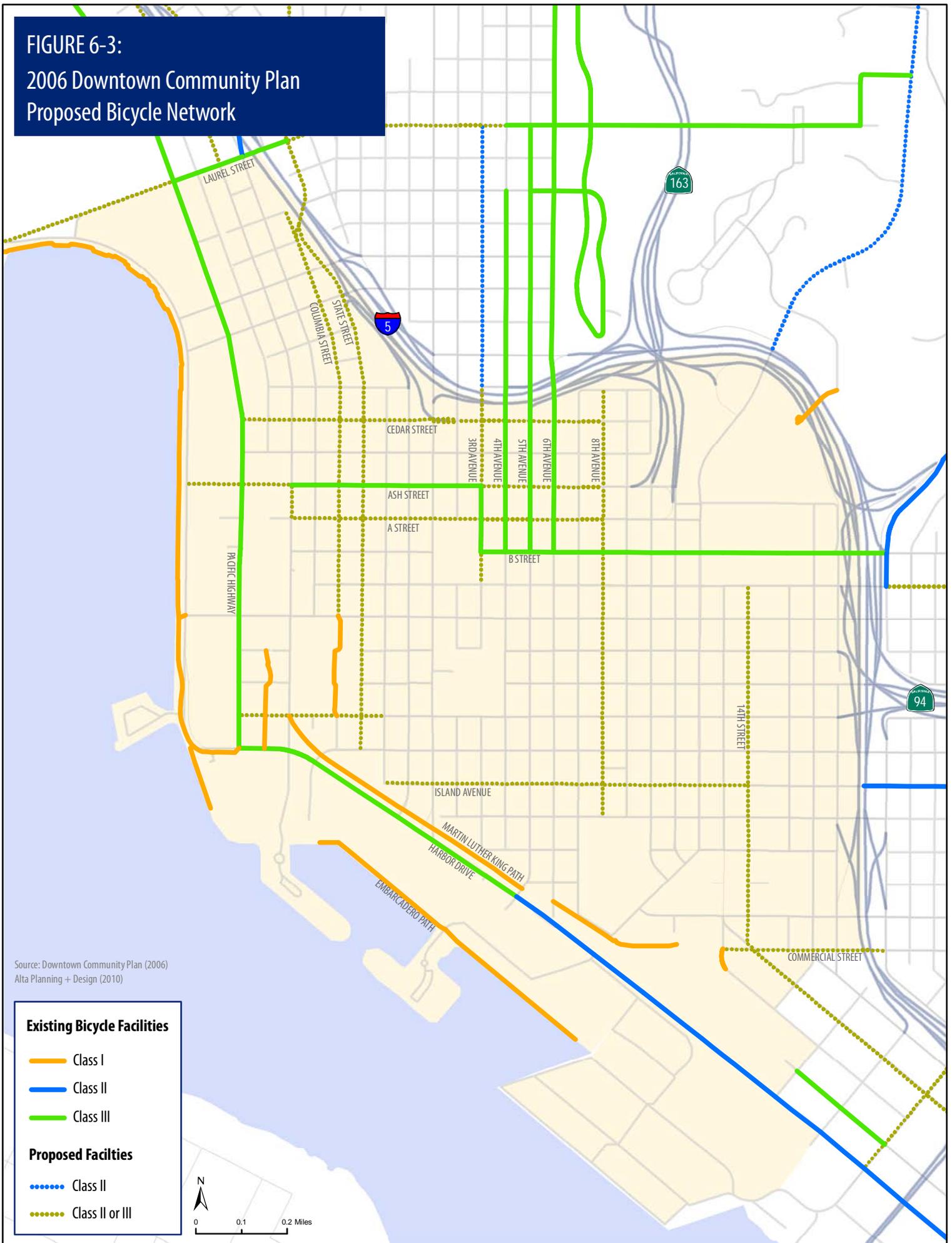
- Class I
- Class II
- Class III
- Class II or III



Source: City of San Diego (2002)
Alta Planning + Design (2010)

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FIGURE 6-3:
2006 Downtown Community Plan
Proposed Bicycle Network



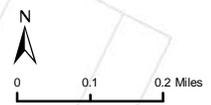
Source: Downtown Community Plan (2006)
 Alta Planning + Design (2010)

Existing Bicycle Facilities

- Class I
- Class II
- Class III

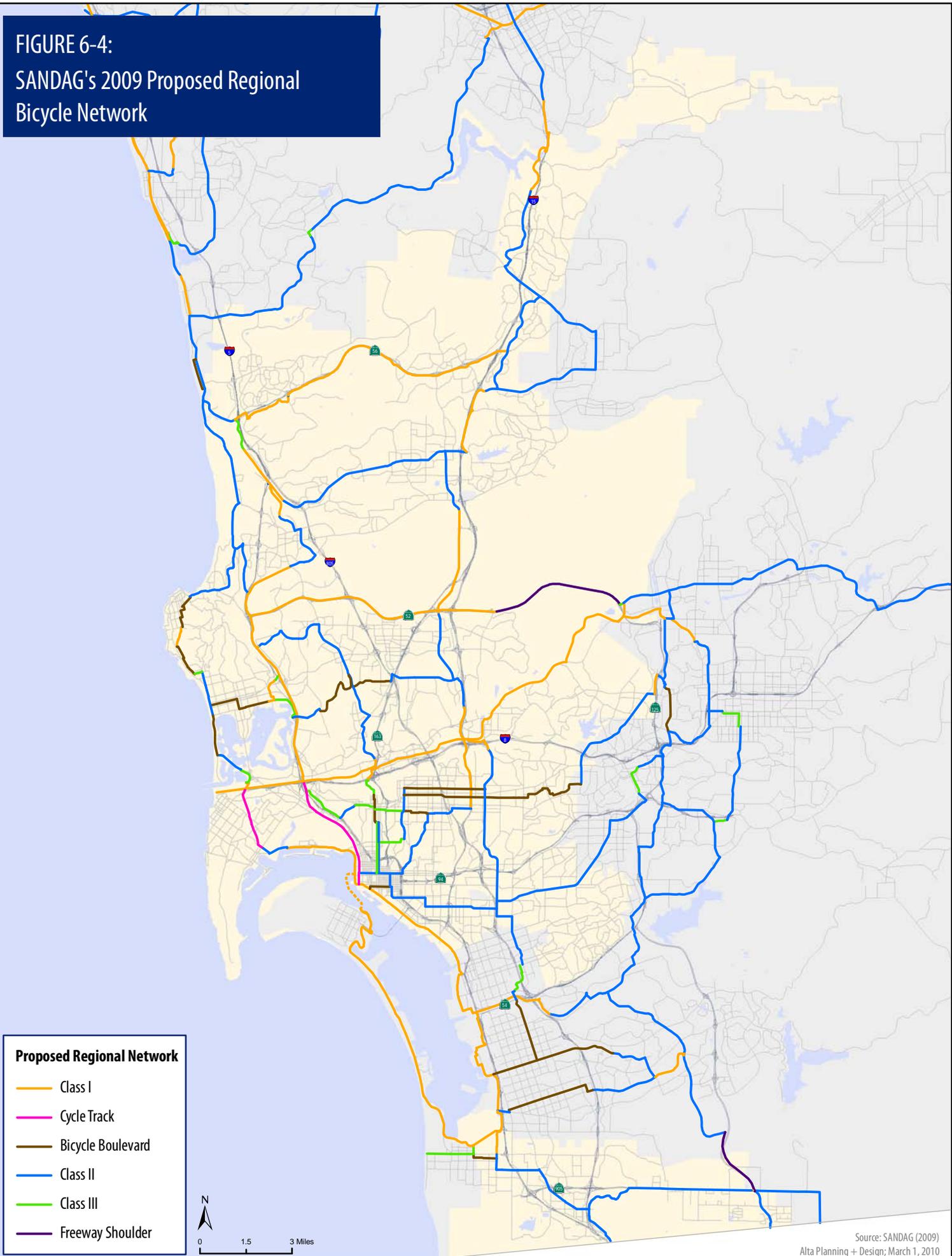
Proposed Facilities

- ⋯ Class II
- ⋯ Class II or III



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FIGURE 6-4:
SANDAG's 2009 Proposed Regional
Bicycle Network



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

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This network was then subjected to a refinement process to avoid proposing facilities on very low traffic volume roadways, as well as to avoid disconnected facilities and to ensure basic sensibility. In addition, a City planner for each of the Community Planning Areas reviewed the preliminary proposed bicycle network and provided suggested refinements. **Appendix D** elaborates upon the refinement process applied to the preliminary proposed network.

Figure 6-6 displays the refined proposed bicycle network, distinguishing existing bicycle facilities, unbuilt proposed network from the three previous or on-going planning efforts, and unbuilt proposed facility resulting from the demand analysis. There are a total of 511 miles of existing bicycle facilities, 175 miles of unbuilt proposed facility from previous or on-going planning efforts, and 194 miles of unbuilt proposed facility resulting from the demand analysis.

Proposed Bicycle Network with Classifications

Figure 6-7A and **6-7B** display the final 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 networks, and input from City staff including detailed input from Community Planning staff. **Table 6.1** summarizes the proposed bicycle network miles including existing, proposed unbuilt bikeways, and change in facility type.

Table 6.1: Proposed San Diego Bicycle Network

| Facility Type | Miles of Existing | Miles of Proposed Unbuilt | Total Miles of Facility |
|------------------------|-------------------|---------------------------|-------------------------|
| Class I – Bike Path | 72.3 | 98.1 | 170.4 |
| Class II – Bike Lane | 309.4 | 90.0 | 399.4 |
| Class III – Bike Route | 112.9 | 166.3 | 279.2 |
| Class II or III (TBD) | -- | 147.7 | 147.7 |
| Freeway Shoulder | 16.1 | (-16.1) | 0.0 |
| Bicycle Boulevard | 0 | 39.8 | 39.8 |
| Cycle Track | 0 | 7.6 | 7.6 |
| Totals | 510.7 | 533.5 | 1,044.1 |

Source: Alta Planning + Design, February 2010

As shown in Table 6.1, there are approximately 510 miles of existing facility with the majority being Class II bike lanes. The proposed bicycle network includes recommendations for an additional 533 miles of bicycle facility, for a future network totaling almost 1,050 miles.

High Priority Projects

The 40 highest priority bicycle projects were identified through a prioritization process applied to the recommended bicycle network presented in Figures 6-7A and 6-7B. The

prioritization process is described in the following section. These 40 top priority projects comprise the first phase in implementing the recommended bicycle network.

Prioritization Process

The bicycle network was prioritized based on key indicators of demand and deficiencies in order to guide network implementation phasing. The prioritization factors include bicycle demands, bicycle network gaps, public input gathered through the outreach process, overlap with the proposed regional bicycle network, and bicycle crashes. Data on these factors were entered into a GIS system along with their respective priority points.

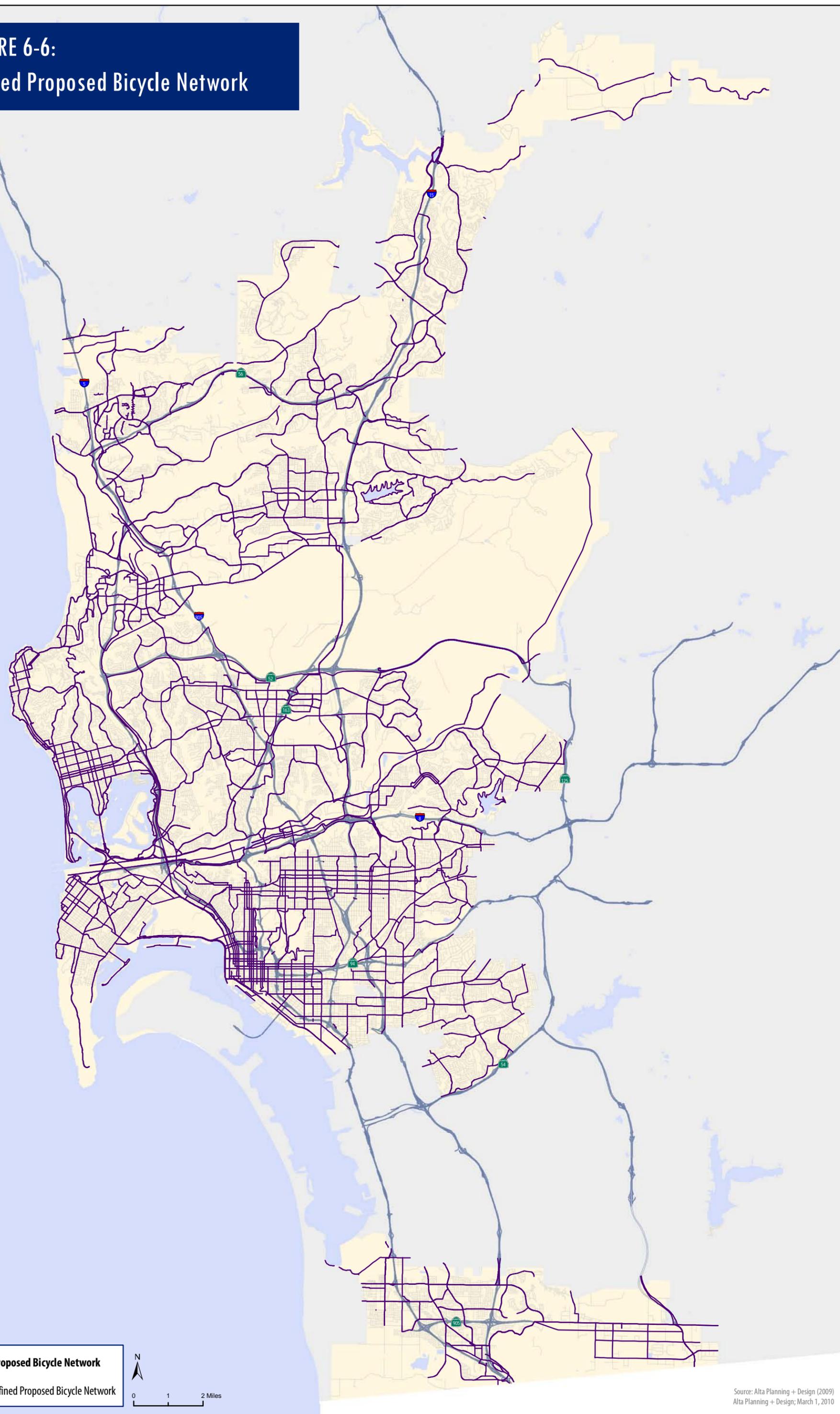
Table 6.2 summarizes the prioritization inputs and point values assigned to each factor, which were finalized after extensive review and input from the Project Working Group. **Figures 6-8** through **6-12** display each of the inputs to the prioritization process along with their respective priority points.

Table 6.2: 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 |

Source: Alta Planning+Design, February 1, 2009

FIGURE 6-6:
Refined Proposed Bicycle Network



Refined Proposed Bicycle Network
— Refined Proposed Bicycle Network

N
0 1 2 Miles

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

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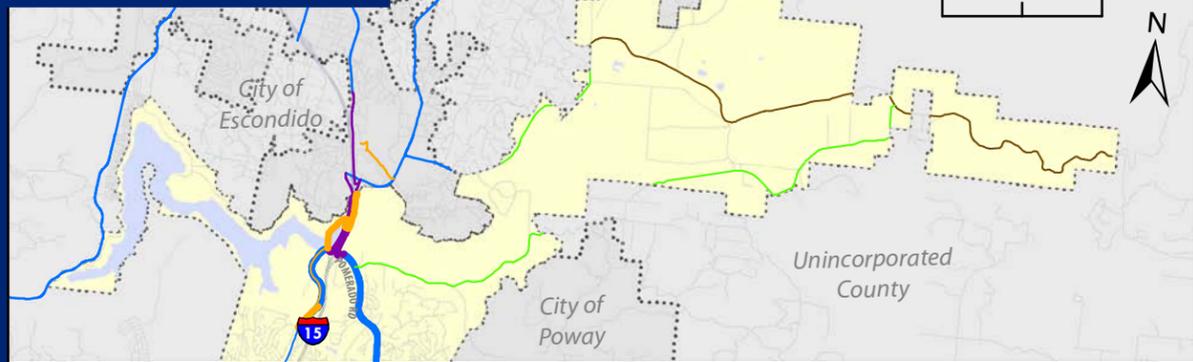
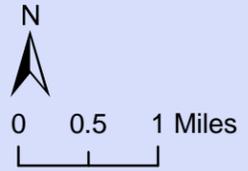
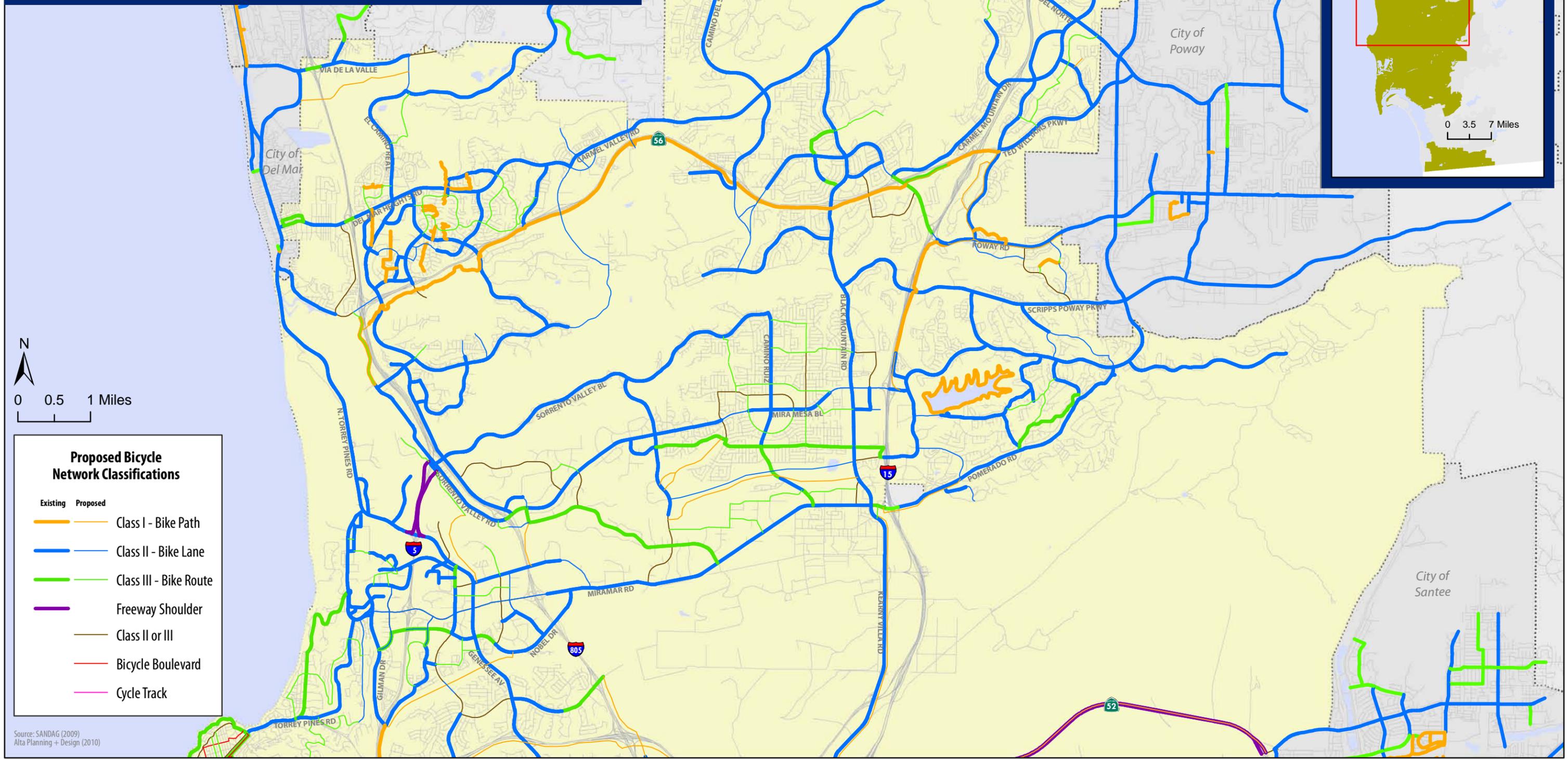
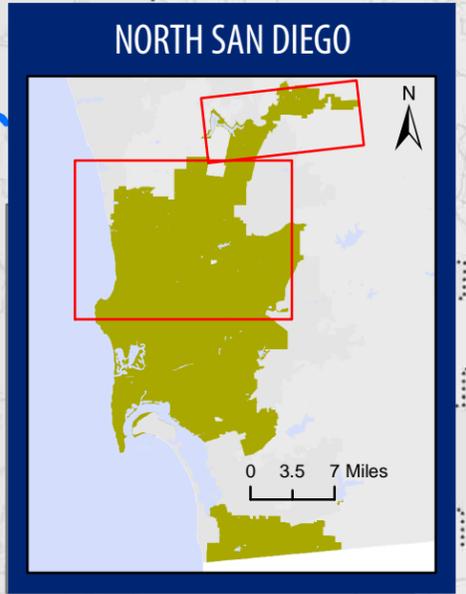


Figure 6-7A
Proposed Bicycle Network with
Classifications (North)



Proposed Bicycle Network Classifications

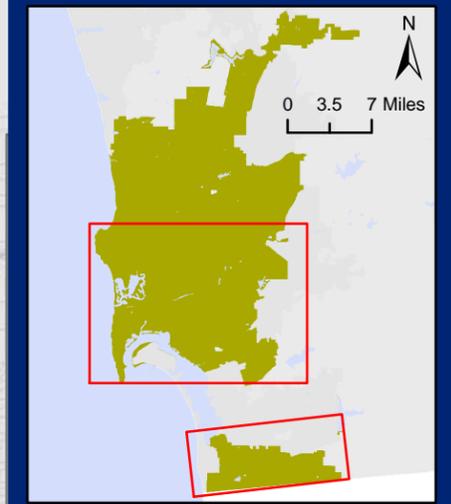
| Existing | Proposed | Classification |
|----------|----------|------------------------|
| | | Class I - Bike Path |
| | | Class II - Bike Lane |
| | | Class III - Bike Route |
| | | Freeway Shoulder |
| | | Class II or III |
| | | Bicycle Boulevard |
| | | Cycle Track |

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

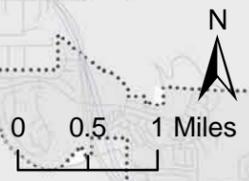
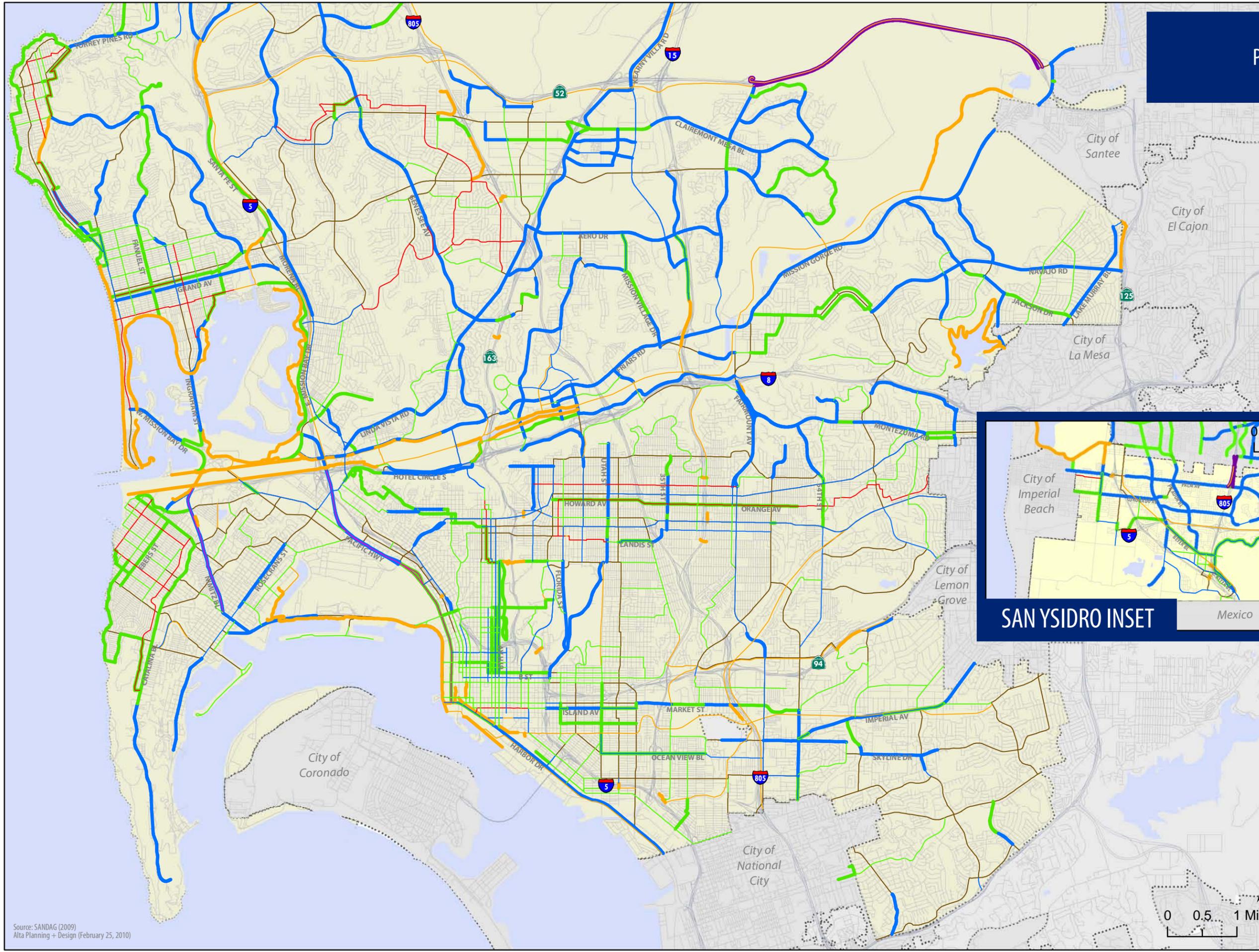
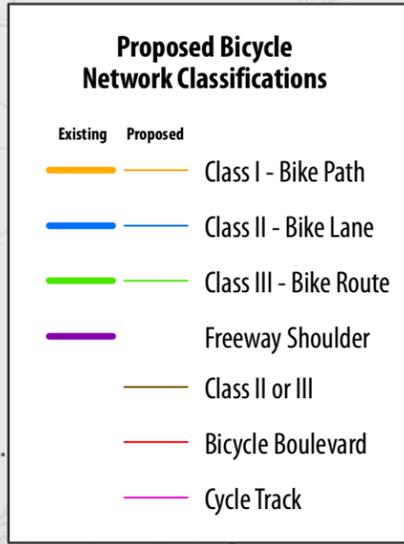
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Figure 6-7B
Proposed Bicycle Network with
Classifications (South)

SOUTH SAN DIEGO



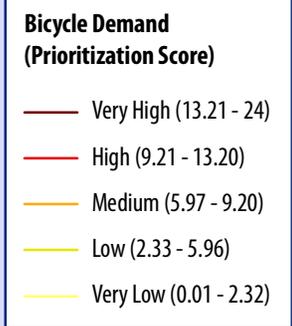
SAN YSIDRO INSET



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

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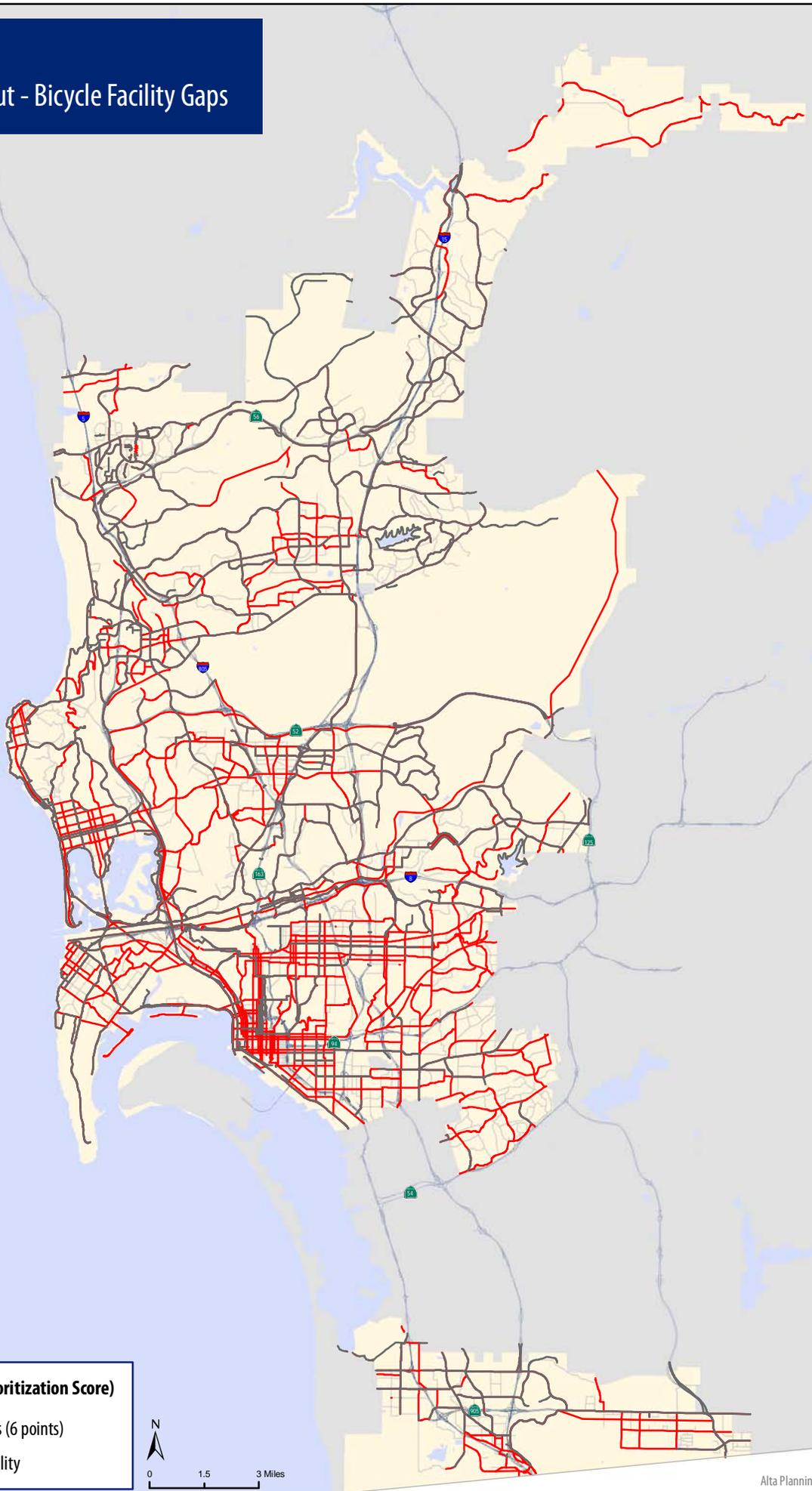
FIGURE 6-8:
Prioritization Input - High Demands



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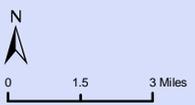
FIGURE 6-9:

Prioritization Input - Bicycle Facility Gaps



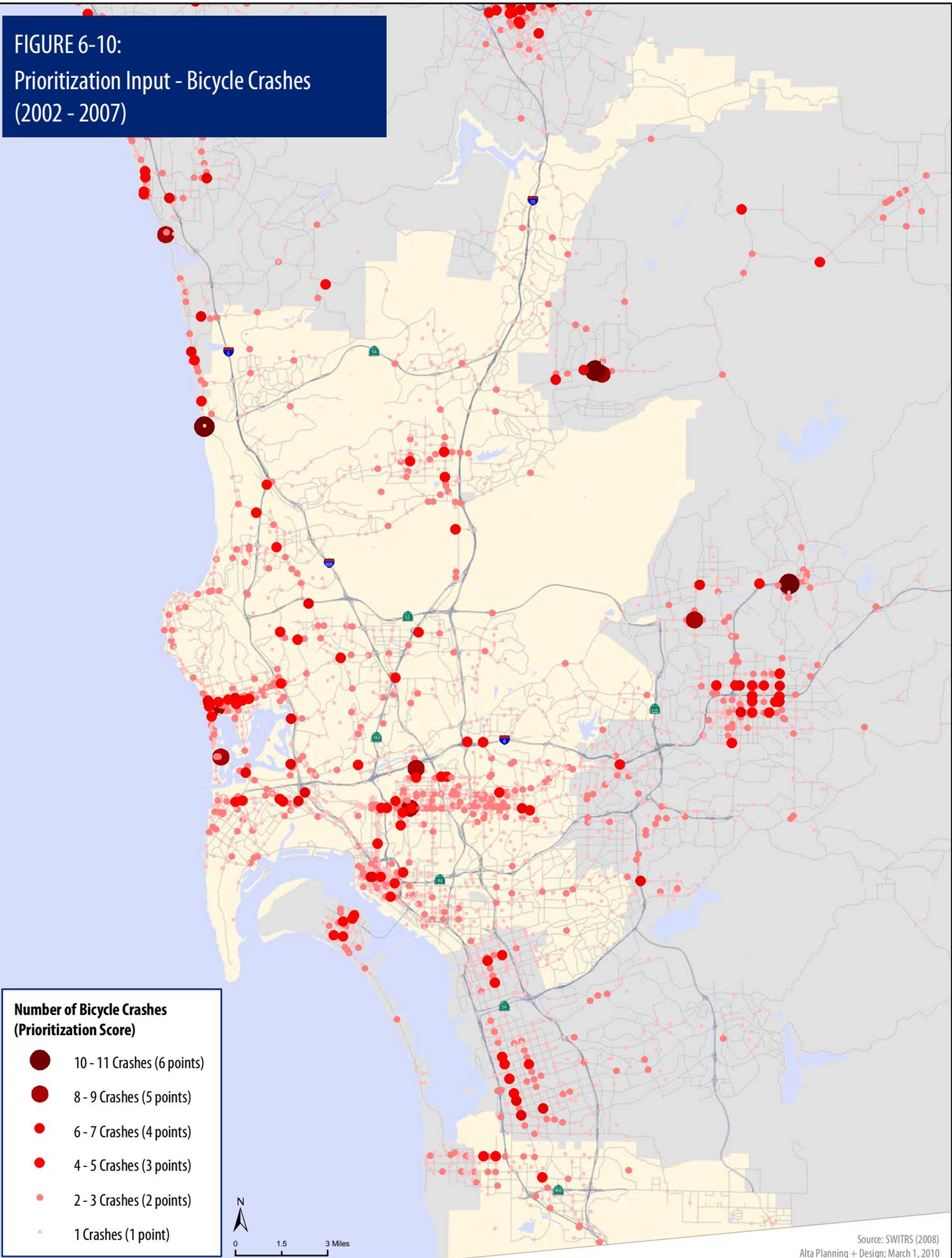
Bicycle Facility Gaps (Prioritization Score)

- Bicycle Facility Gaps (6 points)
- Existing Bicycle Facility



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FIGURE 6-10:
Prioritization Input - Bicycle Crashes
(2002 - 2007)



Source: SWITRS (2008)
Alta Planning + Design; March 1, 2010

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FIGURE 6-11:

Prioritization Input - Public Comment

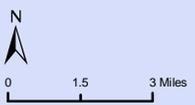
Public Comment (Prioritization Score)

City of San Diego Public Comment

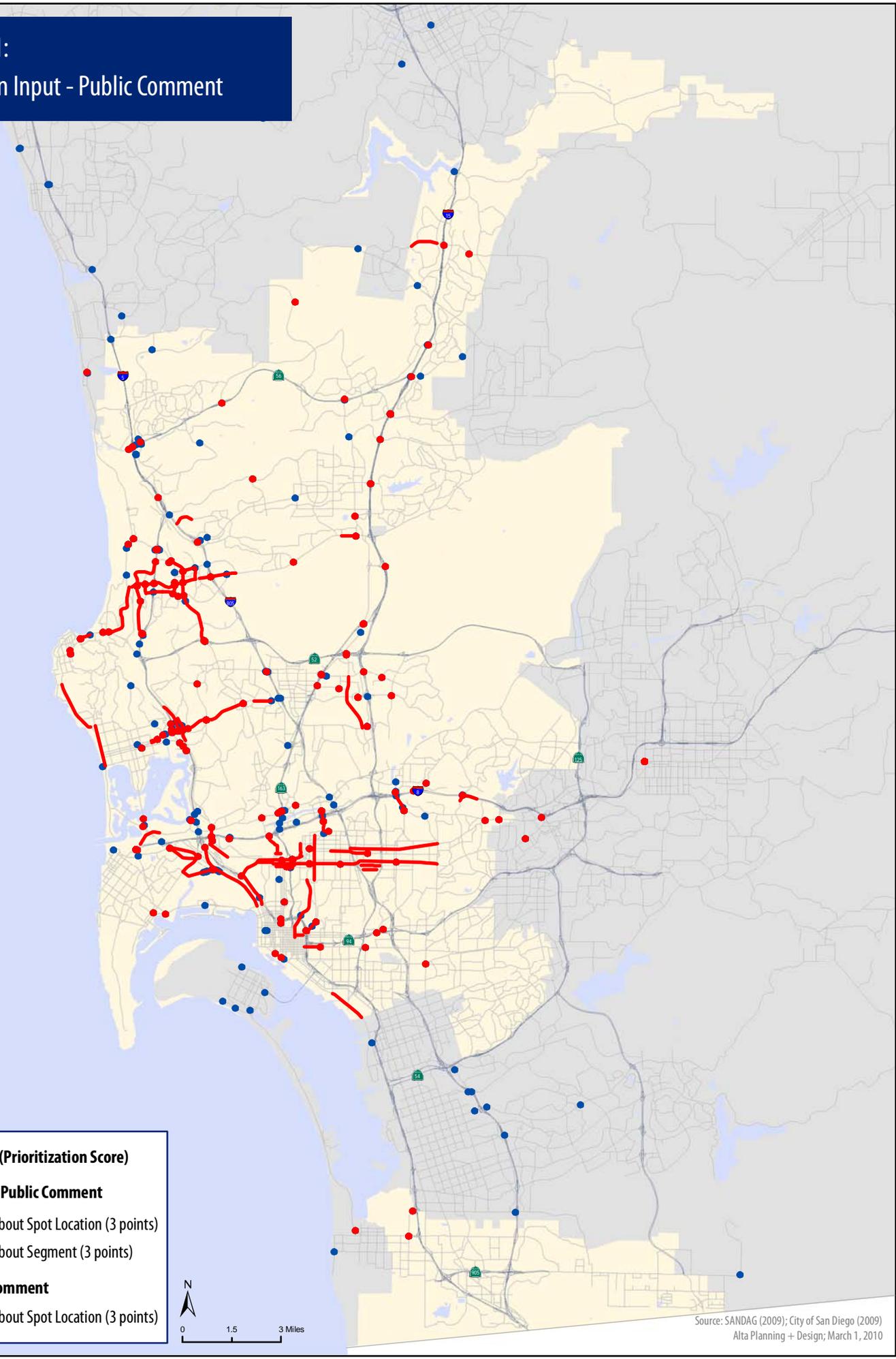
- Comment about Spot Location (3 points)
- Comment about Segment (3 points)

SANDAG Public Comment

- Comment about Spot Location (3 points)



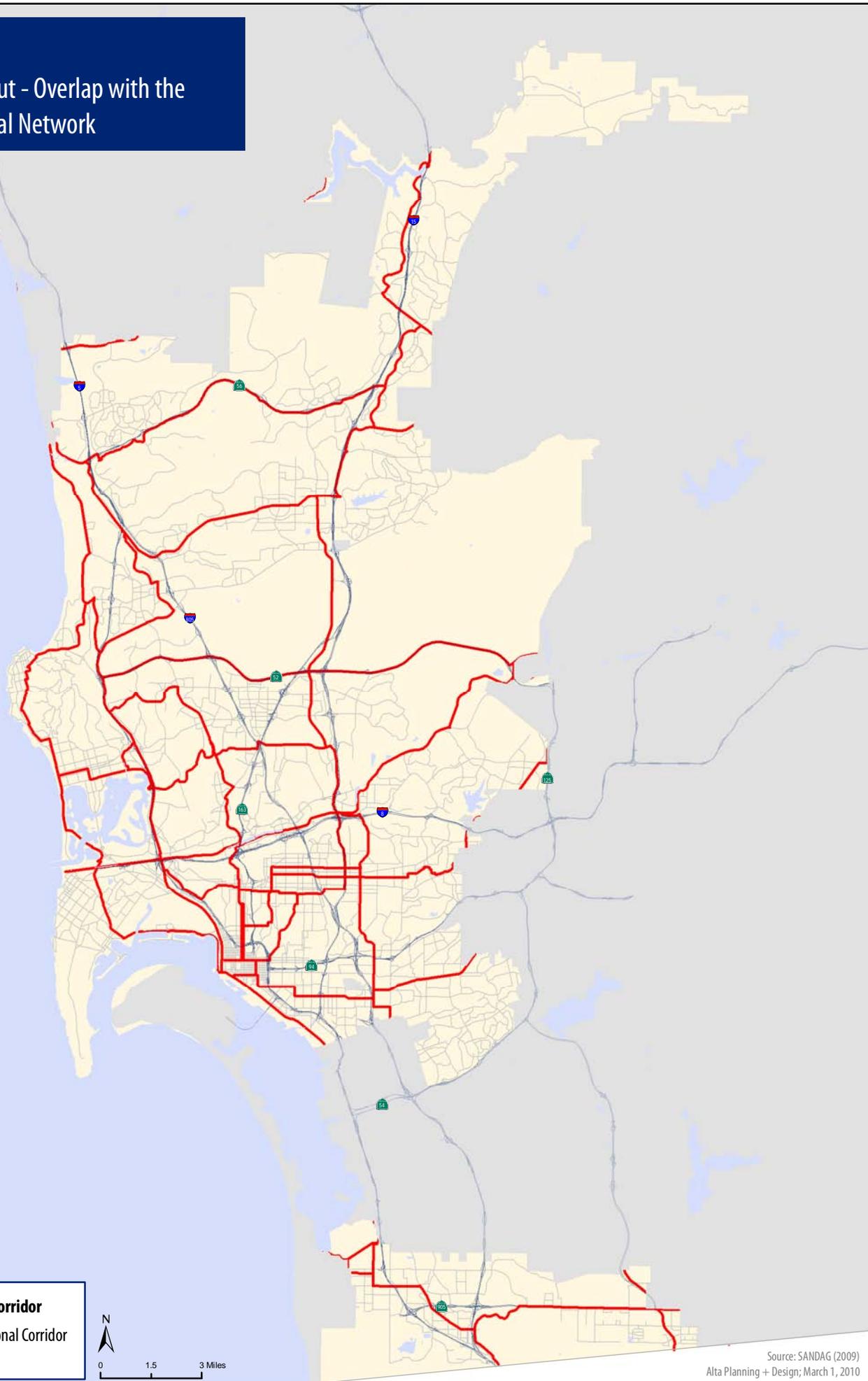
Source: SANDAG (2009); City of San Diego (2009)
Alta Planning + Design; March 1, 2010



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FIGURE 6-12:

Prioritization Input - Overlap with the Proposed Regional Network



Overlap with Regional Corridor

— Overlap with Regional Corridor
(3 points)



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Figure 6-13 displays the composite prioritization (the sum of points associated with each of the inputs) across the entire proposed bicycle network, while **Figure 6-14** displays the top 25% scoring segments which comprise the top priority projects.

40 Top Priority Bicycle Projects

Figures 6-15A, 6-15B and 6-15C display the 40 Top Priority Bicycle Projects that fell within the top twenty-five percentile of the priority rankings. **Table 6.3** summarizes the 40 Top Priority Bicycle Projects’ extents, proposed facility type(s), mileage, and estimated cost. Each of these 40 Top Priority Bicycle Projects are also displayed on an individual project sheet that includes a description of the project area and issues; a listing of the specific 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 40 Top Priority Bicycle Project Sheets.

Table 6.3: 40 Top Priority Bicycle Projects

| Rank | Roadway | From: | To: | Proposed Facility | Existing Facility | Segment Miles | Project Miles |
|------|--------------------|-------------------------------------|-------------------------------------|-------------------|-------------------|---------------|---------------|
| 1 | Park Boulevard | Village Place | B Street | Class II | | 1.16 | 1.16 |
| 2 | Upas Street | Park Boulevard | Florida Street | Class III | | 0.22 | 0.80 |
| | Park Boulevard | Upas Street | Village Place | Class II | | 0.58 | |
| 3 | C Street | India Street | 19th Street | Class II | | 1.25 | 1.25 |
| 4 | University Avenue | 1st Avenue | 5th Avenue | Class II | Class III | 0.20 | 1.36 |
| | 5th Avenue | University Avenue | Laurel Street | Class II | | 1.16 | |
| 5 | Bachman Place | Hotel Circle S. | 0.42 miles south of Hotel Circle S. | Class II | | 0.42 | 1.29 |
| | Bachman Place | 0.42 miles south of Hotel Circle S. | Lewis Street | Bicycle Boulevard | | 0.30 | |
| | Lewis Street | 1st Avenue | 3rd Avenue | Bicycle Boulevard | | 0.07 | |
| | 1st Avenue | Lewis Street | University Avenue | Bicycle Boulevard | | 0.25 | |
| | 3rd Avenue | Lewis Street | University Avenue | Bicycle Boulevard | | 0.25 | |
| 6 | Morena Boulevard | W. Morena Boulevard | Taylor Street | Class II | | 0.68 | 2.02 |
| | Napa Street (spur) | Morena Boulevard | Linda Vista Road | Class II | | 0.09 | |
| | Taylor Street | Pacific Highway | Morena Boulevard | Class II | Class III | 0.32 | |
| | Pacific Highway | Ocean Beach Bike Path | Sports Arena Boulevard | Cycle Track | Class II | 0.93 | |
| 7 | El Cajon Boulevard | Utah Street | 43rd Street | Class II | | 1.79 | 1.92 |
| | 43rd Street | Meade Avenue | El Cajon Boulevard | Class III | | 0.13 | |
| 8 | West Ash Street | North Harbor Drive | Kettner Boulevard | Class III | | 0.23 | 0.50 |
| | Ash Street | 3rd Avenue | 8th Avenue | Class III | | 0.27 | |
| 9 | A Street | India Street | 8th Avenue | Class III | | 0.63 | 0.63 |
| 10 | Washington Street | University Avenue | Normal Street | Class II | | 1.60 | 2.18 |
| | Normal Street | Washington Street | Park Boulevard | Class II | | 0.19 | |
| | Park Boulevard | El Cajon Boulevard | Madison Avenue | Class II | | 0.39 | |
| 11 | 54th Street | Montezuma Road | Collwood Boulevard | Class III | | 0.89 | 1.06 |
| | 54th Street | Collwood Boulevard | El Cajon Boulevard | Class II | Class III | 0.07 | |

Table 6.3: 40 Top Priority Bicycle Projects

| Rank | Roadway | From: | To: | Proposed Facility | Existing Facility | Segment Miles | Project Miles |
|------|------------------------|------------------------|--------------------------------|-------------------|-------------------|---------------|---------------|
| | Collwood Boulevard | Monroe Avenue | 54 th Street | Class II | Class III | 0.10 | |
| 12 | 5th Avenue | Laurel Street | Broadway | Class II | Class III | 1.08 | 1.77 |
| | 5th Avenue | Broadway | Harbor Drive | Class III | | 0.69 | |
| 13 | Villa La Jolla Drive | Gilman Drive (N) | Gilman Drive (S) | Class II | Class III | 0.98 | 0.98 |
| 14 | 4th Avenue | Washington Street | Upas Street | Class II | | 0.64 | 1.43 |
| | 4th Avenue | Upas Street | Juniper Street | Class III | | 0.79 | |
| 15 | Cedar Street | Pacific Highway | 8th Avenue | Class II | | 0.80 | 0.80 |
| 16 | University Avenue | Texas Street | Fairmount Avenue | Class II | | 2.25 | 3.15 |
| | 43rd Street | El Cajon Boulevard | University Avenue | Class II | | 0.38 | |
| | Fairmount Avenue | Meade Avenue | University Avenue | Class II | | 0.52 | |
| 17 | La Jolla Village Drive | Regents Road | 0.32 miles west of Nobel Drive | Class II | | 1.30 | 1.48 |
| | Judicial Drive | La Jolla Village Drive | Golden Haven Drive | Class II | | 0.18 | |
| 18 | Texas Street | Madison Avenue | University Avenue | Class II | | 0.86 | 2.00 |
| | University Avenue | Florida Street | Texas Street | Class II | | 0.64 | |
| | Florida Street | University Avenue | Upas Street | Class II | | 0.50 | |
| 19 | Mira Mesa Boulevard | Parkdale Avenue | Reagan Road | Class II | | 0.38 | 1.23 |
| | Mira Mesa Boulevard | Marbury Avenue | Interstate 15 | Class II | | 0.83 | |
| 20 | K Street | 3rd Avenue | 7th Avenue | Class II | | 0.21 | 0.43 |
| | K Street | 10th Avenue | 14th Street | Class II | | 0.22 | |
| 21 | G Street | Harbor Drive | State Street | Class III | | 0.39 | 1.83 |
| | 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 | Union Street | Interstate 5 | Bicycle Boulevard | | 1.05 | |
| 22 | Washington Street | India Street | 0.1 miles east of India Street | Class II | | 0.10 | 1.96 |
| | India Street | Washington Street | Olive Street | Class II | | 0.89 | |
| | India Street | Laurel Street | C Street | Class III | | 0.97 | |
| 23 | State Street | Laurel Street | G Street | Class III | | 1.30 | 1.30 |
| 24 | Bayshore Bikeway | Embarcadero Path | National City city limit | Class I | | 3.24 | 3.24 |
| 25 | Ruffin Road | Kearny Villa Road | Aero Drive | Class II | | 2.30 | 2.30 |
| 26 | El Cajon Boulevard | 43rd Street | Montezuma Road | Class II | | 2.99 | 2.99 |
| 27 | La Jolla Village Drive | Gilman Drive | Regents Road | Class II | | 1.25 | 1.25 |
| 28 | Sassafras Street | Pacific Highway | India Street | Class II | | 0.15 | 1.94 |
| | Pacific Highway | Sassafras Street | Harbor Drive | Cycle Track | Class III | 1.79 | |
| 29 | 8th Avenue | Date Street | J Street | Class II | | 0.94 | 0.94 |
| 30 | University Avenue | Fairmount Avenue | La Mesa city limit | Class II | | 3.16 | 3.16 |
| 31 | Mission Boulevard | Grand Avenue | Pacific Beach Drive | Class II | | 0.27 | 1.59 |
| | Mission Boulevard | Pacific Beach Drive | W. Mission Bay Drive | Bicycle Boulevard | | 1.32 | |

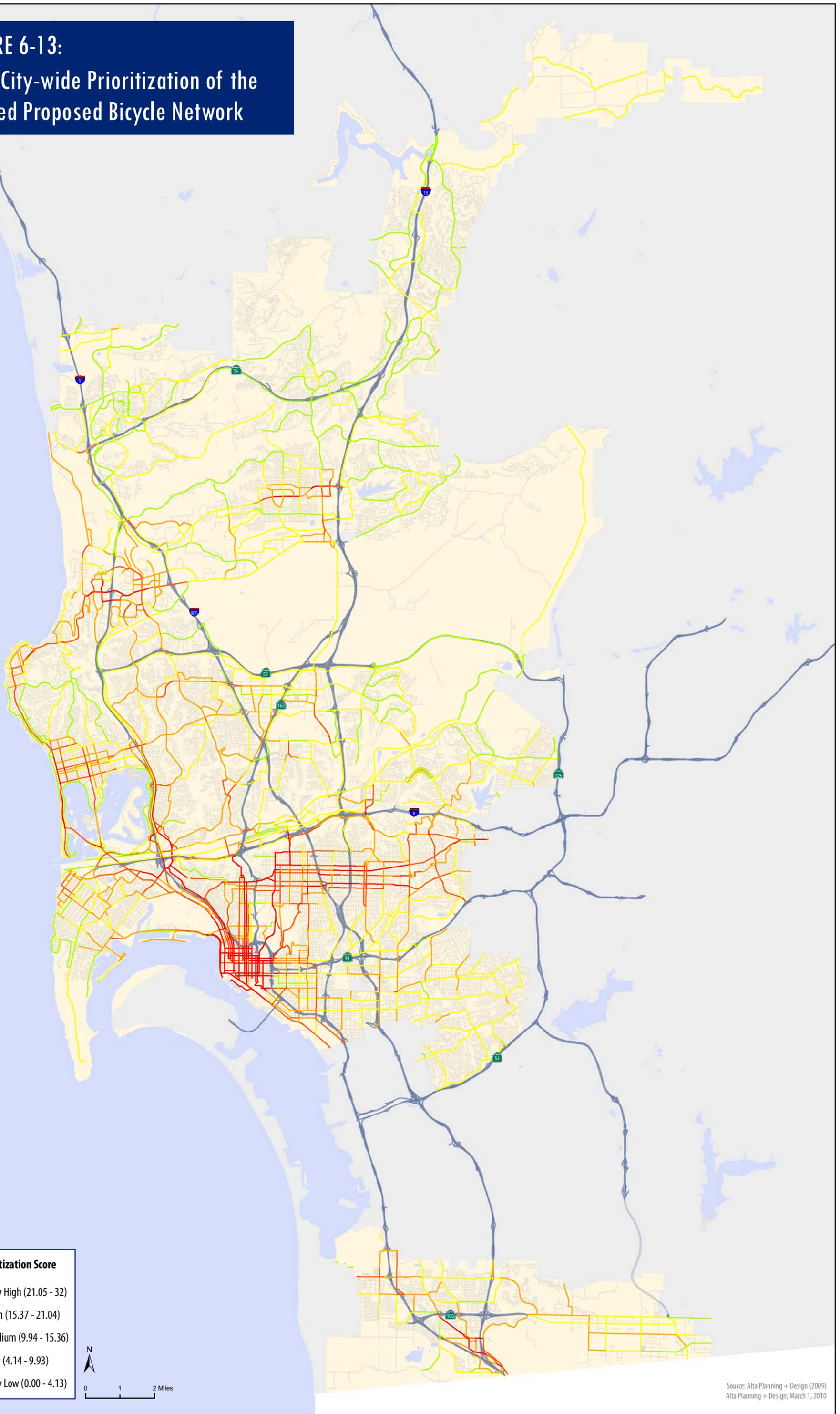
Table 6.3: 40 Top Priority Bicycle Projects

| Rank | Roadway | From: | To: | Proposed Facility | Existing Facility | Segment Miles | Project Miles |
|------|--------------------------------|--|---|-------------------|-------------------|---------------|---------------|
| 32 | Sports Arena Boulevard | Ocean Beach Bike Path | Rosecrans Street | Class II | | 1.24 | 3.12 |
| | Sports Arena Boulevard | Rosecrans Street | Pacific Highway | Class III | | 0.50 | |
| | Pacific Highway | Sports Arena Boulevard | Sassafras Street | Cycle Track | Class II | 1.38 | |
| 33 | La Jolla Boulevard | Turquoise Street | Mission Boulevard | Class II | Class III | 0.33 | 1.32 |
| | Mission Boulevard | Turquoise Street | Grand Avenue | Class II | Class III | 0.99 | |
| 34 | 6 th Avenue | Upas Street | C Street | Class II | Class III | 1.67 | 2.40 |
| | 6 th Avenue | C Street | Harbor Drive | Class III | | 0.73 | |
| 35 | Main Street | Cesar E. Chavez Parkway | 26 th Street | Class III | | 0.63 | 1.43 |
| | 26 th Street | Boston Avenue | Main Street | Class III | | 0.04 | |
| | Boston Avenue | 26 th Street | 29 th Street | Class III | | 0.38 | |
| | Boston Avenue | 29 th Street | 32 nd Street | Class I | | 0.38 | |
| 36 | Morena Boulevard | Gesner Street | W. Morena Boulevard | Class II | | 1.23 | 2.24 |
| | Morena Boulevard | W. Morena Boulevard | Tecolote Road | Class II | Class III | 0.28 | |
| | W. Morena Boulevard | Morena Boulevard | Linda Vista Road | Class II | | 0.73 | |
| 37 | 14 th Street | C Street | Market Street | Class III | | 0.36 | 1.53 |
| | 14 th Street | Market Street | Commercial Street | Class II | | 0.43 | |
| | National Avenue | Commercial Street | Cesar E. Chavez Parkway | Class III | | 0.52 | |
| | Cesar E. Chavez Parkway | National Avenue | Harbor Drive | Class II | | 0.22 | |
| 38 | San Diego River Bike Path | Western terminus of S. San Diego River Bike Path (near Camino de la Reina) | Hotel Circle Place | Class I | | 1.69 | 2.42 |
| | Fashion Valley Road | Friars Road | Hotel Circle N. | Class II | | 0.54 | |
| | Hotel Circle N. | Fashion Valley Road | Hotel Circle S. | Class II | | 0.16 | |
| | Hotel Circle S. | Hotel Circle N. | 0.03 miles south of Hotel Circle N. | Class II | | 0.03 | |
| 39 | W. San Ysidro Boulevard | Dairy Mart Road | Southern terminus of San Ysidro Boulevard | Class II | | 2.35 | 2.35 |
| 40 | Ingraham Street | Beryl Street | Pacific Beach Drive | Class II | | 0.88 | 2.69 |
| | Pacific Beach Drive | Ingraham Street | Eastern terminus of Pacific Beach Drive | Bicycle Boulevard | | 0.82 | |
| | Rose Creek Bike Bridge | Eastern terminus of Pacific Beach Drive | Western terminus of N. Mission Bay Drive | Class I | | 0.04 | |
| | Rose Creek Bike Path extension | Southern terminus of Rose Creek Bike Path | Western terminus of N. Mission Bay Drive | Class I | | 0.57 | |
| | Crowne Point Drive | Pacific Beach Drive | Lamont Street | Bicycle Boulevard | | 0.38 | |

Source: Alta Planning + Design, February 2010

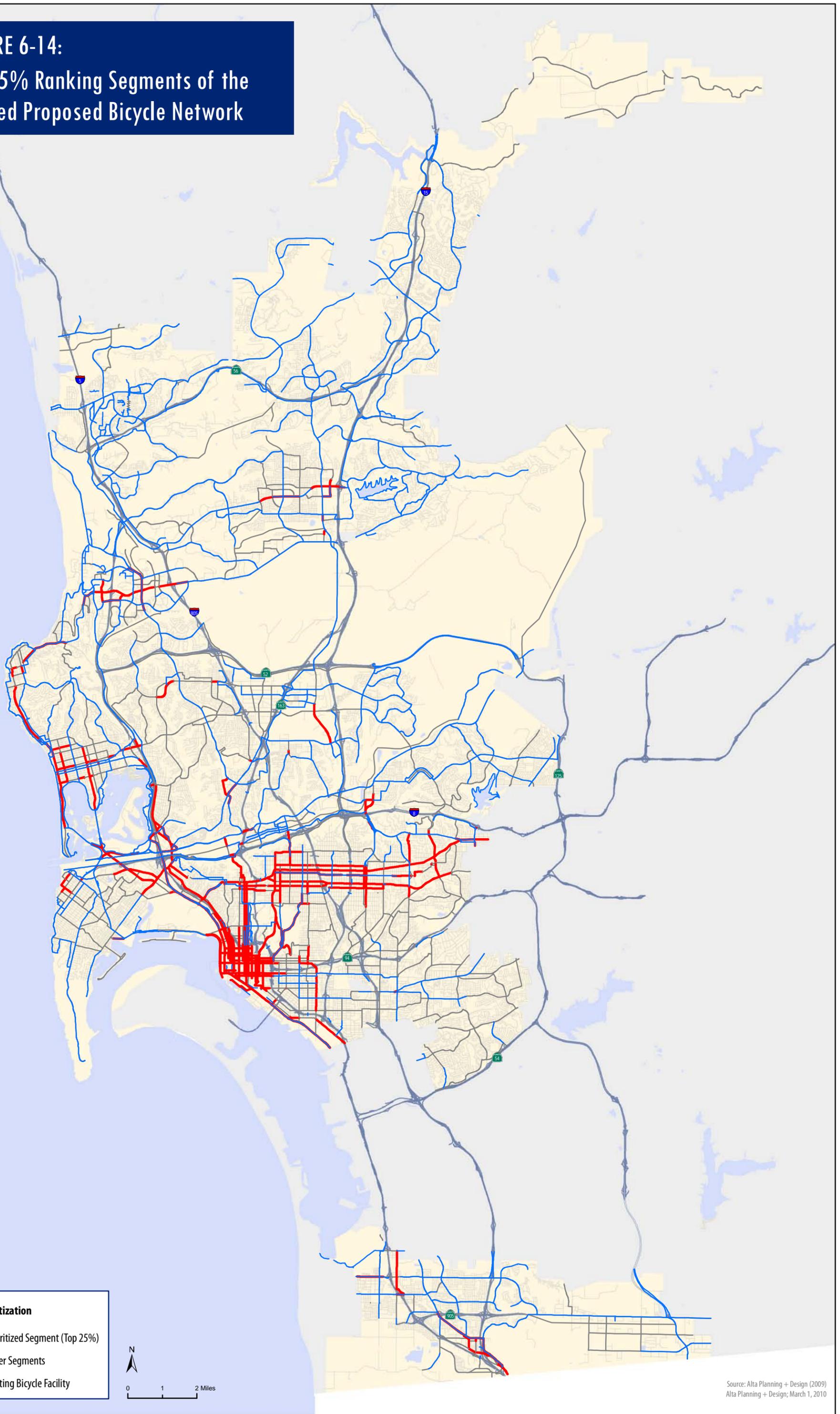
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FIGURE 6-13:
Final City-wide Prioritization of the Refined Proposed Bicycle Network

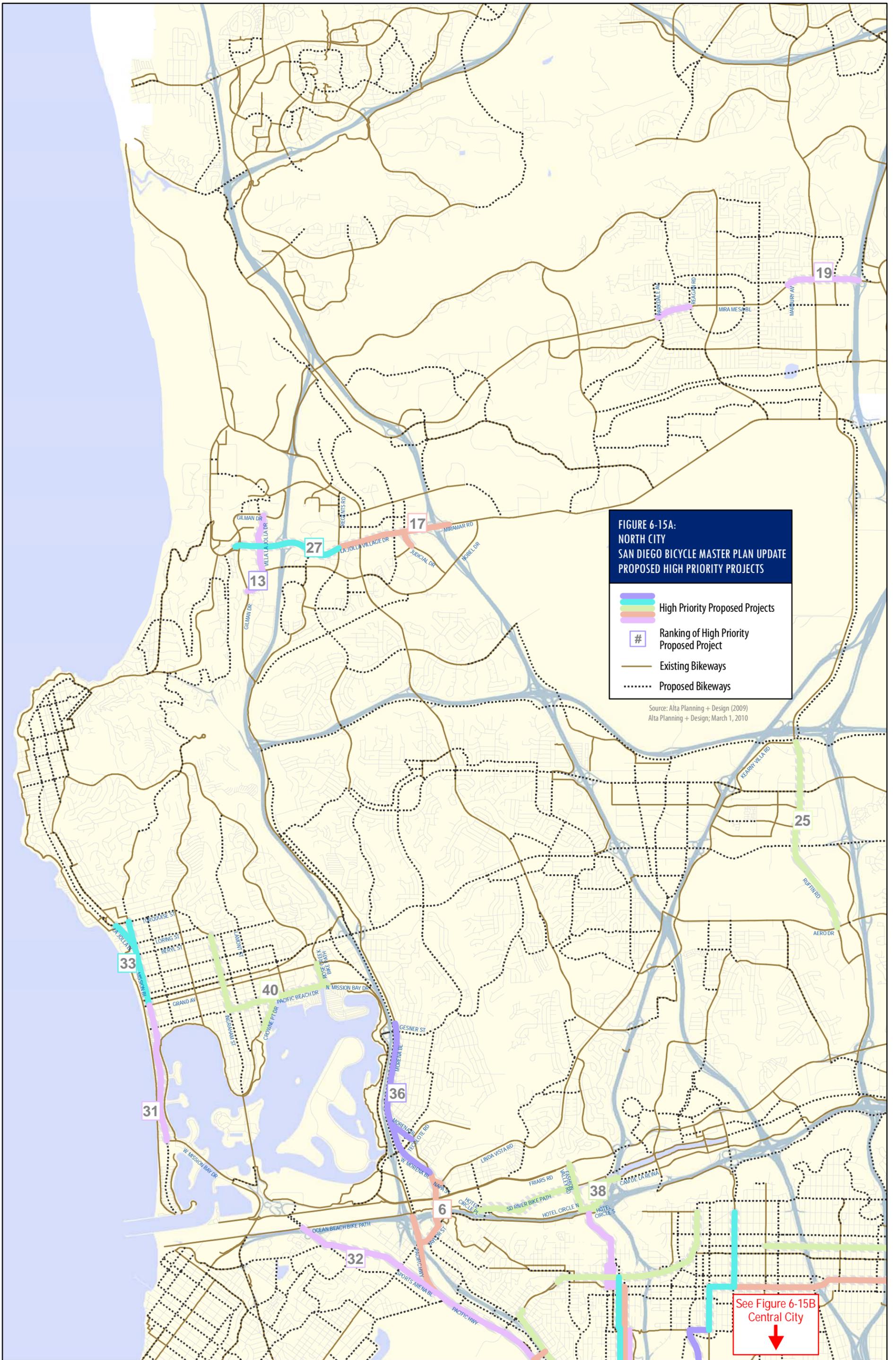


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FIGURE 6-14:
Top 25% Ranking Segments of the Refined Proposed Bicycle Network

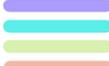


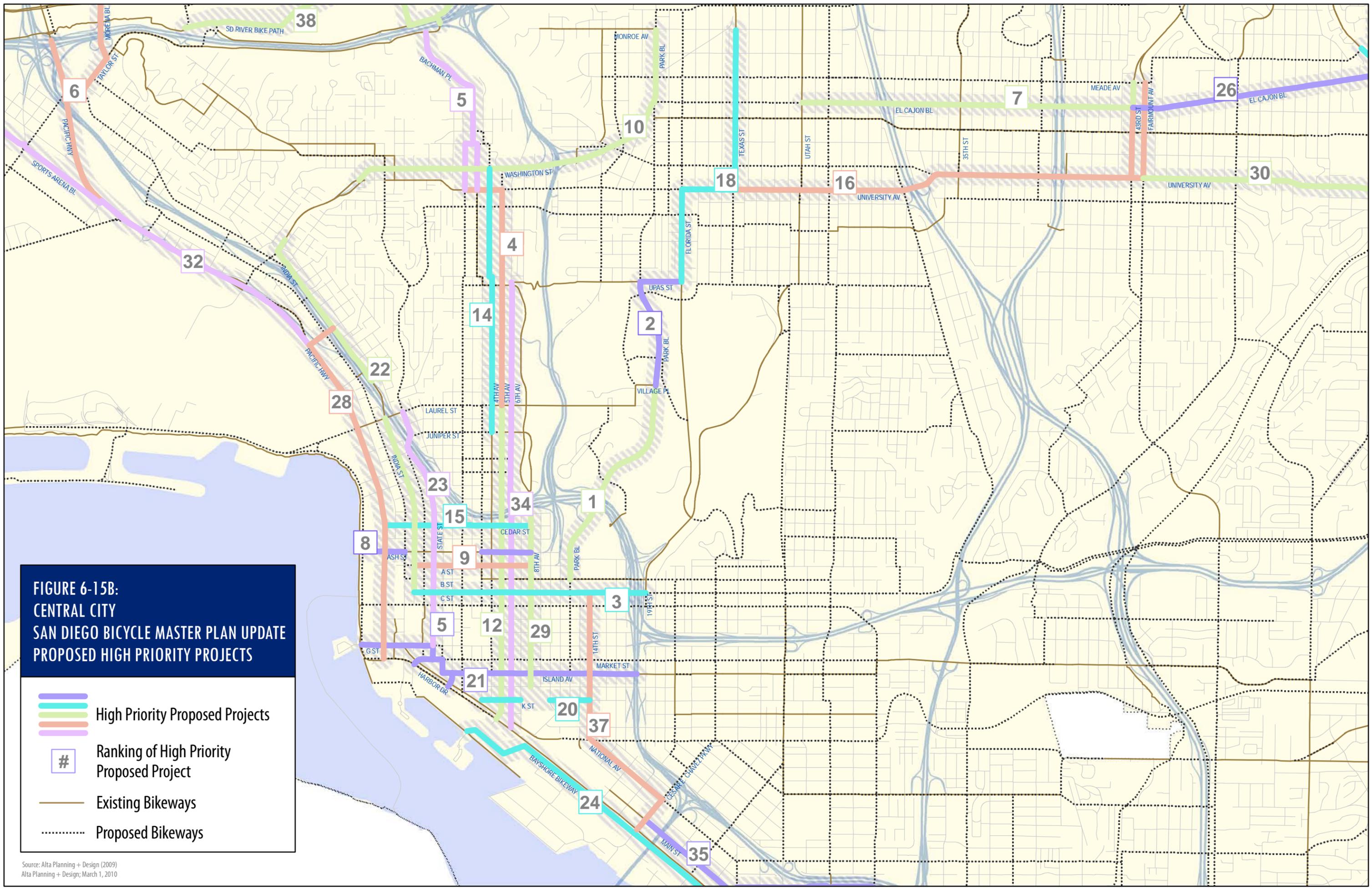
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FIGURE 6-15B:
CENTRAL CITY
SAN DIEGO BICYCLE MASTER PLAN UPDATE
PROPOSED HIGH PRIORITY PROJECTS

-  High Priority Proposed Projects
-  Ranking of High Priority Proposed Project
-  Existing Bikeways
-  Proposed Bikeways



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

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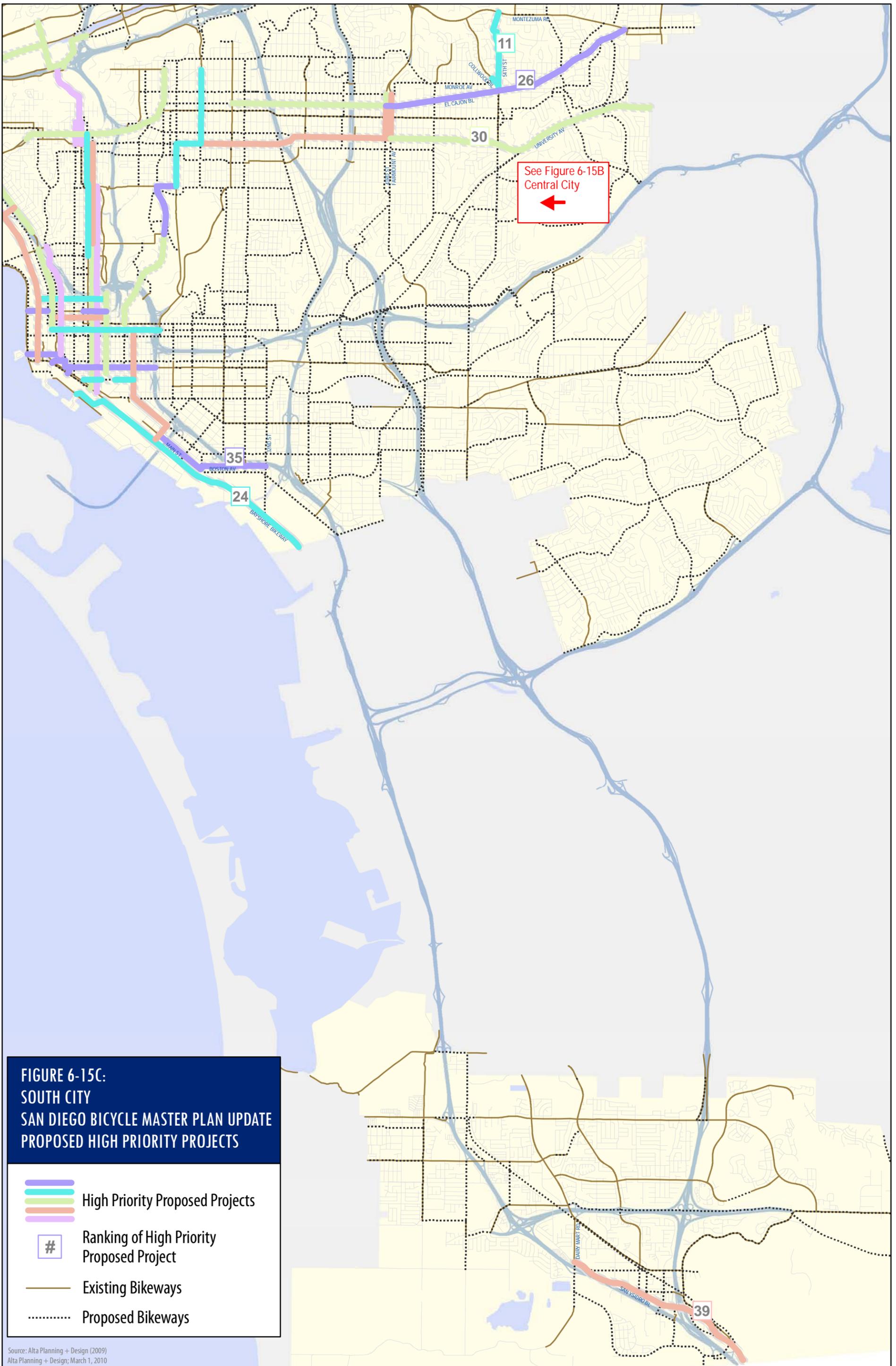
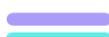
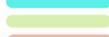


FIGURE 6-15C:
SOUTH CITY
SAN DIEGO BICYCLE MASTER PLAN UPDATE
PROPOSED HIGH PRIORITY PROJECTS

-      High Priority Proposed Projects
-  Ranking of High Priority Proposed Project
-  Existing Bikeways
-  Proposed Bikeways

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Proposed Bicycle Parking and Other Support Facilities

Support facilities are essential components of a bicycle system. Support facilities, such as bicycle parking racks, and showers and lockers for employees, further improve safety and convenience for bicyclists. Support facility recommendations presented in this chapter are divided into the following six categories: bicycle parking, end-of-trip amenities, maintenance, bicycle signal detection, signage and striping, and multimodal connections.

Bicycle Parking

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. Over the last several years, the City has installed bicycle racks by request on sidewalks throughout the city however there are still many locations where parking is either insufficient or lacking. 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.

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.

Continue to Expand the Availability of Short-Term Bicycle Parking

In addition to responding to citizens' requests for bicycle racks in the public right-of-way, the City should 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. Figures 3-4, 3-5 and 3-6 in Chapter 3 display key transit and activity centers where bike parking and end-of-trip amenities are expected to be present. The City should complete an inventory of bike parking currently underway, regularly update this inventory, continue securing funding to install bike parking, and develop a schedule to install bike parking in all locations identified in Figures 3-4, 3-5 and 3-6 that lack bike parking facilities.

The City should 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.

Bicycle parking requirements specified in the Municipal Code Sections 142.0525, 142.0530, and 142.0560 and any other applicable regulations are imposed upon all new development

projects. The City should continue to ensure compliance with these regulations through the development review process.

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.

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 OASIS

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

SANTA FE DEPOT 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 Chicago, and Seattle.



Bike Station in Long Beach, California

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.

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

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.

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 amenities 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 should 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.

Maintenance

Public workshop participants identified improved maintenance of San Diego's bikeways as a 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 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.

Develop a Maintenance Policy that Addresses the Special Needs of Bicyclists

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/street-div/sweepschedule.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 also 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 Class I bike paths should be achieved using standard City pick-up trucks on the pathway itself. Sections with narrow widths or other clearance restrictions should be 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 should be 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 6.4**.

Table 6.4: Bikeway Maintenance Check List and Schedule

| Item | Frequency |
|-------------------------------------|---------------------------|
| Sign Replacement/Repair | 1 - 3 years |
| Pavement Marking Replacement | 1 - 3 years |
| Tree, Shrub & grass trimming/fert. | 5 months - 1 year |
| Pavement sealing/potholes | 5 - 15 years ¹ |
| 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 |
| Remove snow and ice | Weekly/As needed |
| Maintain emergency telephones, CCTV | 1 year |
| Maintain irrigation lines | 1 year |
| Irrigate/water plants | Weekly-Monthly/As needed |

Source: Alta Planning + Design, February 2010

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 should be implemented during times of construction activities that affect bicycle travel on streets.

Detour and warning signage should be implemented, and efforts to maintain riding space for bicyclists should be made through construction zones.

When streets are resurfaced, the City's Street Division should 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 should be made to provide space for bicycle travel either as a Class II bike lane or a Class III bike route with a widened curb lane.

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

The City of San Diego should also consider 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 should 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 should be repaired within a timely manner. All repairs should be flush to the existing pavement surface.

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

Calibrate bicycle loop detectors. As part of general maintenance, the City should test and calibrate bicycle-sensitive loop detectors to ensure that they are working properly. Loop detectors are described in more detail below.

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.

Develop a Funding Source for the Bicycle Facility Maintenance Program

Bicycling is an integral part of San Diego's transportation network, and maintenance of the bikeway network should be 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.

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.

Continue to Install Bicycle Loop Detectors at Signalized Intersections

The City should continue to seek funding, install and mark the location of bicycle loop detectors at intersections, particularly during roadway construction.

Apply Pavement Stenciling Above Bicycle Loop Detector Stenciling Where Service Must be Actuated by Detection

Since most bicyclists do not know where to position themselves in order to trigger a loop detector, it is necessary to mark a pavement stencil that shows cyclists where to stop to activate the loop. The City is already stenciling bicycle loop detector pavement markings in conjunction with the 20 detection systems under construction. Stencils should be repainted when needed. As opportunities arise, loop detector stencils should be installed in coordination with striping maintenance or resurfacing projects.

Standard bicycle detection markings should be applied in the center of the appropriate lane for all bicycle loop locations to show cyclists the best place to wait (For inductive detection this implies that the loop must sense bicycles in its center). As part of the loop detector testing program, the City should ensure that the markings are placed in the proper location above the detector. The State standard bicycle detection marking appears on Caltrans Standard Plan A24C.

To increase understanding about how to use bicycle loop detectors, the City may want to include information about how to activate a bicycle loop detector in its bicycle educational materials.

Regularly Calibrate Bicycle Loop Detectors

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 should ensure that all bicycle loops are tested and are calibrated and operable as part of routine signal maintenance.



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

Signage and Striping

All bikeway signage on public roadways in San Diego should 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 signing for bicycle facilities in California.

Innovative signage can be developed for a number of reasons – as a standardized warning system, to assist with unique way-finding, 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.

“SHARE THE ROAD” Signage

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

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 should ensure that all bikeways are signed per the *2010 California MUTCD*.

Bicycle Boulevard Signage

All recommended bicycle boulevards should be equipped with bicycle boulevard identification, wayfinding, and warning signage. The City should develop distinctive signage that identifies bicycle boulevards as such and encourages their use by bicyclists. Destination signage should 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 should 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.

The City should also consider modifying its existing wayfinding system so that it is more consistent and distinctive. A citywide 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, should be developed to ensure that the signage is complete, coherent and does not result in sign clutter.

Multi-Modal Connections

Connecting bicycles to transit consists of three key elements: providing bicycle access to transit stops, providing bicycle parking facilities at transit stops and accommodating bicycles on trains and buses. The City of San Diego can affect 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 and bus transit stops.

Improve 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 should be provided in left-turn lanes as well as through lanes. If the actuation is provided by a bicycle loop detector, a stencil should be placed over the loop detector instructing cyclists where to wait. If the actuation is provided by a push button, it should 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 well-marked routes should be provided for cyclists and pedestrians through the station area to the platform, sidewalks, bikeways, ticketing area and bike parking.

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

When evaluating bicycle parking demand, agencies should 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;
- 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; and
- Advertising bicycle parking services in local bicycle publications.

Figure 3-6 in Chapter 3 displays transit hubs in San Diego. The City should 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.

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