City of Newport Beach Bicycle Master Plan

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CITY OF NEWPORT BEACH CALIFORNIA

City of Newport Beach Bicycle Master Plan

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1 Introduction

The Newport Beach Bicycle Master Plan is intended to guide the development and maintenance of a comprehensive bicycle network and set of programs within the City for the next 20 years. This chapter presents the reason for creating the Newport Beach Bicycle Master Plan, how the community has been involved in the planning process, and the framework for the ensuing chapters.

1.1 Purpose of the Bicycle Master Plan

The Newport Beach Bicycle Master Plan provides a broad vision, as well as strategies and actions, to improve conditions for bicycling throughout the City. As a means of bettering the bicycling environment, This Plan provides direction for expanding the existing bikeway network, connecting gaps within the City, and connecting to adjacent cities. In addition to providing recommendations for bikeways and support facilities, The Plan offers recommendations for education, encouragement, enforcement, and evaluation programs.

1.2 Benefits of Bicycling

Bicycling is a low-cost and healthy transportation option that provides economic and livability benefits to communities. When residents and visitors bicycle for a trip, it alleviates congestion, minimizes greenhouse gas emissions, and helps extend and improve the quality of people's lives. Below is a brief overview of the benefits of greater investments in bicycling.

1.2.1 Environmental Benefits

Due to emissions from "cold starts" (i.e., when a car has not been driven in a few hours and the engine is cool), a one-mile automobile trip emits up to 70 percent as much pollution as a 10-mile excursion. This means that when people decide to bicycle or walk even just for very short trips, they are still significantly reducing their environmental footprint[1]. Decreasing greenhouse gas emissions helps the region meet state legislated targets set by Assembly Bill 32 and Senate Bill 375. From reducing local levels of harmful pollutants that cause asthma and other respiratory illnesses to addressing global climate change, higher rates of bicycling provide tangible, significant air quality benefits.

Bicycling also does not pollute water as driving an automobile does. Cars leak oil, petroleum products and other toxins onto road surfaces that eventually make their way to storm drains, creeks, and large bodies of water. This "non-point source" pollution is a major threat to urban aquatic habits, contaminates drinking water, and can cause major illness. Some toxins and metals accumulate in sea life and cause medical problems to people when eaten. Others cause explosive growth of algae, which depletes water of oxygen, killing fish and aquatic life[2]. Every bicycle trip is one less opportunity for these toxins to enter the environment, which on a large scale can make the difference in the health of local water ways and aquatic systems.

1.2.2 Economic Benefits to Cities

Multiple studies have shown that bikeable neighborhoods are more livable and attractive, helping increase home values[3] and retain a more talented workforce that result in higher property tax revenues and business competitiveness. Similarly, bike lanes can improve retail business directly by drawing customers and indirectly by supporting the regional economy. Patrons who bike to local stores have been found to spend more money when visiting local businesses than patrons who drive[4].

The League of American Bicyclists reports that bicycling makes up $133 billion of the US economy, funding 1.1 million jobs[5]. The League also estimates bicycle-related trips generate another $47 billion in tourism activity. Many communities have enjoyed a high return on their investment in bicycling. For example, the Outer Banks of North Carolina spent $6.7 million to improve local bicycle facilities, and reaped a reported benefit of $60 million of annual economic activity associated with bicycling.

1.2.3 Benefits to Households and Individuals

Biking is not just a form of travel; it is an important form of exercise. Many public health experts associate the rising and widespread incidence of obesity with automobile-dominant development patterns and lifestyles that limit such daily forms of physical activity[6]. This association is perhaps most apparent, and acute, with respect to children and school travel. After decades of declining rates of walking and biking – from roughly half of all non-high school students in 1968 to just 14 percent in 2009 – obesity

[1] *Bay Area Air Quality Management District. (2007). Source Inventory of Greenhouse Gas Emissions.*
[2] *City and County of Honolulu Department of Environmental Services*
[3] *Cortright, Joe for CEOs for Cities. (2009). Walking the Walk: How Walkability Raises Home Values in US Cities*
[4] *The Clean Air Partnership. (2009). Bike Lanes, On-Street Parking and Business: A Study of Bloor Street in Toronto's Annex Neighborhood.*
[5] *Flusche, Darren for the League of American Bicyclists. (2009). The Economic Benefits of Bicycle Infrastructure Investments.*
[6] *October 27, 1999 issue of the JAMA*

among youth has become an epidemic[7]. In California, one in three kids age 9-17 are now at risk of becoming or are already overweight[8].

For children, the Center for Disease Control and Prevention recommends 60 minutes of daily aerobic exercise. The CDC recommends 75 to 150 minutes of vigorous exercise, in combination with muscle strengthening exercises, for adults on a weekly basis. For many adults and children, walking or biking to work or school is a viable – if not the only – option for achieving these recommended exercise regimens.

Bicycle infrastructure also provides transportation choices to those who cannot or do not drive, including people with disabilities, youth, seniors, and people with limited incomes. Families that can replace some of their driving trips with bicycling trips spend a lower proportion of their income on transportation[9], freeing additional income for local goods and services. For others who do not live within walking distance of their employment site, or who work a distance from transit routes, bicycling may provide the only affordable and reliable means of commuting.

1.3 Plan Organization

The Newport Beach Bicycle Master Plan is organized into the following chapters:

- Chapter 2: Vision, Goals, Objectives, and Policy Actions summarizes existing regional plans and policies that relate to the bicycle planning efforts in the City.
- Chapter 3: Existing Conditions presents the existing bicycling facilities and programs within the City. Additionally, past expenditures and planned improvements are identified.
- Chapter 4: Needs Analysis presents the types of cyclists discussion, review of public participation, forecasts the benefits of increased bicycle activity within the community, reviews current bicycling activity, and incident history. Collectively these items provide the basis for recommendations identified this Plan.
- Chapter 5: Recommended Bicycle Facilities & Programs identifies the bikeway network recommendations, and proposed education, encouragement, evaluation, and enforcement programs.
- Chapter 6: Implementation & Funding presents implementation strategies and funding recommendations included in this Plan.

Image 1 - *Residents riding near Castaways Park*

[7] *United States Department of Transportation, National Household Travel Survey*

[8] *The California Endowment. (No Date). Fighting California's Childhood Obesity Epidemic. (http://www.calendow.org/article.aspx?id=348)*

[9] *Center for Neighborhood Technology. (2005). Driven to Spend: Pumping Dollars out of Our Households and Communities.*

2 Vision, Goals, Objectives, and Policy Actions

2.1 Vision

The City of Newport Beach has prepared a comprehensive, citywide Bicycle Master Plan that combines the necessary elements for the City to plan, design, and construct cycling improvements; create a comprehensive bicycle network; and to develop sustainable bicycle-friendly policies, education, and outreach.

2.2 Goals, Objectives, and Policy Actions

This section outlines the goals, objectives, and policy actions that support the vision of the Plan and serves to guide the development of the bicycle network.

In order to conduct a thorough and accurate planning process, it is important to establish a set of goals, objectives, and policies that will serve as the basis for the recommendations in this Plan. Goals, objectives, and policies guide the way public improvements are made, where resources are allocated, how programs are operated, and City priorities are determined. The goals, objectives, and policies in this Plan are derived from information gathered over the course of the planning process, including community input from public workshops, as well as a review of bicycle master plans from other cities.

Goals *are broad statements that express general public priorities. Goals are formulated based on the identification of key issues, opportunities, and problems that affect the bikeway system.*

Objectives *are more specific than goals and are usually attainable through strategic planning and implementation activities. Implementation of an objective contributes to the fulfillment of a goal.*

Policies *are rules and courses of action used to ensure plan implementation. Policies often accomplish a number of objectives.*

Table 2-1 outlines the goals, objectives, and policy actions of the Newport Beach Bicycle Master Plan.

Table 2-1 *Goals, Objectives, and Policy Actions*

Goal 1.0: A Bicycle Friendly Newport Beach	
Create a bicycle-friendly environment throughout Newport Beach for all types of bicycle riders and all trip purposes in accordance with the 5 E's (Education, Encouragement, Enforcement, Engineering, and Evaluation).	
Objective 1.1	Expand the existing bicycle network to provide a comprehensive, network of Class I, Class II, and Class III facilities that increases connectivity between homes, jobs, public transit, and recreational resources in the Newport Beach.
Policies	1.1.1. Develop an extensive bicycle facility network through the use of standard and appropriate innovative treatments. 1.1.2. Plan and install new bicycle lanes on major arterials with sufficient width. 1.1.3. Plan and install new bicycle paths in utility corridors, and extend existing bicycle paths. 1.1.4. Where feasible, Class I shared-use paths should be a consideration of future developments. 1.1.5. Plan and install shared lane markings ("sharrows") and signage on appropriate bicycle routes where bicycle lane implementation is demonstrated to be infeasible. 1.1.6. Plan and install bicycle facilities adjacent to schools. 1.1.7. Promote the preservation of bicycle access within all roadway rights-of-way, as well as the development of innovative, safety-enhanced on-street facilities, such as bicycle boulevards. 1.1.8. Encourage reallocation of roadway rights-of-way where appropriate to accommodate bicycling and bicycle facilities. 1.1.9. Ensure that all facilities are designed consistently in accordance with the latest Federal, State, and local standards. 1.1.10. Provide amenities and enhancements along City bicycle facilities that increase utility and enjoyment for the individual rider. 1.1.11. Support bicycle improvement projects that close gaps in the regional bicycle network either by implementing specific projects recommended in the Plan or through other treatments.

Table 2-1 *Goals, Objectives, and Policy Actions (continued)*

	1.1.12. Encourage bicycle projects that connect local facilities to the bicycle corridors. 1.1.13. Work cooperatively with adjoining jurisdictions to coordinate bicycle planning and implementation activities. 1.1.14. Promote consistent signage that directs bicyclists to neighborhood destinations and increases the visibility of the regional bicycle network. 1.1.15. Pursue diverse sources of funding and support efforts to maintain or increase federal, state and local funding for the implementation of Bicycle Master Plan programs and infrastructures. 1.1.16. Ensure that detours through or around construction zones are designed safely and conveniently, and are accompanied with adequate signage for cyclists and motorists. 1.1.17. Coordinate and communicate with affected jurisdictions and agencies regarding bicycle facilities planning and implementation, including Caltrans facilities located in the City.
Objective 1.2	Support bicycle-transit integration to improve access to major employment and other activity centers and to encourage multimodal travel for longer trip distances.
Policies	1.2.1. Coordinate with transit providers to ensure bicycles can be accommodated on all forms of transit vehicles and that adequate space is devoted to their storage on board whenever possible. 1.2.2. Coordinate with transit agencies to install and maintain convenient and secure short-term and long-term bike parking facilities – racks, on-demand bike lockers, in-station bike storage, and staffed bicycle parking facilities – at transit stops, stations, and terminals. 1.2.3. Encourage the installation of regional on-demand bike lockers that are accessible using a fare payment card that allows users to access a variety of transit modes administered by multiple agencies. 1.2.4. Encourage bicycle-friendly development activity and support facilities, such as bicycle rental and repair, around transit stations. 1.2.5. Provide current and relevant information to bicyclists regarding bike parking opportunities located at transit stations through a variety of formats, such on City websites and regional bike maps. 1.2.6. Provide guidelines regarding bicycle accessibility on transit and widely distribute and publicize these guidelines. 1.2.7. Work with transit operators to develop, implement, maintain, expand, and enforce improved intermodal bicycle access. 1.2.8. Work with transit to Allow cyclists with disabled bicycles (due to mechanical failure or incident) to bring them on transit vehicles, interior space permitting and at the vehicle operator's discretion, when the vehicle either does not have bicycle racks or have racks that are full.
Objective 1.3	Encourage the use of bicycles for everyday transportation by ensuring the provision of convenient and secure bicycle parking and support facilities region-wide and promote facilities to the public.
Policies	1.3.1. Install and support short-term, long-term, and high capacity bicycle parking within the public right-of-way and on public property, especially in high demand locations, such as near commercial centers. 1.3.2. Encourage the installation of additional bicycle parking at public schools and colleges. 1.3.3. Encourage property owners to install bicycle parking facilities on private property. 1.3.4. Consider a citywide policy to allow private business/property owners to provide bicycle parking in lieu of an automobile parking space in a private off-street surface parking lot. 1.3.5. Provide bicycle parking that is sheltered from inclement weather, where feasible.

Table 2-1 *Goals, Objectives, and Policy Actions (continued)*

	1.3.6. Prepare recommended bicycle parking standards that provide context sensitive solutions for the location and number of spaces that should be provided. 1.3.7. Develop additional guidelines for placement and design of bicycle parking within City rights-of-way. 1.3.8. Adopt bicycle parking ordinances or modify existing sections of the municipal code to encourage bicycle-parking in each individual building of large, multiple-building developments. 1.3.9. Create policies or programs that incentivize building owners and employers to provide showers and clothing lockers along with secure bike parking in areas where employment density warrants. 1.3.10. Provide current and relevant information to cyclists regarding bike parking opportunities throughout the City through a variety of formats. 1.3.11. Consider the installation of bike stations and attended bicycle parking facilities at major events and destinations. 1.3.12. Consider a bike sharing program with distribution stations located in major employment and other activity centers throughout the region.
Goal 2.0: A Safe Bicycling Environment	
Create a safe bicycling environment in Newport Beach through comprehensive education of cyclists, pedestrians, motorists, and professionals whose work impacts the roadway environment, enforcement of traffic laws to reduce bicycle related conflicts, and maintenance of bicycle facilities.	
Objective 2.1	Increase education of bicycle safety through programs and trainings of the general public and City employees.
Policies	2.1.1. Create, fund, and implement bicycle-safety curricula and provide to the general public and targeted populations, including tourists, and diverse age, income, and ethnic groups. 2.1.2. Provide bicycle-safety information in languages that are widely used in Newport Beach, including Spanish. 2.1.3. Partner with neighboring jurisdictions and other agents to distribute bicycle-safety education materials. 2.1.4. Encourage schools to develop and provide bicycle-safety curricula for use in elementary, middle, and high schools. 2.1.5. Support programs that educate professional and non-professional motorists, bicyclists, and the general public about bicycle operation, bicyclists' rights and responsibilities, and lawful interactions between motorists and cyclists. 2.1.6. Support marketing and public awareness campaigns aimed at improving safety. 2.1.7. Provide a user education program developed and promoted to encourage proper trail use and etiquette.
Objective 2.2	Continue enforcement activities that enhance safety of bicyclists on bike paths and roadways.
Policies	2.2.1. Continue enforcement of unsafe bicyclist and motorist behaviors and laws that reduce bicyclist/pedestrian/motorist incidents and conflicts. 2.2.2. Continue enforcement on shared-use and bicycle paths. 2.2.3. Continue bicycle-mounted patrol officers. 2.2.4. Promote efficient mechanisms for reporting behaviors that endanger cyclists. 2.2.5. Continue bicycle theft investigations and encourage more residents to voluntarily register their bikes

Table 2-1 *Goals, Objectives, and Policy Actions (continued)*

Objective 2.3	Maintain bicycle facilities that are clear of debris and provide safe riding conditions.
Policies	2.3.1. Establish routine maintenance schedule and standards for bicycle facilities for sweeping, litter removal, landscaping, repainting of striping, signage, and signal actuation devices.
	2.3.2. Plan for cyclist safety during construction and maintenance activities.
	2.3.3. Encourage and empower citizens to report maintenance issues that impact bicyclist safety.
	2.3.4. Establish a routine maintenance program which responds to both citizen and City employee reports.
Goal 3.0: A Culture of Bicycling	
Develop a region-wide infrastructure and institutional culture that respects and accommodates all users of the road, leading to a more balanced transportation system.	
Objective 3.1	Integrate consideration of bicycle travel into all roadway planning, design, and construction.
Policies	3.1.1. Incorporate the Newport Beach Bicycle Master Plan in whole or by reference into the City's General Plan and amend sections of the General Plan that are relevant to bicycling according to the goals of this Plan.
	3.1.2. Ensure that all current and proposed Area Plans' objectives and policies are consistent with the goals of the Newport Beach Bicycle Master Plan.
	3.1.3. Support the incorporation of bicycle facilities into other capital improvement projects, where appropriate, to ensure maximum leveraging of funds from outside sources.
	3.1.4. Improve the safety of all road users through the implementation of neighborhood traffic calming treatments region-wide.
Objective 3.2	Foster community support for bicycling by raising public awareness about bicycling and supporting programs that encourage more people to bicycle.
Policies	3.2.1. Support marketing and public awareness campaigns through a variety of media aimed at promoting bicycling as a safe, healthy, cost-effective, environmentally beneficial, enjoyable transportation choice.
	3.2.2. Support programs aimed at increasing bicycle trips by providing incentives, recognition, or services that make bicycling a more convenient transportation mode.
	3.2.3. Promote bicycling at City-sponsored and public events, such as Earth Day, Bike to Work Day/Month, farmer's markets, public health fairs, art walks, craft fairs, civic events.
	3.2.4. Apply for the designation of "Bicycle Friendly Community" through the League of American Bicyclists.
	3.2.5. Expand bicycle promotion and incentive programs for City employees to serve as a model program for other Newport Beach employers.
	3.2.6. Encourage and promote bicycle related businesses within Newport Beach.
Objective 3.3	Continuously monitor and evaluate Newport Beach's implementation progress of Bicycle Master Plan policies, programs, and projects.
Policies	3.3.1. Establish a monitoring program or database to measure the effectiveness and benefits of the Newport Beach Bicycle Master Plan.
	3.3.2. Track citywide trends in bicycle commuting through the use of Census data, travel surveys, and bicycle counts.
	3.3.3. Establish a staff mobility coordinator position to implement the plan.
	3.3.4. Ensure that Bicycle Master Plan programs and projects are implemented in an equitable manner, geographically and socioeconomically.
	3.3.5. Regularly monitor bicycle safety and seek a continuous reduction in bicycle-related incidents.

2.3 Existing Plans and Policies

This chapter presents existing plans and policies relevant to the Newport Beach Bicycle Master Plan. It is organized by City of Newport Beach, County of Orange, and other plans and policies.

2.3.1 City of Newport Beach

General Plan (2006)

The 2006 Newport Beach General Plan is the first comprehensive revision of the City's General Plan in more than thirty years. The General Plan is meant to guide the City toward achieving what the community wants Newport Beach to be now and in 2025. There are four Elements in the General Plan that provide guidance on bicycle planning in the City. These include the Circulation, Recreation, Natural Resources, and Land Use Elements.

Circulation Element

The Circulation Element states that it aims to be an Element that is friendly to pedestrians and bicycles. The Element includes the City's existing Bikeways Master Plan, which consists of a map of existing and proposed bicycle facilities, as shown in **Figure 2-1**, and the following definitions of Bicycle Trails:

- **Bicycle Lane:** A lane in the street, either the parking lane or a separate lane, designated for the exclusive or semi-exclusive use of bicycles. Through travel by motor vehicles or pedestrians is not allowed, vehicle parking may or may not be allowed. Cross flow by motorists to gain access to driveways and parking facilities is allowed. Separation from the motor vehicle travel way is normally by a painted solid stripe. Bicycle lanes and bicycle routes together are also known as Class III bicycle trails.
- **Bicycle Route:** A shared right-of-way for bicycle operation, whether or not it is specified by signs or markings. All main streets and highways by authority of the California Vehicle Code include bicycle routes as defined herein. Bicycle lanes and bicycle routes together are also known as Class 3 bicycle trails.
- **Bicycle Trail:** A pathway designated for the use of bicycles which is physically separated from motor vehicle traffic. Pedestrian traffic may or may not be excluded. Bicycle trails are also known as Class 1 bicycle trails.
- **Backbone Bikeway:** Backbone bikeways are major through bikeways, as shown on the Master Plan of Bikeways. They are primarily on major roads. Backbone bikeways may connect to regional trails, as shown in the Master Plan.
- **Secondary Bikeway:** Secondary bikeways connect to backbone trails and serve cyclists and children riding to and from school. Secondary bikeways may also be a bicycle lane, route, or trail.

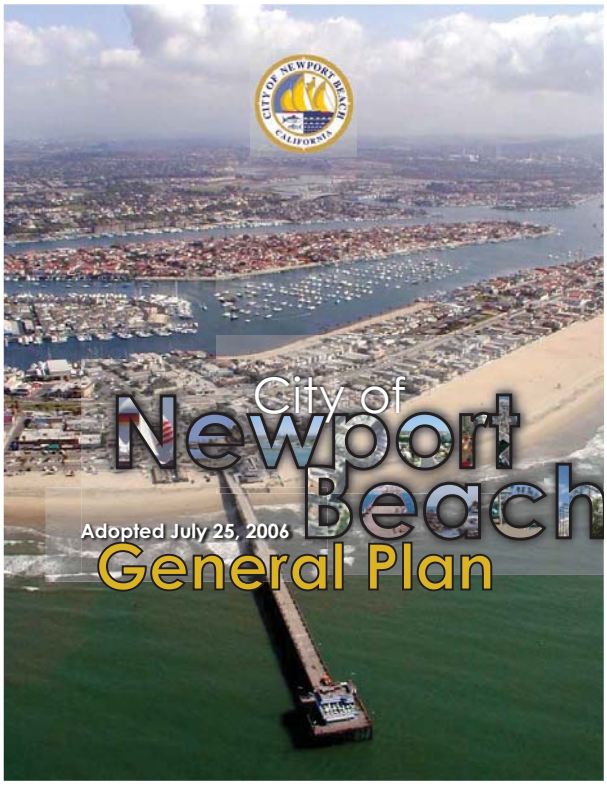


***Image 2** - Newport Beach General Plan, Adopted July 25, 2006*

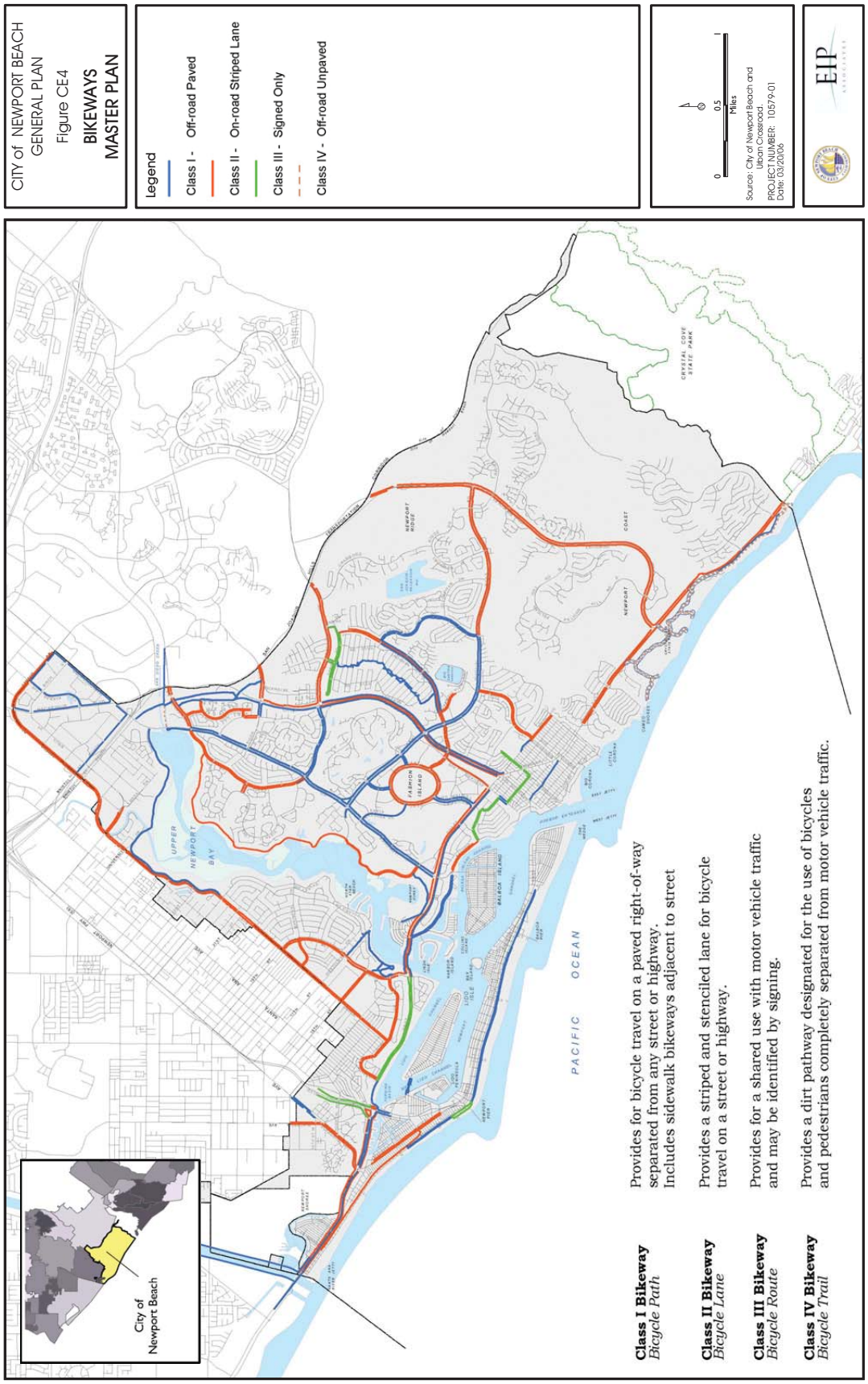


***Figure 2-1** Newport Beach Bikeways Master Plan*

The Bikeways Master Plan map identifies four of the six types of bikeways existing in Newport Beach: Bicycle paths (Class I Bikeways), bicycle lanes (Class II Bikeways), bicycle routes (Class III Bikeways), and bicycle trails (Class IV Bikeways). Class I, II, and III Bikeways are Caltrans definitions to describe the varying levels of separation of bicycle facilities from motor vehicles. Class IV is not a Caltrans term; the City uses it to describe separated unpaved trails designated for the use of bicyclists and pedestrians.

In addition to the types of facilities listed above, the City has designated off road facilities in the form of sidewalk bikeways, which provide improved bike safety for recreational riders and children within high use corridors in the vicinity of schools, beaches, and residential neighborhoods.

The Circulation Element includes a discussion of the types of bicyclists using the aforementioned facilities. It states:

> *The needs of bicyclists will vary with the function of the trip and the speed and skill level of the rider. Those residents who use bicycles daily for their primary means of transportation are concerned with utilizing the most convenient and direct route available to reach their destination. These bicyclists normally will select a route along a primary or a major highway. In contrast, the recreational rider might choose a route for its scenic interest such as a ride on a bike trail separated from vehicular traffic. Thus, it is necessary to provide bicycle facilities for bicyclists along major transportation corridors as well as residential and scenic areas. It is also necessary to provide bicycle facilities which separate faster cyclists from pedestrian travel and slower cyclists, integrating bicycle travel more closely with vehicular traffic, and bicycle facilities which separate slower cyclists from motor vehicle traffic.*

Table 2-2 displays policies in the Circulation Element that relate to bicycling in Newport Beach.

Image 3 - *Public enjoyment of Upper Newport Harbor*

Image 4 - *Upper Newport Harbor trailhead at Constellation Drive*

Table 2-2 *Bicycle-Related Policies in the Circulation Element*

Policy	Text
CE 5.1.3 Pedestrian Improvements in New Development Projects	Require new development projects to include safe and attractive sidewalks, walkways, and bike lanes in accordance with the Master Plan, and, if feasible, trails.
CE 5.1.5 Bikeway System	Cooperate with state, federal, county, and local agencies to coordinate bikeways and trails throughout the region.
CE 5.1.6 Bicycle Supporting Facilities	Incorporate bicycle and pedestrian facilities in the design plans for new streets and highways and, where feasible, in the plans for improving existing roads.
CE 5.1.7 Bicycle Safety	Provide for safety of bicyclists, equestrians, and pedestrians by adhering to current national standards and uniform practices.
CE 5.1.8 Bicycle Conflicts with Vehicles and Pedestrians	Minimize conflict points among motorized traffic, pedestrians, and bicycle traffic.
CE 5.1.9 Integrated Bicycle Improvements	Coordinate community bicycle and pedestrian facilities in a citywide network for continuity of travel.
CE 5.1.10 Bicycle Trail Signage	Develop and implement a uniform signing program to assist the public in locating, recognizing, and utilizing public bikeways and trails.
CE 5.1.11 School Access	Work with schools to promote walking, biking, safe drop-off, and other improvements.
CE 5.1.14 Newport Harbor Trails and Walkways	Develop and implement a long-range plan for public trails and walkways to access all appropriate commercial areas of the harbor, as determined to be physically and economically feasible.
CE 5.1.16 Bicycle and Pedestrian Safety	Provide for the safety of bicyclists and pedestrians through provision of adequate facilities, including maintenance of extra sidewalk width where feasible.
CE 6.2.1 Alternative Transportation Modes	Promote and encourage the use of alternative transportation modes, such as ridesharing, carpools, vanpools, public transit, bicycles, and walking; and provide facilities that support such alternate modes.
CE6.2.2 Support Facilities for Alternative Modes	Require new development projects to provide facilities commensurate with development type and intensity to support alternative modes, such as preferential parking for carpools, bicycle lockers, showers, commuter information areas, rideshare vehicle loading areas, water transportation docks, and bus stop improvements.

Recreation Element

The Recreation Element highlights that bikeways are available in Newport Beach for recreation in addition to transportation. For example, bicyclists use the unpaved trails at Crystal Cove State Park. **Table 2-3** identifies policies in the Recreation Element that relate to trails, which can accommodate bicyclists and thus are relevant to this Bicycle Master Plan.

Table 2-3 *Bicycle-Related Policies in the Recreation Element*

Policy	Text
R1.4 Density Bonuses	Consider development of incentives such as density bonuses for private commercial, office, and other developments to provide usable open space such as rooftop courts, pocket parks, public plazas, jogging trails, and pedestrian trails.
R 3.3 Facility Design	Design guardrails on parks, piers, trails, and public viewing areas to take into consideration the views at the eye level of persons in wheelchairs.
R9.1 Provision of Public Coastal Access	Provide adequate public access to the shoreline, beach, coastal parks, trails, and bay, acquiring additional public access points to these areas and provide parking, where possible.

Natural Resources Element

The primary objective of the Natural Resources Element is to provide direction regarding the conservation, development, and utilization of natural resources. Because bicycle infrastructure can reduce the need for paved roadway space, bicycling is included in this Element as a means of preserving natural resources. **Table 2-4** identifies policies that reference bicycling in the Natural Resources Element.

Table 2-4 *Bicycle-Related Policies in the Natural Resources Element*

Policy	Text
NR 6.4 Transportation Demand Management Ordinance	Implement the Transportation Demand Management (TDM) Ordinance, which promotes and encourages the use of alternative transportation modes, and provides those facilities such as bicycle lanes that support such alternate modes.
NR 6.5 Local Transit Agency Collaboration	Collaborate with local transit agencies to: develop programs and educate employers about employee rideshare and transit; establish mass transit mechanisms for the reduction of work-related and non-work-related vehicle trips; promote mass transit ridership through careful planning of routes, headways, origins and destinations, and types of vehicles; and develop bus shelters, bicycle lanes, and other bicycle facilities.

Land Use Element

The Land Use Element does not specifically identify linkages between land use planning and bicycle transportation planning, but includes policies that impact bicycle planning. There are many references in the Element to creating walkable neighborhoods with buffers between the sidewalk and street, which can be accomplished through separated bicycle facilities and bike parking.

Municipal Code

This section presents sections in the Newport Beach Municipal Code that are relevant to bicycling. Relevant ordinances are shown in **Table 2-5**.

Table 2-5 *Bicycle-Related Municipal Code Ordinances*

Section	Regulation
Chapter 11.04: Parks, park facilities, and beaches	
11.04.090 Abandoned Bicycle.	Any bicycle that is attached or fastened to any City property, including a bicycle rack, or left in a park, park facility, on a beach, or oceanfront boardwalk for a period of forty-eight (48) hours or longer shall be deemed abandoned property and may be impounded by the City. Any bicycle which has been impounded by the City and held for ninety (90) days without redemption by or on behalf of the lawful owner thereof shall, if saleable, be sold at such time and place and in such a manner as required by Civil Code Section 2080 et seq.
Chapter 12.16: Enforcement and obedience	
12.16.070 Bicycles and Animals.	Every person riding a bicycle or riding or driving an animal upon a highway shall be granted all of the rights and shall be subject to all of the duties applicable to the driver of a vehicle by this title except those provisions which by their very nature can have no application.
Chapter 12.32: Restricted use of certain streets	
12.32.060 Pedestrians and Bicycles Exempted.	The provisions of Sections 12.32.020[1] and 12.32.030[2] shall not apply to pedestrians or to persons riding bicycles and shall not be used for the purpose of restricting or impairing access to Balboa Island by pedestrians or such persons.
12.32.095 Balboa Peninsula Traffic Access—Exemptions.	The provisions of Section 12.32.090 shall not apply to pedestrians or to persons riding bicycles and shall not be used for the purpose of restricting or impairing access to Balboa Peninsula by pedestrians or bicyclists.

[1] *Commercial Vehicles Prohibited From Using Certain Streets—Signposting.*

[2] *Exceptions to Balboa Island Restrictions*

Table 2-5 *Bicycle-Related Municipal Code Ordinances*

Section	Regulation
Chapter 12.56: Bicycles - Registration and regulations	
12.56.025 Voluntary Licensing.	A. Any person who is a resident of the City may apply to the Police Department for a bicycle license. B. Fees for bicycle license issuance or renewal, shall be established by resolution of the City Council. Fees shall be waived for all individuals who obtain a bicycle license or renewal at a City sponsored bicycle safety program.
12.56.030 Operating Bicycle on Sidewalk.	C. Prohibition. No person shall operate or ride a bicycle upon any sidewalk in the City. D. Exceptions. The provisions of this section shall not apply to: 1. Sidewalks on which bicycles are permitted pursuant to a resolution adopted by the City Council; 2. Tricycles which measure less than one of the following: a. Eighteen (18) inches from ground level to the neck joint, b. Twenty-four (24) inches in width measured from the outer rear wheels, c. Eighteen (18) inches in front tire diameter, or d. Twelve (12) inches in rear tire diameter. 3. To a bicycle operated by any peace officer employed by the City of Newport Beach and acting within the course and scope of his or her employment.
12.56.040 Operating a Surrey Cycle or Pedicab.	A. No person shall operate or ride a surrey cycle or pedicab upon any sidewalk, boardwalk or any public pier in the City. B. Any person who operates a surrey cycle or pedicab rental service, shop or facility must inform each person who rents a surrey cycle or pedicab at the time of the rental, in writing, of the restrictions contained in this section. Each rental surrey cycle or pedicab shall be posted to clearly inform each rider of the particular areas in the City where surrey cycles and pedicabs are prohibited. C. Any person who operates a surrey cycle or pedicab rental service, shop or facility, shall affix to each rented surrey cycle or pedicab, a flag of sufficient size and color to increase visibility of the surrey cycle or pedicab. The flag, which shall be of international orange or similar color, and of sufficient size to enhance the visibility of the surrey cycle or pedicab, shall be affixed so that it reaches three feet above the highest portion of the surrey cycle or pedicab.
12.56.050 Designation of Bicycle Lanes.	The specified portions of the following streets are designated as bicycle lanes and shall be marked and signed in an appropriate manner. • Southerly side of Cliff Drive from Kings Place to Dover Drive. • Southerly side of Riverside Avenue—Cliff Drive from Coast Highway to El Modena Avenue. • Westerly side of Eastbluff Drive from Back Bay Drive to two hundred (200) feet northerly of Mar Vista Drive. • Southerly side of Vista del Sol from Vista del Oro to Eastbluff Drive.
12.56.060 Obedience to Signs.	When signs are erected on any street or sidewalk giving notice that a portion of that street or sidewalk has been designated as a bicycle lane, no person shall drive, park, or operate any vehicle or any bicycle or other wheeled device or conveyance in any manner contrary to the directions posted on such signs.
12.56.070 Placement of Appropriate Signs.	Whenever this Code or any ordinance or resolution of the City designates any portion of a street or sidewalk as a bicycle lane, the City Traffic Engineer shall place and maintain signs giving notice thereof, and no such regulation shall be effective unless such signs are in place.

Table 2-5 *Bicycle-Related Municipal Code Ordinances*

Section	Regulation
12.56.080 Motorized Bicycles.	The licensing requirements of this chapter are applicable to motorized bicycles as that term is defined by the California Vehicle Code.
Chapter 13.18: Use of public sidewalks for outdoor dining	
13.18.025 Outdoor Dining Prohibited on Joint Bicycle/ Pedestrian Sidewalks.	Outdoor dining shall be prohibited on sidewalks designated by City Council resolution for joint bicycle/pedestrian use.
Chapter 20.44: Transportation demand management requirements	
20.44.010 Purpose.	The purpose of this chapter is to implement the requirements of Orange County's Congestion Management Program. The requirements of this chapter are intended to: B. Promote and encourage the use of alternative transportation modes, including ridesharing, carpools, vanpools, public bus and rail transit, bicycles and walking, as well as those facilities that support the use of these modes;
20.44.030 Transportation Demand Management Program.	A. Program Preparation. Applicants for projects covered by this chapter shall prepare a transportation demand management program applicable to the proposed project that will: 2. Promote and encourage the use of alternative transportation modes (e.g., ridesharing, carpools, vanpools, public transit, bicycles and walking);
20.44.050 Site Development Requirements.	Projects subject to the requirements of this chapter shall be subject to the following site development requirements. Required improvements shall be reviewed and approved by the review authority concurrent with other project approvals. B. Bicycle Racks/Lockers. Bicycle lockers or bicycle racks, as determined by the review authority, shall be provided for use by employees or tenants. A minimum of two lockers per one hundred (100) employees shall be provided. Lockers may be located in a required parking space.

Newport Banning Ranch Planned Community Development Plan (2011)

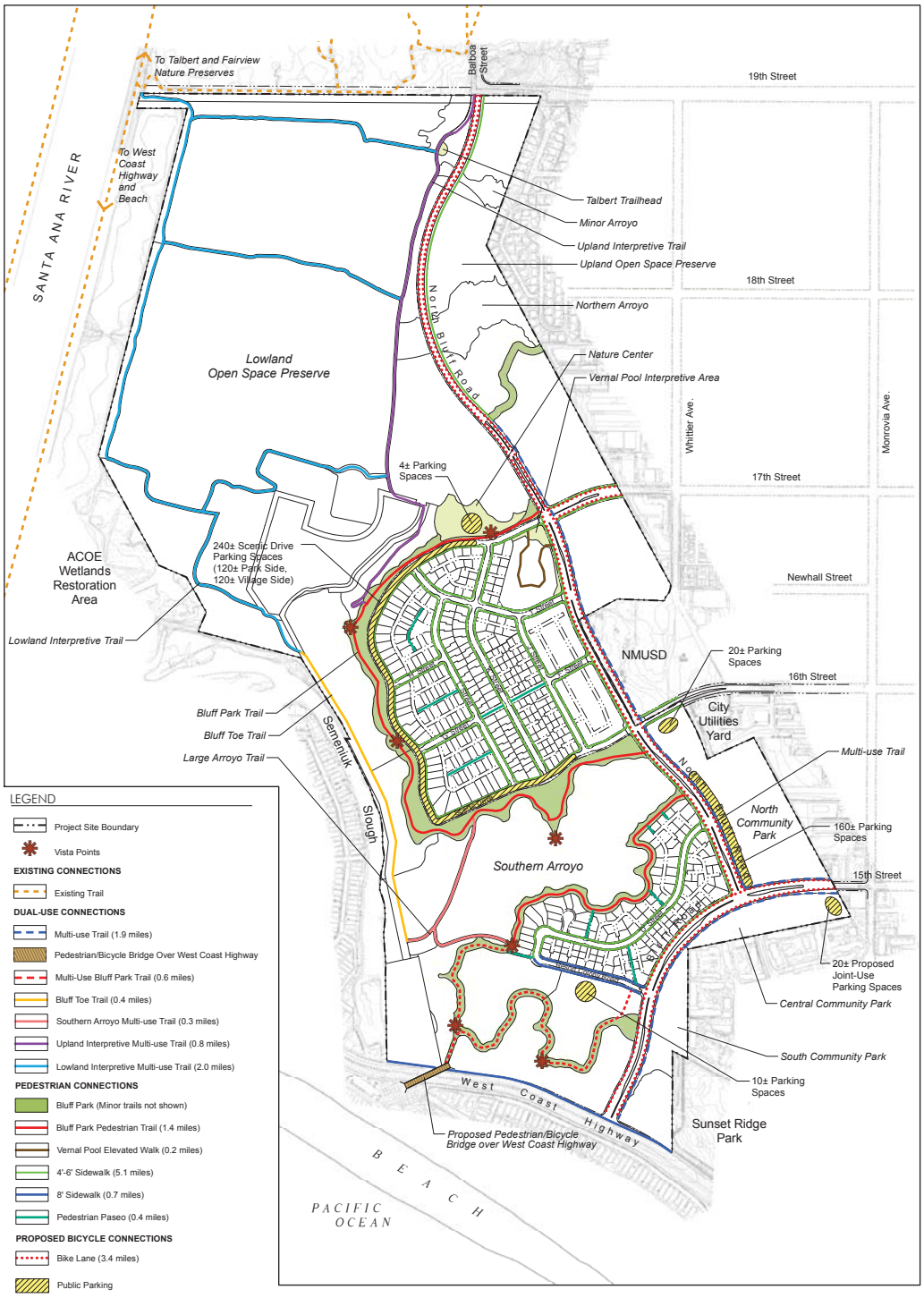
The Newport Banning Ranch Planned Community (NBR-PC) is a 401-acre site in unincorporated Orange Couty, in the City's Sphere of influence. Located north of West Coast Highway, south of 19th Street, and east of the Santa Ana River. The Banning Ranch Development Plan establishes appropriate zoning and regulates land use and development consistent with the General Plan for the 41 acres of the site located within the City. The Banning Ranch Development Plan of the NBR-PC establishes land use district designations for open space, park and recreation, visitor-serving resort, residential, commercial, and mixed-use residential/commercial uses for the Project site. The Banning Ranch Development Plan also includes a circulation plan and infrastructure facilities to serve future development.

The Bluff Park District (BP) includes 20.9 gross acres to serve as a passive recreational area that allows footpaths, view overlooks, picnic and information gathering areas, a bluff-top trail, and access to a pedestrian and bicycle bridge over the West Coast Highway. The bridge will cross the highway from the south-western edge of the Resort Colony to West Newport Park.

The Banning Ranch Development Plan includes a network of new public roadways that provide access from West Coast Highway, 15th Street, 16th Street, 17th Street, and 19th Street. Traffic calming design features are recommended for local roads within the NBR-PC. **Figure 2-2** illustrates the Banning Ranch trails plan.

Several of the Districts' regulations include bicycle parking requirements. Within the Visitor-Serving Resort/Residential (VSR/R) Districts, bike racks must be provided at a minimum ratio of one bicycle space per 2,500 gross square feet of commercial area. In Residential Development Districts, a minimum of one bicycle space per ten dwelling units must be provided within multi-family residential projects. At Homeowner Association (HOA) recreation facilities, bicycle racks must be provided as determined at the time of Site Development Review for the facility, and no less than 10 lockable spaces must be provided.

Figure 2-2 *Newport Banning Ranch Proposed Bicycle Facilities*



NEWPORT BANNING RANCH
MASTER DEVELOPMENT PLAN
City of Newport Beach - California

Exhibit 4-1
Master Trails and Coastal Access Plan

0 600 1,200

GLENN LUKOS ASSOCIATES FUSCOE ENGINEERING FORMA 07 • 13 • 2011

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2.3.2 Orange County Transportation Authority

OCTA Commuter Bikeways Strategic Plan (2009)

The Orange County Transportation Authority (OCTA) developed the Commuter Bikeways Strategic Plan (CBSP), which outlines OCTA's roles in bikeways planning. These include:

- Suggesting regional priorities for optimal use by local jurisdictions
- Assisting in coordinating plans between jurisdictions
- Providing planning and design guidelines; and
- Participating in outreach efforts to encourage bicycle commuting

There is a chapter discussing each City's bikeway planning and bicycling conditions. Existing and proposed bikeways in Newport Beach are shown in **Figure 2-3**.

OCTA Districts 1 and 2 Bikeways Strategy (2013)

The Regional Bikeways Planning effort led by the Orange County Transportation Authority (OCTA) plans to expand upon the 2009 OCTA Commuter Bikeways Strategy Report to identify potential regional bikeway improvements in Supervisorial Districts 1 and 2 (which include Newport Beach). While this planning process has been initiated and coordinated by OCTA, local jurisdictions will bring projects from concept to construction.

Phase 1 of the effort is the Bikeways Strategy. The Strategy identifies regional bikeway corridors that connect to major activity centers including employment areas, transit stations, colleges and universities. The regional bikeway corridors have been identified based on consensus-building and facilitation efforts. In Phase 2, feasibility studies will be developed to provide design recommendations to the local jurisdictions.

The Strategy aims to enhance community interaction and provide increased travel choices for a variety of residents within northwestern Orange County. The integrated planning effort establishes routes for focused attention to improve bikeways for cyclists of all skill levels, coordinate cross-jurisdictional efforts, and serve major destinations and employment centers. The coordinated efforts by OCTA and member agencies can result in improved bicyclist safety, reduced automobile trips, reduced fuel consumption and emissions, and improved community health outcomes.

A total of eleven regional bikeway corridors are proposed, three of which are partially within Newport Beach. The corridors include key connections to existing regional bikeway routes, as well as to major destinations within the districts. The corridors in Newport Beach are discussed below and shown in **Figure 2-4.**

Corridor B: Bristol-Bear

This primarily north-south corridor runs from the Santiago Creek Trail in the north to the Upper Newport Bay trail system in Newport Beach. The corridor would utilize Bear Street to cross over the I-405 freeway and under the SR-73 freeway and Bristol Street to cross under the SR-55 freeway. The Bristol-Bear corridor would link with the PE ROW and Slater-Segerstrom corridors.

The Bristol-Bear corridor is 12.2 miles long, with 2.8 miles of the route already possessing bikeway facilities of some type. The corridor will provide access to the Santiago Creek Trail and the Newport Back Bay trails.

Corridor C: Pacific Coast Highway

The Pacific Coast Highway (PCH) corridor runs primarily along State Route 1 from Seal Beach to Newport Beach. PCH within the Strategy study area is primarily within the State of California's jurisdiction and is operated/maintained by Caltrans, except for the section between Jamboree Road and Newport Coast Drive in the City of Newport Beach. The proposed corridor would both create many miles of new bikeways and enhance existing Class II on-street facilities. Major destinations along the PCH corridor include the Newport Beach Peninsula, Upper Newport Bay, and beaches and coastal parks.

Corridor K: Indianapolis-Fairview

This corridor forms a loop that connects to the PCH corridor in downtown Huntington Beach and Newport Beach at Back Bay, while also crossing near recreational and civic uses in Costa Mesa. The Indianapolis-Fairview corridor provides an inland bicycle route for the coastal cities of Huntington Beach, Costa Mesa, and Newport Beach, better serving residential neighborhoods. The corridor serves Upper Newport Bay, Newport Harbor High School, and PCH.

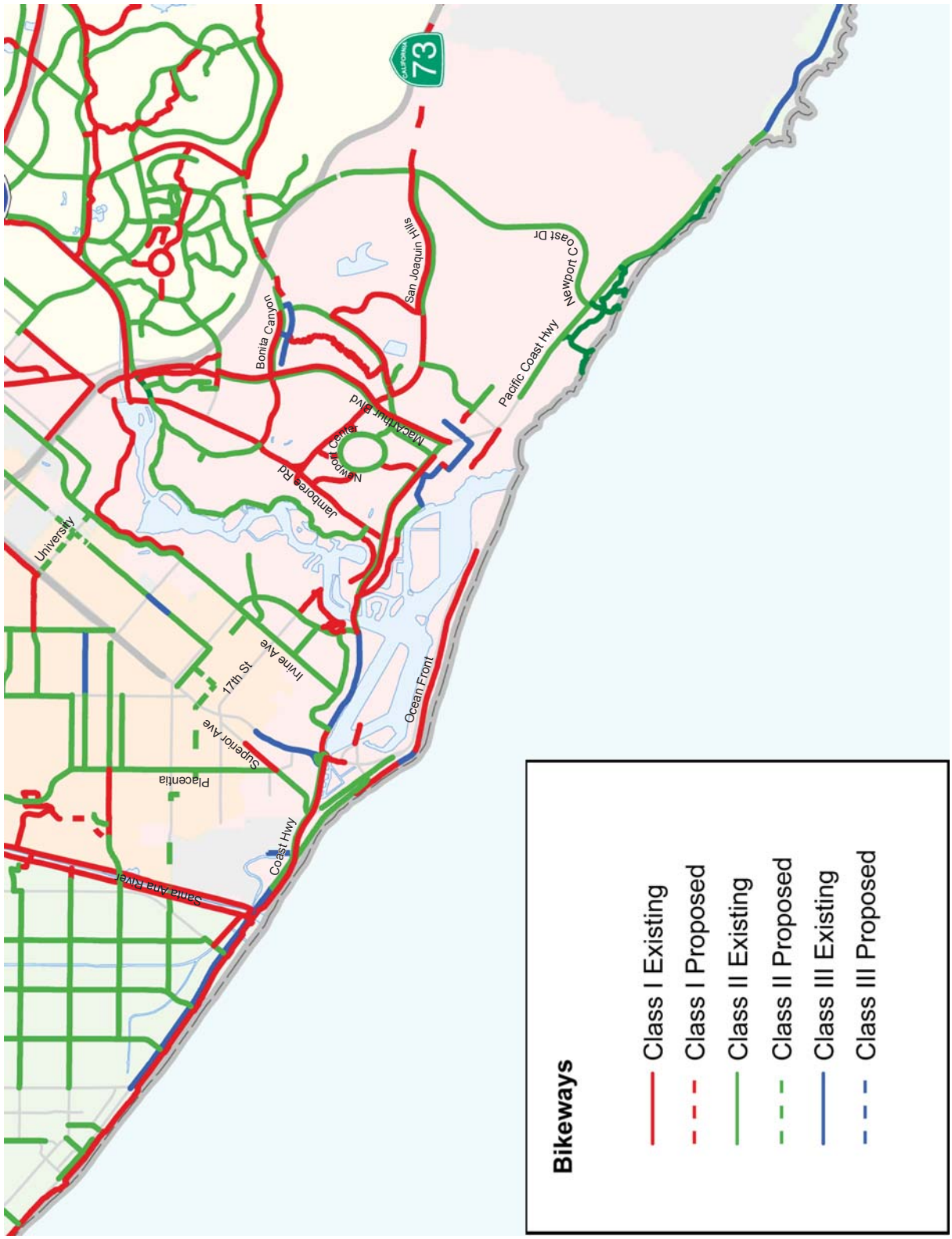


Figure 2-3 *OCTA CBSP Existing and Proposed Bikeways in Newport Beach*

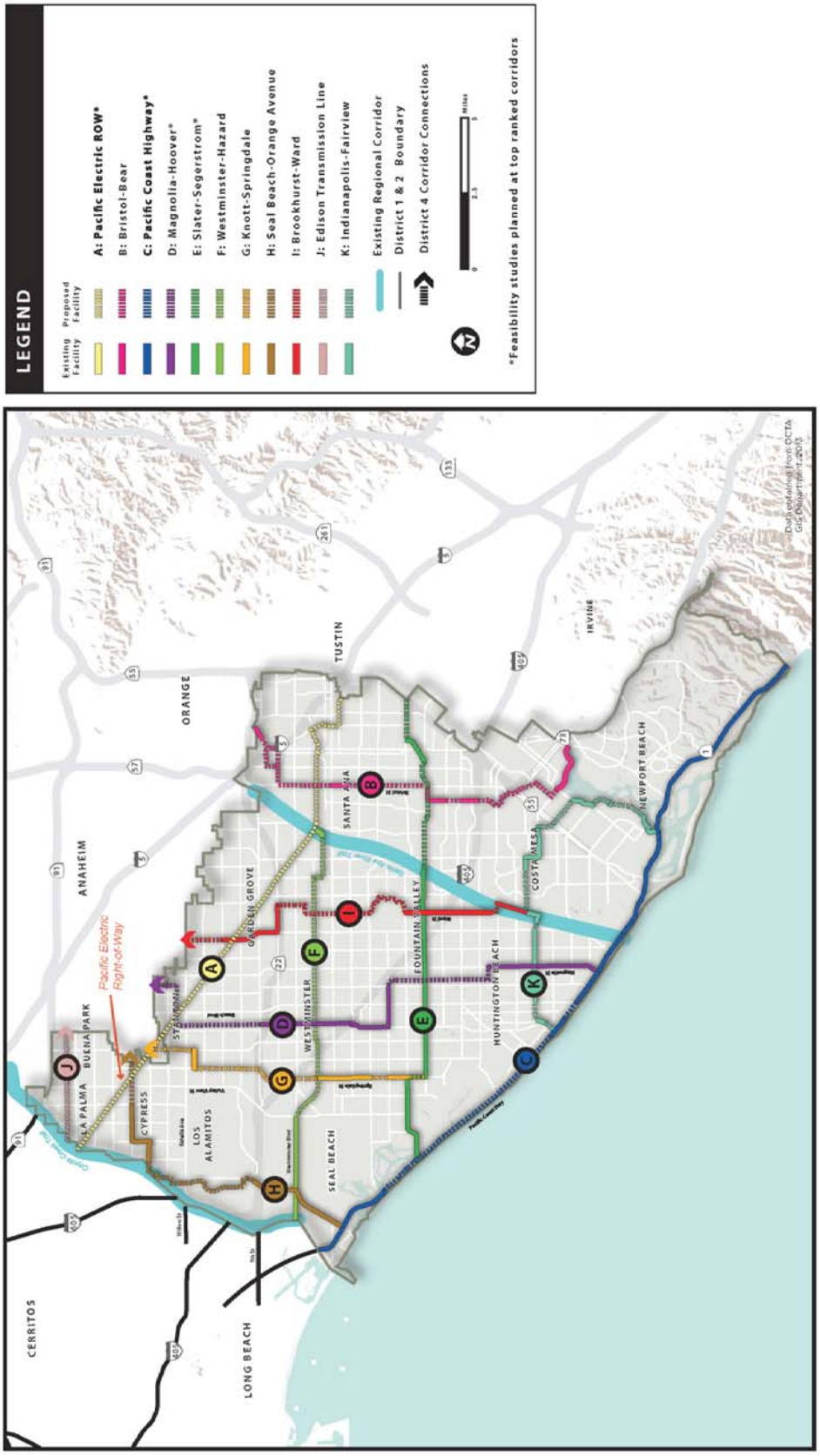


Figure 2-4 *OCTA Districts 1 and 2 Bikeways Strategy Proposed Corridors*

Destination 2035: Long Range Transportation Plan (2010)

The 2010 Long-Range Transportation Plan (LRTP) is OCTA's vision of how people, goods, and services will use the transportation system for work, commerce, school, and recreational travel. Goals and objectives have been developed that address travel needs and challenges associated with providing a balanced transportation system that meets the future needs of the residents, workers, and visitors. The three overarching goals identified in the LRTP include:

- Expand Transportation System Choices
- Improve Transportation System Performance
- Ensure Sustainability

The LRTP recommends providing funding for local jurisdictions to implement and expand bicycle facilities and infrastructure as a means of transportation demand management, noting one of its achievements is planning to increase bicycle facility miles to over 75 percent above 2008 levels. OCTA's ongoing role in regional bikeways planning includes the following:

- Promoting the consideration of bicyclists within environmental and planning documents prepared by local agencies
- Maintaining the countywide bicycle transportation plan
- Encouraging local agencies to coordinate their bikeways planning efforts with the CBSP
- Working with local agencies to submit projects for state, federal and local funding opportunities as these become available

The LRTP highlight's OCTA's role in the CBSP, stating OCTA will continue to support bicycle commuting by providing amenities on buses (e.g. racks) and encouraging cities and the County to adopt policies that promote investment in bicycle amenities, increases in bicycle infrastructure, and promotion of programs that encourage or incentivize bicycle travel. OCTA will also encourage multi-modal transportation hubs, including bicycle parking and rental onsite. The LRTP is currently being updated by OCTA.

2.3.3 Southern California Association of Governments (SCAG)

SCAG Regional Transportation Plan/ Sustainable Communities Strategy (2012)

The Regional Transportation Plan (RTP) has the primary goal of increasing mobility for the region's residents and visitors. The Sustainable Communities Strategy (SCS), part of the RTP, demonstrates the region's ability to attain and exceed the GHG emission-reduction targets set forth by the ARB. The 2012–2035 RTP/SCS includes a strong commitment to reduce emissions from transportation sources to comply with SB 375, improve public health, and meet the National Ambient Air Quality Standards as set forth by the federal Clean Air Act. Its emphasis on transit and active transportation will allow residents to lead a healthier, more active lifestyle.

The RTP/SCS contains a host of improvements to the region's multimodal transportation system, including increasing bikeways from 4,315 miles to 10,122 miles, bringing a significant amount of sidewalks into compliance with the Americans with Disabilities Act (ADA), safety improvements, and various other strategies. Figure 2 8 shows proposed bikeways in the SCAG planning region.

The following are policies and goals related to preparation of the Newport Beach Bicycle Master Plan:

- Policy 4: Transportation demand management (TDM) and non-motorized transportation will be focus areas, subject to Policy 1
- Goal: Encourage land use and growth patterns that facilitate transit and non-motorized transportation
- The entire RTP/SCS can be found at: http://rtpscs.scag.ca.gov/Pages/default.aspx

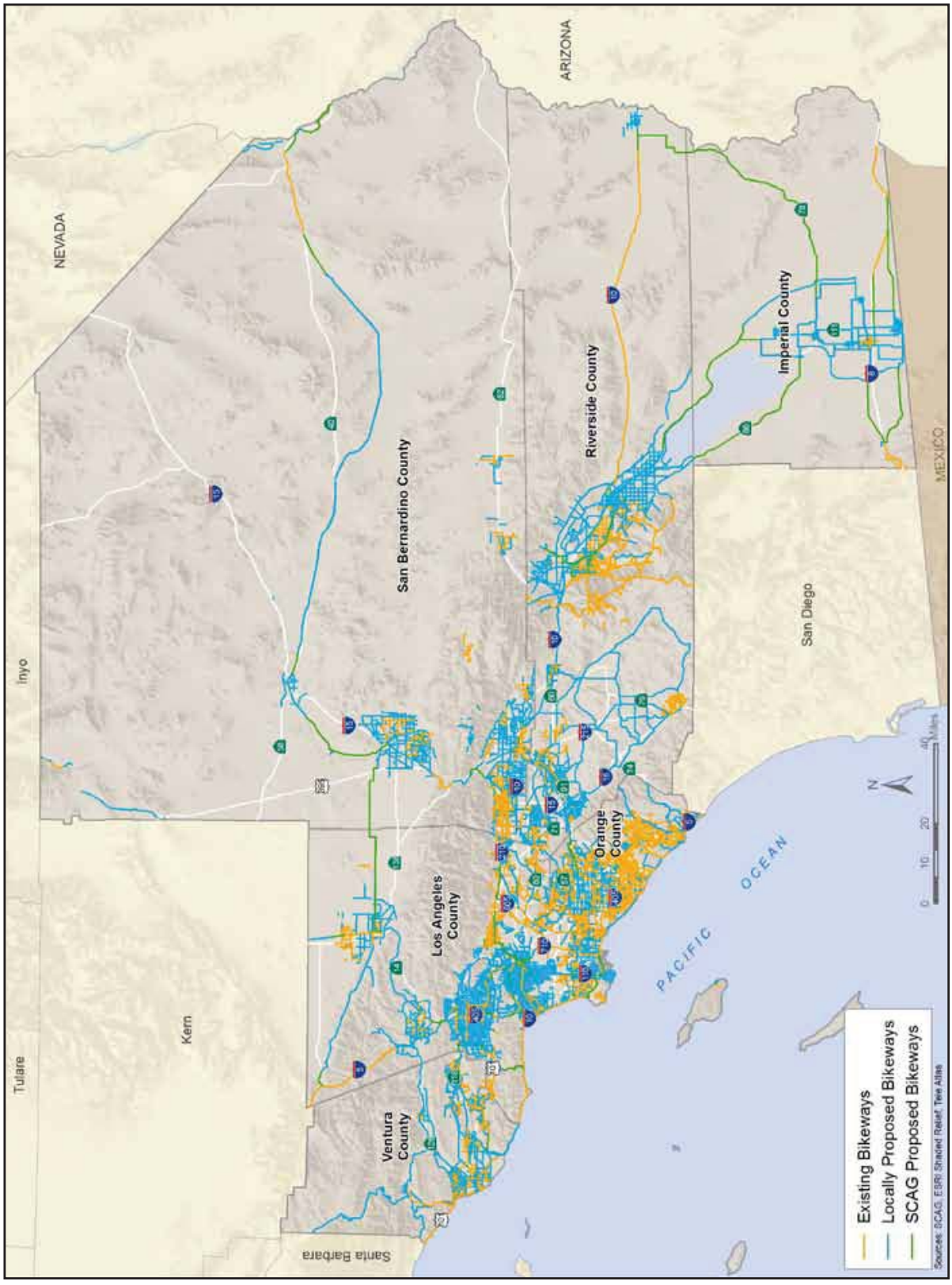


***Figure 2-5** SCAG Regional Bikeway Network*

2.3.4 State of California

SB 99/AB 101 – California Active Transportation Program (2013)

On September 26, 2013 the Governor of California signed legislation creating the Active Transportation Program (ATP). The ATP essentially consolidates several previously separate active transportation funding sources, including the state's Bicycle Transportation Account, Safe Routes to School, and Transportation Alternatives Program (except for Recreational Trails Program funds). The first grant cycle was open in Spring 2014, and it is expected that the next cycle will be open in Spring 2015.

Background:

The goals of the Active Transportation Program are to:

- Increase the proportion of biking and walking trips.
- Increase safety for non-motorized users.
- Increase mobility for non-motorized users.
- Advance the efforts of regional agencies to achieve greenhouse gas reduction goals.
- Enhance public health, including the reduction of childhood obesity through the use of projects eligible for Safe Routes to Schools Program funding.
- Ensure disadvantaged communities fully share in program benefits (25% of program).
- Provide a broad spectrum of projects to benefit many types of active transportation users.

The Active Transportation Program is funded from various federal and state funds appropriated in the annual Budget Act. These are:

- 100% of the federal Transportation Alternative Program funds, except for federal Recreation Trail Program funds appropriated to the Department of Parks and Recreation.
- $21 million of federal Highway Safety Improvement Program funds or other federal funds.
- State Highway Account funds.

In addition to furthering the goals of this program, all Active Transportation Program projects must meet eligibility requirements specific to the Active Transportation Program's funding sources.

Matching Requirements

No match from project sponsors is required for the Active Transportation Program funds awarded in the statewide competitive, small urban, or rural programs. The match required for federal funding may be met through the use of toll credits, through State Highway Account Funds in the Active Transportation Program, or through the use of other non-federal funds committed to the project. Large MPOs, in administering a competitive selection process, may require a funding match for projects selected through their competitive process. While the statewide competitive program does not require matching funds, applicants from within a large MPO should be aware that the requirements in these two competitions may differ.

For more information on the Active Transportation Program:

http://www.dot.ca.gov/hq/LocalPrograms/atp/index.html

AB 1371 - Three Feet for Safety Act (2013)

Signed by the Governor in September 2013, the Three Feet for Safety Act requires drivers who pass cyclists from behind to provide at least 3 feet of clearance. However, if traffic or roadway conditions prevent motorists from giving bicycle riders 3 feet of clearance, drivers must "slow to a speed that is reasonable and prudent" and wait to pass the cyclist only when doing so does not endanger the bicycle rider.

The Act makes a violation of these provisions an infraction punishable by a $35 fine. The Act also requires the imposition of a $220 fine on a driver if a collision occurs between a motor vehicle and a bicyclist causing bodily harm to the bicyclist, and the driver is found to be in violation of Act's provisions.

The law took effect on September 16, 2014.

For complete text of the bill: http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201320140AB1371

AB 417 – Bicycle Transportation Plans Exempted from CEQA (2013)

In 2013, California State legislators passed Assembly Bill No. 417, an exemption for bicycle transportation plans from CEQA requirements. This key legislation alleviates the legal and financial burden associated with preparing Environmental Impact Reviews (EIRs) for bicycle transportation projects. It also reduces individuals' ability to hinder the development of bicycle facilities through the courts. Generally speaking, AB 417 helps to streamline the process of designing and implementing bicycle transportation projects.

California Green Building Code (2011)

The California Green Code includes standards for bicycle parking requirements for new development. The California Green Code requirements are presented in **Table 2-6**.

Table 2-6 *California Green Code Bicycle Parking Requirements*

Category	Description
Bicycle Parking and Changing Rooms	Comply with sections 5.106.4.1 and 5.106.4.2; or meet local ordinance or the University of California Policy on Sustainable Practices, whichever is stricter.
Short-Term Bicycle Parking	If the project is expected to generate visitor traffic, provide permanently anchored bicycle racks within 100 feet of the visitors' entrance, readily visible to passers-by, for 5 percent of visitor motorized vehicle parking capacity, with a minimum of one two-bike capacity rack.
Long-Term Bicycle Parking	For buildings with over 10 tenant-occupants, provide secure bicycle parking for 5 percent of motorized vehicle parking capacity, with a minimum of one space. Acceptable parking facilities shall be convenient from the street and may include: • Covered, lockable enclosures with permanently anchored racks for bicycles • Lockable bicycle rooms with permanently anchored racks • Lockable, permanently anchored bicycle lockers

Image 5 - *The new Civic Center was constructed consistent with the California Green Code and attained a LEED Gold rating.*

AB 1358 – California Complete Streets Act of 2008

The 2008 California Complete Streets Act requires that municipalities, "upon any substantive revision of the circulation element of the general plan, modify the circulation element to plan for a balanced, multimodal transportation network that meets the needs of all users of streets, roads, and highways, defined to include motorists, pedestrians, people bicycling, children, persons with disabilities, seniors, movers of commercial goods, and users of public transportation, in a manner that is suitable to the rural, suburban, or urban context of the general plan."

For more information: opr.ca.gov/docs/Update_GP_Guidelines_Complete_Streets.pdf

Caltrans Deputy Directive DD-64-R1 – Complete Streets-Integrating the Transportation System (2008)

Following passage of the State's Complete Streets Act, Caltrans adopted its own Complete Streets policy, which requires Caltrans to provide "for the needs of travelers of all ages and abilities in all planning, programming, design, construction, operations, and maintenance activities and products on the State Highway System." The Caltrans policy is supported by Federal law requiring safe accommodation for all users and State law that Caltrans provide an integrated multi-modal system. It also helps local governments meet their requirement under State law (AB 1358) to include Complete Streets in their General Plans.

State and federal laws require the Department and local agencies to promote and facilitate increased bicycling and walking. The California Vehicle Code (CVC) (Sections 21200-21212) and the Streets and Highways Code (Sections 890-894.2) identify the rights of people bicycling and walking and establish legislative intent that people of all ages using all types of mobility devices are able to travel on roads. People bicycling and walking and other non-motorized travelers are permitted on all State facilities, unless expressly prohibited (CVC, section 21960). Therefore, the Department and local agencies have the duty to provide for the safety and mobility needs of all who have legal access to the transportation system.

Department manuals and guidance outline statutory requirements, planning policy, and project delivery procedures to facilitate multimodal travel, which includes connectivity to public transit for people bicycling and walking. In many instances, roads designed to Department standards provide basic access for bicycling and walking. This directive does not supersede existing laws. To ensure successful implementation of "complete streets," manuals, guidance, and training will be updated and developed.

More information can be found at:

http://www.dot.ca.gov/hq/tpp/offices/ocp/complete_streets.html

SB 375 – Sustainable Communities and Climate Protection Act of 2008

The Sustainable Communities and Climate Protection Act (SB 375) supports the State of California's climate action goals to reduce greenhouse gas (GHG) emissions through coordinated transportation and land use planning with the goal of fostering more sustainable communities.

Under SB 375, the California Air Resources Board (ARB) sets regional targets for GHG emissions reductions from passenger vehicle use. In 2010, ARB established these targets for 2020 and 2035 for each region covered by one of the State's metropolitan planning organizations (MPO); the Southern California Association of Governments (SCAG) is the MPO covering the San Gabriel Valley. SCAG has prepared a "sustainable communities strategy" (SCS) to guide regional efforts to meet GHG emission reduction targets. Encouragement of non-motorized transportation modes is one tactic to lower transportation-related emissions.

SB 375 also establishes incentives to encourage local governments and developers to implement the SCS. For instance, developers can get relief from certain environmental review requirements under the California Environmental Quality Act (CEQA) if their new residential and mixed-use projects are consistent with a region's SCS that meets the targets (see Cal. Public Resources Code §§ 21155, 21155.1, 21155.2, 21159.28.).

For more information, visit: http://www.arb.ca.gov/cc/sb375/sb375.htm

AB 32 – Global Warming Solutions Act of 2006

In 2006, the California Legislature passed and the Governor signed the Global Warming Solutions Act, which sets the 2020 greenhouse gas emissions reduction goal into state law. It also directed the California Air Resource's Board to develop action plans for meeting those GHG reduction targets. SB 375, adopted in 2008 to require coordination of transportation and land use planning, is one of the tools supporting ARB's goals.

More information on AB 32, including a timeline for implementation, is available on the ARB's website:

http://www.arb.ca.gov/cc/ab32/ab32.htm

3 Existing Conditions

3.1 Setting and Land Use

3.1.1 Setting

The City of Newport Beach is located on the coast of Orange County. It is bordered by Costa Mesa, Irvine, Huntington Beach, and Laguna Beach. The City has an estimated population of 85,323[1] people. The purpose of this chapter is to identify the existing bicycling conditions in Newport Beach.

3.1.2 Land Use

Figure 3-1 presents Newport Beach's land use map. Single-family unity residential homes account for approximately 34 percent of the City's land area while eight percent is occupied by multi-family buildings. Parks, open space, and recreational facilities account for approximately nine percent of land. Commercial and office land uses each account for approximately four percent of the City. This land use pattern makes Newport Beach a place where people can both live and work. In addition to accommodating residents, the vast amount of commercial designations, parks, open space, and recreational facilities make the City a tourist destination.

Image 6 - *Crystal Cove State Park*

Image 7 - *Corona Del Mar Christmas Walk*

Image 8 - *Fashion Island is a regional shopping center, attracting visitors from outside of the City.*

[1] *2008-2012 American Community Survey, 5-Year Estimates*

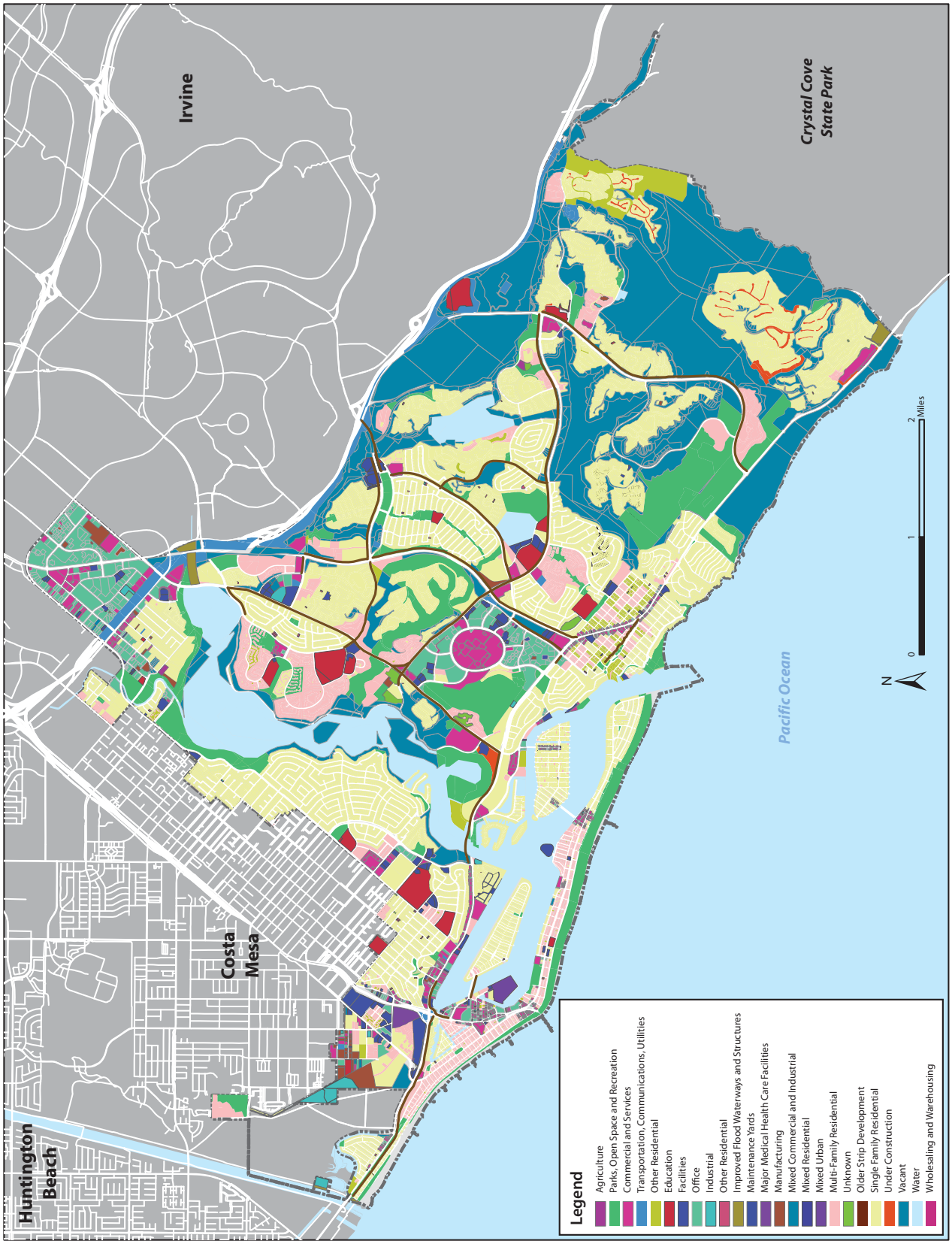


***Figure 3-1** Newport Beach Land Uses*

3.2 Existing Bicycle Facilities and Programs

As defined by the League of American Bicyclists, bicycle-friendly cities demonstrate achievements in each of five categories, often referred to as the Five E's of bicycle planning. The Five E's are:

- Engineering
- Encouragement
- Education
- Enforcement
- Evaluation

Engineering includes bicycle facilities, bicycle parking, signage, and maintenance. The other four E's are categorized as programs: encouragement, education, enforcement, and evaluation. Programs are a great way to maximize use of bicycle facilities. Production of bike maps and creation of special events encourage people to ride bicycles. Education programs improve safety and awareness. Programs that enforce legal and respectful driving and bicycling make novice bicyclists feel more secure. Evaluation programs provide a method for monitoring improvements and informing future investments. Collectively the Five E's can enhance the bicycling experience in Newport Beach. Analysis of Newport Beach's existing facilities and programs within the framework of the Five E's is one way to assess the City's bicycle-friendly status.

The City of Newport Beach has a growing network of bicycle paths, lanes, and routes throughout the City. Programs to support bicycling have also been implemented by the City. This section presents existing facilities and programs in order to identify where new facilities are needed and what programs will better support bicycling throughout the City.

3.2.1 Engineering

Existing Bicycle Facilities

This report refers to standard bikeway definitions identified by Caltrans in Chapter 1000 of the Highway Design Manual (Caltrans HDM). Additional concepts for bicycle facilities have been promoted and implemented throughout the United States; however, they have not been adopted for use in the Caltrans HDM. Upon preparation of the proposed network for the City, new bicycle facilities and concepts will be further discussed related to applicability and liability. The City currently has approximately 84 miles of bicycle facilities including Class I shared-use paths, Class II bike lanes, and Class III bike routes.

Figure 3-2 illustrates the three types of standard bikeways that currently exist in the City. The existing network is fairly well-connected, providing access to popular commercial areas, destinations, and employment centers. The existing bicycle facilities enable bicyclists to not only travel within Newport Beach, but to surrounding cities as well.

Consistent with City Municipal Code Section 12.56.30 and City Council Resolution 82-148, bicycle riding is allowed on various sidewalks throughout the City such as Eastbluff Drive, Marguerite Avenue, and Coast Highway. **Appendix A** provides a list of locations where sidewalk riding is permitted per Municipal Code Section 12.56.30 and City Council Resolution 82-148. Additional locations allow sidewalk cycling, indicating an update to the current resolution is needed.

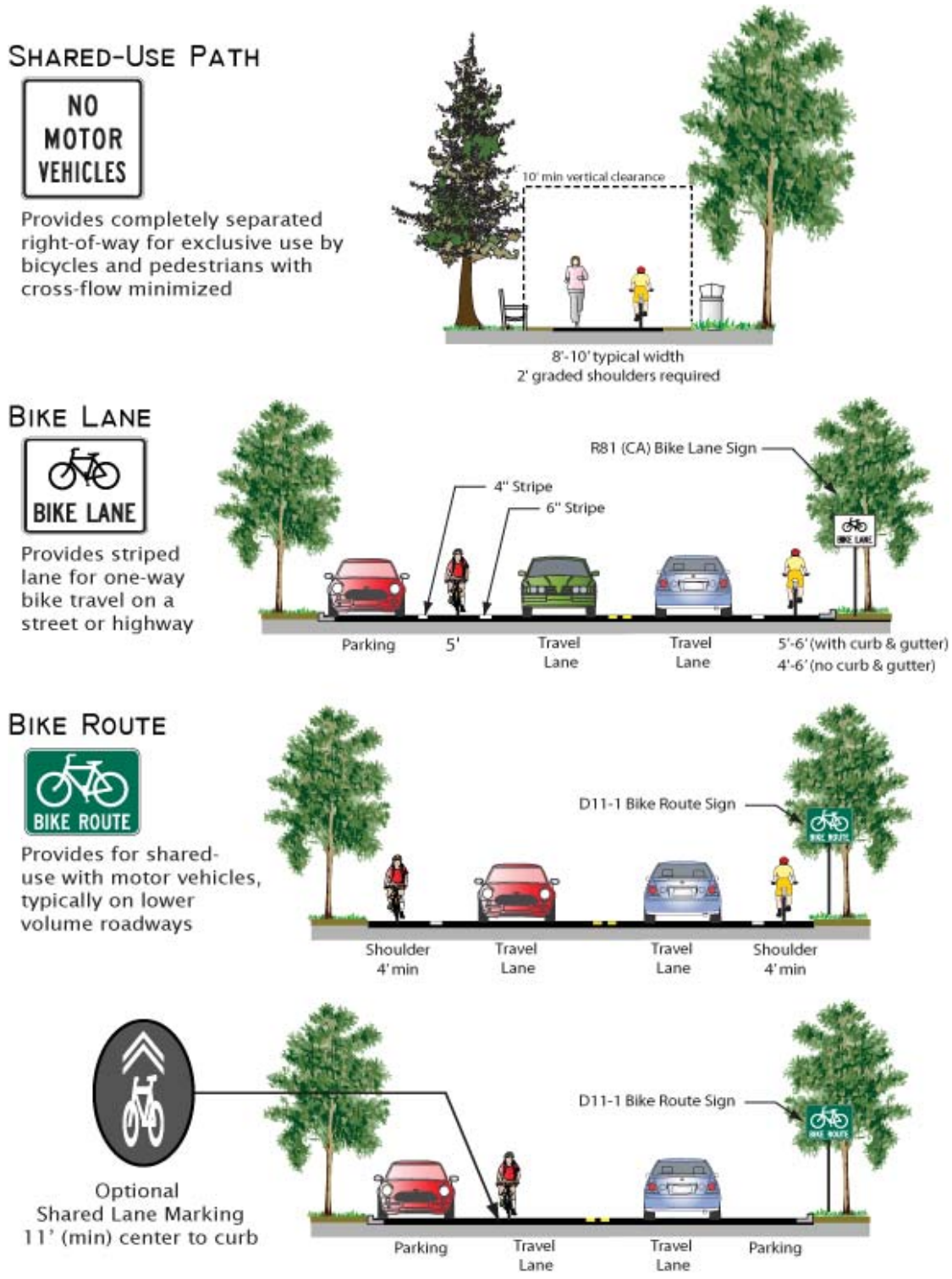
Table 3-1 shows the existing mileage for each type of facility. **Figure 3-3** displays the existing bikeway network.

Table 3-1 *Mileage of Existing Bicycle Facilities*

Facility Type	Mileage
Class I Shared-Use Paths	18.9
Class II Bike Lanes	40.4
Class III Bike Routes	8.1
Sidewalks – Bicycle Riding Allowed	25.5
Total	**92.9**

Image 9 - *Bicycle crossing signage on Balboa Peninsula*

Figure 3-2: *Caltrans Bikeway Classifications*



Sources: Caltrans Highway Design Manual (2013), Federal Highway Administration's MUTCD (2009), California MUTCD (2012). Graphic refined for use in Newport Beach.

As shown in **Table 3-1**, slightly less than half of the existing bikeway mileage within the City are on-street bike lanes (Class II). A few locations have unique bicycle facilities that do not match the standard bikeway definitions discussed above. The following is a list of unique bicycle treatments within the City:

1. The Marine Avenue bridge linking to Balboa Island allows bicyclists to ride on the sidewalk. Ramps are provided on the north side of the bridge to guide cyclists on/off the sidewalk. Signs are provided on the south side of the bridge reminding cyclists to not ride on the sidewalks on Balboa Island.

Image 10 - *Striping on the west side of the Marine Avenue bridge Bicycle Facilities*

Image 11 - *Ramps on the east side of the bridge*

2. A Contra-Flow bike lane located on Seashore Drive between Orange Street and 32nd Street allows bicyclists to ride two-way on a street restricted to one-way southbound travel for automobiles.

Image 12 - *Contra-Flow lane on 32nd Street*

Image 13 - *Contra-Flow bike lane on Back Bay Drive*

3. A Contra-Flow bike lane located on Back Bay Drive between Shellmaker Road and Eastbluff Drive allows bicyclists to ride two-way on a street restricted to one-way northbound travel for automobiles.
4. On-street bike lanes are provided on Irvine Avenue near Newport Harbor High School and Ensign Middle School, however, on-street parking is allowed between Cliff Drive and 15th Street. On-street parking is restricted during the morning school commute approaching the school and during the afternoon school commute leaving the school to facilitate school-related bicycle travel. This bicycle lane configuration is identified in the Caltrans Highway Design Manual (HDM) where the vast majority of bicycle travel would occur during the hours of the parking prohibition.
5. The City has painted sharrows on a few roadways with Class III routes. Sharrows, or shared lane markings, are roadway stencils used to encourage bicycle travel and proper positioning within the lane by cyclists. Sharrows are located on Coast Highway in Corona del Mar, and along Bayside Drive between El Paseo and Carnation Avenue.

Image 14 - *On-street parking and bike lane on Irvine Avenue*

Image 15 - *Sharrows located along Coast Highway in Corona del Mar*

6. Bicycle lanes are provided on either side of the Via Lido Bridge and an extension to the bridge has been added on the north side serving pedestrian travel. Signage is provided directing cyclists to use the sidewalk on the north side of the Via Lido Bridge.

Image 16 - *Bike lane on the west side of the Via Lido Bridge*

Image 17 - *Signage on Via Lido Bridge*

7. The Ocean Front Trail provides a shared-use path between 36th Street and E Street on Balboa Peninsula. A walk zone prohibits bicycling through the plaza at the base of the Newport Pier, and bicycle traffic is directed through the parking lot between 23rd Street and 21st Place. Signage and pavement markings are provided to identify a speed limit for cyclists, and to remind users that the facility is shared by multiple user types and to encourage appropriate trail etiquette.

Image 18 - *Signage and striping on Ocean Front Trail*

Figure 3-3 Existing Bicycle Network

Signage

The California Manual on Uniform Traffic Control Devices (CA MUTCD) and the CA HDM outline the requirements for bikeway signage. The Bike Lane Sign (R81) is required at the beginning of each designated bike lane and at each major decision point. The Bike Route Sign (D11-1) is required on Class III facilities. Shared-use paths require additional standardized signs to help manage different user groups. The City has installed CA MUTCD standard signs along the appropriate bikeways.

In addition to standard CA MUTCD signs, various warning, informational and regulatory signs have been installed. Signs located along the Ocean Front Trail inform trail users of bicycle cross-traffic. Advisory signs indicating to bicyclists to "Watch Downhill Speed" are located on steep downhill sections of Newport Coast Drive, Ridge Park Road, Vista Ridge Road, and San Joaquin Hills Road. Informational signs have been installed on Bayside Drive to increase awareness for use of the sharrows.

Where bicycles are allowed on sidewalks, the City has installed signage indicating to bicyclists that they are allowed to do so. **Appendix A** provides a list of locations where sidewalk riding is allowed.

Wayfinding signage has also been installed along popular trails such as the Back Bay Loop and the Mountains to Sea Trail.

Image 19 - *Caltrans Bikeway Signs*

Image 20 - *Signage permitting bicyclists to ride on the sidewalk on Eastbluff Road*

Image 21 - *Wayfinding with logos direct bicyclists to local trails*

Bicycle Parking

Bicycle storage can range from a simple and convenient bicycle rack to storage in a bicycle locker or cage that protects against weather, vandalism and theft. The City does not currently have an inventory of existing bicycle parking locations. Short-term bicycle racks can be found at some major destinations, including racks at the Newport Pier, along the Ocean Front Trail on the Peninsula, Fashion Island, and most parks throughout the City. Custom bike racks have been installed in Corona del Mar Village and at the 15th Street public pier.

Many bicyclists resort to securing their bike to street fixtures such as trees, lights, telephone poles, and parking meters when sufficient parking facilities are not provided.

Image 22 - *New bicycle rack in Corona del Mar*

Image 24 - *Bicycles secured to street fixtures*

Image 23 - *New bicycle racks at 15th Street on the Peninsula*

Image 25 - *Short-term bicycle parking at Newport Pier*

End-of-Trip Facilities

The presence and quality of trip-end facilities (e.g., showers, lockers, and changing facilities) can greatly influence a person's decision to complete a trip via bicycle. These facilities enable cyclists to change into work attire (especially after riding in wet or hot conditions). The City has incorporated trip-end facilities into new municipal buildings, such as the new Civic Center, but currently does not have an inventory of existing end-of-trip facilities.

Bicycle Signal Detection

Bicycle detection at actuated traffic signals allows bicyclists to trigger a green light, even when no motor vehicle is present. California Assembly Bill 1581 requires all new and replacement actuated traffic signals[2] to detect bicyclists and to provide sufficient time for a bicyclist to clear an intersection from a standing start. Caltrans Policy Directive 09-06 clarifies the requirements and permits any type of detection technology. The most common technologies are in-pavement loop detectors and video detection. More recently, microwave detection has been used to detect and differentiate between bicyclists and motor vehicles.

Current traffic signals have Bicycle Push Buttons that can be actuated by a cyclist to provide the green phase. The City complies with the Caltrans Policy Directive by installing detector loops designed to detect bicycles during pavement rehabilitation and traffic signal upgrade projects. Traffic signal timing is reviewed and updated as necessary through traffic signal corridor timing projects, such as the Traffic Signal Modernization Project and the Orange County Transportation Authority (OCTA) Traffic Light Synchronization Projects.

The City is currently reviewing other bicycle-capable technologies, such as video and radar detection for future inclusion into the traffic signal system.

Multi-Modal Connections

Integrating bicycling into daily transit trips offers an efficient means of traveling using multiple modes of transportation. Approximately eight percent of residents use public transit to commute to work or school. Newport Beach is served by multiple Orange County Transportation Authority (OCTA) bus routes, providing access to major shopping and commercial areas, as well as the beach. The Newport Transportation Center; located at 1550 Avocado Avenue, serves as a hub for transit routes in the City of Newport Beach. All OCTA buses are equipped with bicycle racks located at the front of the vehicle that can carry two bicycles at a time. **Figure 3-4** displays the transit routes and stops that serve Newport Beach.

The University of California, Irvine (UC Irvine) provides the Anteater Express shuttle service free of charge for students and faculty between the UC Irvine campus and Newport Beach. The Anteater Express Newport Beach route travels on Bison Avenue, Jamboree Road, Coast Highway, Newport Boulevard, and Balboa Boulevard. The Anteater Express shuttle service runs Monday through Friday, and the shuttles include bike racks.

In addition to bus routes, the Balboa Island Ferry runs from the Balboa Peninsula to Balboa Island. The ferry runs each day from 6:30 AM to 12:00 AM, docking about every five minutes. Bicycles are allowed onboard, providing bicyclists with easy access to Balboa Island.

Image 26 - *Bicycles are allowed on board the Balboa Island Ferry*

[2] *Actuated traffic signals stay red until the signal detects a car or bicyclist that is waiting for the light to turn green.*

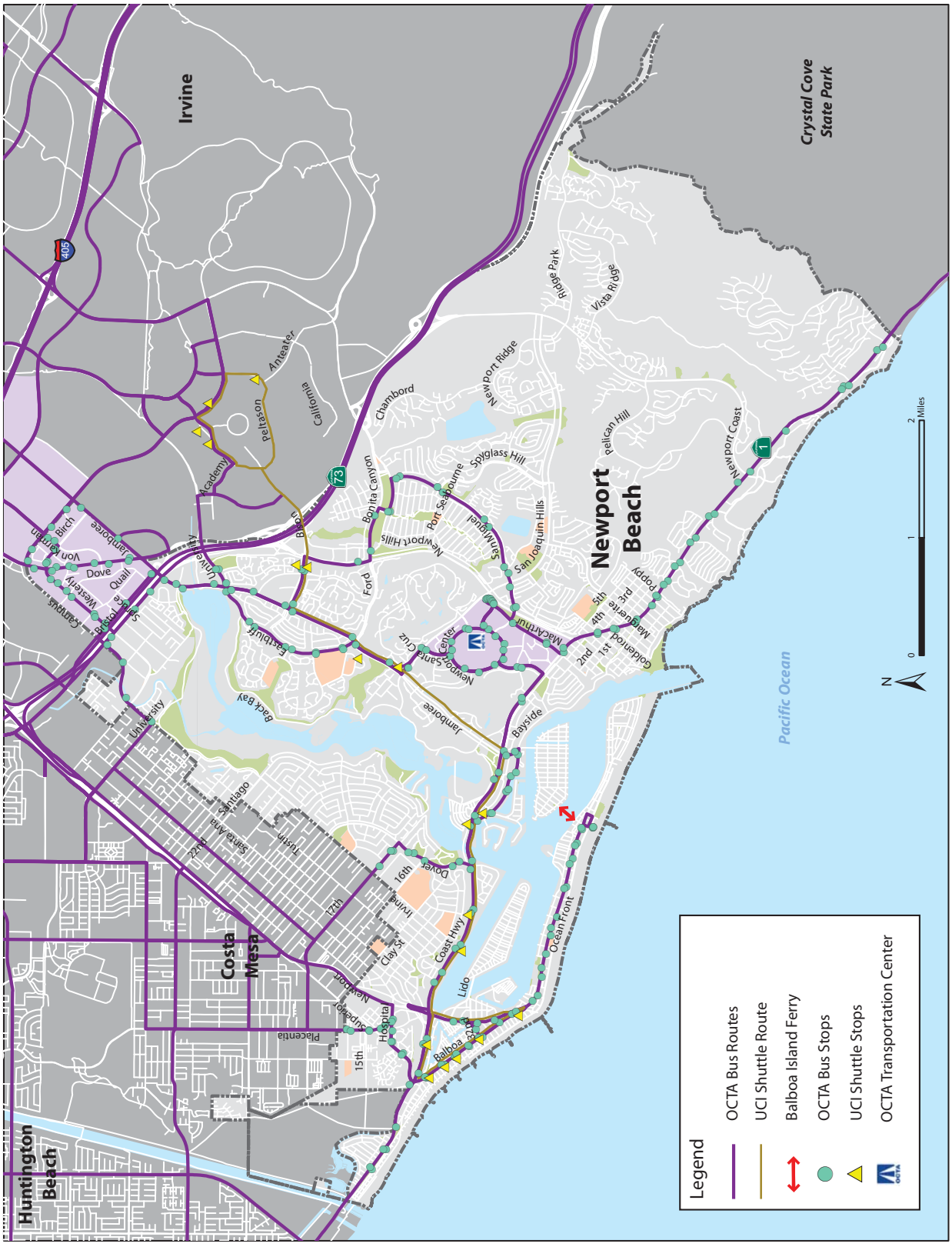


Figure 3-4 *Transit Routes and Stops*

Maintenance

Street maintenance programs aid in the quality and longevity of bicycle facilities. The City currently has a Street Maintenance program that provides staff with guidelines to inspect, schedule, and repair City streets, alleys, and bike trails. The program provides maintenance of signs, pavement markings, curb markings, street name signs, and roadway striping. In addition to as-needed repairs, the program annually repaints school pavement legends and inspects school regulatory and warning signs. Street sweeping occurs twice a month for 239 miles of streets and 33 miles of alleys.

The Capital Improvement Program (CIP) serves to develop and construct major public improvements and address significant maintenance items. The CIP prioritizes and allocates funding for large scale projects including roadway resurfacing, repair projects, and improvements within the City.

3.2.2 Education

Same Rules Same Road Campaign

The City's Same Rules Same Road program includes street light banners, Sharrow informational business cards, and a website. As part of this program, The Bike Safety website provides resources to community members for information about bicycling in Newport Beach. The website includes:

- Bicycle trails map
- Bicycle Master Plan Oversight Committee (BMPOC) information and agendas
- City Council staff reports relevant to bicycling
- Safety Guidelines for Bicyclists and Motorists brochure
- A tentative list of potential bicycle safety improvements
- California Driver Handbook sections: Sharing the Road and Traffic Lanes
- Information about the Bicycle Safety Improvement Fund

A copy of the Safety Guidelines for Bicyclists and Motorists brochure is provided in **Appendix B**.

3.2.3 Encouragement

Citywide Bicycle Route Map

The City created a GIS-based bicycle route map that is currently posted on the City's website. Staff is soliciting comments and questions from the public on the map, its contents, or additional bike-related information.

Memorial Bike Ride and Bicycle Safety Improvement Fund

On October 28, 2012, the City hosted the Memorial Bike Ride to pay tribute to cyclists that had recently perished in cycling incidents in Newport Beach. The community-raised funds raised for this ride were matched by the City at a 3 to 1 ratio and put into a special Bicycle Safety Improvement Fund.

Image 27 - *Sharrow Informational Business Card (front and back)*

Bike to Work Day/Month

The City currently hosts an annual Bike to Work Day every May to promote the enjoyment and benefits of bicycling to work. The City should look for more opportunities to promote bicycling for work commutes throughout Bike Month in May. In addition, OCTA hosts an annual Bike Rally for Bike to Work Month every May.

BikeNewportBeach Neighborhood Bike Rides

In fall 2013, BikeNewportBeach.org has organized multiple family-friendly neighborhood bike rides with help from local bike shops and the City Parks and Recreation Department. The first ride was the Saturday before Halloween in Corona del Mar, while the second ride was the Wednesday before Thanksgiving, with both starting at the Civic Center. A third ride, the Harbor View Holiday Lights Ride, was organized on December 23rd and was oriented towards viewing holiday decorations and lights in the Harbor View neighborhood.

Image 28 - *Harbor View Holiday Lights Ride*

Image 29 - *Decorated home visited during Holiday Lights Ride*

3.2.4 Enforcement

Bicycle Safety Operation

The Newport Beach Police Department (NBPD) conducts specialized Bicycle Safety Operations annually. This enforcement campaign targets vehicle, bicycle and pedestrian safety. The goal of this program is to educate bicyclists about how to safely and legally use the roads. In addition to bicyclists, this program seeks to educate motorists how to share the roadway with bicyclists and pedestrians. The NBPD provides additional enforcement programs that help with bicycle and motorist safety in the City such as Driving Under the Influence (DUI) checkpoints, texting/cell phone enforcement activities, and school liaisons.

Police Department Activity in the schools includes Bike Rodeos, which are educational activities to teach school-age children safe cycling habits and minor bicycle maintenance, and assignment of a School Resource Officer to each public high school and middle school.

By educating roadway users about the rules, laws and safe behaviors, and enforcing them, bicycle and pedestrian incidents can be reduced. The Police continue enforcement of Municipal Code violations in order to maintain safe operations. An Administrative Citation carries a $100 fine for a first offense in one year.

Bicycle Registration Program

The City currently provides a voluntary bicycle licensing program for any resident of Newport Beach, with licenses available at both the Police Department and Fire Department for $2.00 each. Residents are encouraged to license their bicycles with the City to aid law enforcement in the recovery of stolen bicycles.

3.2.5 Evaluation

Bicycle Master Plan Oversight Committee

The Bicycle Master Plan Oversight Committee (BMPOC) was established in 2013, composed of seven community members appointed by the Mayor and ratified by City Council. The Chair of the Committee is a City Council member appointed by the Mayor. The Committee was tasked with review and to give input, guidance, and a public forum for the preparation of the Bicycle Master Plan. City staff members from the Public Works Department, Community Development Department, and Police Department attend the BMPOC meetings. Each Committee meeting was advertised and opened to the public.

Citizens Bicycle Safety Committee

The Citizens Bicycle Safety Committee (CBSC) was established in 2010 and sunset in 2013. The CBSC reviewed existing bicycle infrastructure and identified potential improvements to promote bicycling and encourage safe use of the roadways. A key accomplishment of the CBSC was the installation of sharrows on Coast Highway in Corona del Mar. Along with the sharrows, an outreach and education program was implemented to teach local cyclists about their benefits and use. The CBSC prepared the 2012 annual report which is included in **Appendix C**.

Survey of Newport Beach Bicycle Rental Shops

CBSC member Michael Alti conducted a survey of bicycle rental shops in Newport Beach in September, 2012. Owners and/or representatives of eight rental shops on the Peninsula were interviewed. The purpose of this survey was to determine safety measures or instructions provided by the shops, obtain demographics or statistics about customers and history of accidents, and determine their impressions of bicycle safety in Newport Beach.

Task Force on Cycling Safety

The Task Force was established in 2009, made up of six citizens, all local cyclists. Other participants included the City's Traffic Engineer, representatives of the Police Department, the Public Information Officer, representatives of the Orange County Bicycle Coalition, and other members of the public. The Task Force was asked to make recommendations to improve safety for bicyclists on the roads, encourage cyclists to abide by the laws, and encourage motorists to be respectful of bicyclists' rights. The Task Force created a Final Report with recommendations to the City, which is included in **Appendix D**.

3.3 Past Bicycle-Related Projects

The City has completed numerous bicycle facility improvements in recent years. **Table 3-2** shows the completed actions/projects from 2009 to 2014. A more detailed list, as well as planned projects with cost estimates, can be found in **Appendix E**.

Table 3-2 *Completed Projects/Actions 2009-2014*

Description	Completion Date
Ocean Front Signage Improvements	Fall 2009
Bayside Drive Sharrows	Fall 2010
Bicycle Downhill Advisory Signs	Spring 2011
Castaways Trail Improvements	Summer 2011
Fernleaf Ramp Sign Revisions	Fall 2011
Remove Raised Pavement Markers	Fall 2011
Bayside Drive Bike Ramp Improvements	Fall 2011
Bonita Canyon Drive Bike Lane Improvements	Winter 2011
Coast Highway Bike Lane Improvements	Winter 2011
Coast Highway Alternate Bike Route	Winter 2012
Newport Center Bike Lane Installation	Spring 2012
Coast Highway Bike Lane Improvement at Jamboree Road	Fall 2012
Coast Highway Corona del Mar Sharrow Project	Fall 2012
32nd Street Bike Lane Project	Spring 2013
Avocado Avenue Bike Lane Project	Spring 2014
Bayside Drive Sharrow Extension Project	Spring 2014

3.4 Pending Bicycle-Related Projects

The City has programmed and obtained funding for multiple bike lane projects as shown in **Table 3-3**.

Table 3-3 *Scheduled Projects 2014-2015*

Title/Description	Completion Date
Jamboree Road Bike Lane Project	Fall 2014
Eastbluff Drive-Ford Road Bike Lane Project	Fall 2014
Spyglass Hill Road Bike Lane Project	Fall 2014
San Joaquin Hills Road Bike Lane Project	Fall 2014

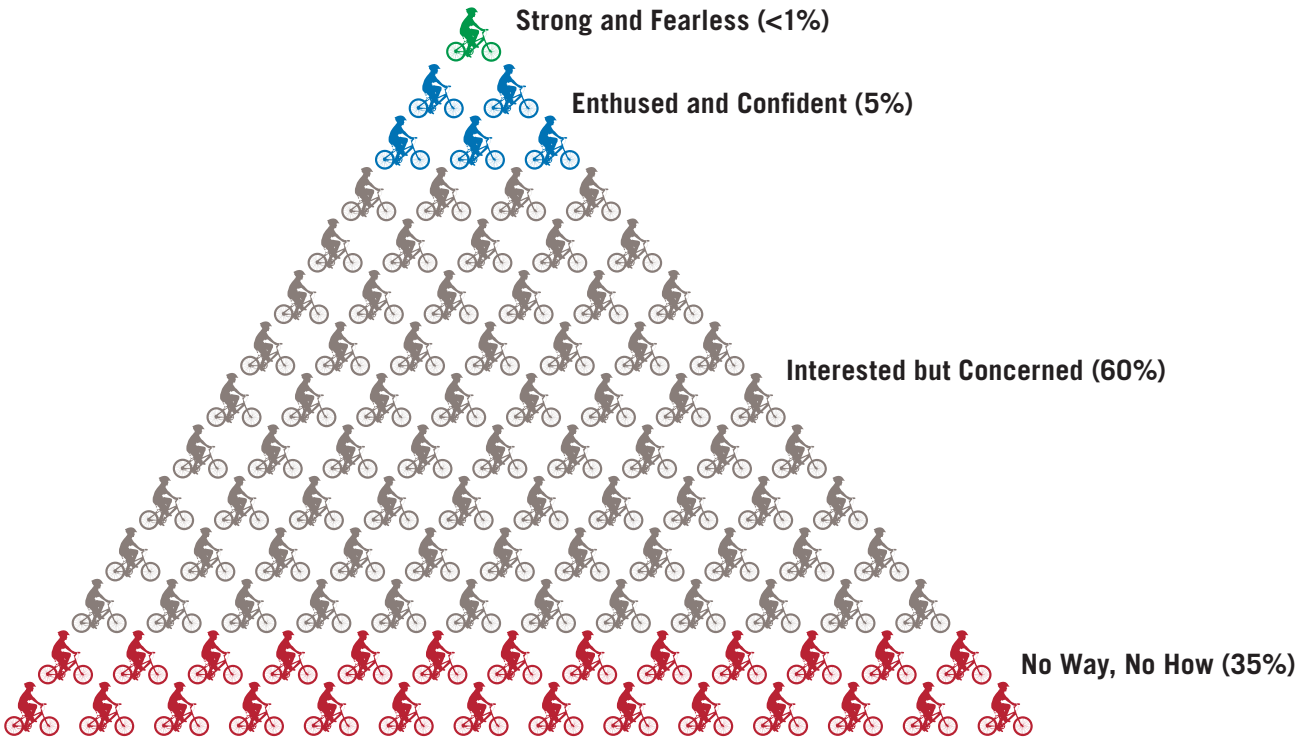
4 Needs Analysis

4.1 Types of Bicyclists

This Plan seeks to address the needs of all bicyclists and potential bicyclists and therefore it is important to understand the needs and preferences of all types of bicyclists to develop a successful plan. Bicyclists' needs and preferences vary among skill levels and trip types. In addition, the propensity to bicycle varies from person to person, providing insight into potential increases in bicycling rates. Generally, bicycling propensity levels can be classified into four categories, displayed in **Figure 4-1**.

1. *Strong and Fearless* bicyclists will ride on almost any roadway despite the traffic volume, speed and lack of bikeway designation and are estimated to be less than one percent of the population.
2. *Enthused and Confident* bicyclists will ride on most roadways if traffic volumes and speeds are not high. They are confident in positioning themselves to share the roadway with motorists and are estimated to be five percent of the population.
3. *Interested but Concerned* bicyclists will ride if bicycle paths or lanes are provided on roadways with low traffic volumes and speeds. They are typically not confident cycling with motorists. Interested but Concerned bicyclists are estimated to be 60 percent of the bicyclist population and the primary target group that will bicycle more if encouraged to do so.
4. *No Way No How* are people that do not consider cycling part of their transportation or recreation options and are estimated to be 35 percent of the population

Figure 4-1 *Types of Cyclists*



Source: www.portlandoregon.gov/transportation/article/264746

The needs of bicyclists also vary among trip purposes. For example, people who bicycle for performance-recreational purposes may prefer long and straight unsignalized roadways, while bicyclists who ride with their children to school may prefer direct roadways with lower vehicular volumes and speeds. This Plan considers these differences and develops a bikeway network to serve all user types. This section describes the different types of bicyclists and the respective needs for these categories of bicyclists.

- Commuters - adults who regularly bicycle between their residences and work.
- Enthusiasts - skilled adults.
- Casual / Family / Elderly riders - adults who use bicycles for running errands, recreation, tourism, exercise, or as a family activity
- School Children - children who bicycle to school.

An effective bicycle network accommodates bicyclists of all abilities. Casual bicyclists generally prefer roadways with low traffic volumes and low speeds. They also prefer paths that are physically separated from roadways. Because experienced bicyclists typically ride to destinations or to achieve a goal, they generally choose the most direct route, which may include arterial roadways with or without bike lanes. Bicyclists of all abilities and purposes ride every day in Newport Beach. Parents bicycle with their children to school, people bicycle to work, community members bicycle to transit stations, and recreational bicyclists ride through the City on extended bicycle trips.

Recent technology, such as electric bicycles, has encouraged less capable bicycle riders to enjoy the benefits of cycling. At times, this has also allowed bicyclists to utilize facilities such as on-street bike lanes that they may not normally feel able to ride in safely and comfortably.

4.2 Public Outreach

During the summer and fall of 2013, the project team conducted a number of outreach activities to engage the community in identifying initial challenges, opportunities, and ideas for improving the cycling experience in Newport Beach. The following community engagement activities occurred:

Community Outreach Booths

- McFadden Plaza/Newport Pier, August 24, 2013
- Eastbluff Drive Adjacent to the Back Bay Trail, October 27, 2013
- West Newport Park at Orange Street, April 27, 2014
- Eastbluff Drive Adjacent to the Back Bay Trail, May 31, 2014

Bicycle Master Plan Oversight Committee Meetings

- July 1, 2013
- September 3, 2013
- October 7, 2013
- December 2, 2013
- February 3, 2014
- March 3, 2014
- April 7, 2014

Community Open House

- November 4, 2013
- Online Survey
- September 17 to December 31, 2013

Youth Workshop

- January 28, 2014

Public Agency Stakeholder Meeting

- January 28, 2014

Online Interactive Draft Recommendations Mapping

- January 29 to March 19, 2014

4.2.1 Community Outreach Booths

Community outreach booths provided an informal opportunity for the public to provide feedback and suggestions for the Bicycle Master Plan. Project team members set up a table and shelter with City-provided banner and boards to facilitate comments. Outreach booths were conducted to gain input from a mix of cyclists including visitors to the City at Newport Pier as well as road cyclists stopping at the restrooms located at West Newport Park. Generally the booth was facilitated by 2-3 project team members for 2-3 hours on each of the four dates identified below:

- August 24, 2013;
- October 27, 2013;
- April 27, 2014; and
- May 31, 2014.

Image 30 - *Outreach event at the Newport Pier*

4.2.2 Community Open House

On Monday, November 4, 2013, an open house event was held at the Newport Beach Main Library. Open House guides were provided to participants, which included a list and description of each station. In addition to the sign-in table, seven stations were provided to provide information and to collect ideas:

1. Background Presentation
2. Mapping
3. Bicycle Facilities
4. I Would Ride More Often If…
5. Education, Encouragement, Enforcement, & Evaluation – What's Working? What Can We Do Better?
6. Survey Spot
7. Kids' Station

Sign-in Table

The sign-in table included a map of the City and neighboring cities where participants were asked to place a dot sticker where they live. Most residents who responded indicated that they do live within the City of Newport Beach.

Participants were also asked to rate their riding abilities. The image below shows that most respondents self-designated themselves as "enthused and confident".

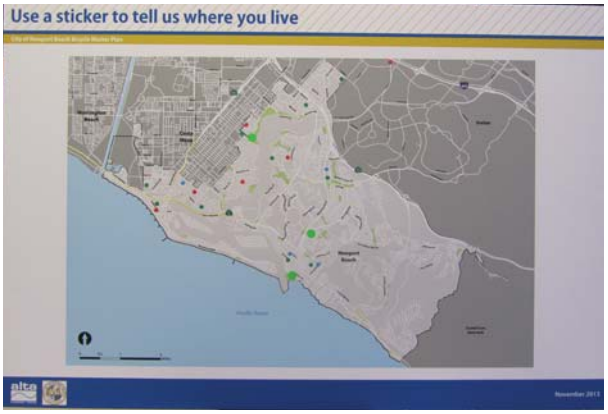


Image 31 - *Participants used stickers to show where they live*

Image 32 - *Boards used for participants to indicate their cycling skill levels*

Type of Cyclist	Strong and Fearless	Enthused and Confident	Intersected but Concerned	No Way, No How
Number of Cyclists	6	16	2	0

Image 33 - *Participants spoke with staff about their concerns for bicycling in the community*

Station 1: Background Presentation

A brief, continuous running PowerPoint presentation provided background information about the Bicycle Master Plan project.

Station 2: Mapping

This station provided the opportunity for participants to identify current cycling destinations, places that they would like to bicycle to, and locations for possible improvements including wayfinding signs.

Station 3: Bicycle Facilities

This station provided the opportunity for participants to view display boards that illustrated different types of bicycle facilities and suggest locations in Newport Beach where they feel types of facilities may be appropriate. Participants were asked to place a dot sticker next to each facility type that they are interested in, and provide comments about potential locations.

Station 4: I would ride more often if…

Participants were asked to finish the following sentence on a post-it note and post the note on the board for discussion with project team members and other visitors to the workshop:

- "I would ride more often if…"

Station 5: Education, Encouragement, Enforcement, & Evaluation – What's Working? What Can We Do Better?

Participants were asked to list current programs and efforts that they believe are important/helpful and to make suggestions for additional efforts.

Station 6: Survey Spot

Hard copies of an online survey were available for participants to complete.

Station 7: Kids' Station

Kids were given the opportunity to create drawings about biking and bike safety. However, at this event, no children were present.

4.2.3 Youth Workshop

On January 28, 2014, the City hosted a youth workshop with students from the Associated Student Body class at Ensign Intermediate School. Students worked in small groups on a mapping exercise to identify current bike routes, desired bike routes, barriers or challenging areas that limit bicycling, and opportunities for improvements.

4.2.4 Public Agency Stakeholder Meeting

A Public Agency Stakeholder Meeting was held on January 28, 2014 in the afternoon at the Civic Center. The City invited public agency staff representatives to participate in this meeting to discuss opportunities and issues related to implementing future bicycle facilities, connectivity to surrounding cities, and potential partnerships between agencies. Representatives from the City of Irvine, OCTA, Caltrans, Newport-Mesa Unified School District, City of Costa Mesa, County of Orange, and State Parks attended the meeting.

Image 34 - *Participants noted cycling destinations and locations for improvements*

Image 35 - *Participants showed their top choices for programs with stickers*

4.2.5 Online Interactive Draft Recommendations Mapping

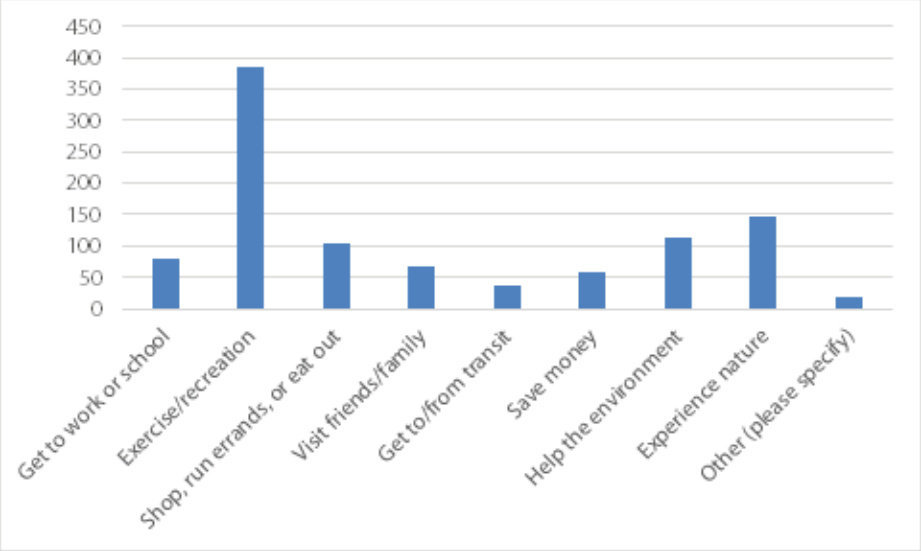
Community members were able to provide comments on the draft bikeways network online using an interactive mapping website. The website was available from January 28 to March 19, 2014. Participants were able to comment on individual recommends, identify important concepts by indicating "support" for them, and add new points and recommendations to the map. Overall, 100 comments and 173 "supports" were provided through the website.

4.2.6 Surveys

An online survey was provided to community members to gather input for the creation of the Bicycle Master Plan. Between September 17, 2013 and December 31, 2013, 421 responses were counted and analyzed.

Of the 399 respondents, approximately 43 percent live outside of Newport Beach. The majority of them were over 55 years old, therefore a sizeable amount of all respondents do not work (18 percent). Most respondents have a short commute to work or school that is under two miles. Of those who commute to/from work, the majority drive alone (59 percent), though approximately the same amount of respondents have very high confidence in their bicycling abilities. Most respondents bicycle three to four times per week (37 percent), mainly on on-street bike lanes (49 percent). As shown in **Figure 4-2**, the main reason that people bicycle is for exercise and recreation.

Figure 4-2 *Reasons for Bicycling*

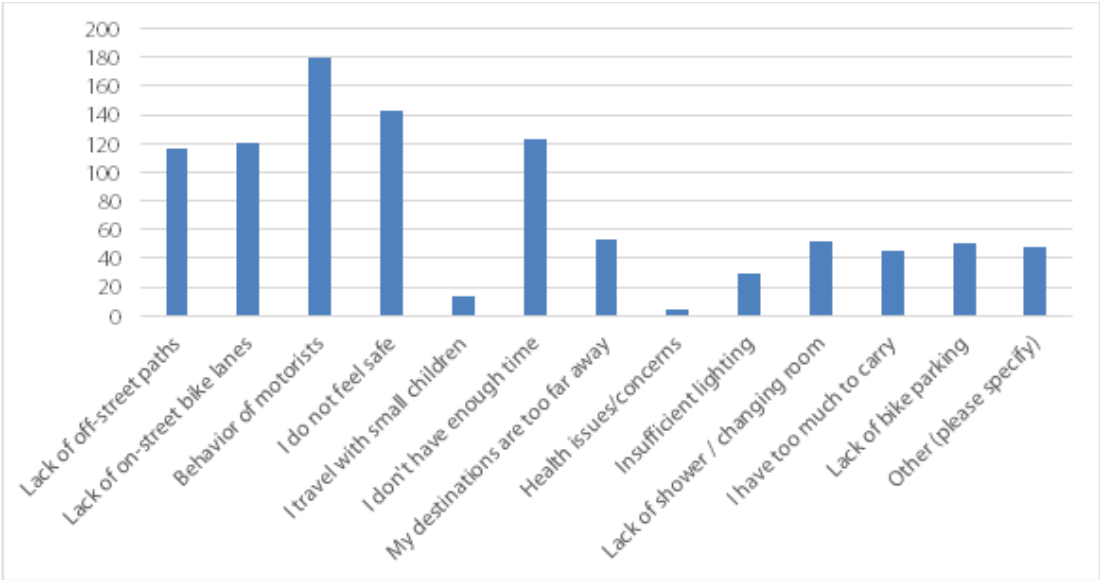


Source: Newport Beach Bicycle Master Plan – Bicycle Survey

Additional reasons entered for "Other" include socializing, training for triathalons, mental and physical health, and for fun.

When asked what keeps them from bicycling, respondents indicated that the top three reasons are the behavior of motorists, concerns about safety, and not having enough time. **Figure 4-3** displays the results of this question.

Figure 4-3 *Barriers to Bicycling*



Source: Newport Beach Bicycle Master Plan – Bicycle Survey

Additional reasons for "Other" include the behavior of bicyclists and pedestrians, lack of education of both bicyclists and motorists, and the time of day as it relates to automobile traffic.

The most important considerations that respondents make when making a decision to ride a bicycle are the behavior of motorists, presence of on-street bike lanes, traffic volumes/speeds, and the presence of off-street bike paths.

Programs that respondents are the most interested in are public awareness campaigns, online information, Safe Routes to School programs for children, maps and guides, special events, and commuter incentive programs.

When respondents were asked to list streets and places in Newport Beach that they felt were uncomfortable for bicycling and the reasons why, common themes arose. Coast Highway was the most frequently noted location where bicyclists feel unsafe or uncomfortable. Respondents were asked to list destinations in Newport Beach where they would like to bicycle to, but do not feel comfortable traveling to via bicycle. Commonly noted destinations include:

- Corona del Mar
- Shopping centers (particularly Fashion Island)
- Peninsula (specifically the beach, pier, and Balboa Island)
- Schools
- Santa Ana River Trail
- Civic Center
- Other surrounding cities
- Crystal Cove State Park
- Back Bay
- Airport

4.3 Bicycle Commuter Estimates and Forecasts

4.3.1 Assumptions

The model uses the U.S. Census Bureau's *American Communities Survey* (ACS) journey-to-work data and applies a market segment approach to estimate the number of bicycling or walking trips. Elementary school and college students usually have a different bicycle/walking mode split than work commuters.

In addition, national transportation surveys, in particular the *National Household Travel Survey* (NHTS, 2009), have shown that commute trips are only a fraction of the total trips an individual takes on a given day. The model uses the NHTS findings to estimate the number of non-work, non-school trips taken by commuters to determine the number of walking or bicycling trips that occur in a day. This information can be projected out using standard trip lengths by mode and trip purpose to estimate the number of driving miles reduced by nonmotorized modes.

4.3.2 Data Used in the Model

The foundation of this analysis is the ACS 2008-2012 five-year estimate for Newport Beach. Model variables from the ACS include: total population, employed population, school enrollment (grades K-12 and college students), and travel-to-work mode split.

The 2009 NHTS provides a substantial national dataset of travel characteristics, particularly for trip characteristics of bicycling and walking trips. Data used from this survey include:

- Student mode split, grades K-12
- Trip distance by mode by trip purpose
- Ratio of walking/bicycling work trips to utilitarian trips
- Ratio of work trips to social/recreational trips
- Average trip length by trip purpose and mode

Several of these variables provide a way to estimate the number of walking and bicycling trips made for other reasons than work trips, such as shopping and running errands. NHTS 2009 data indicates that for every bicycle work trip, there are slightly more than two utilitarian bicycle trips made. Although these trips cannot be directly attached to a certain group of people (not all of the utilitarian bicycling trips are made by people who bicycle to work), these multipliers allow a high percentage of the community's walking and bicycling activity to be captured in an annual estimate.

The *Safe Routes to School Baseline Data Report* (2010) was used to determine the percent of students who walk or bicycle by the parents' estimate of distance as well as the frequency of carpooling for trip replacement.

As with any modeling projection, the accuracy of the result is dependent on the accuracy of the input data and other assumptions. Effort was made to collect the best data possible for input to the model, but in many cases national data was used where local data points were unavailable. Examples of information that could improve the accuracy of this exercise include the detailed results of local Safe Routes to Schools parent and student surveys, a regional household travel survey, and a student travel survey of college students.

4.3.3 Existing Walking and Bicycling Trips

Table 4-1 shows the results of the model. Based on the model assumptions, the majority of trips are non-work utilitarian trips, which include medical/dental services, shopping/errands, family personal business, obligations, transport someone, meals, and other trips.

Table 4-1 *Model Estimate of Current Walking and Bicycling Trips*

	Bicycling	Walking	Source
Commute Trips			
Bicycle/walking commuters	343	815	Employed population multiplied by mode split
Weekday bicycle/walking trips	686	1,630	Number of bicycle/walking commuters multiplied by two for return trips
Walk- or bike-to-transit commuters	15	309	Number of transit commuters multiplied by transit mode split from the OCTA On-Board Survey
Weekday transit bicycle/ walking commute trips	30	618	Number of transit bicycle/walking commuters multiplied by two for return trips
Weekday bicycle/walking commuters	716	2,248	Number of bicycle/walk commuters plus number of transit-bicycle/walk commuters
School Trips			
K-12 bicycle/ walking commuters	71	1,117	School children population multiplied by mode split
Weekday K-12 bicycle/ walking trips	142	2,234	Number of student bicyclists multiplied by two for return trips
College Trips			
College bicycle/ walking commuters	743	1,703	College students multiplied by mode split provided by UC Irvine.
Weekday bicycle/ walking college trips	1,486	3,406	Number of college student bicyclists multiplied by two for return trips
Utilitarian Trips			
Daily adult bicycle/walking commute trips	2,202	5,654	Number of bicycle/walking trips plus number of bicycle/walking college trips
Daily bicycle/walking utilitarian trips	3,449	19,875	Utilitarian bicycle/walking trips multiplied by ratio of utilitarian to work trips (NHTS). Distributes weekly trips over entire week (vs. commute trips over 5 days)
Total Current Daily Trips	**5,793**	**27,763**	

*As shown in **Table 4-1**, current commute, school, college and utilitarian trips via bicycle are estimated at approximately 5,800 trips daily.*

Trip Replacement

To estimate the total distance residents travel to work or school by walking and bicycling, the model isolates different walking and bicycling user groups and applies trip distance information for walking or bicycling trips by mode based on NHTS 2009. **Table 4-2** shows the trip replacement factors.

Yearly factors are calculated by assuming that work and school/college trips occur five days per week, while utilitarian trips occur seven days per week. However, work and utilitarian trips occur year-round, while school and college trips are only three-quarters of the year, due to summer vacation.

Table 4-2 Current Walking and Bicycling Trip Replacement

	Bicycling	Walking	Source
Commute Trips			
Weekday vehicle trips replaced	591	21	Trips multiplied by drive alone trips to determine automobile trips replaced by bicycle trips
Weekday miles bicycled/walked	2,092	14	Number of vehicle trips reduced multiplied by average bicycle/walking work trip length (NHTS 2009)
School Trips			
Weekday vehicle trips reduced	41	647	Trips multiplied by drive alone trips to determine automobile trips replaced by bicycle/walking trips
Weekday miles bicycled/walked	31	497	Number of vehicle trips reduced multiplied by average trip length to/from school (SRTS 2010)
College Trips			
Weekday vehicle trips reduced	1,226	2,810	Trips multiplied by drive alone trips to determine automobile trips replaced by bicycle/walking trips
Weekday miles bicycled/walked	1,814	1,574	Number of vehicle trips reduced multiplied by average bicycle school/daycare/religious trip length (NHTS 2009)
Utilitarian Trips			
Daily vehicle trips reduced	3,675	8,143	Number of daily utilitarian trips multiplied by drive alone trips
Daily miles bicycled/walked	7,377	5,195	Number of vehicle trips reduced multiplied by average utilitarian trip length (NHTS 2009; does not include work or home trips)

Yearly Results	Bicycling	Walking	Total	Source
Yearly bicycle/walking trips	1,765,097	8,949,408	10,714,505	Assumes commuting is 5 days/week year-round, utilitarian trips year-round, and school/college trips 5 days/week and three-quarters of the year
Yearly vehicle trips reduced	1,065,760	2,385,800	3,451,560	
Yearly miles bicycled/walked	2,163,258	1,544,812	3,708,070	

4.3.4 Current Benefits

To the extent that bicycling and walking trips replace single-occupancy vehicle trips, they reduce emissions and have tangible economic impacts by reducing traffic congestion, crashes, and maintenance costs. In addition, the reduced need to own and operate a vehicle saves families money. These benefits are shown in **Table 4-3**.

Image 36 - *Custom "Bike Rest" sign at business along West Coast Highway*

Table 4-3 Benefits of Current Bicycling and Walking Trips

Measure	Bicycling	Walking	Source
Yearly vehicle miles reduced	2,163,258	1,544,812	
Air Quality Benefits			
Reduced Hydrocarbons (pounds/year)	6,486	4,362	EPA, 2005[1]
Reduced Particulate Matter (pounds/year)	48	42	EPA, 2005
Reduced Nitrous Oxides (pounds/year)	4,531	3,235	EPA, 2005
Reduced Carbon Monoxide (pounds/year)	59,138	42,231	EPA, 2005
Reduced Carbon Dioxide (pounds/year)	1,759,823	1,256,713	EPA, 2005
Economic Benefits of Air Quality			
Particulate Matter	$4,046	$2,889	NHTSA, 2011[2]
Nitrous Oxides	$9,061	$6,471	NHTSA, 2011
Carbon Dioxide	$30,173	$21,547	NHTSA,2011

As shown in **Table 4-3**, current bicycle trip benefits include the reduction of over 2 million vehicle trips annually and the reduction of carbon dioxide emissions by almost 2 million pounds annually.

4.3.5 Potential Future Walking and Bicycling Trips

Estimating future benefits requires additional assumptions regarding Newport Beach's future population and anticipated commuting patterns in 2030. Future population predictions as determined by the Center for Demographic Research in the Newport Beach Banning Ranch Draft EIR were used in this model. **Table 4-4** shows the projected future demographics used in the future analysis.

Image 37 - *Hoag Hospital "Trail to Wellness" walking route sign*

Table 4-4 Project Area Future Demographics

Demographic	Value	Percent of 2012 Population	Source
Population	96,982	113.7%	Center for Demographic Research 2007, in Newport Beach Banning Ranch Draft EIR
Employed population	78,366	91.8%	Center for Demographic Research 2007, in Newport Beach Banning Ranch Draft EIR
School population, K-12	12,006	12.4%	Assumes same percent as from ACS 2012 estimate
College student population	6,813	7.0%	Assumes same as 2012 ACS estimate

[1]From EPA report 420-F-05-022 "Emission Facts: Average Annual Emissions and Fuel Consumption for Gasoline-Fueled Passenger Cars and Light Trucks." 2005.
[2]NHTSA Corporate Average Fuel Economy for MY 2011 Passenger Cars and Light Trucks, Table VIII-5 (http://www.nhtsa.dot.gov/ portal/site/nhtsa/ menuitem. d0b5a45b55bfbe582f57529 cdba046a0/).

Table 4-5 Shows the mode split for Newport Beach compared to neighboring jurisdictions. Forecast bicycling mode share was increased to address the higher use potentially generated by the addition of recommended bikeway facilities to the existing system.

Table 4-5 Mode Split Comparison with Neighboring Cities

Jurisdiction	Walk	Bike	Transit	Carpool	Drive Alone
Newport Beach	**1.9%**	**0.8%**	**0.8%**	**4.0%**	**82.5%**
Santa Ana	2.2%	1.1%	7.2%	17.1%	69.8%
Costa Mesa	3.0%	2.2%	3.2%	9.8%	75.0%
Huntington Beach	1.5%	1.3%	1.2%	7.2%	82.0%
Irvine	3.8%	1.7%	1.5%	7.3%	77.8%
Orange County	2.0%	1.0%	2.9%	10.4%	77.8%
California	2.8%	1.0%	5.1%	11.7%	73.0%
United States	2.8%	0.5%	5.0%	10.2%	76.1%

Source: 2008-2012 American Community Survey 5-year Estimates

The analysis predicts that the bicycle mode split will more than double by 2030, due in part to bicycle network implementation and education/encouragement programs. As shown in **Table 4-5**, this would result in the 0.8% bicycle mode share increasing to 2%, which is similar to the current mode splits of neighboring Costa Mesa and Irvine. The forecast bicycling trips assuming an increase to 2% bicycle mode split are shown in **Table 4-6**.

Table 4-6 Future (2030) Bicycling and Walking Trips

Trip Type	Bicycling	Walking	Discussion
Commute Trips			
Bicycle/walking commuters	1,567	1,489	Employed population multiplied by mode split
Weekday bicycle/ walking trips	3,134	2,978	Number of bicycle/walking commuters multiplied by two for return trips
School Trips			
K-12 bicycle/ walking commuters	81	1,269	School children population multiplied by mode split
Weekday K-12 bicycle/ walking trips	162	2,538	Number of student bicyclists multiplied by two for return trips
College Trips			
College bicycle/ walking commuters	743	1,703	College students multiplied by mode split provided by UC Irvine.
Weekday bicycle/ walking college trips	1,486	3,406	Number of college student bicyclists multiplied by two for return trips
Utilitarian Trips			
Daily adult bicycle/ walking commute trips	4,620	6,384	Number of bicycle/walking trips plus number of bicycle/walking college trips
Daily bicycle/walking utilitarian trips	7,236	22,441	Number of utilitarian bicycle/walking trips multiplied by bicycle/walking utilitarian trip multiplier, spread over entire week (vs. commute trips over 5 days)
Total Future Daily Trips	**12,018**	**31,363**	

As shown in **Table 4-6**, assuming bicycle mode split increases to 2%, forecast year 2030 commute, school, college and utilitarian trips via bicycle are estimated to grow to approximately 12,000 trips daily.

4.3.6 Future Benefits

The trip replacement factors remain the same as in the model of current trips. **Table 4-7** shows the air quality benefits of the future projected walking and bicycling trips.

Table 4-7 *Benefits of Future Bicycling and Walking Trips*

Measure	Bicycling	Walking	Source
Yearly vehicle miles reduced	6,878,623	5,356,052	
Air Quality Benefits			
Reduced Hydrocarbons (pounds/year)	20,624	16,059	EPA, 2005[1]
Reduced Particulate Matter (pounds/year)	153	119	EPA, 2005
Reduced Nitrous Oxides (pounds/year)	14,407	11,218	EPA, 2005
Reduced Carbon Monoxide (pounds/year)	188,043	146,420	EPA, 2005
Reduced Carbon Dioxide (pounds/year)	5,559,799	4,357,179	EPA, 2005
Economic Benefits of Air Quality			
Particulate Matter	$12,866	$10,018	NHTSA, 2011[2]
Nitrous Oxides	$28,813	$22,435	NHTSA, 2011
Carbon Dioxide	$95,942	$74,705	NHTSA,2011

As shown in **Table 4-7,** assuming bicycle mode split increases to 2%, forecast year 2030 benefits include the reduction of almost 7 million vehicle trips annually and the reduction of carbon dioxide emissions by over 5 million pounds annually.

4.4 Bicycle Counts

In order to better analyze the existing number of bicyclists in Newport Beach, it is important to understand the number of bicyclists and the patterns in which they interact with the existing bicycle network. Newport Beach's bicycle counts provide a valuable snapshot for the level of bicycling and walking that occurs. To do so, a comprehensive count of bicyclists at 11 locations in Newport Beach was performed during October 2013. The efforts included:

- Coordination with City staff to determine count locations
- Instruction and standardized count forms provided to volunteers
- One weekday morning count at each location
- One weekend mid-day at each location, with additional morning counts at four locations
- Monitoring of bicycle counts by consultant team
- Data synthesis and analysis

The data analyzed in the previous section only accounts for commute trips. By conducting its own counts, the City can account for trips taken by bicycle that are not commute trips, as well as better understand where bicycling is occurring. The bicycle counts provide baseline data for future comparison and evaluation of trends. Analysis of the counts and count location characteristics additionally provides useful information regarding the relationship between bicycle ridership levels and the bicycling environment.

4.4.1 Methodology

Bicycle counts were conducted at 11 locations, listed in **Table 4-8**, on Thursday, October 17th, 2013 and Saturday, October 19th, 2013. The weekday morning counts were conducted from 7:00 AM to 9:00 AM, and the weekend counts from 10:00 AM to 1:00 PM. Additional morning counts were conducted on Saturday from 7:00 to 9:00 AM to document early morning club riding activity at four select locations. Criteria used to select count locations include:

- Bicycle activity areas or corridors (near schools, parks, downtowns, etc.)
- Key corridors that can be used to gauge the impacts of future improvements
- Gaps and pinch points for bicyclists (potential improvement areas)

[1]From EPA report 420-F-05-022 "Emission Facts: Average Annual Emissions and Fuel Consumption for Gasoline-Fueled Passenger Cars and Light Trucks." 2005.
[2]NHTSA Corporate Average Fuel Economy for MY 2011 Passenger Cars and Light Trucks, Table VIII-5 (http://www.nhtsa.dot.gov/ portal/site/nhtsa/ menuitem. d0b5a45b55bfbe582f57529 cdba046a0/).

Table 4-8 *Bicycle Count Locations*

Location #	Intersection
1	Coast Highway and Orange Street
2	Irvine Avenue and University Drive
3	Newport Boulevard and 32nd Street
4	Ocean Front and 28th Street
5	Irvine Avenue and 15th Street, adjacent Newport Harbor High School
6	Coast Highway and Bayside Drive
7	Eastbluff Drive and Back Bay Drive
8	Coast Highway and Iris Avenue
9	Bonita Canyon Drive and Chambord
10	Coast Highway and Newport Coast Drive
11	Newport Coast Drive and Ridge Park Road

Volunteer counters noted if the bicyclist was a male or female adult, or a child under 13 years old. In addition, the counters noted how many bicyclists did not wear helmets, rode on the sidewalk, or were on the wrong side of the road. Cyclists riding on the sidewalk were not counted as traveling the wrong way.

4.4.2 Results

The total number of bicyclists counted for both count days was 7,041 bicyclists as shown in **Table 4-9**.

Table 4-9 *Bicycle Count Results*

Characteristic	Total Count
Total Bicyclists Combined	7,041
Total Bicyclists Weekday	1,078
Total Bicyclists Weekend Day	5,963
Total Female Bicyclists (combined)	1,527
Total Male Bicyclists (combined)	5,339
Total Children Under 13	175
Total Bicyclists Without Helmets	1,769
Total Bicyclists Riding on Sidewalk	1,697
Total Bicyclists on Wrong Side of Road	168

As shown in **Table 4-9**, 7,041 bicyclists were counted at 11 locations within the City of Newport Beach over 63 hours of data collection by local volunteers. Of the 7,041 bicyclists, male bicyclists were 76%, female bicyclists were 22%, and children under 13 were 2% of those counted.

Table 4-10 shows the total bicycle riders counted for each study period at each count location. **Table 4-11** shows the calculated bicycle riders per hour at each count location. While these provide an important snapshot of bicycling in Newport Beach, it does not provide a comprehensive count of all bicyclists. Instead, the data offers clues as to where and when the community is bicycling. Detailed count results by location can be found in **Appendix F.**

Image 38 - *Bicycle parking at Ensign Intermediate School*

Table 4-10 *Bicycle Riders Counted by Location*

#	Location	Thursday 7-9 AM	Saturday 7-9 AM	Saturday 10 AM-1 PM
1	Coast Highway and Orange Street	158	442	1,134
2	Irvine Avenue and University Drive	67	--	103
3	Newport Boulevard and 32nd Street	57	--	249
4	Ocean Front and 28th Street	165	--	804
5	Irvine Avenue and 15th Street, adjacent Newport Harbor High School	168	--	70
6	Coast Highway and Bayside Drive	124	--	850
7	Eastbluff Drive and Back Bay Drive	159	334	713
8	Coast Highway and Iris Avenue	21	--	220
9	Bonita Canyon Drive and Chambord	85	--	68
10	Coast Highway and Newport Coast Drive	36	215	372
11	Newport Coast Drive and Ridge Park Road	38	192	197

As shown in **Table 4-10**, weekday bicycle rider counts varied from 21 to 168 cyclists, with high counts occurring at the following locations:

- Coast Highway/Orange Street;
- Ocean Front Path/28th Street;
- Irvine Avenue/15th Street;
- Coast Highway/Bayside Drive; and
- Eastbluff Drive/Back Bay Drive.

Most of the weekday high volume locations are likely related to recreational riding both along the beach and along regional trails such as Back Bay Drive. Additionally, the high counts at the Irvine Avenue/15th Street intersection are related to student activity during morning arrival at the adjacent Newport Harbor High School (NHHS).

As also shown in **Table 4-10**, weekend bicycle rider counts varied from 68 to 1,134 cyclists, with high counts occurring at locations with direct access to the beach and regional trails.

Table 4-11 *Hourly Bicycler Rider Count Results*

#	Location	Thursday Morning 1-Hour Average	Saturday Morning 1-Hour Average	Saturday Mid-Day 1-Hour Average
1	Coast Highway and Orange Street	79	221	378
2	Irvine Avenue and University Drive	34	--	34
3	Newport Boulevard and 32nd Street	29	--	83
4	Ocean Front and 28th Street	83	--	268
5	Irvine Avenue and 15th Street, adjacent Newport Harbor High School	84	--	23
6	Coast Highway and Bayside Drive	62	--	283
7	Eastbluff Drive and Back Bay Drive	80	167	238
8	Coast Highway and Iris Avenue	11	--	73
9	Bonita Canyon Drive and Chambord	43	--	23
10	Coast Highway and Newport Coast Drive	18	108	124
11	Newport Coast Drive and Ridge Park Road	19	96	66

As shown in **Table 4-11**, average hourly bicycle rider counts varied from 11 to 378 cyclists, with high counts occurring at locations with direct access to the beach and regional trails. Counters noted that on the weekends there were many groups of bicyclists. These weekend groups are likely for recreation, as it was noted in the survey that most community members bike mainly for this purpose.

The average weekday count was 98 bicyclists, and the median weekday count was 85 bicyclists. The average weekend count was 543 bicyclists, and the median weekend count was 249 bicyclists. **Figure 4-4** and **Figure 4-5** display the number of bicyclists per hour at each location.

The results of the Newport Beach bicycle counts show that:

- The majority of the bicyclists counted were male adults (76%).
- Approximately three percent of the bicyclists were children under 13 years old.
- Bicycling is more common on the weekend than weekdays.
- The most popular areas for bicycling on the weekend are Coast Highway at Orange Street and Coast Highway at Bayside Drive.
- The most popular areas for bicycling during the week are Irvine Avenue at 15th Street and Ocean Front Trail at 28th Street.
- One quarter of bicyclists counted did not wear helmets, with higher percentages as the count locations nearest the beach.
- 24% of bicyclists counted were riding on the sidewalk.
- 2.4% of bicyclists counted were riding on the wrong side of the road.

Based on the count, Newport Beach's ratio of male cyclists to female is approximately 3:1. This ratio is consistent with count data and anecdotal evidence from cities throughout the country. While bike-friendly cities in Northern Europe have an even split between men and women (in some cases more women cyclists than men), in North American cities with limited bicycling infrastructure, the number of men is higher in all cases. In cities that strive to create a fully-integrated network of bike facilities such as Portland, Oregon or Montreal, the number of female cyclists has inched closer to male cyclists but continues to be approximately half of the gross number of men. The expectation in Newport Beach is that the ratio of men to women will, in time, begin to balance out as the number of traffic-tolerant female cyclists increase as bicycle infrastructure improvements are implemented.

The high percentage of bicyclists not wearing helmets suggests a potential lack of understanding relating to helmet usage or general noncompliance. Many bicyclists are casual in nature near or at the beach, and often were not wearing helmets. Many bicyclists were also counted riding on the sidewalks, which also suggests that many bicyclists are not aware of the rules of the road, although in some locations this is allowed. Location seven, Eastbluff Drive and Bayside Drive, has signage that indicates bicyclists are allowed on the sidewalks. Only 2.4 percent of bicyclists counted were riding on the wrong side of the road. These observations suggest that programs educating bicyclists on proper behavior and safety is necessary.

On the count forms, many counters made additional notes about their observations. Common observations included high vehicle speeds, distracted drivers, and large groups of cyclists.

4.5 Bicycle-Related Incident Analysis

Safety is a major concern for current and potential bicyclists, and can influence the decision whether or not to bicycle. Potential bicyclists that do not have experience riding, especially in traffic, typically will not ride if they perceive the roadway as dangerous. People who do not ride often express frustration when drivers do not see them or do not understand that bicyclists are afforded the same rights as vehicles. Similarly, many bicyclists do not know or follow the "rules of the road." Uninformed or unlawful roadway users can contribute to incidents.

This section reviews bicycle-related incidents from January 2008 to October 2013. The data shown in this section is from reported traffic incidents that have been reviewed by the Police Department. **Table 4-12** presents the number of bicycle-related incidents in Newport Beach from 2008-2013 , and Figure 4-6 shows the number of bicycle-related incidents by location. The most incidents occurred in 2011, and have decreased since.

Image 39 - *Bicycle crossing push button for traffic signals*

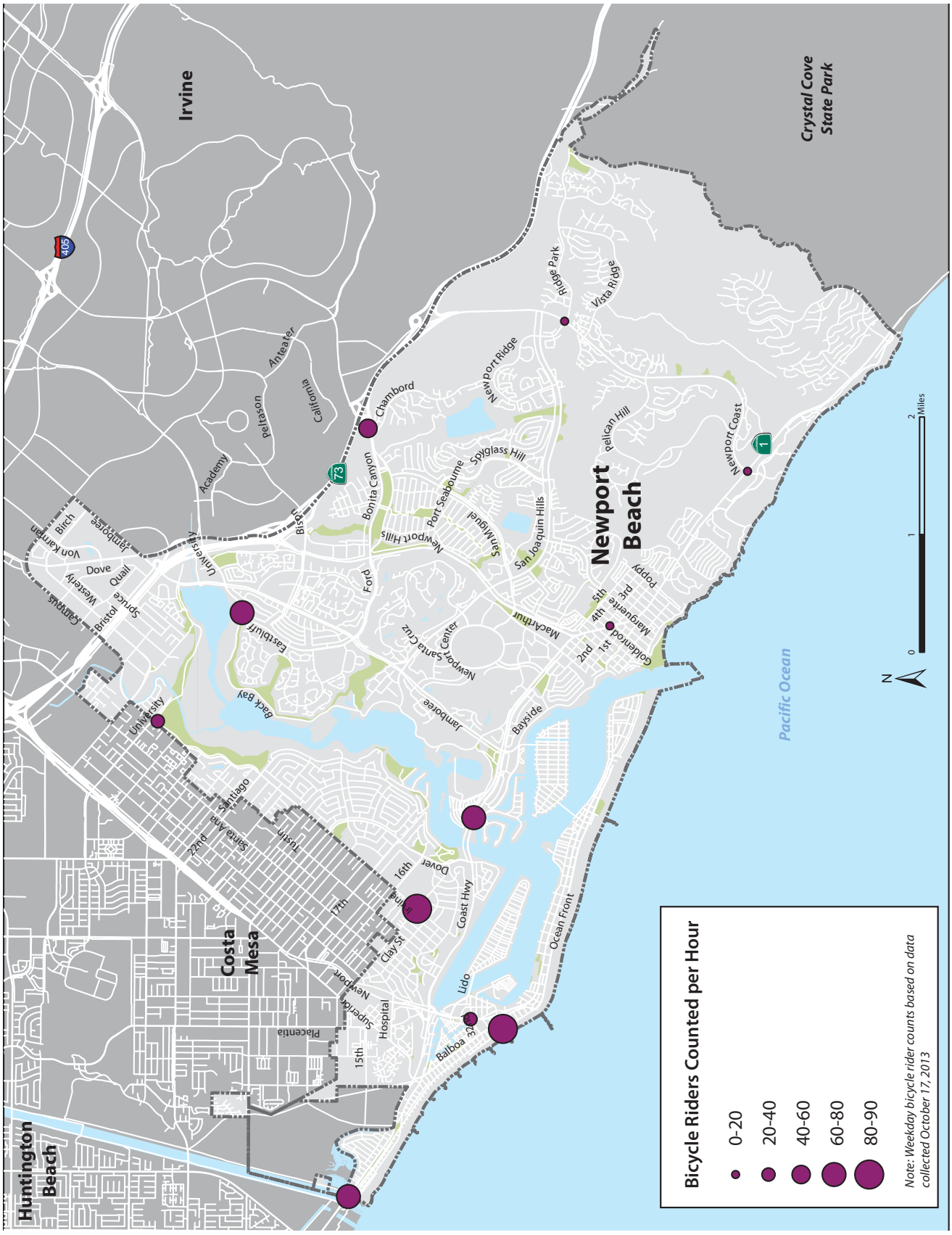


Figure 4-4- Weekday Bicycle Riders per Hour

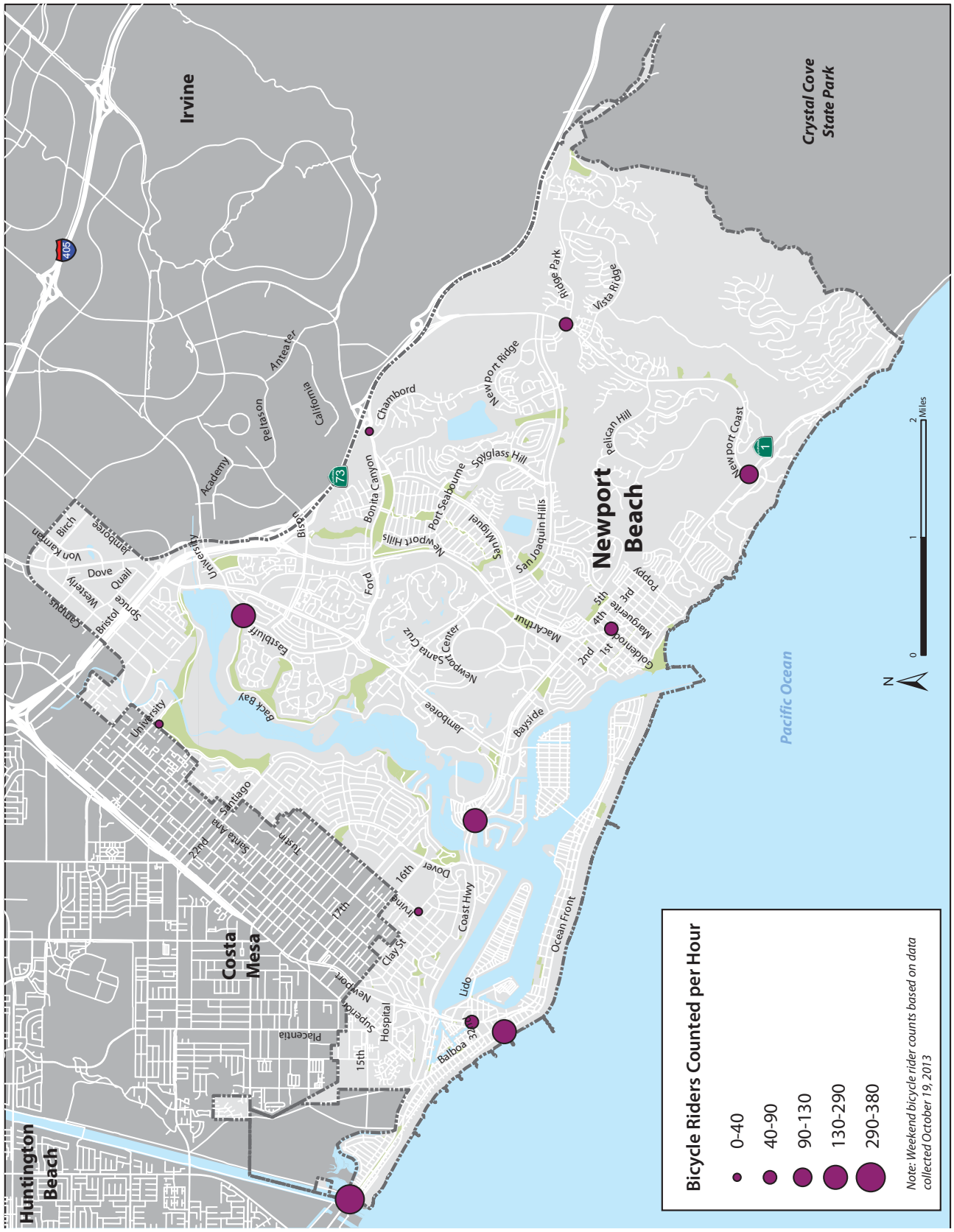


Figure 4-5 *- Saturday Mid-Day Bicycle Riders per Hour*

Table 4-12 Bicycle-Related Incidents by Year

Year	Number of Incidents
2008	92
2009	107
2010	105
2011	113
2012	106
2013 (partial)	99
Total	**622**

Note: 2013 bicycle-related incident data includes January-October incidents only.

The roadways with the most incidents generally reflects the concerns of those who responded to the survey. Coast Highway had the most bicycle-related incidents from 2008-2013, and was the most mentioned as being uncomfortable for bicyclists in the survey. **Table 4-13** displays the top 10 roadways with the most bicycle-related incidents based on data from 2008-2012 (excluding the partial year 2013 data).

Table 4-13 Highest Bicycle-Related Incident Roadways

Roadway	Number of Bike Incidents	Annual Average
Coast Highway	97	39
Newport Boulevard	51	10
Balboa Boulevard	50	10
Irvine Avenue	49	10
Jamboree Road	44	9
Bayside Drive	41	8
Dover Drive	34	7
Superior Avenue	29	6
Seashore Drive	27	5
Oceanfront Trail	23	5

Note: Based on 2008-2012 bike-related incident data.

Table 4-14 shows the percent of bicycle-related incidents based on the day of the week.

Table 4-14 Bicycle-Related Incidents by Day of the Week

Day of the Week	Percent of Incidents
Monday	13%
Tuesday	11%
Wednesday	14%
Thursday	11%
Friday	12%
Saturday	21%
Sunday	18%

As shown in **Table 4-14**, the highest percentage of bicycle-related incidents occurred on Saturdays, and the second highest on Sundays. According to the survey, most bicyclists in the area bicycle for the purpose of recreation or exercise, which may be a reason that the highest percentage of bicycle-related incidents occurred on arterial roadways on the weekend. The bike counts collected illustrate the hourly averages for bicyclists are typically higher on Saturdays than weekday counts.

Table **4-15** shows the percentages of bicycle-related incidents in Newport Beach based on the various combinations of transportation modes.

Table 4-15 Bicycle-Related Incidents by Combination of Modes Involved

Combination of Modes Involved	Percent of Incidents
Solo Bicycle (fell, struck fixed object, etc.)	29%
Bicycle-Moving Motor Vehicle	28%
Bicycle-Bicycle	8.7%
Bicycle-Parked Motor Vehicle	3.7%
Bicycle-Pedestrian	2.9%
Bicycle-Other/Not Stated	0.2%

As shown in **Table 4-15**, approximately 28% of bicycle-related incidents do not involve a second party; the bicycle rider either struck a fixed object, fell after losing control of the bicycle, or crashed for another reason not caused by another person or vehicle. Similarly, approximately 28% of bicycle-related incidents involved both a bicycle rider and a moving motor vehicle. Documented incidents between bicycle riders and pedestrians are relatively rare, accounting for fewer than 3% of incidents.

Table **4-16** shows the percent breakdown of the party determined by law enforcement authorities to have been at fault in a bicycle-related incident.

Table 4-16 Bicycle-Related Incidents by Mode of Party Determined to Be at Fault

Mode of Party at Fault	Percent of Incidents
Bicycle Rider	73%
Motorist (includes parked vehicle)	26%
Pedestrian	0.6%
Other	0.3%

As shown in **Table 4-16**, , the bicyclist was determined to be at fault in approximately 73% of bicycle-related incidents reviewed.

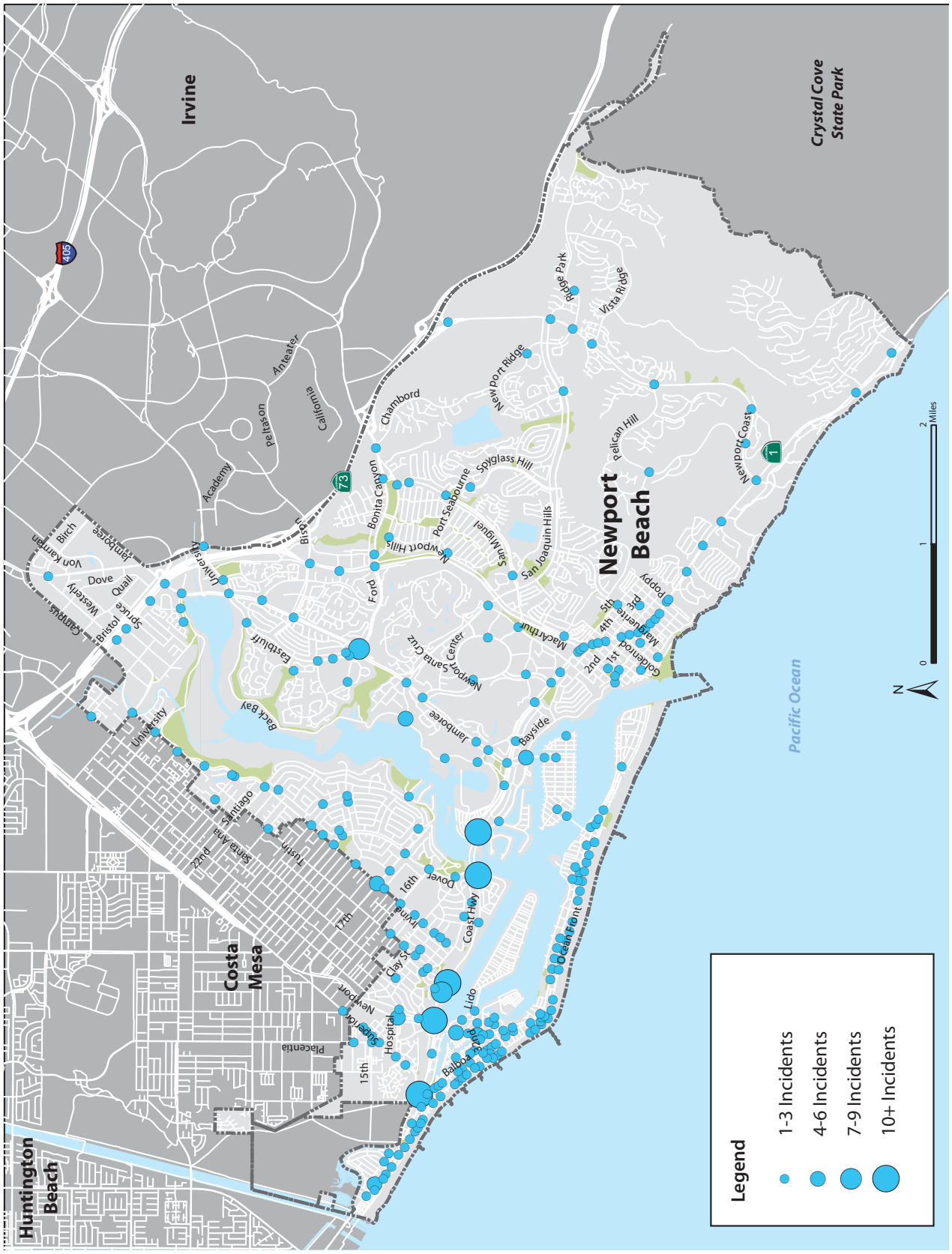


Figure 4-6 Bicycle-Related Incidents, 2008-2013

5 Recommended Bicycle Facilities and Programs

5.1 Planned Bicycle Network Projects

The City has secured funding and programmed implementation of 7.3 miles of bikeway projects within the next year. **Table 5-1** identifies the City-programmed bikeway projects. The Banning Ranch project plans to construct 3.0 miles of Class I and Class II bikeways facilities as identified in **Table 5-2**.

Table 5-1 *Programmed Bikeway Projects*

Roadway	From	To	Length (Miles)	Facility Type
Eastbluff Drive-Ford Road	Mar Vista Drive	MacArthur Boulevard	0.8	Class II
Jamboree Road	Bayview Way	East Coast Highway	3.2	Class II
San Joaquin Hills Road	Spyglass Hill Road	Jamboree Road	2.2	Class II
Spyglass Hill Road	San Miguel Drive	San Joaquin Hills Road	1.1	Class II
		Total	**7.3**	--

Table 5-2 *Planned Bikeway Projects*

Roadway	From	To	Length (Miles)	Facility Type
15th Street	North Bluff Road	Eastern Project Boundary	<0.1	Class II
15th Street	North Bluff Road	Eastern Project Boundary	<0.1	Class I
17th Street	North Bluff Road	Eastern Project Boundary	<0.1	Class II
Bluff Park Trail	Resort Colony Road	Seashore Drive	0.3	Class I
Bluff Road	West Coast Highway	North Bluff Road	0.4	Class II
Bluff Road Trail	West Coast Highway	North Bluff Road	0.2	Class I
North Bluff Road	Bluff Road	19th Street	1.1	Class II
North Bluff Road Trail	Bluff Road	North of 17th Street	0.7	Class I
		Total	**3.0**	--

The implementation of bikeway projects on the Banning Ranch property will be the responsibility of the developer, and the schedule for implementation will be coordinated through private sector development of the site.

5.2 Bicycle Network Recommendations

The proposed bikeway network, when completed, will include 145.3 miles of bicycle facilities to increase connectivity within Newport Beach, and to surrounding communities (Huntington Beach, Costa Mesa, Irvine, Laguna Beach). The proposed bikeway network has been developed to create a comprehensive, safe, and logical network.

Recommendations for bikeways within the City are subject to a variety of factors that affect the schedule and final implementation:

- Recommendations have been developed based on technical review and public input, however, the recommendations are conceptual and further feasibility review may be needed to address physical, community, and financial constraints.
- While a prioritized list is provided in the Implementation Chapter, projects may be implemented sooner based on coordination with other City projects or funding opportunities.

- Funding for the bikeway recommendations is discussed further in the Implementation Chapter, and suggestions are provided to the City to seek funding sources to minimize the effect on the City of Newport Beach General Fund for implementation.
- Various bicycle facility treatments are discussed in **Appendix G**, however, the City may develop further criteria and standards for use of bicycle treatments such sharrows, green conflict zone striping, bike lane buffers, etc.

Table 5-3 summarizes the bicycle network recommendations and total mileage by category. **Figure 5-1** shows the recommended bicycle facilities network.

Table 5-3 *Recommended Bikeway Network Mileage Totals*

Facility Type	Existing Bikeways (Miles)	Planned/ Programmed Bikeways (Miles)	Proposed Bikeways (Miles)	Total Bikeways (Miles)
Class I Shared-Use Path	18.9	1.3	7.7	27.9
Class II Bike Lane	40.4	9.0	19.8	69.2
Class III Bike Route	8.1	0.0	18.6	26.7
Sidewalks – Bicycle Riding Allowed	25.5	0.0	0.0	25.5
Total	**92.9**	**10.3**	**46.1**	**149.3**

Note: Spot improvements are not identified within this table.
Enhanced bikeways removed from this table to avoid double-counting mileages.

As shown in **Table 5-3**, when accounting for planned, programmed, and proposed bikeways, bikeways identified in this Plan total 149.3 miles.

5.2.1 Cost Estimates

The following planning-level costs are typically utilized to estimate capital expenditures required for implementation of bikeways by classification:

- Class I Shared-Use Path: $1,000,000 per mile;
- Class II Bike Lane: $50,000 per mile; and
- Class III Bike Route: $20,000 per mile.

While planning-level cost estimates can adequately provide a sense of the capital required for implementation, this Plan provides more detailed cost estimates based on review of current conditions and likely costs for implementation. The refined estimates are presented in the following tables for Class I, Class II, and Class III bikeways as well as for spot improvements. Cost estimates do not include potential right-of-way acquisition, extensive grading, landscaping, or potential utility impacts. Cost estimates have been refined but may vary based on further engineering review and are intended to provide an estimate for budgeting purposes.

Image 40 - *Detour signage during construction activities at Jamboree Road*

Figure 5-1 *Recommended Bicycle Facilities Network*

5.2.2 Class I Shared-Use Paths

Class I off-street shared-use paths are often desired by casual bicyclists, as well as bicyclists concerned about interacting with vehicular traffic. A network of off-street shared-use paths provides greater opportunities for connectivity to destinations throughout the community, so recommendations have been developed to improve the network within the City given notable property and right-of-way constraints. Some of the recommendations provided for shared-use paths require coordination with other agencies such as OC Parks, Caltrans, and California State Parks. Additionally, gaining access to existing maintenance roads may provide increased opportunities for Class I bicycle facilities.

Where there is not sufficient space or right-of-way for a Class I bicycle facility, buffered or physically protected Class II bike lanes can provide bicycle riders with a more comfortable level of separation from motor vehicle traffic and parked vehicles. The subsequent section further discusses Class II bicycle facilities in Newport Beach.

Table 5-4 identifies the proposed Class I shared-use paths for the City of Newport Beach bicycle network.

Table 5-4 *Proposed Class I Shared-Use Paths*

Roadway	From	To	Length (Miles)	Estimated Cost ($)
Bayview Trail Extension	Jamboree Road	Back Bay Drive	0.4	$225,000
Coast Highway	Bayside Drive	Dover Drive	0.4	$2,000,000
Constellation Trail	Constellation Drive	Bayview Trail	0.2	$207,000
Coyote Canyon Landfill Off-Street Path	Bonita Canyon Drive/ Chambord	San Joaquin Hills Road/ Newport Coast Drive	2.6	$360,000
Crystal Cove Park Trail Extension (includes Bridge)	Southern End of Existing Off-Street Trail	El Moro State Park Signal	0.24	$3,000,000
Eastbluff Drive	Bayview Trail/Jamboree Road	Back Bay Drive	0.3	$227,250
Lincoln School Trail	Pacific View Drive	San Joaquin Hills Road	0.2	$230,000
New Bridge over Superior Avenue	Superior Avenue	Future Banning Ranch Class I	<0.1	$5,000,000
New Class I Trail along Old Newport Boulevard	Avon Street Class I	Newport Boulevard Bridge Undercrossing	0.1	$75,000
New Class I Trail Near Sunset Ridge Park	Recommended Superior Avenue Bridge	Future Bluff Road Class II Bike Lanes	0.3	$400,000
New Class I Trail to Arroyo Park	North of MacArthur Boulevard	Ford Road	1.2	$1,265,000
New Class I Trail (Avon Street Extension)	Old Newport Boulevard	Avon Street	0.1	$600,000
Port Streets Off-Street Trail Improvements	Pacific View Drive	Ford Road	1.5	$64,050
Santa Ana River Trail Extension	Seashore Drive	Santa Ana River Trail East Bank Southerly Terminus	<0.1	$500,000
	Total Proposed Class I Shared-Use Paths		**7.7**	**$14,153,300**

As shown in **Table 5-4** a total of 7.7 miles Class I Shared-use paths are recommended.

5.2.3 Class II Bike Lanes

Many commuters and recreational bicyclists may prefer bike lanes due to their more direct routing. This report recommends the City improve locations where existing Class II bike lanes may have limited functionality due to potential "dooring" issues adjacent to parked cars, or locations where gutter pans and drainage grates effectively narrow the width of the bike lane. In some locations where wide Class II bike lanes are currently provided, modification of striping to provide a buffer between on-street parking and/or vehicular traffic is recommended. At other locations with minimal crossings, protected bike lanes may be recommended. The use of buffered or protected bike lanes will be considered on a case-by-case basis through the design of the facility.

Table 5-5 identifies the proposed or enhanced Class II bike lanes for the City of Newport Beach bicycle network.

Table 5-5 *Proposed/Enhanced Class II Bike Lanes*

Roadway	From	To	Length (Miles)	Estimated Cost ($)
32nd Street	Newport Boulevard	Via Lido	0.2	$25,000
32nd Street (Enhance Existing)	Balboa Boulevard	Newport Boulevard	0.1	$241,500
Avocado Avenue	East Coast Highway	Waterfront Drive	0.3	$18,000
Back Bay Drive (Enhance Existing)	Shellmaker Road	Eastbluff Road	2.9	$290,000
Balboa Boulevard	East Coast Highway	43rd Street	0.2	$50,000
Bayside Drive	Mid-block Signal	Marine Avenue	0.4	$185,000
Birch Street	Bristol Street South	Jamboree Road	1.4	$145,000
Bison Avenue	Jamboree Road	MacArthur Boulevard	0.5	$25,000
Campus Drive	MacArthur Boulevard	Jamboree Road	0.7	$28,000
Dove Street	Campus Drive	Bristol Street North	0.9	$90,000
East Coast Highway (Enhance Existing)	Dover Drive	Avocado Avenue	2.0	$205,000
East Coast Highway	Seaward Road	Pelican Point Drive	0.7	$70,000
East Coast Highway (Enhance Existing)	Pelican Point Drive	0.2 miles west of East City Limit	2.1	$210,000
East Coast Highway	0.2 miles west of East City Limit	Eastern City Limits	0.2	$20,000
Irvine Avenue	East 15th Street	East 16th Street	0.3	$90,000
Irvine Avenue (Enhance Existing)	17th Street	University Drive	2.9	$200,000
Jamboree Road	Bayview Way	Bristol Street North	0.2	$12,500
Jamboree Road	Bristol Street North	Campus Drive	0.9	$350,000
MacArthur Boulevard	Campus Drive	Jamboree Road	1.0	$42,000
Marguerite Avenue	San Joaquin Hills Road	Harbor View Drive	0.6	$37,500
Newport Boulevard	Via Lido	32nd Street	0.2	$20,000
Newport Center Drive	San Miguel Drive	San Miguel Drive	1.3	$130,000
Newport Coast Drive (Enhance Existing)	East Coast Highway	SR-73 Freeway	3.0	$114,000
Newport Ridge Drive East/West	San Joaquin Hills Road	San Joaquin Hills Road	1.2	$50,000
Palm Street	Ocean Front Path	Balboa Boulevard	<0.1	$50,000
Pelican Hill Road	Newport Coast Drive	Newport Coast Drive	2.1	$84,000
Quail Street	Campus Drive	Dove Street	0.7	$65,000
Ridge Park Road	San Joaquin Hills Road	East Coastal Peak	1.8	$70,000

Table 5-5 *Proposed/Enhanced Class II Bike Lanes (continued)*

Roadway	From	To	Length (Miles)	Estimated Cost ($)
Riverside Avenue	Cliff Drive	Avon Street	0.2	$20,000
San Joaquin Hills Road	Jamboree Road	Back Bay Drive	0.3	$50,000
San Joaquin Hills Road (Enhance Existing/Planned)	Jamboree Road	Newport Coast Drive	3.7	$112,500
San Nicolas Drive	Newport Center Drive	Avocado Avenue	0.2	$20,000
Santa Ana Avenue	Cliff Drive	15th Street	0.4	$18,000
Seashore Drive (Enhance Existing)	Orange Street	Balboa Boulevard	1.5	$30,000
Spruce Avenue	Bristol Street North	Quail Street	0.1	$4,800
Vista Ridge Road	Ridge Park Road	Newport Coast Drive	1.4	$60,000
Von Karman Avenue/Newport Place Drive	Dove Street	Campus Drive	0.7	$45,000
West Coast Highway	Western City Limits	Orange Street	0.3	$21,000
West Coast Highway (Enhance Existing)	Orange Street	Newport Boulevard	1.5	$105,000
Westerly Place	Quail Street	Dove Street	0.3	$30,000
West Coast Highway (Enhance Existing Class III)	Newport Boulevard	Dover Drive	1.4	$140,000
	Total Proposed/Enhanced Class II Bike Lanes		**40.9**	**$3,573,800**

Note: Class II enhancements are included in the table above.

As shown in **Table 5-5** a total of 40.9 Class II bike lanes are recommended, of which 21.1 miles are new bikeways and 19.8 miles are existing bikeways recommended for enhancement.

5.2.4 Class III Bike Routes

Any street that is legal for bicycles is inherently a shared roadway in which bicyclists and drivers share a lane of traffic, and a car cannot necessarily pass a bicyclist in the same lane. To improve motorists' awareness of the presence of bicyclists and to indicate good routes for bicyclists, cities often post signs indicating that the road is a "Class III Bike Route," as well as painting shared roadway markings in the travel lane. Class III bike routes are often identified at locations where the available street width is not wide enough to accommodate an on-street bike lane (Class II facility).

Table 5-6 identifies the proposed or enhanced Class III bike routes for the City of Newport Beach bicycle network. There are bike routes identified in the table below that currently are shown on the bikeway map as existing, however, improvements are recommended to better identify the facility.

During community engagement activities, a high number of comments were submitted requesting further use shared lane markings (sharrows) within the City. Sharrows are currently utilized in the City on East Coast Highway within Corona del Mar, Bayside between El Paseo and Marguerite Avenue, and Avocado Avenue north of San Miguel Road. It is recommended that the City develop a policy for use of sharrows to select the most appropriate locations for implementation. Additional enhancements for Class III bike routes include the increased use of "Bikes May Use Full Lane" signage (MUTCD R4-11).

R4-11

Table 5-6 *Proposed/Enhanced Class III Bike Routes*

Roadway	From	To	Length (Miles)	Estimated Cost ($)
46th Street	Balboa Boulevard	Seashore Drive	0.1	$20,000
47th Street	Balboa Boulevard	Seashore Drive	0.1	$20,000
Agate Avenue	South Bay Front	North Bay Front	0.2	$20,000
Avon Street	Riverside Avenue	Western Terminus	0.2	$20,000
Balboa Boulevard	32nd Street	G Street	2.7	$50,000
Bayside Drive	East Coast Highway	Existing Class I North of Coast Highway	0.2	$70,000
Beacon Street	Tustin Avenue	Irvine Avenue	0.3	$40,000
Clay Street (Bike Boulevard)	Orange Avenue	East 15th Street (East of St. Andrews Road)	1.1	$100,000
East 15th Street	Western Terminus	Placentia Avenue	0.3	$20,000
East Bay Avenue	Palm Street	Main Street	0.1	$20,000
East Coast Highway (Enhance Existing)	Poppy Avenue	Seaward Road	0.1	$10,000
East Ocean Boulevard	G Street	Channel Road	0.6	$10,000
Fernleaf Avenue	Bayside Drive	Ocean Avenue	0.2	$20,000
Fifth Avenue (Bike Boulevard)	East Coast Highway	Iris Avenue	0.3	$35,000
Fullerton Avenue (Bike Boulevard)	Cliff Drive	15th Street	0.3	$50,000
G Street	Balboa Boulevard	Ocean Boulevard	<0.1	$10,000
Goldenrod Avenue	First Avenue	Second Avenue	0.2	$10,000
Goldenrod Avenue (Enhance Existing)	East Coast Highway	Northern Edge of Harbor View Elementary School	0.3	$20,000
Goldenrod Avenue	Seaview Avenue	Ocean Boulevard	0.1	$15,000
Hospital Road	Superior Avenue	Old Newport Boulevard	0.4	$30,000
Jamboree Road	Coast Highway	Bayside Drive	0.1	$20,000
Main Street	Ocean Front Path	Edgewater Avenue	0.1	$20,000
Marguerite Avenue	Ocean Boulevard	Fifth Avenue	0.5	$20,000
Marguerite Avenue	San Joaquin Hills Road	Pacific View Drive	0.2	$7,500
Marine Avenue	South Bay Front Alley	Bayside Drive	0.4	$20,000
Mesa Drive	Birch Street	Bayview Trail (150' southeast of Bayview Avenue)	0.5	$30,000
Newport Boulevard Alley	Via Lido	32nd Street	0.2	$50,000
Newport Hills Drive West	Ford Road	Buffalo Hills Trail	1.0	$30,000
North Bay Front Alley	Marine Avenue	Agate Avenue	0.4	$15,000
Ocean Boulevard	Fernleaf Avenue	Poppy Avenue	0.7	$20,000
Orange Avenue (Bike Boulevard)	Clay Street	15th Street	<0.1	$20,000
Orchid Avenue (Bike Boulevard)	Ocean Boulevard	Fifth Avenue	0.5	$60,000
Pacific View Drive	Lincoln Elementary School West Driveway	Marguerite Avenue	0.2	$30,000
Palm Street	Balboa Boulevard	Edgewater Avenue	0.1	$10,000
Park Avenue	South Bay Front	East Bay Front	0.8	$20,000
Poppy Avenue	Fifth Avenue	Ocean Avenue	0.6	$20,000

***Table 5-6** Proposed/Enhanced Class III Bike Routes (continued)*

Roadway	From	To	Length (Miles)	Estimated Cost ($)
Port Seabourne Place	Newport Hills Drive West	Buffalo Hills Trail	0.2	$20,000
Santa Ana Avenue	Old Newport Boulevard	Cliff Drive	0.2	$30,000
Santiago Drive	Irvine Avenue	Tustin Avenue	0.4	$20,000
Santiago Drive (Bike Boulevard)	Polaris Drive	Irvine Avenue	1.6	$200,000
Seashore Drive	Santa Ana River Trail East Bank	Orange Street	0.3	$20,000
South Bay Front Alley	Agate Avenue	Marine Avenue	0.5	$30,000
St. Andrews Road	Cliff Drive	East 15th Street	0.3	$50,000
Tustin Avenue (Bike Boulevard)	Cliff Drive	15th Street	0.3	$50,000
Via Lido	Lafayette Road/32nd Street	Via Lido Soud	0.2	$10,000
Westcliff Drive	Irvine Avenue	Dover Drive	0.3	$20,000
Westminster Avenue	Old Newport Boulevard	15th Street	0.4	$30,000
	Total Proposed/Enhanced Class III Bike Routes		**19.0**	**$1,462,500**

Note: Class III bikeway enhancements are included in the table above.

As shown in **Table 5-6** a total of 19.0 Class III bike routes are recommended, of which 18.6 miles are new bikeways and 104 miles are existing bikeways recommended for enhancement.

5.2.5 Sidewalks – Bicycle Riding Allowed

As noted early in this document, per the City Municipal Code Section 12.56.30 and City Council Resolution 82-148, bicycle riding is allowed on various sidewalks throughout the City. An update to the current resolution is recommended and additional wayfinding and striping is recommended to further strengthen where bicycle riding is allowed.

Riding a bicycle on the sidewalk is observed regularly throughout the City, and the City has built a network of sidewalks to better accommodate both pedestrians and bicyclists. Bicycle riding is often preferred by cyclists to connect facilities. Typically the City has designated wider sidewalks to allow for bicycle riding. Bike lane markings cannot be utilized on sidewalks since they are exclusively for use in on-street bike lanes.

To increase awareness on sidewalks where cycling is allowed, the City may consider signage and striping treatments such as "bike dots" with arrows to direct cyclists and remind pedestrians that bicycles may be present on the sidewalk. Additional signage and markings may be considered to promote responsible use of the sidewalk, such as "Bikes Yield to Peds" signs.

For sidewalks where bicycle riding is not allowed, the City may consider signage and striping to discourage cyclists from riding on the sidewalk, such as "Walk Bikes" markings. These markings are generally considered for use in business districts and recreational areas with heavy pedestrian usage such as the Bay Front walk around Balboa Island or the Corona del Mar Village. Special consideration should be given to reduce the impact of additional signs and markings.

Prior mapping of the bikeways network has identified the sidewalks where bicycling is allowed as Class I facilities. Since the City-designated sidewalks are typically directly adjacent to the edge of the roadway with no buffer distance (or physical barrier) provided, the Class I designation does not satisfy with State requirements.

***Image 41 -** Bike Dot with Arrow*

***Image 42 -** "Bikes Yield to Peds" Sign*

This Plan recommends that the City of Newport Beach remove the Class I designation on sidewalks where bicycling is allowed, and designate the locations shown in **Table 5-7** as "Sidewalks – Bicycle Riding Allowed" locations. **Figure 5-2** shows the network of sidewalks where bicycle riding is allowed.

Table 5-7 *Sidewalks – Bicycle Riding Allowed*

#	Roadway	From	To
1	Avocado Avenue	San Miguel Drive	East Coast Highway
2	Bison Avenue	Camelback Street	MacArthur Boulevard
3	Bonita Canyon Drive	MacArthur Boulevard	SR-73 (East City Limit)
4	Bristol Street North	Campus Drive	Jamboree Road
5	Bristol Street South	Campus Drive	Jamboree Road
6	Coast Highway	Dover Drive	Jamboree Road
7	East Coast Highway	Coast Highway Trail Eastern Terminus	Avocado Avenue
8	Eastbluff Drive North	Jamboree Road	Back Bay Drive
9	Eastbluff Drive South	Jamboree Road	Mar Vista Road
10	Ford Road	Jamboree Road	MacArthur Boulevard
11	Ford Road	Bonita Canyon Sports Park Parking Lot	East Terminus
12	Irvine Avenue	Beacon Street	15th Street
13	Jamboree Road	Bristol Street South	Campus Drive
14	Jamboree Road	East Coast Highway	University Avenue/Eastbluff Drive
15	MacArthur Boulevard	Coast Hwy	Bison Avenue
16	Marguerite Avenue	San Joaquin Hills Road	5th Avenue
17	Newport Boulevard	Via Lido	West Coast Hwy (Northbound Newport On-Ramp)
18	Newport Coast Drive	East Coast Highway	San Joaquin Hills Road
19	San Joaquin Hills Road	Park Newport	San Miguel Drive
20	San Joaquin Hills Road Free-Right	San Joaquin Hills Road	Jamboree Road
21	San Miguel Drive	San Joaquin Hills Road	Ford Road
22	Spyglass Hill Drive	San Miguel Drive	San Joaquin Hills Road
23	Via Lido	Lafayette Road	Via Lido Soud
24	West Coast Highway	Riverside Avenue	Santa Ana River Trail

Image 43 - *Via Lido Bridge*

Image 44 - *Sidewalk riding near Vista Point*

***Figure 5-2** Sidewalks - Bicycle Riding Allowed*

5.2.6 Bicycle Boulevards

Bicycle boulevards are generally defined as low-volume, low-speed streets that have been optimized for bicycle travel using treatments such as traffic calming and traffic reduction, signage and pavement markings, and intersection crossing treatments. The concept of bicycle boulevards is supported by Objective 1.1 of this Plan, which states, "Expand the existing bicycle network to provide a comprehensive, network of Class I, Class II, and Class III facilities that increases connectivity between homes, jobs, public transit, and recreational resources in the Newport Beach." **Table 5-8** and **Figure 5-3** identifies the recommended bicycle boulevards for the City of Newport Beach bicycle network. A few of the bicycle boulevards traverse multiple bikeway types (off-street or on-street bikeways) as well as multiple streets, so the proposed boulevards are numbered to illustrate the routing. A total of 6.3 miles of bicycle boulevards are recommended for further analysis and future implementation by the City.

***Table 5-8** Proposed Bicycle Boulevards*

Bike Boulevard #	Roadway	From	To	Length (Miles)
1	Clay Street	Orange Avenue	15th Street	1.2
	Orange Avenue	Clay Street	15th Street	
2	Fullerton Avenue	Cliff Drive	15th Street	0.3
3	Santiago Drive	Polaris Drive	Tustin Avenue	1.9
4	Fifth Avenue	Orchid Avenue	East Coast Highway	1.2
	Orchid Avenue	Fifth Avenue	Ocean Boulevard	
5	Avocado Avenue	East Coast Highway	Second Avenue	1.4
	Second Avenue	Avocado Avenue	Goldenrod Avenue	
	Goldenrod Avenue*	Second Avenue	Seaview Avenue	
	Seaview Avenue	Goldenrod Avenue	Poppy Avenue	
	Poppy Avenue	Seaview Avenue	East Coast Highway	
6	Tustin Avenue	Cliff Drive	15th Street	0.3
			Total	**6.3**

*Note: * = Riders are required to dismount at Goldenrod Avenue Pedestrian Bridge .*

***Image 45 -** Fifth Avenue Trail through Jasmine View Park*

***Image 46 -** Custom bicycle boulevard sign utilized on Vista Street in Long Beach.*

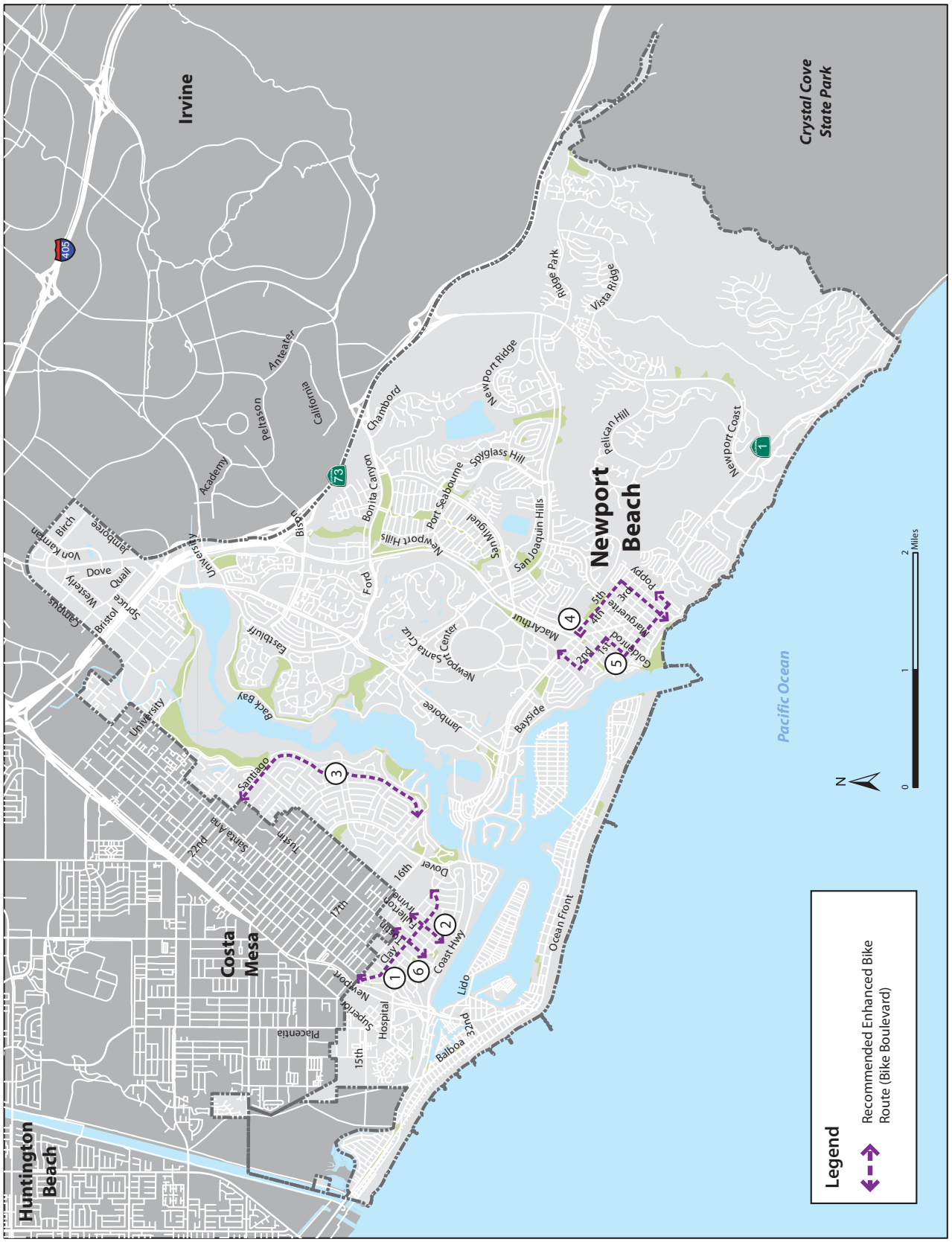


***Figure 5-3** Recommended Bicycle Boulevards*

Since no bicycle boulevards exist today, it is recommended the City study the feasibility of bicycle boulevards including public outreach in the community where the improvements are proposed. Additional consideration should be given to implementation of the first bicycle boulevards on streets where traffic calming has historically been requested or locations that bicyclists already utilize as a parallel route to avoid a high traffic volume or high speed roadway.

5.2.7 Spot Improvements

Public input helped identify a variety of locations where specialized refinements are desired to improve bicycle accommodation, and minimize conflicts between bicyclists, pedestrians, and motorists. Potential improvements may include changes to signage and striping, modified wayfinding, and use of bicycle treatments such as bike lane extensions or conflict zone striping. Proposed spot improvements located within Caltrans or OC Parks right-of-way have been listed in a separate table, where the final implementation will be the responsibility of an agency other than the City, with coordination efforts provided by City staff.

Table 5-9, **Table 5-10**, and **Figure 5-4** identify the recommended spot improvements; however, additional locations will likely be considered based on continued City evaluation of the system and in response to specific concerns noted by the community.

Table 5-9 *Proposed Spot Improvements – City*

#	Location	Ownership/ Right-of-Way	Notes	Estimated Cost ($)
1	32nd Street/Newport Boulevard Intersection	City of Newport Beach	Modify intersection to use bike box and crossing treatments to improve bicycle accommodation.	$20,000
2	Back Bay Drive ne ar Park Newport	City of Newport Beach	Install warning signs and enhanced striping to increase visibility in this segment.	$20,000
3	Bayside Drive/El Paseo Drive	City of Newport Beach	Implement sidewalk improvements and extend sharrows for northbound traffic north of El Paseo Drive for approximately 400 feet to close gap with on-street bike lane.	$20,000
4	Bayside Drive/Marine Avenue Intersection	City of Newport Beach	Review intersection signage, markings, and wayfinding to improve bicycle accommodation.	$30,000
5	Bayside Drive Near the Dunes entrance	City of Newport Beach	Revise signage and striping at bike trail intersection with roadway to increase awareness of the intersection for cyclists and motorists.	$10,000
6	Dover Drive South of 16th Street	City of Newport Beach	Revise edge striping to widen bicycle lanes.	$20,000
7	Irvine Avenue/ Santiago Drive Intersection	City of Newport Beach	Review striping to maintain Irvine Avenue on-street bike lane in vicinity of Santiago Drive.	$30,000
8	Newport Coast Drive/ Ridge Park Road Intersection	City of Newport Beach	Construct bicycle/pedestrian bridge over Newport Center Drive in vicinity of Ridge Park Road to provide connectivity with residential, commercial, and school land uses.	$2,000,000
9	Newport Pier Parking Lot	City of Newport Beach	Construct separated bicycle facility to continue Ocean Front path through or around the parking lot.	$400,000
10	Ridge Park Road and Vista Ridge Road	City of Newport Beach	Install "Bikes May Use Full Lane" signs to inform motorists and cyclists to safely share the road.	$5,000
11	San Joaquin Hills Road (from Marguerite Avenue to Spyglass Hill Road)	City of Newport Beach	Update signage, markings, and wayfinding to improve bicycle accommodation near school related to student drop-off/pick-up activity.	$10,000

12	Superior Avenue/ West Coast Highway Intersection	City of Newport Beach	Coordinate with Caltrans to modify to use conflict zone striping and other treatments to improve bicycle accommodation at merge/transition areas for southbound travel approaching intersection.	$30,000
13	West Balboa Boulevard (from 23rd Street to 21st Street)	City of Newport Beach	Add "Bikes May Use Full Lane" signs and consider use of sharrows to facilitate the safe travel of southbound bicyclists continuing along Balboa Boulevard.	$20,000
			Total	**$2,615,000**

Table 5-10 *Proposed Spot Improvements – Caltrans/OC Parks*

#	Location	Ownership/ Right-of-Way	Notes	Estimated Cost ($)
14	Bayside Drive/ East Coast Highway Intersection	Caltrans	Coordinate with Caltrans to update signage, markings, and wayfinding to improve bicycle accommodation.	$20,000
15	Bayview Trail	OC Parks	Coordinate with OC Parks to improve signage, markings, and wayfinding to slow cyclists approaching sidewalk portion of trail along Eastbluff Drive.	$10,000
16	Crystal Cove Trail at Ruby's Shake Shack	Caltrans	Coordinate with Caltrans and California State Parks to update signage, markings, and wayfinding along the off-street trail at the junction with the Ruby's Shake Shack parking lot along East Coast Highway. Improvements are within State right-of-way and require State approval.	$20,000
17	Dover Drive/West Coast Highway Intersection	Caltrans	Coordinate with Caltrans to update signage, markings, and wayfinding to improve bicycle accommodation.	$20,000
18	Northbound SR-73 On-Ramp/Newport Coast Drive Intersection	Caltrans	Coordinate with Caltrans to modify roadway striping at Newport Coast Drive approaching the northbound on-ramp to remove the option through/right from the center travel lane. Work with Caltrans and City of Irvine to improve signage, markings, and wayfinding at intersection.	$40,000
19	Riverside Avenue/ West Coast Highway Intersection	Caltrans	Work with Caltrans to improve signage, markings, and wayfinding at intersection and wayfinding to direct cyclists towards beach from Riverside Avenue. Improvements are within State right-of-way, and require State approval.	$20,000
20	Southbound SR-73 Off-Ramp/Newport Coast Drive	Caltrans	Coordinate with Caltrans to modify crossing between motorists and bicyclists from junction with freeway off-ramp. Consider speed reduction signs and transverse audible warning lines on off-ramp, and pavement improvements to better accommodate bicycle travel. Long-term consideration may include realignment of ramp (cost to be determined).	$70,000
21	West Coast Highway/ Newport Boulevard Intersection	Caltrans	Coordinate with Caltrans to update signage, markings, and wayfinding to improve bicycle accommodation.	$30,000

22	West Coast Highway (from Newport Boulevard to Riverside Drive)	Caltrans	Coordinate with Caltrans to improve signage, markings, and wayfinding to guide cyclists from Newport Boulevard to Riverside Avenue using sidewalks designated for bicycling. Review sidewalks to remove and relocate utilities and posts. Improvements are within State right-of-way and require State approval.	$300,000
23	West Coast Highway (from Santa Ana River Trail to Orange Street)	Caltrans	Coordinate with Caltrans to improve signage, markings, and wayfinding to guide cyclists from Santa Ana River Trail to Orange Street using sidewalks designated for bicycling. Review sidewalks to remove and relocate utilities and posts. Improvements are within State right-of-way and require State approval.	$10,000
24	West Coast Highway/ Orange Street Intersection (Southwest Corner)	Caltrans	Coordinate with Caltrans to improve the sidewalk on the southwest leg of the intersection to facilitate the shared use of the sidewalk by bicyclists and pedestrians. Improvements are within State right-of-way and require State approval.	$30,000
			Total	**$570,000**

5.2.8 Other Recommendations

Back Bay Drive

During the course of the preparation of this Bicycle Master Plan, the treatment and configuration of Back Bay Drive has gained attention with the Bicycle Master Plan Oversight Committee. A dedicated subcommittee was formed to solicit public input on Back Bay Drive and to provide recommendations to address multi-modal needs along the trail which accommodates one-way northbound vehicular travel between Shellmaker Road and Eastbluff Drive. This Plan recommends enhancements of Back Bay Drive, however, the refined design and treatment for Back Bay Drive will be considered by the City Council.

Ocean Front Path

Through the preparation of this Plan, four major ideas related to the improvement of the Ocean Front shared-use path have been discussed:

1. Widen the path to enhance its operation for pedestrians and cyclists during the peak (summer) months;
2. Extend the easterly terminus of the path from E Street to G Street to facilitate a smoother transition to Ocean Avenue for users heading to the Wedge;
3. Extend the westerly terminus of the path from 36th Street to the proposed Santa Ana River Trail Extension; and
4. Extend the path through or around the Ocean Front parking lot in the Newport Pier area to minimize the mixing of pedestrians and cyclists with motor vehicles.

It should be noted that there are significant challenges associated with these projects related to project permitting, construction on beach areas, close proximity of residents, and ongoing illegal encroachment issues.

Considering these challenges, this Plan recommends a comprehensive study of the Ocean Front with regard to the above ideas, including their benefits, impacts, and challenges for City Council consideration.

Traffic Signal Timing and Detection Improvements

As discussed in Section 3.2.1, the City currently complies with State guidelines for traffic signal timing and detection, including recent changes that require updates at new and upgraded intersections. This is accomplished through traffic signal retiming, upgrades, and rehabilitation projects. This Plan recommends the City continue to update traffic signal timing for compliance with the State Guidelines with emphasis on corridors that experience heavy cyclist activity. On corridors that are operated by other agencies, such as the Caltrans-operated sections of Coast Highway, the City may work with the other agency to update their traffic signal timing.

Coordination with Other Agencies

The development of this Plan included coordination with other agencies to promote cross-jurisdictional continuity in the bikeway network. This Plan recommends the City share the Plan with other agencies and consider other regional and local bicycle plans when proposing boundary projects. Additionally, several recommendations within this Plan include improvements in State right-of-way or that cross into other agencies' jurisdiction. This Plan recommends the City work with the other agency as a major stakeholder. For recommended improvements on Coast Highway, the City may work with Caltrans to

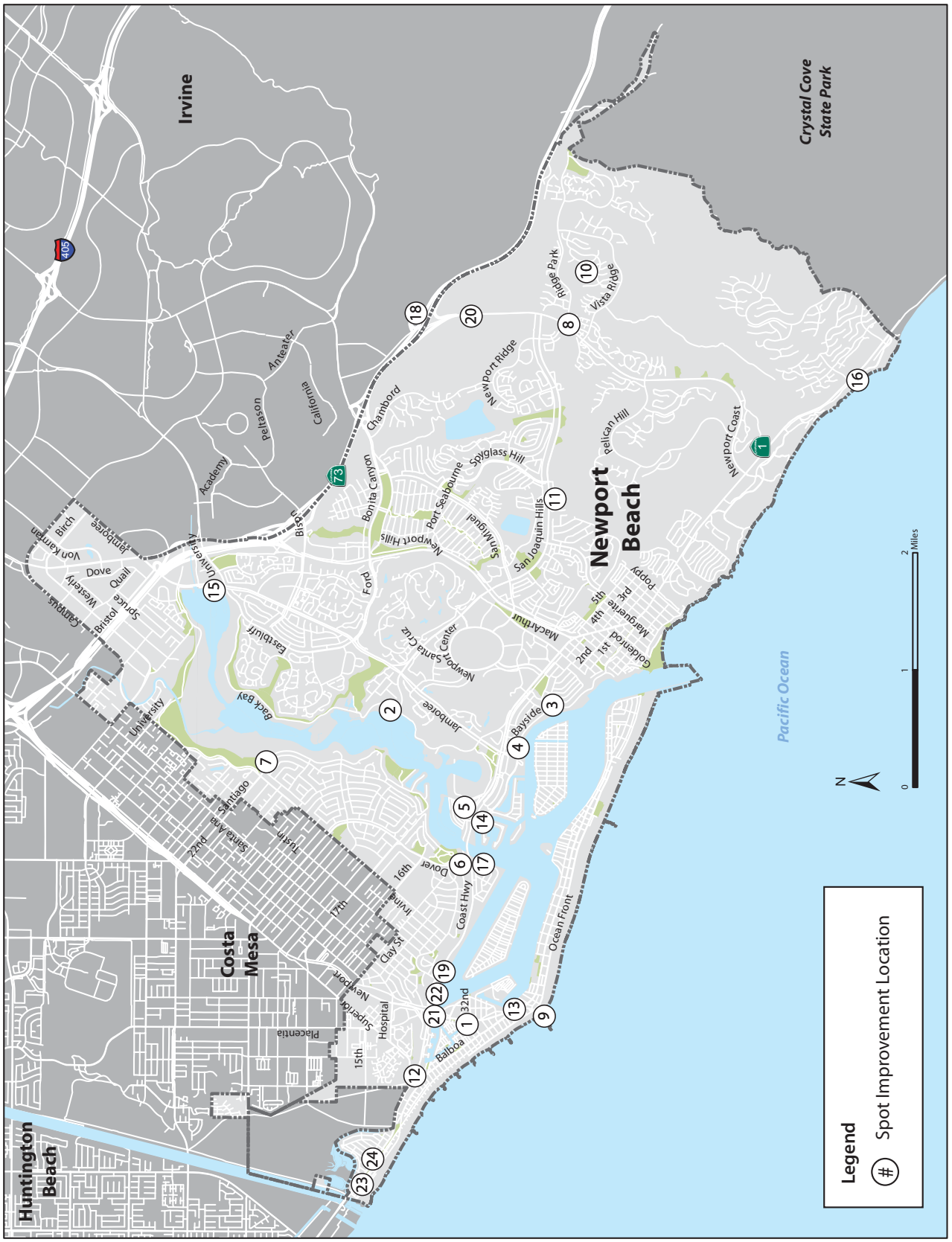


Figure 5-4 Recommended Spot Improvement Locations

implement bike improvements through a Caltrans project, City project, or the Encroachment Permit process. The appropriate project path can be determined at the time of proposal.

Construction/Maintenance Items Placed in Bicycle Lanes

Construction and maintenance operations are often located adjacent to bike lanes and require use of the shoulder, causing equipment, signs, or materials to be placed within the bike lane. Often, these items, such as advance warning signage for construction, are required. Combined with Federal requirements to maintain pedestrian pathways (per the Americans with Disabilities Act), space where required equipment can be placed is limited.

Recently, the City has reached out to landscaping companies in the Newport Coast area to limit their time parked in the bike lane and place cones behind the vehicles as a warning to approaching vehicles when necessary to be at that location.

This Plan recommends the City continue to work with landscaping, utility, and other maintenance companies to consider alternate locations for their equipment outside of the bike lane or limit their time within the bike lane.

Additionally, this Plan recommends the City review the construction specifications and permit requirements to encourage construction contractors to locate equipment, signs, and other items outside of the bike lane while maintaining a minimum four foot sidewalk for pedestrian accessibility. Additional conditions may be applied to install the bike lane signage or accommodate bicyclists through creation of a bike lane through the construction zone when appropriate.

5.3 Recommended End-of-Trip Bicycle Facilities

Support facilities and connections to other modes of transportation are essential components of a bicycle system because they enhance safety and convenience for bicyclists at the end of every trip. With nearly all utilitarian and many recreational bike trips, bicyclists need secure and well-located bicycle parking. A comprehensive bicycle parking strategy is one of the most important things that a jurisdiction can apply to immediately enhance the bicycling environment. Moreover, a bicycle parking strategy with connections to public transit will further the geographical range of residents traveling without using an automobile.

Bicycle parking can be categorized into short-term and long-term parking. Bicycle racks are the preferred device for short-term bike parking. These racks serve people who leave their bicycles for relatively short periods of time, typically for shopping or errands, eating or recreation. Bicycle racks provide a high level of convenience and moderate level of security. Long-term bike parking includes bike lockers and bike rooms and serves people who intend to leave their bicycles for longer periods of time and are typically found in multifamily residential buildings and commercial buildings. These facilities provide a high level of security but are less convenient than bicycle racks. Additional guidance on end-of-trip bicycle facility design is provided in Appendix G.

Figure 5-5 Types of Bicycle Racks

U-Rack *Post and Loop* *Horseshoe* *Lightning Bolt™ or Varsity Rack™*

5.3.1 Short-Term Bicycle Parking

This plan recommends the City adopt the short-term bicycle rack types shown in **Figure 5-5** as the standard short-term parking.

This plan also recommends implementation of adequate short-term bicycle parking in the form of bicycle racks at all major trip attractors, including commercial and civic activity centers and transit hubs. The City should prioritize the installation of bicycle parking throughout the City, with particular attention directed at the following locations:

- Balboa Pier
- Branch Libraries
- City Hall/Central Library and Other Civic Buildings
- Commercial/Office Areas
- Community Centers
- Fashion Island Commercial Center
- Newport Pier
- Newport Transportation Center
- Parks
- Post Offices
- Schools
- Shopping Centers

Although the number of racks is determined by the space available, it is recommended that short-term bicycle parking capacity to accommodate eight bicycles is provided at each of the civic uses identified above, and short-term bicycle parking for commercial and office areas be determined based on intensity of development. The adequacy of short-term bicycle parking requires regular review to determine if additional capacity is needed.

Special emphasis should be given for installation of bicycle racks in communities and business districts. Recent installation of custom bicycle racks in the Corona del Mar Village has created a sense of community along with branding of the "Bike the Village" campaign. This Plan recommends extending this model to other communities and business districts, such as Balboa Village, Balboa Island, West Newport, and Mariners Mile. Through the outreach of the bicycle rack program, the City should work with the community to create a unique branding identity, if desired, to be implemented into a design based on the recommended rack types.

5.3.2 Long-Term Bicycle Parking

Locations where visitors are expected to park their bicycles for longer than 2 hours should provide more secure, long-term bicycle parking options, such as bicycle lockers (similar to the bicycle cage constructed at City Hall in the parking garage).

City staff may coordinate with public and private sector development opportunities to determine which projects and facilities should incorporate secure bicycle parking areas into their design. Secure bicycle parking areas that provide services, such as bicycle rentals and repair may be considered. The following are locations where long-term bicycle parking is recommended.

- Airport Employment Area
- City Hall/Central Library
- Fashion Island Commercial Center
- Newport Transportation Center
- John Wayne Airport (Owned and Operated by the County of Orange)

5.3.3 Municipal Code Bicycle Parking

The Newport Beach Municipal Code currently requires bicycle lockers or racks to "be provided for use by employees or building tenants. A minimum of two lockers per one hundred (100) employees shall be provided. Lockers may be located in a required parking space."[1] In addition, the General Plan Circulation Element requires "new development projects to provide facilities commensurate with development type and intensity to support alternative modes, such as… bicycle lockers, showers, [and] commuter information areas."[2]

This plan recommends the City amend its Municipal Code to include requirements on types of short-term and long-term bicycle parking facility designs. Recommended bicycle parking designs are provided in Appendix G. Bicycle rack designs should include racks that provide two points of contact with the bicycle so that it can be locked from both the front wheel/frame and the rear wheel. This will provide a higher degree of security and support for the bicycle. This will more accurately address the bicycle demand at a given development. Additionally, space to maneuver the bicycle away from fixed objects and buildings is required to accommodate short-term bicycle parking needs.

Key design aspects related to long-term bicycle parking includes:

- Covered, lockable enclosures with permanently anchored racks for bicycles.
- Lockable bicycle rooms with permanently anchored racks; or
- Lockable, permanently anchored bicycle lockers.

When people commute by bicycle, they often sweat or become dirty from weather or road conditions. Providing changing and storage facilities encourage commuters to travel by bicycle because they have a place to change and prepare before work or school.

This Plan recommends the Newport Beach's Municipal Code be revised as needed to require all new mid-size and large employers, offices, and businesses to supply changing and storage facilities, such as by providing showers and locker space within the buildings or arranging agreements with nearby recreation centers to allow commuters to use their facilities.

As noted in the following section, the installation of bicycle maintenance hubs or stations at key high-traffic locations can accommodate bicyclists for a variety of needs (such as minor repairs, inflating tires, filling water bottles, providing wayfinding information, and promotion of local businesses).

Image 47 - *Long-term bicycle parking at the Civic Center*

5.4 Wayfinding and Signage Plan

This Plan includes a citywide bicycle wayfinding and signage plan for Newport Beach, including the establishment of an identity for the City's primary bikeways. The signage plan included in Appendix H recommends strategies to assure bicyclists that they are using a network that is continuous and easily navigated.

[1] *Newport Beach Municipal Code, Section 20.44.050.*

[2] *City of Newport Beach General Plan, Circulation Element, Section CE6.2.2.*

This wayfinding system will direct bicyclists to major destinations within the City, such as the Newport Transportation Center, Balboa Peninsula, Newport Center and other commercial centers, Back Bay, and Corona del Mar. Signage recommendations are included to be placed on all existing and proposed routes. Additionally, a group of major routes have been identified as primary named routes, and will serve as a backbone to the system. The Wayfinding and Signage Plan is organized by proposed signage design, signage location, kiosks, collaborative efforts, and the route naming system.

5.5 Recommended Programs

Improvements to and continued support of education, enforcement and evaluation programs have been proven to increase the number of bicycle trips and bicycling safety. These programs can ensure that more community members know about new and improved facilities, learn the skills they need to integrate bicycling into their activities, and receive positive reinforcement about integrating bicycling into their daily lives. In essence, the new and enhanced programs market the idea of bicycling to the community and encourage a shift to bicycling as a transportation option. This Plan supports the continuation and enhancement of the City's education, encouragement, and enforcement programs that are currently in place. The following additional programs are each designed to promote bicycling in the City, increase safety for those traveling by bicycle, and raise awareness of the benefits of bicycling. **Table 5-11** provides a summary of the recommended programs.

Table 5-11 *Recommended Programs*

Category	Program	Responsible Party	Funding Source	Schedule
Education	Bicycle Safety and Share the Road Campaigns	OCTA, City	City; Grants	Near-Term
	Bicycle Resource Website	City	City	Near-Term
	Adult Bicycling Skills Classes	Bicycle Clubs, City, OCTA	City; Grants	Near-Term
	Youth Bicycle Safety Education Classes	Bicycle Clubs, City	City; Grants	Near-Term
	Youth Bicycle Safety Clinics & Bicycle Campus	City, Safe Routes to School National Partnership	City; Grants	Middle-Term
	Senior Bicycle Education Classes	Bicycle Clubs, City	City; Grants	Middle-Term
Encouragement	Bike Valet at City Events	Special Event Promoter, City	City	Near-Term
	Youth and Family-Oriented Bicycle Rides	Advocacy Groups, City	Private	Near-Term
	"Be Seen in Newport Beach" Bike Light Campaign	City	City; Grants	Near-Term
	Bike Festivals & Family Bike Fest/ Family Biking Day	City, Advocacy Groups	City; Sponsorships	Near-Term
	Launch Party for New Bicycle Facilities	City	City	Near-Term
	Bicycle Friendly Community Designation	City	N/A	Near-Term
	Tourism Integration	City	City	Near-Term
	Commuter Incentive Programs	OCTA, City	City; Grants	Middle-Term
	Safe Routes to School Program	City, Advocacy Groups	Grants	Near-Term
	Bicycle Friendly Business Districts	Business Improvement District/Association, City	City; ConContributions from Business Associations	Middle-Term
	Bicycle Hubs	City	City; Grants	Middle-Term

***Table 5-11** Recommended Programs (continued)*

	Media Outlets	City	In-Kind Contributions; Grants	Middle-Term
	Individualized Marketing Campaigns	OCTA, City	Grants	Middle-Term
	Mobility Coordinator	City	City; Grants	Long-Term
	Ride with the City	City	City	Near-Term
	Open Streets/Ciclovía Events	City	City; Grants	Long-Term
	Bicycle Sharing	City, OCTA	Grants; Sponsorships	Long-Term
Enforcement	Speed Radar Trailer/Feedback Signs	City	Grants	Near-Term
	Bicycle Patrol Units	City	City	Near-Term
	Bicycle Theft Abatement Program	City	Grants	Middle-Term
Evaluation and Policy	Bicycle Counts and Survey Program	City	City; Grants	Near-Term
	Mapping Bikeway Investments	City	City	Near-Term
	Bicycle Report Card	City	City	Near-Term
	Complete Streets Policy	City	City; Grants	Middle-Term
	Bicycle Parking Policy and Enforcement	City	City; Grants	Middle-Term
	Bike Corrals and "Request a Rack" Programs	City	City; Grants	Middle Term
	Bike Counters/Bicycle Barometers	City	Grants	Middle-Term

Note: Near-term = 0-3 years, Middle-Term = 3-6 years, Long-Term = 6+ years.

5.5.1 Education

Education programs are designed to improve safety and awareness. Bicycle-related collision data shows that in addition to infrastructure improvements, education about riding on the right side of the road and how to properly ride in traffic may reduce bicycle-related collisions. The following outlines recommended education programs.

Bicycle Safety and Share the Road Campaigns

Many of the bicycle safety and share the road campaigns described below are well-suited for implementation by a regional agency to coordinate efforts across multiple jurisdictions. A marketing campaign that highlights bicyclist and pedestrian safety is an important part of creating awareness of bicycling and walking. This type of high-profile campaign is an effective way to reach the public, highlight bicycling and walking as viable forms of transportation, and reinforce safety for all road users. Because motorists and cyclists traveling through the City of Newport Beach are often visitors from other jurisdictions, a marketing campaign by a regional agency such as OCTA can help reach a larger audience within the County. Support by cities can include concurrent promotion through social media, banners, and written media.

A well-produced safety campaign will be memorable and effective. One good example is the Sonoma County Transit "You've got a friend who bikes!" campaign. It combines compelling ads with an easy-to-use website focused at motorists, pedestrians, and bicyclists. This type of campaign is particularly effective when kicked off in conjunction with other bicycling/walking events or back to school in the fall. The safety and awareness messages could be displayed near high-traffic corridors (e.g., on banners), printed in local publications, broadcast as radio and/or television ads and be available in Spanish and other languages.

***Image 48 -** "Share the Road" street post banner*

Sample program:
Sonoma County (CA) Transit:
http:// www.sctransit.com/bikesafe/bikes.htm

Share the Road outreach is a way for cities to actively disseminate the rules of the road in person to residents. One way to conduct outreach is to conduct "checkpoints". Working with volunteers from a local advocacy group and

the Police Department, officers could stop motorists and bicyclists to offer a brochure on the rules of the road as they pertain to motorists and bicyclists. Within Newport Beach, checkpoints could be planned at high-pedestrian areas such as the Ocean Front Path, the piers, and the Balboa Village, if checkpoints that stop moving traffic on roadway is not desired. An example of the Marin County Bicycle Coalition's Share the Road Checkpoints can be found at the link below.
http://www.marinbike.org/Campaigns/ShareTheRoad/ Index.shtml

Developed by the City of San Jose, StreetSmarts uses print media, radio spots and television spots to educate people about safe driving, bicycling and walking behavior. More information about StreetSmarts can be found at the link below.
http://www.getstreetsmarts.org/

Many other cities, counties, and states produce bicycle safety videos to educate riders and drivers. One such video from the Chicago Department of Transportation's Bicycle Program explains why cyclists should ride on the street rather than on the sidewalk[3]. A series of online videos from the City of Albuquerque, New Mexico, illustrates both the dangers of wrong-way cycling and how motorists should follow the City's 5-foot passing rule[4]; these were produced in both English and Spanish. One potential video that the City could produce is a guide for motorists on how to follow the recently adopted "Three Feet for Safety Act" in California, which requires that drivers provide at least 3 feet of clearance when overtaking and passing a bicycle that is traveling in the same direction[5]. The City of Roswell, Georgia, produced a similar video[6] to educate motorists about that state's 3-foot law. Other examples of "3 feet to pass" outreach campaigns include those by the City of Los Angeles[7], Bicycle Colorado[8], and bicycle advocates in Nevada's Lake Tahoe area. Given the number of visitors to the City of Newport Beach, creation of a video to reach a countywide audience may indicate preparation of an educational video is best served by a regional authority such as OCTA or SCAG.

OCTA is currently considering the development of a bicycle use safety campaign for Orange County, starting with an instructional video on how to use sharrows. Additional concepts under consideration include efforts similar to those employed by LA County Metro promoting "Every lane is a bike lane"[9], a bicyclist anti-harassment ordinance like that in Los Angeles[10], and free bicycle safety training for motorists and bicyclists. Examples of free safety training classes include those offered in 2013 by LA County Metro[11] (through a partnership with the LA County Bicycle Coalition[12]) with grant funding from the California Office of Traffic Safety.

Bicycle Resource Website

The City of Newport Beach hosts a website for bicycle safety, as part of the Same Rules Same Road Campaign. Additions or changes to the City website can include the following to further promote bicycling opportunities and safety tips:

- Bicycle parking map
- Map of bikeway implementation that is updated as new facilities are completed
- Bicycling tips including information on how to:
  - Carry items using baskets and panniers
  - Properly lock a bicycle
  - Ride in the rain with help from fenders and rain gear
  - Tips can also include information on the importance of bicycle lights and reflection
- Bicycle facility maintenance and repair phone number
- Bicycle event calendar
- Promotion of Bicycle Events such as Bike Month, trainings, and other events
- Education and skill class information
- Laws and ordinances specific to bicycling
- Guidance on requesting new bike racks
- Information for tourists (bike rental, where to get a hard copy bikeways map)

Sample website:
http://www.bikelongbeach.org/

Adult Bicycling Skills Classes

Community members can be given the opportunity to participate in bicycling skills classes. The most common program is the League of American Bicyclists courses

[3]Chicago Dept. of Transportation - http://www.youtube.com/watch?v=aTZ1RtcH8_MQ
[4] City of Albuquerque, ShareTheRoadABQ.com
http://youtu.be/74-NecLRcNo, http://youtu.be/ZsxOuy67ch8, http://youtu.be/05s4XoROkdc, http://youtu.be/bE6QaKqC16[5] http://leginfo.ca.gov/pub/13-14/bill/asm/ab_1351-1400/ab_1371_bill_20130923_chaptered.htm
[6] http://www.bikeroswell.com/3-foot-law/
[7] http://ladotbikeblog.wordpress.com/2010/08/24/mayor-launches-give-me-3-campaign
[8] http://bicyclecolo.org/articles/bicycle-safety-law-tips-pg1028.htm
[9] http://www.metro.net/bikes/bikes-metro/safe-bicycling-tips/
[10] City of Los Angeles Ordinance No. 181817 (http://cityclerk.lacity.org/lacityclerkconnect/index.cfm?fa=ccfi.viewrecord&cfnumber=09-2895)
[11] http://www.metro.net/news/simple_pr/la-metro-office-of-traffic-safety-partner-to-offer/
[12] http://la-bike.org/streetcyclingskills

(including Road I, Road II, and Commuting), taught by League Certified Instructors (LCIs). Courses cover bicycle safety checks, fixing a flat tire, on-bike skills, crash avoidance techniques, and traffic negotiation. Courses are already available in other Orange County cities and are often hosted by the Orange County Bicycle Coalition and Orange County Wheelmen. The City can invite LCIs to host adult bicycling skills classes and can highlight local or nearby courses on its bicycling website. The City could advertise the courses in multiple languages and use responses to the advertisement to determine the need for multi-lingual instruction. Coordinating classes with OCTA or adjacent cities may also help promote the event and minimize costs to the City of Newport Beach.

In addition, the City can consider classes that are oriented toward and taught by women, in order to encourage more women to participate. Recent all-female trainings in Los Angeles County have attracted participants that may have felt intimidated taking classes among and taught by men. The women led training programs can provide a means to increase the number of women instructors to continue catering to women-only trainings.

Sample program:

- League of American Bicyclists: *http://bikeleague.org/programs/education/courses.php*
- Women on Bikes SoCal's all-female LCI trainings: *http://bikeleague.org/content/first-all-female-lci-training-huge-success*

Youth Bicycle Safety Education Classes

Typical school-based bicycle education programs educate students about the rules of the road, proper use of bicycle equipment, biking skills, street crossing skills, and the benefits of biking. Education programs can be part of a Safe Routes to School program and/or taught as part of summer camp programs or at afterschool centers, such as the Mariners Family YMCA. These types of education programs are usually sponsored by a joint City/School District committee that includes appointed parents, teachers, student representatives, administrators, police, active bicyclists and engineering department staff. Pursuit of funding for youth bicycle safety courses may be combined with efforts to secure funding for a Safe Routes to School Program.

Image 49 - *A child learning to ride safely*

Sample programs:

- Marin County Safe Routes to School Curriculum: *http://www.saferoutestoschools.org/curriculum.html*
- Bicycle Transportation Alliance – Portland, OR: *http://btaoregon.org/wp-content/uploads/2011/11/curriculum-BSE.pdf*

Youth Bicycle Safety Clinics & Bicycle Campus

Children's bicycle safety clinics are individual events that help students develop basic bicycling techniques and safety skills through the use of a bicycle safety course. The clinics use playgrounds or parking lots set-up with stop signs, traffic cones, and other props to simulate the roadway environment. Students receive instruction on how to maneuver, observe signs and markings, and look for on-coming traffic before proceeding through intersections. Children's bicycle safety clinics also provide an opportunity for instructors to ensure children's helmets and bicycles are appropriately sized. Events can include free or low-cost helmet distribution and bike safety checks.

Image 50 - *Parents can learn alongside their children*

The City would work with elementary and middle schools, trained adult volunteers, local police, and the fire department to administer children's bicycle safety clinics. The clinics can be stand-alone events or can be incorporated into health fairs, back-to-school events, Bike to School days, and Safe Routes to School efforts.

The bicycle safety clinic can be temporary in nature, or can be located on a permanent basis at a location within the community, often referred to as a "bicycle campus." A bicycle campus is a permanent off-street learning area for people of all ages and abilities to become confident about their riding skills, and is sometimes known as a "safety village." The bicycle campus helps participants become familiar with a variety of bicycle-friendly design features and signage. These bicycle campuses are a resource for bicycle educators, schools, and other groups that wish to provide bicycle education. Local jurisdictions

can utilize existing land, such as underused parking lots, to create a bicycle campus. The bicycle campus concept has been incorporated into public spaces throughout the United States with examples at fairgrounds, elementary schools, and parks. The City of Newport Beach and interested stakeholders might consider opportunities for implementing a bicycle campus at a local school, the OC Fair & Event Center (located in Costa Mesa).

Sample program:

- *http://www.nhtsa.gov/Driving+Safety/Bicycles/CyclingSkillsClinic*
- Story about Santa Monica's Bike Campus: *http://la.streetsblog.org/2012/04/20/santa-monica-opening-bike-campus-on-earth-day-sunday/*

Senior Bicycle Education Classes

Image 51 - *Bike education classes can be tailored to seniors' needs*

Senior bicycle education programs help older adults either re-learn bicycling or learn how to bicycle with less agility. Seniors who are no longer able to drive may still be able to bicycle shorter distances on either a regular two-wheeled bicycle or an adult tricycle. The City could collaborate with interested agencies, health departments and senior centers, such as OASIS Senior Center, to evaluate interest and implement multi-lingual senior bicycle education classes, potentially including a program that acquires adult tricycles and brings them to senior centers for guided rides.

Sample program:
http://www.portlandoregon.gov/transportation/article/155167

5.5.2 Encouragement

Encouragement programs focus on encouraging people to bicycle more frequently by providing incentives, recognition, or services that make bicycling a more convenient and viable transportation mode. For many of the encouragement programs recommend, collaborative relationships will ensure success between the City, the business community, school representatives, and active transportation and health advocates. Currently, Newport Beach residents benefit from encouragement initiatives such as the City Bike Map, and recent BikeNewportBeach.org Neighborhood Bike Rides. The following programs are designed to encourage community members of all ages and abilities to ride bicycles for transportation, recreation, and fun.

Bike Valet at City Events

Image 52 - *Bike valet at Los Angeles Union Station*

Providing safe and secure bicycle parking helps encourage individuals to bicycle. Bicycle valet is similar to vehicle valet in that bicyclists drop their bikes off at a designated area to be guarded by event staff. In exchange for their bikes, bicyclists are given a number or token to provide on return so that bikes are not given to the incorrect person. San Francisco passed a city ordinance that requires all major city events to provide bike parking and pioneered an innovative tool for stacking hundreds of bicycles without racks. Temporary bicycle parking is appropriate for events with expected large attendance and at regularly occurring events like a farmers market. This program could be part of the City's Special Event Permit process and operated by the special event coordinator.

Sample program:
www.sfbike.org/?valet

Youth and Family-Oriented Bicycle Rides

Parents often have concerns or fears about their children riding bicycles in the roadway. Youth and family-oriented bicycle rides are large group rides geared toward kids that create safe, comfortable environments for families to ride together. This type of ride has commonly been referred to as a Kidical Mass ride. They are often hosted monthly or quarterly with a fun theme to encourage attendance. Rides do not require street closure, though the support

Image 53 - *A family enjoying a ride together*

of traffic officers is often necessary if the route includes uncontrolled, challenging crossings. Kidical Mass rides can include raffles or incentives to boost participation.

BikeNewportBeach.org organized family-friendly neighborhood bike rides provide a good example of a simple method to encourage bicycling and appeal to a diverse audience with low-stress group bicycle rides. The recent rides have been oriented around holiday themes such as Halloween or the Winter Holiday Lights. A Patriotic 4th of July ride, or a "Back to School" ride may provide additional opportunities to cater to youth and families.

Sample programs:

- *http://www.bikelongbeach.org/event/kidical-mass-10*
- *http://www.kidicalmass.org/about/*

"Be Seen in Newport Beach" Bike Light Campaign

According to the California Vehicle Codes (CVC) for bicycling, a white headlight and reflectors are required by law if riding when it's dark (CVC 21201). Some jurisdictions have led visibility campaigns through law enforcement checkpoints and outreach activities. The usage of lights and reflectors at night may increase visibility and help reduce collisions.

We recommend the City encourage cyclists to wear high-visibility clothing and use daytime running lights during outreach events and in materials distributed related to bicycling. A campaign for increased visibility during nighttime is often held in the fall when daylight hours are reduced, and the program can have concurrent efforts such as banners, poster, and TV/radio advertisements.

Sample Programs:

- *Get Lit Program, Portland: http://www.communitycyclingcenter.org/index.php/get-lit/*
- *Light Up the Night, San Francisco: http://www.sfbike.org/?lights*

Bike Festivals & Family Bike Fest/Family Biking Day

Promoting bicycling through bike festivals can encourage people to want to give riding a try. Bike festivals often include booths by local organizations and agencies, exhibits, and food/beverage vendors. Long Beach hosts a free annual bike festival with live entertainment, bike valet, children's activities, and local food and beverages. Similarly, a Family Bike Fest or Family Biking Day – such as those recently held in both Santa Monica and San Francisco – can be geared toward families and provide activities such as safety checks of children's bicycle seats or trailers, seminars on how to properly choose child bicycle frames and seats, helmet fitting stations, family bike demonstrations, bike and helmet decoration stations, and family rides that promote family bicycling for transportation and recreation. The program can also include:

- "Freedom from Training Wheels" workshop
- Bike rodeo
- How to carry kids by bicycle
- Adapted bicycles available for families to try
- Safety check
- Basic bike maintenance
- Group ride/parade

Development of family-oriented education may be a program for implementation by local bicycle advocacy groups where volunteers are readily available and willing to improve cycling conditions within the community.

Image 54 - *Santa Monica Bike Fest*

Sample programs:

- *http://downtownlongbeach.org/Latest-News-Detail/Bike-Fest-of-Long-Beach*
- *http://www01.smgov.net/bikesm/*
- *http://www.sfbike.org/?family_day*

Launch Party for New Bicycle Facilities

When a new bicycle facility is built, some community members will become aware of it and use it, while others may not realize that they have improved bicycle facility options available. A launch party/campaign is a good way to inform the community about a new bicycle facility and can also be an opportunity to share other bicycling materials (such as maps and brochures) and answer community questions about bicycling. It can also be a media-friendly event, with elected official appearances, ribbon cuttings, and a press release that includes information about the new facility, other existing and future facilities, and any timely information about bicycling. In Vancouver, when a new bicycle facility is built, the City throws a neighborhood party to celebrate. In the Vancouver example, cake, t-shirts, media and festivities are provided and surrounding neighbors are invited as well as City workers (engineers, construction staff, and planners) who participated in project planning and implementation.

City hosting of launch parties for priority bicycle facility projects can be aligned with promotion of City efforts through print and digital media.

Bicycle Friendly Community Designation

The League of American Bicyclists (LAB) recognizes communities that improve bicycling conditions through education, encouragement, enforcement, and evaluation programs. Communities can achieve platinum, gold, silver, or bronze status or an honorary mention. Bicycle friendliness can indicate that a community is healthy and vibrant. Like good schools and attractive downtowns, bicycle friendliness can increase property values, spur business growth, and increase tourism. The following Orange County agencies have achieved LAB designation as a Bicycle Friendly Community (BFC):

- County of Orange: Bronze
- City of Huntington Beach: Bronze
- City of Irvine: Silver

For more info:
http://www.bikeleague.org/content/communities

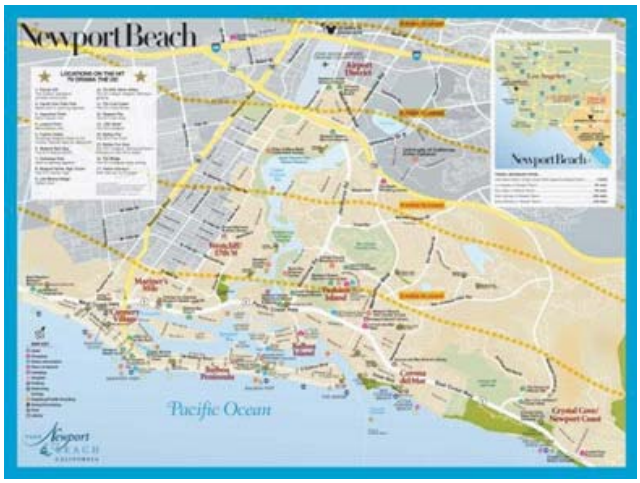


Image 55 - *Existing "Explore Newport Beach" tourist map*

Tourism Integration

To encourage visitors and tourists to consider bicycling in the City, bicycling-related resources could be incorporated into tourism information. The visitnewportbeach.com website could include a calendar specific to bicycling events and group rides, locations of bicycle rental and repair shops, and a map of the City's bikeways. In addition, the existing "Explore Newport Beach" map on the website could highlight tourist-friendly bikeways. Bicycling information could also be distributed to people who check into hotels or rent houses/condos/apartments in the City.

For visitors who are already interested in bicycle riding in Newport Beach, bicycle rental businesses can distribute bicycle route maps or links to mobile maps and riding guidance upon renting.

Promotion of bicycling within the City can also be implemented using the "MyNB" mobile application to promote bike rental shops, bikeways, bicycle safety, and other related topics that might appeal to visitors and residents bicycling within the community.

Commuter Incentive Programs

A Commuter Incentive Program encourages people to commute by non-motorized transportation and to make the general public aware that bicycling and walking are practical modes of transportation. OCTA manages the Share the Ride campaign to promote and encourage transportation choices to minimize single-occupant vehicle (SOV) driving related to commute activity. Because the OCTA program is already underway, we suggest the City of Newport Beach work with OCTA to promote the Share the Ride program and look for collaboration activities.

San Luis Obispo (SLO) Regional Rideshare organizes the "Commute for Cash Challenge" every October as part of "Rideshare Month" in which commuters log the miles that they commute using alternative transportation for a chance to win prizes. This program could serve as a starting point for a more permanent commuter incentive program during the rest of the year.

Sample programs include:

- *OCTA Share the Ride: http://www.octa.net/Share-the-Ride/*
- *SLO Council of Governments Regional Rideshare: http://rideshare.org/NewHome.aspx*

Safe Routes to School Program

Helping children walk and bicycle to school is good for children's health and can reduce congestion, traffic dangers and air pollution caused by parents driving children to school. Safe Routes to School programs use a "5 E's" approach using Engineering, Education, Enforcement, Encouragement, and Evaluation strategies to improve safety and encourage children walking and biking to school. The programs are usually funded by a State or Regional grant and facilitated by a coalition of

Image 56 - *Safe Routes to School Bike Ride in Los Angeles*

city government, school and school district officials, and teachers, parents, students, and neighbors. A Safe Routes to School program typically would cover elementary and middle schools within the community. We recommend the City pursue grant funding to develop and implement a Safe Routes to School that develops infrastructure recommendations to improve access to schools and non-infrastructure recommendations to educate and encourage walking and bicycling to schools. Creation of a local coalition is useful to provide continuity in Safe Routes to School efforts and ensure encouragement activities occur annually despite the transition of champions (typically parents) when children graduate to higher grades.

Sample program:
http://www.alamedacountysr2s.org/

Bicycle Friendly Business Districts

Local businesses have the potential to encourage bicycling by providing their patrons that commute by bicycle with discounts and other amenities. Jurisdictions can work with businesses to create "Bicycle Friendly Business" programs that honor businesses that support bicycling. Some programs assign a gold, silver, or bronze designation to businesses that apply for the program based on the level of benefits they provide bicyclists. The League of American Bicyclists has a Bicycle Friendly Business program as part of its Bicycle Friendly Communities designation, which is a good model to follow. The City of Long Beach's program provides cargo bikes for businesses to make deliveries, and businesses provide shopping and dining discounts on Saturdays. This program could be implemented through the local Business Improvement Districts or Business Associations.

Sample programs:

- *http://www.bikeleague.org/programs/bicyclefriendlyamerica/bicyclefriendlybusiness/about.php*
- *http://www.bikelongbeach.org/welcome/bike-share-program/bicycle-friendly-business-district-program*

Bicycle Hubs

An effective way to encourage riding is by providing a hub with support facilities for cyclists. The facilities might include free maintenance equipment, air and water, maps of bikeways, and restroom facilities. Recently a gas station in the City of Fullerton installed maintenance equipment for bicyclist use and pumps specifically for bicycle tires, and a "fix-it" station was installed on the campus of California State University, Fullerton in Fall 2012. The City of Cambridge has free bicycle maintenance stations in several trip-generating locations. These stations include items such as tire gauges, pumps, and tools for small bicycle repairs. Bicycle maintenance stations are an inexpensive alternative to providing stand-alone bicycle repair shops. The City might consider housing or commercial development projects of certain size and use to provide facilities on-site as a method to encourage and support bicycling to and adjacent their business.

Planning and implementing the bicycle hubs will likely require coordination among several public agencies and community stakeholders. Coordination can begin in the near-term, even if project completion is not expected until further in the future.

Figure 5-6 and the following list identify potential locations for Bicycle Hubs in the City of Newport Beach (which may require coordination with agencies such as OC Parks and California State Parks):

- Back Bay View Park (Jamboree Road/East Coast Highway)
- Bayview Trail (University Drive/Irvine Avenue)
- Bonita Canyon Sports Park (Mesa View Drive/Ford Road)
- Bonita Creek Park (La Vida/University Drive)
- Crystal Cove State Park (Newport Coast Drive/East Coast Highway)
- Future Lower Castaways Park (Dover Drive/West Coast Highway)
- McFadden Plaza (base of Newport Pier)
- Vista Point Park (Eastbluff Drive/Back Bay Drive)
- West Newport Park (Orange Street/West Coast Highway)

Sample programs:

- *http://news.fullerton.edu/2012fa/Bike-Fixit-Stations.asp*
- *http://articles.latimes.com/2012/may/17/business/la-fi-autos-flex-fuel-20120517*
- *http://www.boston.com/yourtown/news/cambridge/2011/03/cambridge_installs_free_bike_m.html*

Media Outlets

Local media have a high level of interest in stories related to public welfare, community successes, and bicycle safety. There are many opportunities for local agencies to gain publicity for bicycle-related programs and safety issues. Developing and maintaining relationships with local media outlets can assist with publicizing bicycle encouragement and safety programs.

A cost-effective way for the City to promote bicycling as an effective and enjoyable way to travel is to use existing television public service announcements (PSAs) made available through the National Highway Traffic Safety Administration (NHTSA), Safe Kids Coalition, and the California Office of Traffic Safety (OTS). These agencies provide existing award-winning television public service announcements on the following topics:

- Bicycle education for seniors
- Bicycle education for the general public
- Bicycle education for children and their families
- Driver education on bicyclists

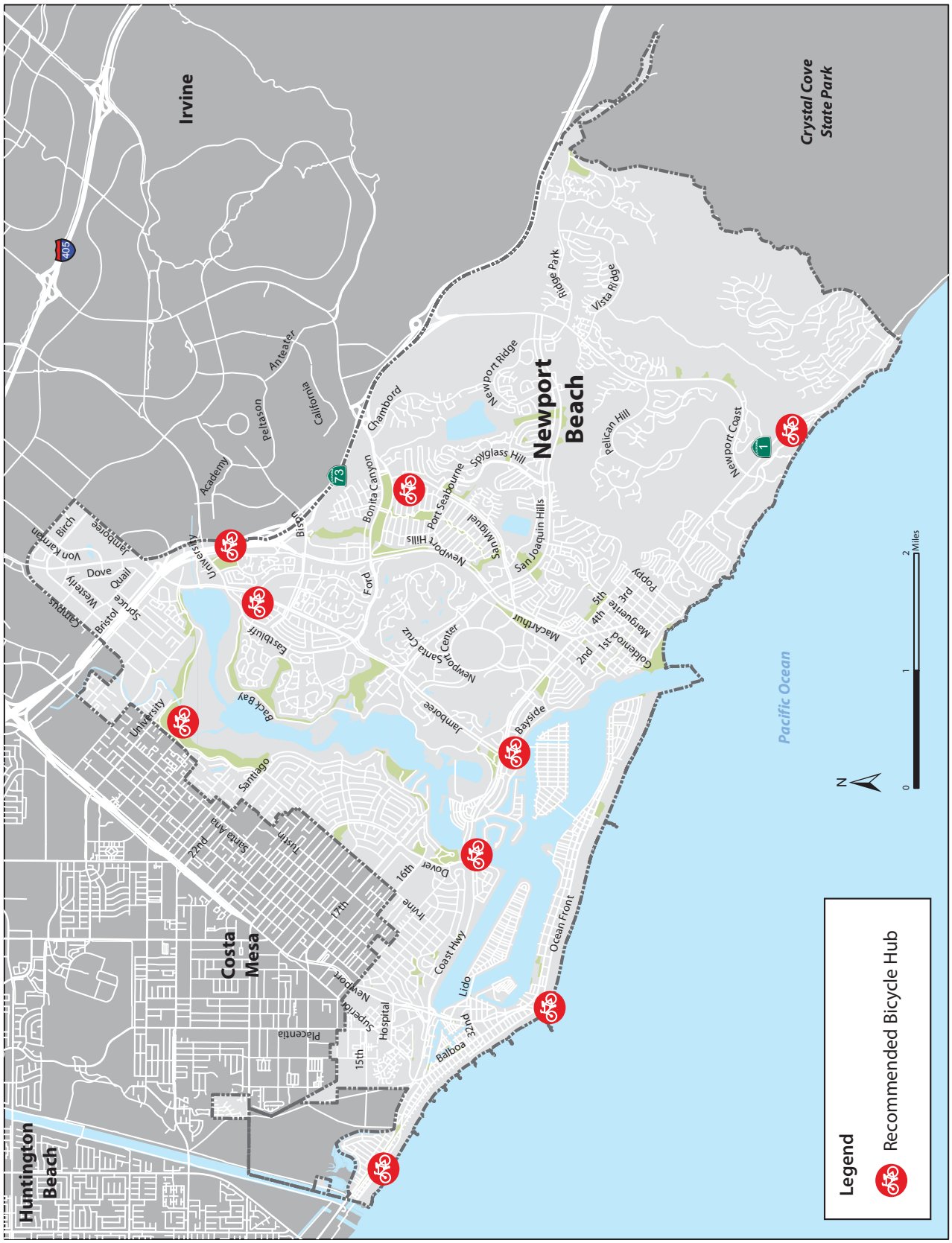


Figure 5-6 Recommended Bicycle Hub Locations

- Drivers running red lights

The media is also an effective tool for promoting bicycle-related efforts through press releases and invitations to staged publicity-related events. Positive stories such as ribbon cuttings or community events can encourage residents to participate as well as increase awareness and support for on-going efforts.

Individualized Marketing Campaign

Building bicycling and walking infrastructure is essential to effecting mode shift, but it is not enough to attract large numbers of new users. The City of Portland, OR, was one of the pioneers of individualized marketing programs in the US. For a decade now, the City has selected a residential target area ranging between 20,000 and 37,000 households, and used a combination of direct mail outreach, customized travel information packets, incentive gifts, and themed guided walks and bicycle rides to engage residents and encourage them to drive less and walk/bicycle more. The program has consistently garnered over 20% participation, and resulted in approximately 10% reduction in drive-alone trips in the target area. More recently, similar projects in Alameda, CA, St. Paul, MN, and Cambridge, MA have used similar strategies to engage residents on active transportation and single occupancy vehicle reduction. This may be a program that can be coordinated countywide through OCTA with support by the City to reach a broad audience across City boundaries.

Mobility Coordinator Position

A number of cities around the country staff a part- or full-time Mobility Coordinator position. Cities with such a position usually experience relative success in bike plan implementation. OCTA and the City of Santa Ana have recently funded an Active Transportation Coordinator position, and the City of Irvine already has staff dedicated towards transit and active transportation topics. To take full advantage of current bicycle planning and safety efforts and to assist with implementation of bicycling programs, the City of Newport Beach could consider creating and staffing an ongoing mobility coordinator position to lead project implementation and grant funding efforts. A mobility coordinator could also work on pedestrian, transit access, and Safe Routes to School projects and grant funding applications. This position would be contingent on available funding. Funding for the position could potentially come from a grant source.

In addition to supporting existing programs, such as bicycle parking provision and educational activities, potential job duties for the mobility coordinator position are listed below:

- Monitoring facility planning, design, and construction that may impact bicycling
- Staffing bicycle advisory committee meetings
- Coordinating the implementation of the recommended projects and programs listed in the Bicycle Master Plan
- Identifying new projects and programs that would improve the City's bicycling environment and improve safety for bicyclists, pedestrians, and motorists
- Coordinating evaluation of projects and programs, such as bicycle counts
- Pursuing funding sources for project and program implementation

Ride with the City

In order to foster an open and collaborative environment around bicycling, the City can organize regular bicycle rides with public officials (e.g., City council members, planning commissioners) and/or agency staff such as the City Manager or Public Works Director. The rides can range from very casual with no agenda to events highlighting specific infrastructure projects or program. In the City of Pomona, the former Public Works Director, Daryl Grigsby, started the popular "Ride around Pomona" (RAP) to foster a healthy dialogue between City staff and members of the public. While Director Grigsby is no longer working at the City of Pomona, the monthly rides continue through sponsorship by the local bicycle coalition.

Open Streets/Ciclovía Events

Open (or "Car-free") Streets events have many names: Sunday Parkways, Ciclovías, Summer Streets, and Sunday Streets. The events are periodic street "openings" (i.e., "open" to users besides just cars; usually on Sundays) that create a temporary park that is open to the public for walking, bicycling, dancing, hula hooping, roller-skating, etc. They have been very successful internationally and are rapidly becoming popular in the United States. Open Streets events promote health by creating a safe and attractive space for physical activity and social contact, and are cost-effective compared to the cost of building new parks for the same purpose. Events can be weekly events

Image 57 - *CicLAvia in Los Angeles*

or one-time occasions, and are generally very popular and well attended.

Ideally, these events would provide access to civic, cultural, and/or commercial destinations. For future expansion of the program, organizers could consider lessons learned and best practices from other communities. Some recommendations include:

- Make sure that there are programmed, family-friendly activities along the route; an "open street" alone is not sufficient to draw participants (and especially not on a repeat basis).
- These events lend themselves to innovative partnerships and public/private funding. Health care providers whose mission includes facilitating physical activity are often major sponsors. Businesses may also support the event if it brings customers to their location.
- An event of this size is subject to City Special Event policies as detailed in Council Policy B-8 and City Municipal Code Section 11. Police costs to manage the road closure will be one of the largest costs. Work with the police to develop a long-term traffic closure management strategy that uses police resources where needed but also allows well-trained volunteers to participate in managing road closures.
- Consider utilizing new roadways or bicycle facility improvements for Open Streets events similar to the grand opening event of Tustin Ranch Road recently in Tustin where the community was invited to ride the new roadway before opening to motorist use.

The City might consider Open Streets events on East Coast Highway in Corona del Mar, or on Balboa Boulevard on the Peninsula. These Open Streets events could be an opportunity to highlight some of the new bicycle facilities once they are constructed and can be combined with larger community festivals such as the Corona del Mar Christmas Walk.

Sample programs include:

- *CicLAvia, Los Angeles: http://www.ciclavia.org/about/*
- *Sunday Streets, San Francisco: http://sundaystreetssf.com/*
- *Summer Streets, New York City: http://www.nyc.gov/html/dot/summerstreets/html/home/home.shtml*

The Open Streets Guide has further information: http://openstreetsproject.org/blog/2012/02/21/open-streets-project-releases-best-practices-guide/

Planning and implementing Open Streets events will likely require coordination among several public agencies and community stakeholders. Coordination can begin in the near-term, even if project completion is not expected until further in the future.

Image 58 - *Bike Share Station in San Francisco*

Bike Sharing

Bike sharing is a system that allows users to check out bikes from publicly accessible stations and return them to other locations within the service area. Such systems have become increasingly popular throughout North America, with successful programs implemented in San Francisco (Bay Area Bike Share), New York City, Washington, D.C., Boston, Minneapolis, and Montreal. Locally, the City of Anaheim recently tested bike share, and OCTA and the City of Fullerton currently are demonstrating bike share through the Bike Link program with stations in the downtown and at the two colleges within the City. Future bike share programs are being planned for several cities across the country, including multiple cities within Los Angeles County, San Diego, and Seattle.

Difficulty providing bike sharing stations outside the City limits ordinarily prevents cities of Newport Beach's size from implementing bike sharing. However, the City has certain advantages that may improve the feasibility of a system:

- A recently-launched system in Fullerton; although the two cities are not directly connected by bicycle, reciprocal memberships would enhance the utility of the system for all users.
- High numbers of visitors and tourists, especially in areas that contain key destinations and experience parking shortages and traffic congestion at peak periods. Tourists may find that using a bicycle for short periods is more convenient than relying on automobiles to move around the City.
- Employment density and workplace characteristics may drive bike sharing demand significantly more than residential density. Newport Beach's daytime population is much higher than its evening population, and demand may therefore be much higher than its population would suggest.

Due to the regional nature of the bike share concept, we recommend the City work with OCTA to develop a regional bike share program that can include adjacent jurisdictions and serve the community traveling into and

out of Newport Beach regularly. Coordination with local bicycle shops and rental businesses is key to minimizing concerns about competition and show how bike sharing can increase overall bicycling activity.

Sample programs:

- *OCTA/Fullerton Bike Link: http://www.octa.net/Share-the-Ride/Bike/BikeShare/Overview/*
- *Bay Area Bike Share: https://bayareabikeshare.com/*

5.5.3 Enforcement

Enforcement programs enforce legal and respectful use of the transportation network. The following outlines recommended enforcement programs to educate both bicyclists and motorists about the rules and responsibilities they have on the road.

Speed Radar Trailer/ Feedback Signs

Speed radar trailers help reduce traffic speeds and enforce speed limits in areas with speeding problems. Police set up an unmanned trailer that displays the speed of approaching motorists along with speed limit sign. Speed trailers may be effective on busier arterial roads without bikeway facilities or near schools with reported speeding.

Image 59 - *Speed Feedback Sign*

Speed trailers work as both an educational and enforcement tool. By itself, the unmanned trailer educates motorists about their current speed in relation to the speed limit. Speed trailers can transport easily to streets where local residents complain about speeding problems.

The Newport Beach Police Department can station officers near the trailer to issue speeding citations when speeding continues to occur. It is recommended that City staff provide the management role for this program, working with the public to determine which locations are in most need. This program can be administered randomly, cyclically, or as demand necessitates because of the speed trailers' portability.

Bicycle Patrol Units

On-bike officers are an excellent tool for community and neighborhood policing because they are more accessible to the public and able to mobilize in areas where patrol cars cannot (e.g., along coastal bike paths and in congested shopping districts such as Marine Avenue on Balboa Island). Bike officers undergo special training in bicycle safety and bicycle-related traffic laws and are therefore especially equipped to enforce laws pertaining to bicycling. Additional bicycle officers can help educate bicyclists and motorists through enforcement and also serve as excellent outreach personnel to the public at parades, street fairs, and other gatherings.

Bicycle Theft Abatement Program

One strategy to combat bicycle theft is outfitting several bikes with hidden GPS tracking devices and locking them in areas known for high rates of theft, then tracking the bicycles if they are stolen. This might also help local law enforcement identify bicycle theft rings if a pattern emerges. Alternatively, the City could distribute GPS devices to residents on an as-available basis, such as when residents apply for a bicycle license. The City could set aside general fund resources or apply for grants to purchase GPS devices for the program. An example program exists at the University of Texas at Austin:

http://www.khou.com/news/texas-news/UT-police-catching-campus-thieves-with-GPS-bait-bikes-207488921.html

5.5.4 Evaluation and Policy

In order to track the progress of the Newport Beach Bicycle Master Plan, it is critical that the City monitor and evaluate changes in bicycling. It is also a useful way to communicate success with elected officials and residents. Some effective methods to document the performance of new facilities and programs are presented below.

Bicycle Counts and Survey Program

Evaluation programs measure and evaluate the impact of projects, policies, and programs. Data collected through these efforts can serve as a baseline each year and would be a key part of an annual performance report. Typical evaluation programs range from a simple year over year comparison of US Census Journey to Work data to bicycle counts and community surveys. Bicycle counts and community surveys act as methods to evaluate not only the impacts of specific bikeway improvement projects but can also function as way to measure progress towards City goals such as increased bicycle travel for trips one mile or less.

A regular bicycle-related community survey and annual bicycle count program will allow the City to track changes in perception and concerns related to the bicycle environment. Before and after counts provide invaluable evaluation information about bicycle activity corresponding with physical improvements to the bicycle environment. Bicycle counts can match the locations surveyed through the Bicycle Master Plan project which included eleven (11) initial locations where bicycle counts were collected during weekday and weekend conditions. Regular or annual counts at these and other supplemental

Image 60 - *Bicycle and pedestrian count*

locations can show to what extent physical improvements and programs have positively increased bicycle activity.

Mapping Bikeway Investments

Often, residents and decision-makers do not have ready access to information about the construction and location of new bikeways. After completing this Plan, the City of Newport Beach could create a map reporting tool specifically to report on the progress of planned bikeway implementation. The map can be updated on an ongoing basis.

Sample program:
http://www.bicyclela.org/maps_main.htm

Bicycle Report Card

The City may develop an annual report or 'report card' to review the level of effort and effectiveness of implementation of the bicycle master plan. Annual reports developed from count and survey efforts can help the City measure its success toward the goals of this Plan as well as rate the overall quality or effectiveness of the ongoing efforts to increase bicycling in the City. In addition to bicycle counts, the City could include measurements such as crash rates (both on- and off-road), fatality and injury rates, and school bicycling mode share. The report card can summarize recent efforts and success in obtaining funding for additional improvements and programs. Development of the annual report card should include review by unbiased members of the public.

Sample Programs:

- *City of Seattle Bicycle Report Card: http://issuu.com/cascadebicycleclub/docs/seattle_bicycle_report_card*
- *League of American Bicyclists State Bicycling Report Cards: http://bikeleague.org/content/report-cards*

Complete Streets Policy

A "complete street" is a roadway that has been designed to serve all users, including those in motor vehicles, on bicycles, on foot, or traveling by transit. Complete streets provide safety and mobility for the widest range of the population, including seniors, youth, and the disabled. Many communities around the U.S. have adopted Complete Streets Policies that call for roadway projects to result in complete streets.

According to the National Complete Streets Coalition (www.completestreets.org), an ideal policy would include the following elements:

- Includes a vision for how and why the community wants to complete its streets
- Specifies that 'all users' includes pedestrians, bicyclists and transit passengers of all ages and abilities, as well as trucks, buses and automobiles.
- Applies to both new and retrofit projects, including design, planning, maintenance, and operations, for the entire right-of-way.
- Makes any exceptions specific and sets a clear procedure that requires high-level approval of exceptions.
- Encourages street connectivity and aims to create a comprehensive, integrated, connected network for all modes.
- Is adoptable by all agencies to cover all roads.
- Directs the use of the latest and best design criteria and guidelines while recognizing the need for flexibility in balancing user needs.
- Directs that complete streets solutions will complement the context of the community.

Newport Beach could use the Complete Streets Policy Workbook (see link below) to create a locally-appropriate Complete Streets policy. The Policy itself need not be cumbersome in its language; however, the real "teeth" associated with the Policy is the subsequent development of design guidelines and development code that will meet the goals established in the policy. Development of a robust Complete Streets policy will require coordination among several public agencies and community stakeholders. Development of a Complete Streets Policy would likely occur concurrent with an update to the General Plan Circulation Element.

Complete Streets Policy Workbook:
http://www.smartgrowthamerica.org/documents/cs/resources/cs-policyworkbook.pdf

Sample Programs:

- *City of San Clemente Complete Streets Policy: http://bit.ly/1cigoFg*
- *City of Baldwin Park Complete Streets Policy: www.smartgrowthamerica.org/documents/cs/policy/cs-ca-baldwinpark-policy.pdf*

Bicycle Parking Policy

Lack of good or sufficient bicycle parking can make bicycling for transportation much more difficult. We

recommend the City of Newport Beach include/update bicycle parking requirements in its development code to ensure they meet or exceed the guidelines put forth by the Association of Pedestrian and Bicycle Professionals' Bicycle *Parking Guidelines, 2nd Edition* (http://www.apbp.org/?page=publications). The code should require sufficient high-quality bicycle parking, installed correctly, based on land use classification.

The City can also consider changes to the municipal code to allow existing and future developments to replace a certain number of off-street automobile parking spaces with bicycle parking racks and/or lockers, especially in commercial districts.

Sample programs:

- *Los Angeles: clkrep.lacity.org/onlinedocs/2012/12-1297-s1_misc_1-15-13.pdf*

Bike Corrals and "Request a Rack" Programs

The City can adopt a policy to encourage the installation of high-capacity "Bike Corrals" that can fit several bicycles in popular commercial districts. One possible arrangement is for the City to install the bike corrals at the request of businesses that agree to maintain and clean the corral area. The City can also develop a program through which local businesses and residents can request short-term sidewalk bike parking racks. The City of Los Angeles has received Federal funds to install bike racks on sidewalks through their "Request a Rack" program when requested by stakeholders.

Image 61 - *Bike Corral in Santa Monica*

Sample programs:

- *Los Angeles: http://ladotbikeblog.wordpress.com/bike-corrals/*
- *Los Angeles: http://www.bicyclela.org/RackRequest.htm*
- *San Francisco: http://www.sfbike.org/resources/bike-parking/*

Bike Counters/Bicycle Barometers

Image 62 - *Bicycle counter found in Vancouver, BC*

Cities are starting to install bike counters (sometimes called "bicycle barometers") at key locations with high bicycle use. These counters automatically log every bicycle trip and display it on a public-facing board. One benefit of bike counters is providing highly accurate count data to the City – data that is collected at all times of day and all times of year. Another benefit is providing data to the general public about actual bicycle usage, which is often much higher than drivers estimate. This can help counteract the impression that bikeway investments are benefitting only a few people. Bicycle barometers can be permanent or temporary in nature, and can be used to provide data to interested stakeholders about bicycle traffic. The County of Los Angeles recently purchased portable bike counters for collection of data for 7-day counts rotating throughout the county to evaluate current activity.

Siting the bicycle counters/barometers may require coordination among several public agencies and community stakeholders, and ample communication should be conducted to address liability concerns. In addition, the City might consider applying for grants in the near-term to purchase the counters/barometers, even if installation is not expected until further in the future.

Possible locations for bike counters within the City might be at key entry points into the community or key constrained locations such as the following:

- West Coast Highway at Santa Ana River Trail or at Orange Street
- Back Bay Trail near the Jamboree Road/Eastbluff Drive intersection
- Coast Highway bridge over Back Bay

Sample programs:

- *http://portland-hawthorne-bridge.visio-tools.com/*
- *https://www.seattle.gov/transportation/bikecounter.htm*

6 Implementation and Funding

This chapter provides a strategy for implementing the capital project recommendations in this Plan. This implementation strategy and sequence is guided by a criteria-based ranking consistent with the goals of this plan as well as the goals of other City, region, and State plans and policies.

A lengthy list of recommendations has been provided in this Plan, and ranking allows staff to prioritize the projects to advance to implementation. A variety of variables will influence the implementation including the availability of funding, engineering analysis, and support from community stakeholders and representatives.

Many signing and striping projects can be completed by the City of Newport Beach Department of Public Works and are exempt from CEQA requirements. Such projects can be implemented using City or grant funds with approval by the City Management and/or City Council, if required due to the visibility or importance of the project. More complex projects with greater associated impacts typically include the following steps to advance to implementation:

1. Preparation of a Feasibility Study involving a conceptual design (with consideration of possible alternatives and environmental issues) and cost estimate for individual projects as needed.
2. Secure funding and any applicable environmental approvals.
3. Completion of final plans, specifications and estimates, advertising for bids, receipt of bids and award of contract(s).
4. Approval of the project by the City Council.
5. Construction of Project.

6.1 Bicycle Facility Project Prioritization

The intent of ranking projects is to create a prioritized list of bicycle projects for implementation. As projects are implemented, lower ranked projects move up the list. The project list and individual projects outlined in this Plan are flexible concepts that serve as a guideline. The ranked project list, and perhaps the overall system and segments themselves, may change over time as a result of changing bicycling patterns, land use patterns, implementation constraints and opportunities and the development of other transportation system facilities.

Projects may be implemented out of scoring order as opportunities arise. Opportunities may include grant availability, new development projects, capital improvement projects, or roadway repaving. The City of Newport Beach should review the project list and project ranking at regular intervals to ensure it reflects the most current priorities, needs, and opportunities for implementing the bicycle network in a logical and efficient manner.

The ranking criteria and weighting of each criterion is provided in **Appendix I**. Based on the ranking analysis, three tiers of ranked projects have been identified. **Table 6-1** summarizes the Tier 1 high priority bicycle facility projects. The full ranking analysis (Tiers 1 through 3) for the recommended bicycle facilities is provided in **Appendix J.**

All of the projects are recommended for implementation over the next twenty (20) years. However, due to the unpredictability of funding sources, economic conditions, and community support, some projects, especially those that require right-of-way purchase or coordination with multiple jurisdictions, may not be completed within the next twenty years.

Image 63 - *Cyclists enjoying the Ocean Front Trail in Balboa Village*

***Table 6-1** Tier 1 Projects (Score of 29-32)*

Facility Type	Location	Start	End	Total Score (40 max)
Spot	West Coast Highway/Newport Boulevard Intersection	--	--	**33**
Spot	West Balboa Boulevard (from 23rd Street to 21st Street)	--	--	**32**
II	West Coast Highway (Enhance Existing)	Orange Street	Newport Boulevard	**32**
Spot	32nd Street/Newport Boulevard Intersection	--	--	**31**
II	Balboa Boulevard	East Coast Highway	43rd Street	**31**
II	East Coast Highway (Enhance Existing)	Pelican Point Drive	0.2 miles west of East City Limit	**31**
II	Irvine Avenue (Enhance Existing)	17th Street	University Drive	**31**
II	Newport Boulevard	Via Lido	32nd Street	**31**
II	San Joaquin Hills Road (Enhance Existing/ Planned)	Jamboree Road	Newport Coast Drive	**31**
II	Seashore Drive (Enhance Existing)	Orange Street	Balboa Boulevard	**31**
Spot	Superior Avenue/West Coast Highway Intersection	--	--	**31**
II	West Coast Highway	Western City Limits	Orange Street	**31**
Spot	West Coast Highway (from Santa Ana River Trail to Orange Street)	--	--	**31**
II	Back Bay Drive (Enhance Existing)	Shellmaker Road	Eastbluff Road	**30**
III	East Coast Highway (Enhance Existing)	Poppy Avenue	Seaward Road	**30**
III	Newport Boulevard Alley	Via Lido	32nd Street	**30**
Spot	Newport Pier Parking Lot	--	--	**30**
II	Riverside Avenue	Cliff Drive	Avon Street	**30**
II	West Coast Highway (Convert Existing Class III to Class II)	Newport Boulevard	Dover Drive	**30**
II	32nd Street	Newport Boulevard	Via Lido	**29**
Spot	West Coast Highway/Orange Street Intersection (Southwest Corner)	--	--	**30**
III	Bayside Drive	East Coast Highway	Existing Class I North of Coast Highway	**29**
Spot	Bayside Drive/East Coast Highway Intersection	--	--	**29**
Spot	Bayview Trail	--	--	**29**
I	Coast Highway	Bayside Drive	Dover Drive	**29**
Spot	Dover Drive/West Coast Highway Intersection	--	--	**29**
II	East Coast Highway	Seaward Road	Pelican Point Drive	**29**
I	Eastbluff Drive	Bayview Trail/ Jamboree Road	Back Bay Drive	**29**
Spot	Riverside Avenue/West Coast Highway Intersection	--	--	**29**
Spot	West Coast Highway (from Newport Boulevard to Riverside Drive)	--	--	**29**

Note: Refer to appendix for full listing of Tier 1, 2, and 3 projects.

6.2 Total Recommended Bicycle Facility Costs

As noted in Chapter 5, refined cost estimates were prepared for each recommended bicycle facility improvement including spot improvements. **Table 6-2** summarizes the total cost of implementation for the bicycle facility recommendations.

Table 6-2 *Total Cost of Bicycle Facility Recommendations*

Facility Type	Miles	Cost Estimate
Class I Shared-Use Path	7.7	$14,153,300
Class II Bike Lane	40.9	$3,573,800
Class III Bike Route	19.0	$1,462,500
Spot Improvements	--	$3,185,000
Total	**67.6**	**$22,374,600**

As noted in **Table 6-2**, the total cost estimate for recommended bicycle infrastructure projects is $22.4 million, of which just over $14 million are attributed to Class I shared-use paths and bridges.

Table **6-3** summarizes the costs of the recommended bicycle facility projects by implementation tier.

Table 6-3 *Bicycle Facility Costs by Tier*

Tier	Projects Included	Cost Estimate
1	30	$4,560,750
2	34	$7,019,500
3	62	$10,794,350
Total	**126**	**$22,374,600**

As shown in **Table 6-3**, 126 bikeway projects have been recommended, and Tier 1 project implementation costs are estimated at approximately $4.6 million.

6.3 Maintenance Cost Estimates

Bicycle facilities require regular maintenance and repair. On-street bicycle facilities are maintained as part of the normal roadway maintenance program and extra emphasis should be placed on keeping bike lanes and roadway shoulders clear of debris and keeping vegetation overgrowth from blocking visibility. The cost of maintaining Class I facilities may be shared among various agencies or departments. The typical maintenance costs for the existing and proposed bikeway network are shown in **Table 6-4,** and the cost for maintaining the built out network is provided.

Table 6-4 *Bikeways Maintenance Cost Estimates*

Facility Type	Unit Cost ($)	Description	Length (Miles)	Annual Cost ($)	Notes
Class I	$15,000	Miles/Year	27.9	$418,500	Lighting and removal of debris and vegetation over-growth
Class II	$5,000	Miles/Year	69.2	$346,000	Repainting lane stripes and stencils, sign replacement as needed
Class III	$5,000	Miles/Year	26.7	$133,500	Sign replacement as needed
		Total	**123.8**	**$898,000**	

As shown in **Table 6-4**, the cost for maintaining bikeways network assuming implementation of all paths, bike lanes, and bike routes is approximately$898,000 annually. It should be noted this cost will be realized over time as implementation of the network is completed, and actual costs will be lower until the entire network is constructed.

6.4 Implementation Strategies

The Bicycle Master Plan provides the long-term vision for the development of a citywide bicycle network that can be used by all residents for all types of trips. The following strategies, action items, and measures of effectiveness are provided to guide the City toward the vision identified in the Plan.

Strategy 1: Strategically Pursue Infrastructure Projects

City staff can strategically pursue funding and implementation of infrastructure projects recommended in this Plan. Ideally, City staff will pursue capital improvements funding or grant funding for high-priority bicycle improvements first. If grant requirements or construction in conjunction with another roadway project make construction of a lower priority project possible, then the City might advance that project regardless of priority.

Action Item: On an annual basis the City can publish a public report documenting the status and ongoing actions for all bicycle infrastructure projects. This report may be combined with the prioritization review discussed below. The first update is recommended in Fall 2015.

Strategy 2: Review CIP Concurrence

The opportunity to implement projects concurrent with the Capital Improvement Program (CIP) can reduce the burden of implementing bicycle facility projects, and

improve the schedule for use regardless of priority ranking for each project.

Action Item: Annually evaluate the CIP for opportunities to implement recommended bicycle facility projects included within this Plan.

Strategy 3: General Plan Incorporation

Key policies, strategies and recommendations included in this Bicycle Master Plan can be incorporated into the General Plan Circulation Element during the next update. At the least, the Circulation Element update can incorporate the recommended bikeways network, add revisions to the roadway cross-sections showing dimensions for on-street bike lanes, and incorporate policies for public and private realm accommodation of bicycling activities. Additionally, roadways with excess vehicular capacity can be reviewed to modify travel lanes and provided on-street or protected bike lanes. The City can also develop engineering standards for NACTO-type bicycle treatments for ongoing use.

Action Item: Update the General Plan Circulation Element and incorporate key items from the Bicycle Master Plan.

Strategy 4: Review City Representative

Current work on bicycle facility projects at the City has been implemented by engineering staff within the Public Works Department. The City may review the designated bikeways representative to determine if other staff within the City have availability or are suited to help secure funding or programmatic recommendations provided within this Plan.

Action Item: Review the designated staff person at the City of Newport Beach to determine if additional or different staff have availability to provide support for both infrastructure and non-infrastructure efforts.

Strategy 5: Regularly Revisit Project Prioritization

Projects have been prioritized based on safety, public input, transportation benefit, connectivity benefit, cost, and feasibility. It is recommended that the prioritized list be reviewed every fiscal year, with new projects added, completed projects removed, and the priorities revised as conditions change.

Action Item: Annual review and update of the bicycle master plan's recommended facilities list and programs schedule. Updates to the list can be shared with the public. The first update is recommended in Fall 2015.

Strategy 6: Update the Bicycle Master Plan

While this Plan is intended to guide Newport Beach's bicycle transportation planning for the next 20 years, updates may be needed to address changes in priority and evaluation efforts. State funding has typically required updates to bicycle master plans every five years to establish funding opportunity for active transportation projects. Often, cities provide a compliance update within five years and a comprehensive update every ten years.

Action Item: Provide compliance update to the Bicycle Master Plan in five years, and a more comprehensive full update in ten years. Other elements of the Plan shall be reviewed and updated as needed.

Strategy 7: Collaborate with Caltrans

Caltrans manages and operates various roadways within the City of Newport Beach and intersections with freeway ramps on SR-73. This Plan includes bicycle facility recommendations that require regular coordination and collaboration with Caltrans.

Action Item: Collaborate with Caltrans to implement bicycle facility improvements on Caltrans-managed facilities, including innovative and conventional treatments using examples of similar facilities within the City, County, and State as precedents.

Strategy 8: Establish Measures of Effectiveness

Measures of effectiveness (MOEs, also known as targets or indicators) are used as a quantitative way to measure the City's progress toward implementing the Bicycle Master Plan. Well-crafted MOEs track progress toward meeting an agreed-upon goal within an established timeframe. **Table 6-5** describes several MOEs recommended for use by the City to track key achievements.

Table 6-5 *Recommended Measures of Effectiveness*

Measure	Benchmark	Target
Bicycle journey to work mode share	0.8% bicycle mode split per Census	Increase bicycle mode split to 2.0% by 2030.
Bicycle Facility Improvements Implementation	Approximately 88 miles of bikeways	Increase bikeways network by implementing bicycle facility recommendations.
Bicycle counts	Bike counts included in this Plan	Annually collect bike counts at baseline locations to document ridership volumes.
Bicyclist trends/ behaviorsv	Bike counts included in this Plan	Increase bicycling by women 10% per year up to 50% of total bicycling population, focus efforts to reduce wrong way bicycling where reported as cause in bike incidents.

Table 6-5 *Recommended Measures of Effectiveness (continued)*

Measure	Benchmark	Target
Public attitudes about bicycling	Bike survey provides indication of challenging locations and current perspectives	Increase in positive attitudes about bicycling within community.
Bicycle boulevard demonstration project	Not applicable	Develop demonstration bicycle boulevard on selected corridor and evaluate for success in usage and connectivity.
Bicycle Friendly Community Designation	Not currently designated by the League of American Bicyclists	Secure League of American Bicyclists Bronze Award by 2015 and Silver Award by 2020.
Grant funding	Baseline to be established	Attain an annual average funding of $400,000 or more for infrastructure and non-infrastructure projects.

As new baseline information is discovered as conditions change, and as the City implements the Bicycle Master Plan, the MOEs should be reevaluated, revised and updated. The City should regularly review the progress made toward these targets and include results in the annual "Report Card."

6.5 Potential Funding Sources

Potential funding sources for implementation of recommended bicycle facility infrastructure projects and programs has been identified for further consideration. The funding sources listed are typically competitive in nature, so the City will evaluate the applicability of potential projects and likely scoring before developing a grant application. Additionally, the City will determine the availability of staff to prepare grant applications and to administer the grant. Preparation of grant applications can often be a time-intensive effort, and receipt of funding is not guaranteed due to increasing competition for active transportation projects. These resource demands should be considered by the City of Newport Beach given the potential benefit of each grant opportunity.

We recommend the City identify potential projects that would fit well with the following funding sources and initiate/continue discussions with key agencies and stakeholders; funding sources are identified with the date of the next anticipated call listed in parentheses:

- Caltrans Active Transportation Program (Late 2014 or Early 2015)
- Orange County Measure M2 Local Return (Funds disbursed quarterly)
- OCTA Bicycle Corridor Improvement Program (BCIP) Call for Projects (2015)
- SCAG Sustainability Program (Future date subject to SCAG Regional Council action)
- Land and Water Conservation Fund (2015)

Preliminary consideration of applicability and discussion with stakeholders can help verify that a potential opportunity is well-suited for the grant source, and can help position the City to document a history of collaboration and provide a venue to secure letters of support for incorporation into the grant application. Refer to **Appendix K** for a listing of additional funding sources that may be considered for funding bicycle facility improvements and programs.

6.6 Active Transportation Program (ATP) Compliance

The Active Transportation Program (ATP) is an annual statewide discretionary grant program that funds bicycle and pedestrian projects through Caltrans. Available as grants to local jurisdictions, the ATP emphasizes projects and programs that enhance bicycling for transportation purposes. In order for Newport Beach to qualify for ATP funding in future cycles, the Bicycle Master Plan must contain specific elements. **Appendix L** displays the requisite ATP components and their location within this plan.

Image 64 - *Right turn lane yield sign*

Appendices

Appendix A: Locations Where Bicycles are Permitted on Sidewalks (City Council Resolution 82-148)

Appendix B: Bicycle Safety Guidelines Brochure

Appendix C: Citizens Bicycle Safety Committee 2012 Final Report

Appendix D: Task Force on Cycling Safety Final Report 2010

Appendix E: Past and Planned Bicycle-Related Projects

Appendix F: Bicycle Count Tables

Appendix G: Bicycle Facility Design Guidelines

Appendix H: Wayfinding and Signage Plan

Appendix I: Bicycle Facilities Prioritization Methodology

Appendix J: Recommended Bicycle Facilities and Prioritization Rankings

Appendix K: Potential Funding Sources

Appendix L: Active Transportation Program (ATP) Compliance Table

Appendix A: Locations Where Bicycles are Permitted on Sidewalks (City Council Resolution 82-148)

RESOLUTION NO. 82-148

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF NEWPORT BEACH RESCINDING RESOLUTIONS NOS. 8504 AND 9241 AND STATING THE SPECIAL CIRCUMSTANCES FOR AND DESIGNATING LOCATIONS WHERE THE RIDING OF BICYCLES ON SIDEWALKS IS PERMITTED

WHEREAS, in June, 1975 and December, 1977, the City Council adopted Resolutions Nos. 8504 and 9241 designating the locations where the riding of bicycles was permitted; and

WHEREAS, Section 12.56.140 of the Newport Beach Municipal Code allows the City Council to designate, by resolution, specific sidewalks where bicycle riding is permitted; and

WHEREAS, bicycle riding on said specified sidewalks is permitted in order to:

1. Provide continuity along heavily travelled roadways having inadequate space for bicyclists; and
2. Provide for children and others too inexperienced to ride in heavily travelled roadways; and
3. Provide preferred routes to and from schools and recreation areas for children too inexperienced to ride in heavily travelled roadways; and

WHEREAS, the Citizens Advisory Bikeways Committee has recommended that additional locations be added to the presently designated areas where the riding of bicycles on sidewalks is allowed; and

WHEREAS, said locations have been reviewed and approved by the Traffic Affairs Committee and are set forth in legnth on Exhibit "A" attached hereto and incorporated herein by reference as though fully set forth at length herein.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Newport Beach that Resolutions Nos. 8504 and 9241 be and hereby are rescinded; and

BE IT FURTHER RESOLVED that the up-dated list of

locations where the riding of bicycles on sidewalks is permitted is that which is outlined on Exhibit "A" attached hereto and incorporated herein.

ADOPTED this 22nd day of November, 1982.

Jacqueline G. Heather
Mayor

ATTEST:

Wanda E. Anderson
City Clerk

RSP-Bikes2

1.	Bayside Drive - southerly side	Harbor Island Drive to Marine Avenue
2.	Bayside Drive Park -	Carnation Avenue to Larkspur Avenue
3.	Bison Avenue - south side	Jamboree Road to MacArthur Boulevard
4.	Bristol Street - north side	Irvine Avenue to Jamboree Road
5.	Buffalo Hills Park	Ford Road to Harbor View Park
6.	Campus Drive - south side	Von Karman Avenue to Jamboree Road
7.	Cliff Drive - south side	Kings Place to Dover Drive
8.	Coast Highway - north side	57th Street to Newport Boulevard
9.	Coast Highway - north side	Dover Drive to Bayside Drive
10.	Coast Highway - south side	Santa Ana River to Riverside Avenue
11.	Coast Highway - south side	3,200 feet west of Dover (Sea Scout Base) to Avocado Avenue
12.	Dover Drive - east side	Cliff Drive to Coast Highway (including undercrossing at west end of Upper Bay Bridge)
13.	Dover Drive - east side	16th Street to Westcliff Drive
14.	Dover Drive - west side	Cliff Drive to Coast Highway
15.	Eastbluff Drive - west side	Back Bay Drive to Jamboree Road
16.	Eastbluff Drive - west side	Jamboree Road to northerly driveway Corona del Mar High School
17.	Ford Road - north side	Jamboree Road to MacArthur Boulevard
18.	Ford Road - south side	Jamboree Road to San Miguel Drive
19.	OASIS Park	Iris Avenue to Larkspur Avenue
20.	Harbor View Park	Buffalo Hills Park to San Miguel Drive
21.	Irvine Avenue - east side	Santiago Drive to University Drive
22.	Irvine Avenue - both sides	2,050 feet to 2,150 feet north of Mesa Drive
23.	Irvine Avenue - east side	Orchard Avenue to Bristol Street
24.	Irvine Avenue - east side	16th Street to Margaret Avenue
25.	Jamboree Road - east side	Coast Highway to Bison Avenue
26.	Jamboree Road - west side	Bayside Drive to Ford Road
27.	Jamboree Road - west side	Eastbluff Drive North to Campus Drive

28.	Lido Isle Bridge - north side	
29.	MacArthur Boulevard - west side	Bison Avenue to Ford Road
30.	MacArthur Boulevard - east side	Jamboree Road to Campus Drive
31.	Marguerite Avenue - east side	Inlet Drive to San Joaquin Hills Road
32.	Marguerite Avenue - west side	Harbor View Drive to San Joaquin Hills Road
33.	Newport Boulevard - east side	Via Lido north along southwesterly ramp to Coast Highway
34.	Newport Center Drive - west side	Coast Highway to Farallon Drive
35.	Ocean Front - south half of sidewalk	F Street to McFadden Place and westerly line Ocean Front parking lot to 36th Street
36.	Riverside Avenue - north side	Cliff Drive to 150 feet north of Avon Avenue
37.	San Diego Creek - south side	Jamboree Road to easterly City boundary
38.	San Joaquin Hills Road - north side	Jamboree Road to Big Canyon Drive (west)
39.	San Joaquin Hills Road - north side	Marguerite Avenue to 700 feet westerly
40.	San Joaquin Hills Road - south side	MacArthur Boulevard to Marguerite Avenue
41.	San Miguel Drive - west side	Port Sutton Drive to San Joaquin Hills Road
42.	San Miguel Drive - both sides	San Joaquin Hills Road to Avocado Avenue
43.	Santa Barbara Drive - south side	Jamboree Road to Newport Center Drive West
44.	Spyglass Hill Road - east side	San Joaquin Hills Road to El Capital Drive
45.	Spyglass Hill Road - west side	El Capitan Drive to San Miguel Drive
46.	Superior Avenue - east side	Coast Highway to Placentia Avenue
47.	Superior Avenue - east side	Dana Road to north City boundary
48.	Superior Avenue - west side	Coast Highway to Ticonderoga Street
49.	Von Karman Avenue - east side	MacArthur Boulevard to Campus Drive
50.	Westcliff Grove Trail	Dover Drive to Santiago Drive
51.	32nd Street - south side	Balboa Boulevard to intersection of Seashore Drive

EXHIBIT A

Appendix B: Bicycle Safety Guidelines Brochure

Same Road, Same Rules

The California Vehicle Code requires cyclists and motorists to follow the same rules of the road.

Safety Tips for Motorists

Bicyclists on public streets have the same rights and responsibilities as vehicle and motorcycle drivers. When driving, please remember to:

- Pass a cyclist as you would a slow-moving vehicle. Exercise caution and only pass when it's safe to do so.
- Don't "door" someone! Look carefully for cyclists before opening vehicle doors next to moving traffic or a bike lane, particularly in areas like Corona del Mar.
- Always check the bike lane or shoulder area for cyclists before turning (especially in Corona del Mar, Mariners Mile or along Bayside Drive). Remember: "Signal, mirror, head-check" when approaching the turn.
- Never attempt to overtake and pass a cyclist just before you make a right turn, and check the bike lane before making a left turn. A cyclist may be going faster than you think, particularly in downhill sections of the roadway.
- Use caution when approaching or passing a cyclist on exits from large streets such as Coast Highway, the 73 toll road, Mac Arthur Blvd., Jamboree Rd., and Newport Coast Drive. These are busy roads with many cyclists.
- Make a habit of expecting to encounter pedestrians and cyclists in the roadway.

Did You Know?

Motorists: Horn blasts can startle cyclists and cause an accident.

Motorists: Don't assume cyclists must always ride to the far right. The right-side "rule" varies with roadway conditions.

Motorists: It's always best to be patient when passing a cyclist and to remain behind the cyclist until you can, depending on the road conditions, safely clear the cyclist.

Cyclists: You are required to use bike lanes on roads that have bike lanes, but you may enter into the traffic lane to execute a left turn.

Motorists and Cyclists: When a traffic lane is too narrow for cars and bikes to ride safely side by side, bicyclists should ride near the center of the lane to prevent motorists from trying to pass too close within the lane.

Motorists and Cyclists: Use caution at driveways and intersections. A motorist pulling out of a parking space or turning may not see the cyclist. Bicyclists should always be alert and visible when riding on a highway.

Motorists and Cyclists: Make eye contact to acknowledge the presence of a cyclist or pedestrian and yield when appropriate.

**The California Department of Motor Vehicles provided much of the information and advice contained in this brochure.*

Safety Guidelines for Bicyclists & Motorists

City of Newport Beach
3300 Newport Blvd.
Newport Beach, CA 92663
www.newportbeachca.gov

Each year in California, more than 100 people are killed & hundreds of thousands more are injured in bicycle accidents.*

In Newport Beach, between 90 and 100 bicycle accidents occur annually (not all are due to traffic violations), and at least one person has been killed as the result of a bike accident each year since 2005. Statistics show that in a majority of all bike-related accidents in the city, the bicyclist was at fault.

The streets of Newport Beach carry thousands of motorists, bicyclists and pedestrians daily to home, work or recreational destinations. Each of these users has rights and responsibilities when using public streets. This brochure provides a brief overview of the legal obligations of bicyclists and motorists and offers safety tips to help keep you and others safe.

Under the California Vehicle Code, both motorists and bicyclists must abide by the same set of traffic laws including yielding to pedestrians in cross-walks, respecting the rules for bike lanes, and obeying all stop signs, traffic signals and speed limits. California Vehicle Code Division 11, Chapter 1, Article 4 details the laws applicable to bicycle use. Please visit www.ca.dmv.gov/ for more information.

**California Department of Motor Vehicles*

Safety Tips for Bicyclists

Always wear a helmet.
- Keep in mind that a simple fall can cause a life-threatening head injury.
- Get a helmet that fits properly and secure the strap.
- Make sure that children under the age of 18 always wear a helmet while riding. It's state law.

Maintain control of your bicycle.
- Ensure it is the right size and fit.
- Check your bike often to see that it is in good working order (brakes, chain, tires).
- Control the speed of your bike and allow ample space and time for stopping.

Ride defensively. Be visible, alert and communicate your intentions.
- Use your left arm to signal your intentions to drivers.
- Always be prepared to stop or to take evasive action.
- Be aware of vehicles at stop signs, in parking spaces and driveways that may suddenly pull out in front of you.
- Be vigilant. Vehicles that pass you may abruptly turn in front of you.

Ride with traffic.
- Travel in the same direction as traffic.
- Obey all traffic laws.
- Practice defensive riding.

Be Visible
- Wear clothing that is light or brightly colored.
- Make sure your bicycle is equipped with reflectors on the front, back, and wheel spokes.
- Add a light to your bike and use it when riding at night or when visibility is low.

Common Questions & Answers

How far to the right should I ride?
In general, ride on the right-hand side of the road, but not in the gutter. Do not ride too far to the right when a traffic lane is too narrow for a bicycle and a vehicle to be safely side-by-side, or when trying to avoid car doors opening, parked cars, or debris.

When should cyclists use the traffic lane?
If there is no shoulder or bike lane and the traffic lane is narrow, ride close to the center of the lane. You also use the center of the lane when riding at the same speed as the motor vehicles.

What about left turns?
When clear, move to the center of the outermost left turn lane so that you will be to the right when completing your turn. Yield to oncoming traffic.

Can bikes be in pedestrian crosswalks?
Walk your bike as a pedestrian. Obey signals and traffic control signs and yield to pedestrians.

Can I ride my bike on the sidewalk?
Yes, but only in certain areas. Look for the signs that say "OK for Bikes to be on Sidewalk".

Can I ride side-by-side with another cyclist?
Sometimes. Riding two abreast may be okay in bike lanes, bike paths and bike trails - where there is plenty of room.

Do all these rules apply to training or group rides?
Yes. Be very cautious in group rides where speed and competition occasionally surpass good sense. At traffic signals, the leader should slow and stop at a yellow light rather than risk having the rest of the group run a red light.

Appendix C: Citizens Bicycle Safety Committee 2012 Final Report

	TO: NEWPORT BEACH CITY COUNCIL **FROM: CITIZENS BICYCLE SAFETY COMMITTEE** **DATE: JANUARY 9, 2013**

REPORT ON 2012 COMMITTEE ACCOMPLISHMENTS

The Citizens Bicycle Safety Committee (Committee) held its first meeting on December 6, 2010, and has met monthly since then. In the creation of the Committee, the City Council set out a number of tasks for the Committee. This is the 2012 Annual Report to the Council on accomplishing those tasks.

The following are the activities prescribed:

1. **Produce an updated Web based map that would include facilities, safety information, points of interest, mileage and family friendly routes.**

    a. The draft GIS-based bicycle route map is available on the City's Web site for comment.

2. **Jointly develop and implement a plan to provide student bicycle safety outreach with the Newport Unified School District (NMUSD).**

    a. Consistent with the Committee's prior recommendations, the Newport Beach Police Department (NPBD) has been hosting bicycle rodeos at local schools.
    b. The Committee is studying the area between Newport Harbor High School and Ensign Middle School to identify ways to encourage safe bike riding to and from school.
    c. The Committee plans to invite/recruit members of the School Board to future meetings to further improve cooperation and safety.
    d. Future projects will reflect the Committee's desire to enhance bicycle safety around schools.

3. **Develop and implement programs to educate and promote safety and encourage bicycle use for health, recreation and alternative transportation.**

    a. The Committee thoroughly evaluated installing sharrows on Coast Hwy in Corona Del Mar (between MacArthur and Poppy) and recommended installation to the Council along with an outreach and education program. Sharrows were installed in Corona Del Mar in late October.

b. With support of the Committee and the Council's initiative, the City hosted a Bicycle Memorial Ride on October 28 following the tragic deaths of two residents and another serious injury. Over 1200 riders participated.
c. The City established a Bicycle Safety Improvement Fund that includes a 3 to 1 matching program. As of the date of this report, approximately $78,000 has been raised. Including the City Council approved three to one match, approximately $234,000, the Bicycle Safety Improvement Fund will totals approximately $312,000.
d. As part of its overall focus, the Committee is focusing on improvements that benefit casual riders and that create safe routes to the beach.
e. Working in conjunction with the NPBD, a new brochure on bicycle safety has been created.
f. The Committee has established a Subcommittee to address maintenance vehicles parked along Newport Coast Drive which create a safety hazard for cyclists.
g. Our regularly scheduled meetings are well attended by the general public where new information is widely disseminated. The local news media report to the broader community the latest news regarding bicycle matters. The LA Times, Daily Pilot, Corona Del Mar Today, O.C. Wheelmen, O.C. Bicycle Coalition and Charlie Gandy of Long Beach have attended our meetings.

4. Review the City's Bicycle Facilities network and provide input to City staff on maintenance.

a. As a result of the Committee's work, striping modifications have been implemented at several locations including Newport Center Drive, San Miguel Drive, Santa Barbara Avenue, Santa Cruz Drive, East Coast Highway, Bonita Canyon Drive, and Jamboree Road at East Coast Highway.
b. New bicycle signage has been installed at various locations along Coast Highway and Bonita Canyon Drive.
c. Coast Highway Alternate Bike Routes were created and signage was installed to provide alternate passage through Corona del Mar,
d. The City was awarded Orange County Transportation Authority Bicycle Corridor Improvement Grant funds. These funds will result in striping/signage improvements along Jamboree Road, San Joaquin Hills Road, Eastbluff Drive/Ford Road, and Spyglass Hill Road.
e. As a result of our regularly scheduled meetings and public comments, potholes have been filled, bumps have been leveled, raised pavement markers removed and trash/refuse removed. In addition, there is now a feature on the City's Web site for reporting road hazards.

5. Review the City's Bicycle Master Plan and provide recommendations to City Council for modifications and additions.

a. The Committee has proposed allocating additional resources to create a Bicycle Master Plan that would become a subset of the City's Circulation Element. The Master Plan would outline the City's bicycle infrastructure and program goals and include specific, measurable targets.

b. A copy of the Committee's recommendations for the Bicycle Master Plan is attached to this report as Appendix A.

6. Review and prioritize the 18 recommended projects from the Task Force on Bicycle Safety Final report dated May 11, 2010, including potential locations for bicycle racks to promote bicycle usage.

a. The Committee established a Focus Area Subcommittee to identify key areas in the City that warrant additional signage, striping, or other capital improvements.
b. The Focus Area Subcommittee identified the area leading from Newport Heights to the Balboa Peninsula as an area most in need of safety improvements.
c. The Focus Area Subcommittee evaluated and reported on three of the City's intersections with the highest rate of bicycle-involved incidents: Riverside Drive at Coast Highway, Newport Boulevard. at Via Lido, and Newport Boulevard at 32nd Street.
d. The Focus Area Subcommittee's Annual Report, outlining additional recommendations to the City Council, is attached to this report as Appendix B.
e. As a result of the Committee's work, striping modifications have been implemented at several locations including Newport Center Drive, San Miguel Drive, Santa Barbara Avenue, Santa Cruz Drive, East Coast Highway, Bonita Canyon Drive, and Jamboree Road at East Coast Highway..
f. City staff has obtained approval from Caltrans for striping and signage improvements along Newport Coast Road near the SR-73.
g. The Committee has determined that Corona Del Mar, Balboa Village, and Balboa Island are the three areas with the greatest need for additional bike racks.

During the past year, the Committee has accomplished a number of its goals. However, the installation of sharrows on Coast Highway in Corona Del Mar reinforces that additional safety improvements throughout the City are necessary, along with more education and outreach. The Committee needs more time to consolidate our efforts and ensure a solid foundation of bicycle awareness and safety for the future. Future projects may include installing sharrows in other parts of the City, creating a Bicycle Master Plan which is crucial for obtaining state grants, using existing and future funds for capital improvements, finalizing the City's bicycle map; working with the school district to develop safer routes to school; and soliciting input for a Complete Streets program.

Appendix A

City of Newport Beach Bicycle Master Plan

We, the City of Newport Beach Bicycle Safety Committee, see the need for a further dedication of City resources in order to create a comprehensive and focused Bicycle Master Plan. The current staff has been very responsive and helpful to the Bicycle Safety Committee in addressing Bicycle Safety Improvements. However, the current allocation of staff time (approximately 30-40% of one staff member's time) is not sufficient to meet the current needs of the bicycle safety needs of the community.

1. Overview – The City's existing General Plan Circulation Element includes a Master Plan of Bikeways and a number of policies intended to promote and enhance safe cycling throughout the City. We do not believe that these measures go far enough. The Committee therefore urges the City to allocate necessary resources (i.e., additional staff time and a budget for an outside consultant) to create a Bicycle Master Plan, which would ultimately become a subset of the existing Circulation Element or exist as a new stand-alone General Plan element. This Master Plan should outline the City's bicycle infrastructure and programs goals and include specific, measurable targets. The Master Plan of Bikeways can be intergraded into a Complete Streets Element once that program is developed by the City. Pending further discussion, one possible goal of the Master Plan would be to achieve Bicycle Friendly Community status by the League of American Bicyclists.

2. Guiding Principles – The guiding principles for the Bicycle Master Plan are very simple: (a) make cycling safer in the City of Newport Beach; and (b) encourage cycling for transportation and recreation purposes in the City of Newport Beach.

3. Guidance – The City staff or outside consultants charged with creating the Bicycle Master Plan should work closely with the City's existing Bicycle Safety Committee or a Master Plan Advisory Subcommittee thereof.

4. Master Plan Scope of Work – At a minimum, the Master Plan should include the following:

    a. Surveys - Conduct online surveys of, and convene community meetings with, the cycling public to scope Master Plan priorities and goals. To make efficient use of everyone's time, the community meeting(s) may occur during, or immediately following, a regular Bicycle Safety Committee meeting. The purpose of this outreach is to determine what it is people want the Master Plan to accomplish, and to gather their ideas on the most effective ways of achieving those goals.

    b. Funding – The Master Plan should be drafted with an eye toward funding, and specifically infrastructure funding from sources *other than* the City's General Fund (e.g., Caltrans and Measure M). Expertise in obtaining such finding

should be a prerequisite for the City staff person or outside consultant charged with drafting the Master Plan.

c. Existing Conditions – The existing conditions section of the Master Plan should include, among other things, a map showing proposed future bicycle facilities and routes along with current facilities, a description of the City's existing bicycle facilities, bicycle collision data, and expenditures for the last five years for bicycle facilities. It should also contain an audit of the City's existing bicycle facilities, noting where improvements are warranted.

d. Policies and Objectives – Like all General Plan elements, the Master Plan should include clear policies and objectives based on input from the public and the Master Plan Advisory Subcommittee. There should be an emphasis on measurable and quantifiable improvements (e.g. "Implement XX% of all recommended facility improvements by 2020.")

e. Education and Enforcement – Recognizing that cyclists are at fault in a number of accidents within the City, the Master Plan should include a section specifically discussing Education and Enforcement (e.g., in-school programs, NBPD enforcement drives, and City-sponsored bicycling skills courses.)

f. Implementation: Capital Improvement Program – In order to ensure follow-through on the recommendations made in the Master Plan, it should include a CIP section containing: (1) A consolidated list of all proposed bicycle improvement projects: (2) The priority or phasing for the implementation of each improvement; (3) The cost of each project and a cost per year for all projects to be implemented in the first five to ten years; and (4) The anticipated source(s) of funding for each project.

g. Regular Updates – In order to ensure that the content of the Master Plan does not become stale, it should build in annual review and update procedures to reflect new conditions through, for instance, regular reviews with NBPD

(Reference: *Bicycle Planning and Facility Design Best Practices*, October 2005, Sacramento Transportation & Air Quality Collaborative)

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Appedix B

Citizen's Bicycle Safety Committee
Focus Area Subcommittee 2012 Annual Report

A main task of the Citizen's Bicycle Safety Committee is to review existing bicycle infrastructure and identify improvements to promote cycling and encourage safe and responsible roadway use. To accomplish this task, the Focus Area Subcommittee was formed.

Review of bicycle-related incident records provided by the Newport Beach Police Department, showed the top three bicycle-related incident locations in the Newport Boulevard entrance to the Peninsula and within Newport Heights and mainly consist of casual cyclists. Considering this information, the Focus Area Subcommittee reviewed the locations and related the incident rate to peninsula and beach access from Newport Heights, with the Oceanfront path being the primary destination.

The following improvements are recommended by the Focus Area Subcommittee to enhance bicycle safety while promoting responsible cycling.

1. Southbound Riverside Drive – Stripe 6" Bike Lane Stripe adjacent to the parked vehicles.
2. Riverside Dr. at PCH – Add D 11-1 (Bike Route) Sign + M6-1(L) (Arrow) on the SEC Signal Pole to direct bike route users to the correct side of the street..
3. Add Bike Route Guide signs for the Bike Route under Newport Blvd. May need additional Guide Signs to reinforce the route.
4. Southbound Newport Blvd. south of PCH see if it is possible (enough room) to add a SB Bike lane as far as possible (up to 32nd St.).
5. Newport Blvd. at Via Lido – add guide signs for the Bikes to Cross Via Lido and then cross to the west side of Newport Blvd. Guide signs at the SEC Signal Pole(s).
6. Alley – Add Guide signs to direct Bikes to use the Alley as an alternative route to Newport Blvd. See if the short portion of the one-way alley can be used for two-way bike route.
7. Balboa Boulevard – add bike signage and/or sharrows between Newport Boulevard and Balboa Boulevard.
8. 32nd Street at Balboa Boulevard – remove corner parking spot by installation of red curb, restriping the westbound 32nd St. approach to relocate the bicycle lane, placing it between the through and right-turn lanes, and stripe a pathway through the intersection to either cross to Seashore Dr. or turn south to 31st St.
9. Install appropriate guide signs to direct the cyclist to the Oceanfront path.
10. PCH Westbound – add dashed Bike Lane Stripe from the Sterling Parking lot to separate bike lane from the right turn lane similar to what was done on PCH towards Newport Center.
11. PCH Eastbound - add dashed Bike Lane Stripe adjacent to the right turn lane similar to what was done on PCH towards Newport Center.

Further Staff review for roadway conditions and compliance with local, state and federal guidelines may be necessary. Additionally, some of recommended improvements are within State right of way and will require Caltrans approval.

Appendix D: Task Force on Cycling Safety Final Report 2010

TASK FORCE ON CYCLING SAFETY

FINAL REPORT

MARCH 22ND, 2010

In September, 2009, the Newport Beach City Council established the Task Force on Cycling Safety. As part of Resolution 2009-67, the committee was asked to:

- Improve safety of streets and highways for cyclists, including but not limited to additional bike lane designations and "Share the Road" signs.
- Suggest ways to encourage the cycling community to be fully respectful of autos, pedestrians and all traffic laws (including speed limits especially along Ocean Front Walk, Back Bay Drive and in Newport Coast, red lights, stop signs and their obligation to ride no more than two abreast during group rides.
- Suggest ways to encourage auto drivers to respect cyclists' rights to use roads, including education programs using existing City publications.

The Task Force was made up of six citizens, all avid cyclists (Sean Matsler, Daniel Murphy, Francis Peters, Jr., Anthony Petros, James Sweet and John Tzinberg) and three City Council members (Nancy Gardner, chair, Leslie Daigle and Don Webb). Staff support was provided by Sharon Wood, later replaced by John Kappeler, and Kim Rieff). Other participants included the city's traffic engineer, representatives of the Police Department, the public information officer, representatives of the Orange County Bicycle Coalition and various members of the public.

Meeting every other week, the group researched the California Vehicle Code (CVC), the Manual on Uniform Traffic Control Devices (MUTCD), OCTA resources, other state and regional guidelines and regulations, published research from other transportation professionals and cycling programs in other cities. Additionally, members of the committee offered their own personal and professional experience and knowledge to create the following report. The Task Force is aware of the City's finite resources, but urges that these recommendations be a priority. The Task Force also recommends a city bicycle committee be established with a mission of outreach and coordination with similar efforts throughout the state and of researching available grants for cycling programs.

1. EDUCATION AND OUTREACH

Safety for all users of the public rights of way is of paramount importance to the City of Newport Beach. Drivers need to understand the rights of cyclists, and cyclists need to

understand the importance of riding safely. This is a matter of education, and from the beginning, it was clear that there were a number of different markets to be targeted: serious cyclists, bike commuters, recreational cyclists, families, students and visitors. To reach these different audiences, a variety of media and messages will be necessary. The following tools, not in any priority, are suggested for City Council consideration:

A. Bike Map indicating the various existing bike routes within the city. This would be available at bike shops, city venues including libraries, hotels and other visitor destinations and spots where cyclists congregate as well as on line. A cell phone application (app) for iPhone and others should also be considered. Ideally, such a map would include:

1. "Family friendly" alternate routes for areas such as PCH through Corona del Mar
2. Statistics such as individual and overall route mileage
3. Color coordination with maps of other jurisdictions keying off th e County of Orange map.
4. Safety instructions and Rules of the Road (Attachment A)
5. All existing bicycle facilities connecting to and traveling through Newport Beach. This would include all Class I bike paths, Class II bike lanes and Class III Bike routes and other facilities supporting bicycle travel.
6. Significant land uses and landmarks relevant to multimodal travel.

B. Dissemination of Safety Information through media such as:

1. City's web site and e-alerts.
2. NBTV program on bike safety
3. E-mail blasts to bicycle clubs
4. PSA's at Council, Planning Commission and Parks, Beaches and Recreation Commission meetings
5. City-sponsored bike safety days

C. School Participation can be encouraged by providing information about:

1. Police Department bike safety classes for students
2. Collaboration between the City and the school district in the identification of safe routes to schools (Attachment B)
3. Encourage the school district to implement a plentiful supply of bike racks at schools.

D. Update City's Master Bike Plan to include the existing but undesignated connection over San Diego Creek from Jamboree to the bridge.

E. Update City's Bicycle Trails Map to be used as the Bike Map in Item A, including adding:

1. Newport Coast including Vista Ridge, Ridge Park and Pelican Hills Road
2. Castaways
3. Crystal Cove State Park
4. San Diego Creek to Bayside
5. Jamboree Road Bridge to Balboa Island
6. Reinforce Back Bay Loop Trail

F. Joint Meeting With Police and Bicycle Advocates to deal with the perception by cyclists that motorists are unaware of laws affecting cyclists and that law enforcement is not sensitive to cyclists. This could include:

1. Consideration of training similar to Los Angeles Police Department highlighting cycling laws, regulations and contemporary planning and engineering practices
2. Task Force recommends the City Council consider a joint meeting with the Police Department and cycling groups to discuss perspectives on law enforcement and bicycle safety.

2. ROAD IMPROVEMENTS

The Task Force identified areas where it felt that the interaction of auto traffic and bike traffic could be improved. Some are simple, some innovative, none expensive. The Task Force recommends the City Council consider implementation of the following capital improvements, again in no order of priority:

A. Improved Signage

1. More "Share the Road" signs in locations consistent with the MUTCD guidelines
2. More signs showing sanctioned and alternate bicycle routes

B. Sharrows Program –Bicyclists have the same rights as cars on roads. Sharrows, which are being used in a number of cities including Long Beach, are a way of reinforcing what is already legal by unique pavement markings (see Attachment C).

1. The Task Force recommends the City Council direct staff to develop engineering guidelines to define roadway conditions and environmental characteristics (i.e. traffic volume, adjacent land use, traffic speeds, on-street parking, etc.) that are appropriate for the implementation of sharrows in Newport Beach. Criteria should also be developed for the evaluation of any sharrow program which balances the needs of motorists and cyclists.
2. Based on the guidelines, implement a Sharrows demonstration project to be completed within one year of acceptance of the Task Force recommendations. The design of the demonstration project should consider all recognized types of sharrow markings and/or striping. Awareness should be given to the type of paint used to minimize hazards when wet.

3. If the demonstration program is deemed successful by Public Works staff and the City Council, develop a list and map of suitable locations and an implementation schedule to expand the sharrows to other appropriate streets. One particular site discussed as a potential for sharrows by the Task Force was PCH through Corona del Mar.

C. Focus Areas are those areas which the Task Force believes could be improved to coordinate a more efficient and shared use of the public right of way. Depending on the area, the shared use may be improved with signage, bike lanes, sharrows, striping, etc. Attachment D provides a preliminary list.

1. Complete list of Focus Areas and determine appropriate action
2. Select one of the listed free right turn lane locations along PCH as a demonstration project for an innovative striping plan. MacArthur, being within the City's jurisdiction, is recommended.

3. ENCOURAGING CYCLING

Cycling is a sustainable form of transportation. It is good exercise, can reduce vehicular congestion and emissions and is something that fits well into the Newport Beach lifestyle with its great year-round weather and relatively level topography. Several actions have been identified by the Task Force to encourage cycling:

A. Bike Racks

1. Establish a policy requiring bike racks for development of a certain size and for all public development.
2. Identify and rectify current areas of bike rack deficiency (Attachment E)
3. Insure that bike racks are well-designed and consider developing a unique design and/or color scheme for the City.
4. Consider permitting commercial signage on racks as a funding source.

B. Day without Cars

1. Consider declaring a "Day Without Cars" and work with residents and schools to highlight. Coordinate with Bike-to-Work-Week, May 17-21.

DEADLINES

The Task Force respectfully requests that for those suggestions which Council accepts, deadlines be established so that progress can be monitored.

ATTACHMENT A--SUGGESTED MAP LANGUAGE

NO MATTER WHAT YOUR MEANS OF CONVEYANCE, BE COURTEOUS TO OTHERS ON THE ROAD. OBEY ALL TRAFFIC SIGNS AND SPEED LIMITS.

BICYCLE EQUIPMENT

HELMETS
Bicycle helmets are required for anyone under 18 years of age both as riders and passengers. Helmets are strongly encouraged for every rider.

TIRES
Be sure there are adequate tread and no physical defects that might cause failure. Always carry a spare tube and air in case of a flat, and be sure that you are in a safe place when changing a flat.

SEAT
The seat should be firmly attached. A good test is to pick up the bicycle by the seat. If the seat creaks, the seatpost may be broken. Get it fixed.

CLOTHING
Wear easily visible colors like yellow and lime green. Control loose slacks with a pants clip or rubber band.

RULES OF THE ROAD

Always ride with the flow of traffic. Where there is a bicycle lane or trail, cyclists should ride in that lane.

POSITION
In general, keep to the right. Where there are parked cars, ride far enough away to avoid being hit by an opening door. On narrow roads with no shoulder or bike lane, ride closer to the center of the lane to prevent motorists from passing when there is insufficient room.

STOP SIGNS AND TRAFFIC LIGHTS
Obey all stop signs and signal lights.

HAND SIGNALS
Signal before you turn or change lanes. Check to make sure that motorists and other cyclists have seen the signal.

RIGHT TURNS
Stay in the right-hand lanes of both streets. Be careful of cars turning in front of or into you.

LEFT TURNS
Use designated left turn lanes, but never from a lane where a car to your left might proceed straight. If uncomfortable using the left-turn lane, make a pedestrian-type turn from the right lane.

SIDEWALKS
Bicycles cannot be ridden on sidewalks except where signs are posted permitting such.

The map indicates such sidewalks in (color). If you are riding on a permitted sidewalk, remember that pedestrians have the right of way.

IMPEDING FLOW

Never leave a bicycle lying on its side or parked on a sidewalk so as to impede pedestrian traffic.

PACKAGES

Don't carry packages that prevent you from keeping at least one hand on the handlebars at all times.

IN GROUPS

Don't ride too close or with your front wheel next to the rear wheel of the bike in front of you. Ride two-abreast at most, and only where there is a clear bike lane. If the road narrows or the bike lane goes away, ride single file. Make sure that the group leader crosses through signals in a manner that allows all cyclists in the group to pass without the back riders running a red light.

RIDING AT NIGHT

If you ride in the dark you are required to have a lamp that illuminates at least 300 feet in front and from the side, a red reflector visible from a distance of 500 feet, a white or yellow reflector on each pedal, shoe or ankle visible for 200 feet, and either front reflectorized tires or a white or yellow reflector on each side to the front and rear.

CELL AND EAR PHONES

Don't ride and talk. If you need to make a phone call, pull to the side of the road. Do not use ear buds that mask road noises.

FOR DRIVERS

Remember that cyclists have the same rights and responsibilities as motorists.

Share the road

Look carefully for cyclists before:

- Turning right
- Merging into bicycle lanes
- Opening your car door next to moving traffic.

Give at least a three-foot space when passing a cyclist.

ATTACHMENT B--SCHOOL RESOURCES

Safe Routes to School National Partnership, http://www.saferoutespartnership.org/

California Safe Routes to School, www.dot.ca.gov/hq/LocalPrograms/saferoutes/saferoutes.htm

National Center for Safe Routes to School, www.saferoutesinfo.org

Federal Safety Routes to School Program, http://safety.fhwa.dot.gov/saferoutes/

National Highway Traffic Safety Administration, http://www.nhtsa.gov/

Safe Routes to School Guide, www.saferoutesinfo.org/guide

Pedestrian and Bicycle Information Center, www.pedbikeinfo.org

Local Assistance Procedures Manual & Local Assistance Program Guidelines, www.dot.ca.gov/hq/LocalPrograms/public.htm

ATTACHMENT C--SHARROWS

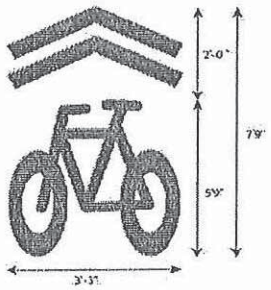
Shared Lane Markings (aka "sharrows")

Sharrows are painted pavement markings that indicate a lane or road is shared by cars and bicycles. As explained in the February, 2004 San Francisco Shared Lane Marking Study:

"Traffic curb lanes on signed/shared Class III bikeways (a.k.a. 'signed shared roadways' in other states) are often too narrow to be safely shared side-by-side by cyclists and passing motorists. On these routes, cyclists wishing to stay out of the way of drivers often ride too close to parked cars and risk being struck by a suddenly opened car door (being 'doored'). To avoid this, experienced cyclists ride further to the left and position themselves closer to the center of narrow lanes. This is permitted by the California Vehicle Code (C.V.C. 21202), but it often irritates motorists who are not aware that this is permitted. Many cities have experimented with a 'shared lane marking' as a potential solution. The marking does not connote a separated bicycle lane, but instead directs the bicyclist to travel outside the car door zone and encourage safe co-existence."

San Francisco's study had a number of goals: to improve the position of both motorists and bicyclists on roadways without bicycle lanes, reduce aggressive motorist behavior and encourage correct bicyclist riding behavior. The city also looked to sharrows to inform motorists to expect bicyclists on the roadway; to inform motorists that bicyclists may indeed legally ride further to the left in the travel lane, even if that means blocking the lane at times; to inform bicyclists how to position themselves in the lane with respect to the curb or parked cars to avoid hazards. The city found that shared lane pavement markings had a positive impact on motorist and cyclist behavior, positions, and safety. These results were complementary to a 1999 Florida study (Florida Department of Transportation, *Evaluation of the Shared-Use Arrow*).

The February, 2004 San Francisco study found that the bike-and-chevron marking (example) had a stronger impact and reduced wrong-way riding. This is the marking that the Task Force recommends:



ATTACHMENT D—FOCUS AREAS (not in any priority)

1. **PCH at Newport Coast Drive**
   FOCUS AREA: The 'free' right turn on northbound PCH onto Newport Coast presents a challenge for cyclists. Northbound cyclists wishing to continue traveling along PCH must move left as traffic accelerates onto Newport Coast. Likewise, Newport Coast traffic merging onto northbound Coast Hwy complicates cyclists moving past the intersection.
   POSSIBLE IMPROVEMENT: Add signage "Yield to Bikes:" add green colored bike lane for cyclists continuing northbound or other innovative striping for cyclists continuing northbound.
2. **PCH through Corona del Mar**
   FOCUS AREA: Narrow
   POSSIBLE IMPROVEMENT: Sharrows if warrants are met; alternate routes
3. **PCH at MacArthur**
   FOCUS AREA: The 'free' right turn on northbound Coast Hwy onto MacArthur presents a challenge for both pedestrians and cyclists. Northbound cyclists wishing to continue traveling along Coast Hwy must move left as traffic accelerates onto MacArthur. Likewise, MacArthur traffic merging onto northbound PCH complicates cyclists moving to the right lane.
   POSSIBLE IMPROVEMENT: Add signage "Yield to Bikes;" add green colored bike lane or other innovative striping for cyclists continuing northbound
4. **PCH and Jamboree**
   FOCUS AREA: Northbound cyclists wishing to continue traveling along Coast Hwy must move left as traffic accelerates onto Jamboree. Likewise, Jamboree traffic merging onto northbound Coast Hwy complicates cyclists moving past the intersection.
   POSSIBLE IMPROVEMENT: Add signage "Yield to Bikes;" add green colored bike lane or other innovative striping for cyclists continuing northbound
5. **PCH at Dover**
   FOCUS AREA: Northbound cyclists wishing to continue traveling along Coast Hwy must move left as traffic accelerates onto Dover. On the southbound side of Coast Hwy at the bus stop, the sidewalk/curb juts into the path of continuing cyclists forcing them into the traffic lane.
   POSSIBLE IMPROVEMENT: Add signage "Yield to Bikes"; add green colored bike lane or other innovative striping for cyclists continuing northbound; on the southbound side, move the sidewalk to allow uninterrupted bike path.
6. **PCH through Mariner's Mile**
   FOCUS AREA: Narrow
   POSSIBLE IMPROVEMENT: Sharrows, if warrants are met; alternate routes
7. **PCH and Newport Blvd.**
   FOCUS AREA: Cyclists wishing to continue northbound along PCH must move left as traffic turns onto Old Newport Blvd. The next challenge is auto traffic merging onto southbound Newport Blvd.

POSSIBLE IMPROVEMENT: Add signage "Yield to Bikes;" at both locations add a green colored bike lane or other innovative striping for cyclists continuing westbound

8. **PCH near Santa Ana River**
   FOCUS AREA: bicyclists traveling southbound from the SAR conflict with pedestrians trying to cross the street.
   POSSIBLE IMPROVEMENT: a curb cut to allow transfer from the sidewalk trail to the on-street bike lane before the Orange Street intersection
9. **Vista Ridge, Ridge Park**
   FOCUS AREA: drivers unaware of cyclists and their speed
   POSSIBLE IMPROVEMENT: Signs including share the road and watch downhill speed, add bike lanes.
10. **Bayside from Carnation to El Paseo Dr**
    FOCUS AREA: Narrow
    POSSIBLE IMPROVEMENT: Share the Road sign
11. **Bayside between PCH and Jamboree/Marine**
    FOCUS AREA: cyclists enjoy a newly painted bike lane that ends as the road narrows. Access to the bike path on the sidewalk is prevented due to the curb.
    POSSIBLE IMPROVEMENT: Cut the curb to allow easy access to the sidewalk bike path. Also, extend red curb paint to prevent parked cars from encroaching on this new curb cut. Consider this as a potential area for sharrows.
12. **Bayside Drive and trail near Dunes entrance**
    FOCUS AREA: visibility of vehicles exiting Dunes
    POSSIBLE IMPROVEMENT: Bike Crossing sign, trim landscaping
13. **Back Bay Drive/PCH/Bayside**
    FOCUS AREA: Coming off the bike trail and transferring to heavy-traffic roads.
    POSSIBLE IMPROVEMENT: Add signs at Bayside and Coast Hwy directing cyclists heading to the beach to travel along Bayside to Balboa Island and the ferry.
14. **Back Bay Drive near Park Newport**
    FOCUS AREA: visibility
    POSSIBLE IMPROVEMENT: warning signs, striping.
15. **Dover south of 16th Street and Cliff, between 15th and 16th**
    FOCUS AREA: narrowing of bike lane
    POSSIBLE IMPROVEMENT: revise edge striping
16. **W Balboa Blvd, between 23rd and 21st Streets**
    FOCUS AREA: Southbound cyclists on Balboa Blvd. must quickly cross two traffic lanes to continue their progression on Balboa Blvd
    POSSIBLE IMPROVEMENT: Add Share the Road sign
17. **Bayside Drive at Dunes Entrance**
    FOCUS AREA: Left hand turn from northbound bike trail on to westbound N. Bayside Drive presents a conflict with eastbound N. Bayside Drive autos
    POSSIBLE IMPROVEMENT: signage (for cyclists and motorists), speed bumps, striping/street paint, and a parking red zone on the south frontage of N. Bayside

Drive.

18. **Superior Ave approaching PCH**
    FOCUS AREA: Bike lane is interrupted, leaving cyclists uncertain as to their position
    POSSIBLE IMPROVEMENT: Dotted line to indicate correct lanes for the various directions.

The Task Force recognizes and fully understands that each of the Focus Areas and possible improvement will need further research and study by professional traffic engineers to determine the feasibility thereof.

ATTACHMENT E--BIKE RACKS

AREAS LACKING BIKE RACKS OR NEEDING ADDITIONAL RACKS

- The Wedge
- Big Corona
- Most city parks
- Newport Pier
- 15th St. and Boardwalk
- 28th St. and Boardwalk
- Orange and PCH
- Seashore Dr. at 57th St.
- Corona del Mar and Balboa Island business districts

TYPES OF BIKE RACKS

The most common types of bike racks such as the wavy ribbon style are relatively inexpensive but are often viewed as inefficient and difficult to use. For examples of different ideas and suggestions on how and where to use them, the following are helpful:

Vancouver's Bike Rack Planning Booklet, http://www.bv.com.au/bike-parking/43450/

http://www.commercialappeal.com/news/2009/apr/11/functional-art/

http://www.ameribike.com/catalog/racks/rack-intro.html

www.labikeplan.org

Appendix E: Past and Planned Bicycle-Related Projects

BICYCLE FACILITY IMPROVEMENT PROJECT SUMMARY
November 26, 2013

PLANNED PROJECTS		
TITLE/DESCRIPTION	**ESTIMATED COMPLETION DATE**	**ESTIMATED PROJECT COST**
Newport Blvd Modification - Via Lido to 30th St		
This proposed project would widen Newport Boulevard by adding one additional northbound through lane from 30th Street to 32nd Street and one additional southbound through lane from Via Lido to 32nd Street. The project will also extend the existing on-street bicycle lanes from Via Lido to 32nd Street, connecting with the recently installed bike lanes on 32nd Street; construct new landscape medians and street lighting and modify existing traffic signals. Consulting services will be used for the design of this project.	FY 15/16	$2.5-5.3M
West Coast Hwy at Old Newport Blvd (Arches Interchange) Modification		
This proposed project involves widening the westbound side of West Coast Highway at Old Newport Boulevard to accommodate a third through lane, a right turn pocket and a bicycle lane. Old Newport Boulevard might be realigned to maximize the right turn pocket storage length and improve roadway geometrics. Lane striping and the addition of an on-street eastbound bicycle lane through the interchange will also be evaluated as part of the project. Consulting services will be used for the design of this project.	FY 15/16	$1.9M
On-Street Bike Lanes on Jamboree Rd, San Joaquin Hills Rd and Spyglass Hill Rd		
This project will install striped on-street bike lanes along Jamboree Road, San Joaquin Hills Road and Spyglass Hill Road. Staff has applied for, and received approval for grant funding through the Bicycle Corridor Improvement Grant Program (BCI) for this project. Local, State and Federal project plan approval are required. Consulting services will be used for the design of this project.	FY 13/14	$215,000 (Grant Funded w/ 13% City Match)
On-Street Bike Lanes on Eastbluff Drive/Ford Road		
This project will widen the south side of Eastbluff Drive at Jamboree Road and modify the roadway striping to install an on-street bike lane on Eastbluff Drive and Ford Road from Vista Del Oro to MacArthur Boulevard. This project is incorporated into the Bicycle Corridor Improvement Grant Program (BCI). Construction cost is estimated at $270,000. Staff has applied for, and received approval for grant funding through the Bicycle Corridor Improvement Grant Program (BCI) for this project. Local, State and Federal project plan approval are required. Consulting services will be used for the design of this project.	FY 13/14	$270,000 (Grant Funded w/ 13% City Match)

PLANNED PROJECTS (Continued)		
TITLE/DESCRIPTION	**ESTIMATED COMPLETION DATE**	**ESTIMATED PROJECT COST**
Newport Heights/Peninsula Bicycle Improvements		
This project is in the conceptual phase, considering installation of bicycle route related warning and regulatory signage, as well as roadway striping and markings along bike routes from Newport Heights to the Balboa Peninsula, including Cliff Drive, Riverside Avenue, Coast Highway, Newport Boulevard. The recently installed bike lanes on 32nd Street were previously part of this project.	FY 13/14	TBD
Newport Coast Bicycle Warning Signs		
This project will install standard bicycle warning signs on Ridge Park Road and Vista Ridge Road to inform motorists of possible bicycle activity.	FY 13/14	$1,200
Peninsula Point Bike Improvements		
This project is in the conceptual phase, considering the installation of bicycle markings and signage to Balboa Boulevard between Main Street and G Street.	FY 13/14	$5,000
Avocado Ave and Basyide Dr Bike Facility Improvements		
This project is incorporated into the FY 13/14 pavement rehabilitation project and will install bike lanes on Avocado Avenue from Coast Highway to San Miguel Drive. This project will also reinstall Sharrows on Bayside Drive and extend markings from El Paseo Drive to Marguerite Avenue.	FY 13/14	TBD
City-Wide Bicycle Route Map		
A draft GIS-based bicycle route map using City resources has been prepared. The map is currently posted on the City website and staff is soliciting comments/questions. This item may require additional resource allocation from the GIS Division. Consulting services may be necessary to publish hard copies of the map. This project has been incorporated into the Bicycle Master Plan Project.	TBD	TBD
Newport Coast Drive Improvements		
This project is in the conceptual phase, considering additional signage, striping and roadway improvements, and maintenance pull-outs to enhance vehicle, pedestrian and bicycle interaction on Newport Coast Drive from Coast Hwy to San Joaquin Hills Road. This item may require additional resource allocation from the Municipal Operations Department.	TBD	TBD

PLANNED PROJECTS (Continued)		
TITLE/DESCRIPTION	**ESTIMATED COMPLETION DATE**	**ESTIMATED PROJECT COST**
Comprehensive City-wide Bicycle Master Plan		
This project will develop a comprehensive, city-wide bicycle master plan with the goal of promoting safe and responsible cycling within the City through development of a comprehensive plan for outreach and education, identification of infrastructure needs and proposed improvement projects, creation of a city-wide bicycle network to accommodate all levels of cycling, connection to the regional trail systems, and identification of future funding sources. Use of a consulting firm that specializes in the development of transportation master plans is recommended with Staff oversight. This item may require additional resource allocation from the Community Development Department. The process is envisioned to take 8-12 months and have a substantial public outreach component.	Fall 2014	$135,000
OCTA Update to the Supervisorial Districts 1 and 2 Regional Commuter Bikeways Strategic Plan		
This OCTA led project will review and update the Regional Commuter Bikeway Strategic Plans in Supervisorial Districts 1 and 2, including the City of Newport Beach. This is a collaborative effort including all agencies and related stakeholders within Districts 1 and 2. Public Works and Community Development Staff will actively participate in this effort with the goal of promoting safe and responsible bicycling for all users, improving bicycle facilities, education and outreach, and increasing cycling awareness within Newport Beach.	FY 14/15	TBD
Coast Hwy (Route 1) County-wide Corridor Improvement Master Plan		
Initiated by the City of Newport Beach, the Coast Hwy County-wide Corridor Improvement Master Plan includes all Orange County agencies that have sections of Coast Hwy (Route 1), including Caltrans and OCTA. The goal of the project is to review Coast Hwy facility within Orange County to improve multi-modal (vehicle, bicycle and pedestrian) flow of local and regional traffic, while reducing impacts to local agencies by identifying the needs of the corridor, facility improvements, and funding sources to complete improvement projects.	TBD	TBD

COMPLETED ACTIONS/PROJECTS	
TITLE/DESCRIPTION	**COMPLETION DATE**
Newport Coast Dr Sign and Striping Improvements	
This project modified the existing bike lane striping and install related warning and regulatory signs on Newport Coast Drive at the Southbound SR-73 on and off ramps to improve the vehicle/cyclist merge and crossing at this location. The project was completed through a Caltrans Encroachment Permit. Additionally, bike lane striping and signage was installed to the Newport Coast Drive right turn pockets from San Joaquin Hills Road to Ridge Park Drive. This project also installed school zone signage and markings around Newport Coast Elementary School, including adding high-visibility striping at the Newport Coast Drive/Ridge Park Road crosswalks.	Summer 2013
32nd St Bike Lane Project	
This project installed bike lanes on 32nd Street between Newport Boulevard and Balboa Boulevard through reallocation of right-of-way to incorporate bicycle lanes. This project also extended the Seashore bike path from 34th Street to Balboa Boulevard.	Summer 2013
Citizens Bicycle Safety Committee – Public Works Staff Support (to date)	
This action is Public Works time allocated to the Citizen's Bicycle Safety Committee to date, including staff time to prepare meeting items, agendas, handouts, meeting minutes, meeting logistics, preparation for response to committee requests, preparation of reports and presentations, and coordination of other City Staff. This item accounts for approximately 400 hours of Public Works Staff time for the two completed years of committee meetings/work. This item excludes the larger projects already listed in this document.	Winter 2013
Ocean Front Signage Improvements	
Installed warning and regulatory signage along the Oceanfront trail to better inform oceanfront travelers of various bicycle cross-traffic, and to enhance the oceanfront experience.	Fall 2009
Bayside Dr Sharrows	
This project installed Sharrow pavement markings and "SHARE THE ROAD" signs on Bayside Drive from El Paseo to Carnation (through the curves). *Note - These Sharrow Lane markings will be ungraded as part of the repaving of Bayside Drive in 2013.*	Fall 2010
Bicycle Downhill Advisory Signs	
Installed "WATCH DOWNHILL SPEED" bicycle advisory signs on Ridge Park Road, Vista Ridge Road, and San Joaquin Hills Road in the steep downhill sections.	Spring 2011

COMPLETED ACTIONS/PROJECTS (Continued)	
TITLE/DESCRIPTION	**COMPLETION DATE**
Castaways Trail Improvements	
Revised multi-use trail striping to better serve all users and installed signage to encourage shared use of the trail.	Summer 2011
Fernleaf Ramp Sign Revisions	
Project removed bicycle prohibition signs and installed bicycle advisory signs on the Fernleaf Ramp.	Fall 2011
Remove Raised Pavement Markers	
Project removed raised pavement markers identified as a hazard to cyclists on Bayside Drive and the Corona Del Mar State Beach Ramp.	Fall 2011
Bayside Dr Bike Ramp Improvements	
Project installed a bike ramp, signage and red curb to enable cyclists to access the Class 1 bike trail along the south side of Bayside Drive between Harbor Island Drive and Marine Avenue.	Fall 2011
Bonita Canyon Dr Bike Lane Improvements	
Project installed bike lanes, enhanced bike lane striping at intersections and turn lanes, and installed related warning and regulatory signage between MacArthur Boulevard and SR-73.	Winter 2011
Coast Hwy Bike Lane Improvements	
Project installed missing sections of bike lanes, enhanced bike lane striping at intersections and turn lanes, and installed bicycle-related warning and regulatory signage from Dahlia Avenue through the Newport Center Drive intersection.	Winter 2011
Coast Hwy Bike Alternate Bike Route	
Established an alternate bike route to Coast Highway from Avocado Avenue to Poppy Avenue (north and south of the Coast Highway) through the installation of bike route signs. Also included bike route signage for CDM State Beach.	Winter 2012
Newport Center Bike Lane Installation	
Created bike lanes in Newport Center as part of a pavement rehabilitation project. Bike lanes were added along Newport Center Drive, Santa Barbara Avenue, San Miguel Drive, and Santa Cruz Drive.	Spring 2012
Coast Hwy Bike Lane Improvement at Jamboree Rd	
Extend the existing westbound Coast Hwy bike lane to the intersection by signing and striping improvements to the right-turn lane and median modifications. This improvement was incorporated to the intersection Traffic Signal Rehabilitation Project.	Fall 2012

Appendix F: Bicycle Count Tables

Table F-1 *Weekday Bicycle Count Results (Thursday, October 17, 2013 - 7:00 AM to 9:00 AM)*

Count Location	Male	Female	Children <13	No Helmet	Sidewalk	Wrong Way
1- Coast Highway and Orange Street	137	21	0	45	63	1
2- Irvine Avenue and University Drive	56	8	3	38	4	7
3- Newport Boulevard and 32nd Street	43	8	6	46	22	4
4- Ocean Front Trail and 28th Street	95	46	24	99	0	0
5- Irvine Avenue and 15th Street	80	32	56	15	14	10
6- Coast Highway and Bayside Drive	113	11	0	15	19	1
7- Eastbluff Drive and Back Bay Drive	127	31	1	9	74	12
8- Coast Highway and Iris Avenue	12	9	0	4	2	0
9- Bonita Canyon Drive and Chambord	82	3	0	0	2	0
10- Coast Highway and Newport Coast Drive	34	2	0	0	2	1
11-Newport Coast Drive and Ridge Park Road	33	1	4	0	0	2

Table F-2 *Weekend Bicycle Count Results (Saturday, October 19, 2013 - 10:00 AM to 1:00 PM)*

Count Location	Male	Female	Children <13	No Helmet	Sidewalk	Wrong Way
1- Coast Highway and Orange Street	855	273	6	364	799	22
2- Irvine Avenue and University Drive	64	20	19	19	11	0
3- Newport Boulevard and 32nd Street	165	81	3	188	75	37
4- Ocean Front Trail and 28th Street	508	260	36	689	0	36
5- Irvine Avenue and 15th Street	44	20	6	42	21	6
6- Coast Highway and Bayside Drive	682	168	0	83	56	6
7- Eastbluff Drive and Back Bay Drive	434	278	1	73	322	7
8- Coast Highway and Iris Avenue	187	31	2	18	7	1
9- Bonita Canyon Drive and Chambord	56	9	3	2	5	0
10- Coast Highway and Newport Coast Drive	321	51	0	11	5	1
11-Newport Coast Drive and Ridge Park Road	180	16	1	3	10	0

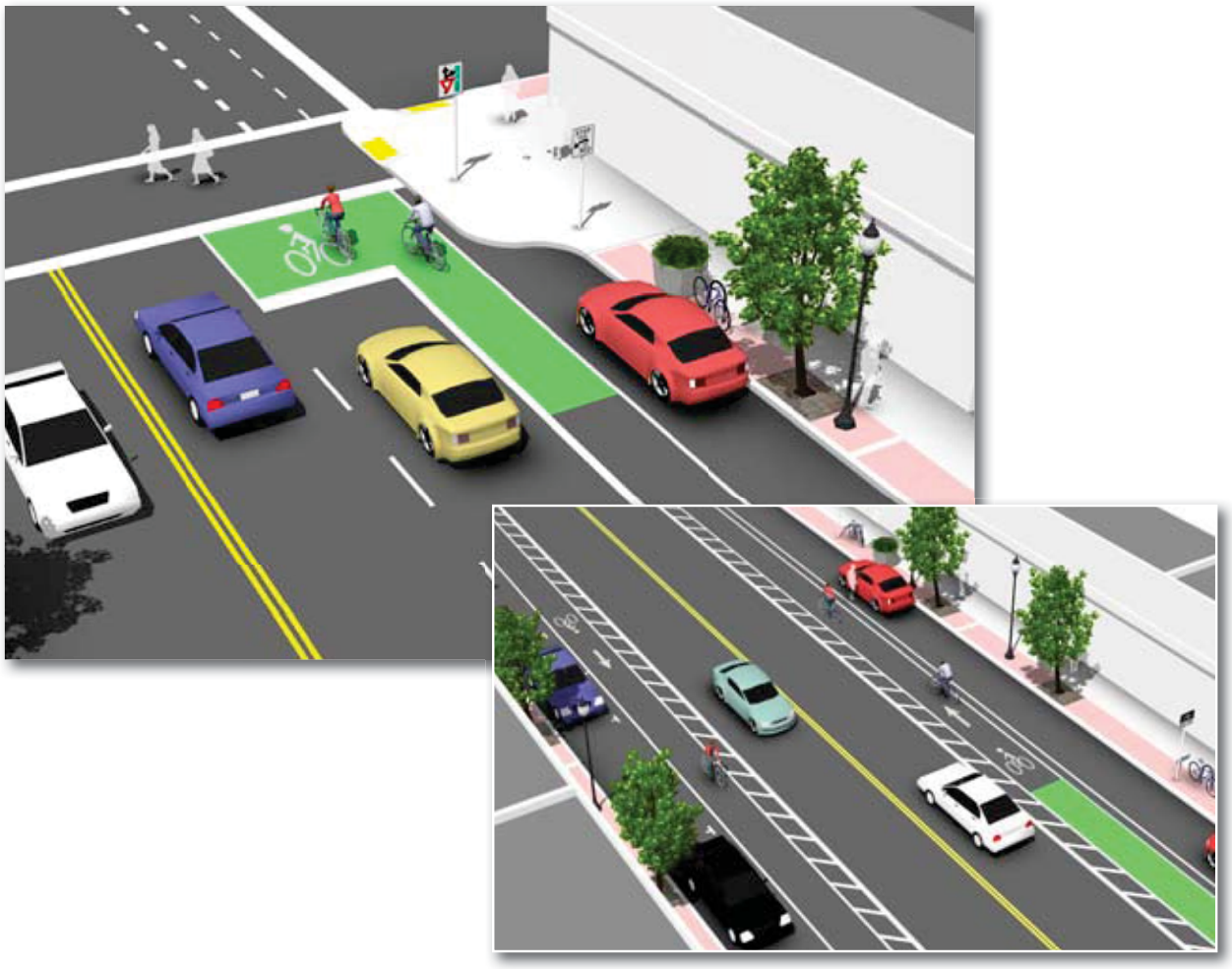
Table F-3 *Weekend Bicycle Count Results (Saturday, October 19, 2013 - 7:00 AM to 9:00 AM)*

Count Location	Male	Female	Children <13	No Helmet	Sidewalk	Wrong Way
1- Coast Highway and Orange Street	389	51	2	2	60	4
7- Eastbluff Drive and Back Bay Drive	284	48	2	0	117	5
10- Coast Highway and Newport Coast Drive	191	24	0	3	0	2
11-Newport Coast Drive and Ridge Park Road	167	25	0	1	7	3

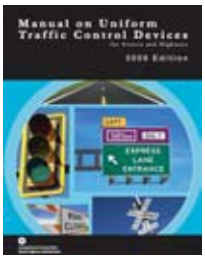
Appendix G: Bicycle Facility Design Guidelines

Introduction

This chapter is intended to assist the Newport Beach in the selection and design of bicycle facilities. The following pages pull together best practices by facility type from public agencies and municipalities nationwide. Within the design section, treatments are covered within a single sheet tabular format relaying important design information and discussion, example photos, schematics (if applicable), and existing summary guidance from current or upcoming draft standards. Existing standards are referenced throughout and should be the first source of information when seeking to implement any of the treatments featured here.



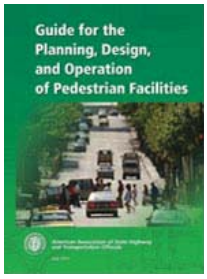
National Standards



The Federal Highway Administration's **Manual on Uniform Traffic Control Devices** (MUTCD) defines the standards used by road managers nationwide to install and maintain traffic control devices on all public streets, highways, bikeways, and private roads open to public traffic. The FHWA MUTCD forms the basis of the California MUTCD.

To further clarify the MUTCD, the FHWA created a table of contemporary bicycle facilities that lists various bicycle-related signs, markings, signals, and other treatments and identifies their official status (e.g., can be implemented, currently experimental). See **Bicycle Facilities and the Manual on Uniform Traffic Control Devices.**[1] The FHWA Guidance on Bicycle and Pedestrian Facility Design Flexibility explicitly supports the use of the AASHTO and NACTO bikeway design guides.[2]

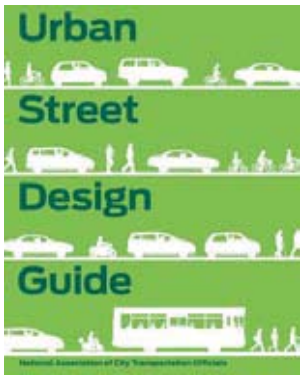
Bikeway treatments not explicitly covered by the MUTCD are often subject to experiments, interpretations and official rulings by the FHWA. The **MUTCD Official Rulings** is a resource that allows website visitors to obtain information about these supplementary materials. Copies of various documents (such as incoming request letters, response letters from the FHWA, progress reports, and final reports) are available on this website.[3]

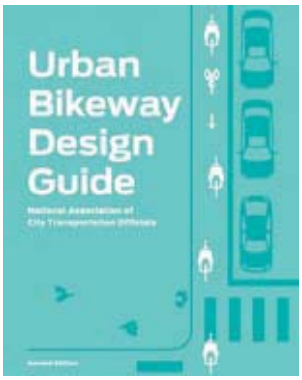


American Association of State Highway and Transportation Officials (AASHTO) **Guide for the Development of Bicycle Facilities**, updated in June 2012 provides guidance on dimensions, use, and layout of specific bicycle facilities. The guidelines presented by AASHTO provide basic information, such as minimum sidewalk widths, bicycle lane dimensions, detailed striping requirements and recommended signage and pavement markings.

Meeting the requirements of the Americans with Disabilities Act (ADA) is an important part of any bicycle and pedestrian facility project. The United States Access Board's proposed **Public Rights-of-Way Accessibility Guidelines**[4] (PROWAG) and the **2010 ADA Standards for Accessible Design**[5] (2010 Standards) contain standards and guidance for the construction of accessible facilities.

Caltrans Adopts NACTO





The National Association of City Transportation Officials' (NACTO) 2012 **Urban Bikeway Design Guide**[6] and the 2013 Urban Streets Design Guide are the newest publication of nationally recognized bikeway and street design guidelines.

In an April 2014 memorandum, Caltrans encouraged flexibility in highway design. The memo stated that "Publications such as the National Association of City Transportation Officials (NACTO) "Urban Street Design Guide" and "Urban Bikeway Design Guide," ... are resources that Caltrans and local entities can reference when ma king planning and design decisions on the State highway system and local streets and roads."

1 *FHWA. Bicycle Facilities and the Manual on Uniform Traffic Control Devices. 2011. http://www.fhwa.dot.gov/environment/bikeped/mutcd_bike.htm*

2 *FHWA. Guidance on Bicycle and Pedestrian Facility Design Flexibility. 2013. http://www.fhwa.dot.gov/environment/bicycle_pedestrian/guidance/design_guidance/design_flexibility.cfm*

3 *MUTCD Official Rulings. FHWA. http://mutcd.fhwa.dot.gov/orsearch.asp*

4 *http://www.access-board.gov/prowac/*

5 *http://www.ada.gov/2010ADAstandards_index.htm*

6 *http://nacto.org/cities-for-cycling/design-guide/*

Some of the treatments featured in the NACTO guides are not directly referenced in the current versions of the AASHTO Guide or the MUTCD, although many of the elements of these treatments are found within these documents. In all cases, engineering judgment is recommended to ensure that the application makes sense for the context of each treatment, given the many complexities of urban streets.


State Standards and Guidelines

California Manual on Uniform Traffic Control Devices (MUTCD) (2012)

The California MUTCD 2012 an amended version of the FHWA MUTCD 2009 edition modified for use in California. While standards presented in the CA MUTCD substantially conform to the FHWA MUTCD, the state of California follows local practices, laws and requirements with regards to signing, striping and other traffic control devices.

California Highway Design Manual (HDM) (2012)

This manual establishes uniform policies and procedures to carry out highway design functions for the California Department of Transportation. The 2012 edition incorporated Complete Streets focused revisions to address the Department Directive 64 R-1.

Complete Intersections: A Guide to Reconstructing Intersections and Interchanges for Bicyclists and Pedestrians (2010)

This California Department of Transportation reference guide presents information and concepts related to improving conditions for bicyclists and pedestrians at major intersections and interchanges. The guide can be used to inform minor signage and striping changes to intersections, as well as major changes and designs for new intersections.

Main Street, California: A Guide for Improving Community and Transportation Vitality (2013)

This Caltrans informational guide reflects California's current manuals and policies that improve multimodal access, livability and sustainability within the transportation system. The guide recognizes the overlapping and sometimes competing needs of main streets.

NCHRP Legal Digest 53: Liability Aspects of Bikeways (2010)

This digest is a useful resource for city staff considering innovative engineering solutions to localized issues. The document addresses the liability of public entities for bicycle collisions on bikeways as well as on streets and highways. The report will be useful to attorneys, transportation officials, planners, maintenance engineers and all persons interested in the relative rights and responsibilities of motorists and bicyclists on shared roadways.

Bicycle Facility Standards Compliance

Some of these bicycle facilities covered by these guidelines are not directly referenced in the current versions of the AASHTO Guide or the California MUTCD, although many of the elements of these treatments are found within these documents. An "X" marking in the following table identifies the inclusion of a particular treatment within the national and state design guides. A "–" marking indicates a treatment may not be specifically mentioned, but is compliant assuming MUTCD compliant signs and markings are used.

In all cases, engineering judgment is recommended to ensure that the application makes sense for the context of each treatment, given the many complexities of urban streets.

	California Manual of Uniform Traffic Control Devices (2012)	Guide for the Development of Bicycle Facilities (2012)	Urban Bikeway Design Guide (2012)
Signed Shared Roadway	X	X	
Marked Shared Roadway	X	X	X
Bicycle Boulevard	–	X	X
Bicycle Lane	X	X	X
Buffered Bicycle Lane	–	X	X
Cycle Tracks	–	Called "one-way sidepath"	X
Bike Box			X
Bike Lanes at Right Turn Only Lanes	X	X	X
Colored Bike Lanes in Conflict Areas	FHWA Interim Approval Granted	X	X
Combined Bike Lane/Turn Lane	–		X
Intersection Crossing Markings	X	X	X
Wayfinding Sign Types & Placement	X	X	X
Wayfinding Sign Placement	X	X	X
Shared-Use Path	X	X	
Active Warning Beacons	X	X	X
Pedestrian Hybrid Beacons	X	X	X

* Most NACTO treatments are compatible within AASHTO/MUTCD guidance, though some NACTO endorsed designs may not be permitted on state roads at this time. Refer to FHWA Guidance on Bicycle and Pedestrian Facility Design Flexibility (2013).[1]

1 *http://www.fhwa.dot.gov/environment/bicycle_pedestrian/guidance/design_guidance/design_flexibility.cfm*

Multimodal Level of Service

Description

Multimodal Level of Service (MMLOS) methods are used to inventory and evaluate existing conditions, or to forecast future conditions for roadway users under different design scenarios. While automobile-oriented LOS measures vehicle delay, Bicycle, Pedestrian and Transit LOS is oriented toward user comfort.

MMLOS scores different modes independently, but their results are interdependent, allowing an understanding of trade-offs between modes for different street designs. A compatible A-F scoring system makes comparison between modes simple.

There are a variety of Multimodal or Bicycle/Pedestrian LOS tools available for use. Different tools require different data and may present different or conflicting results. Despite potential limitations of MMLOS methodology, the results help jurisdictions better plan for all road users.

Guidance

MMLOS modeling is an emerging practice, and current methods may be improved on or revised. The knowledge of local residents and planners should be used to verify MMLOS model results.

The 2000 Highway Capacity Manual includes dated LOS models for bicycle and pedestrian users. Methods presented in this edition and should not be used.

The current standard for MMLOS calculation is described in the 2010 Highway Capacity Manual (HCM 2010). This method has limitations, particularly for Bicycle LOS modeling. See *Discussion* below.

Consider using an alternative MMLOS method/tool if HCM 2010 is not appropriate for your community. Other multimodal "Service Quality" tools include:

- Florida DOT LOSPLAN
- LOS+
- Mineta Level of Traffic Stress (LTS) Analysis. (Bicycle only scoring)

A street with accommodation for people driving, walking, bicycling and taking transit will score well in a MMLOS evaluation.

Discussion

Limitations of the HCM 2010 model for Bicycle LOS calculations include:

- Gradients are not included in calculations.
- The presence of contemporary facility types included in this guide, such as shared lane markings, bike boxes or cycle tracks are not included, although the Florida LOSPLAN update does features cycle tracks.
- Scoring is for a "typical" adult bicyclist, and weights the presence of a bike lane very heavily. Results may not be appropriate in communities that seek to encourage bicycle travel by people of varying ages and abilities where bike lanes may not be adequate.

Additional References and Guidelines

Transportation Research Board. *Highway Capacity Manual.* 2010.
Florida Department of Transportation. LOSPLAN. 2012. http://www.dot.state.fl.us/planning/systems/sm/los/los_sw2m2.shtm
Fehr&Peers. LOS+ Multi-Modal Roadway Analysis Tool. http://www.fehrandpeers.com/losplus/
Mineta Transportation Institute. Low-Stress Bicycling and Network Connectivity. 2011. http://transweb.sjsu.edu/project/1005.html

Bicycle Facility Selection

There are no 'hard and fast' rules for determining the most appropriate type of bicycle facility for a particular location – roadway speeds, volumes, right-of-way width, presence of parking, adjacent land uses, and expected bicycle user types are all critical elements of this decision. Studies find that the most significant factors influencing bicycle use are motor vehicle traffic volumes and speeds. Additionally, most bicyclists prefer facilities separated from motor vehicle traffic or located on local roads with low motor vehicle traffic speeds and volumes. Because off-street pathways are physically separated from the roadway, they are perceived as safe and attractive routes for bicyclists who prefer to avoid motor vehicle traffic. Consistent use of treatments and application of bikeway facilities allow users to anticipate whether they would feel comfortable riding on a particular facility, and plan their trips accordingly. This section provides guidance on various factors that affect the type of facilities that should be provided.

This Section Includes:

Facility Classification

Description

Consistent with bicycle facility classifications throughout the nation, these Bicycle Facility Design Guidelines identify the following classes of facilities by degree of separation from motor vehicle traffic.

Shared Roadways (No bikeway designation) are bikeways where bicyclists and cars operate within the same travel lane, either side by side or in single file depending on roadway configuration. In some instances, streets may be fully adequate and safe without bicycle specific signing and pavement markings.

Class III Bikeways (Bike Routes) are Shared Roadways configured with pavement markings, signage and other treatments including directional signage, traffic diverters, chicanes, chokers and /or other traffic calming devices to reduce vehicle speeds or volumes. Such enhanced treatments often are associated with **Bicycle Boulevards.**

Class II Bikeways (Bike Lanes) use signage and striping to delineate the right-of-way assigned to bicyclists and motorists. Bike lanes encourage predictable movements by both bicyclists and motorists. Buffered bike lanes use a 2'-3' wide hatched painted buffer to increase space between bicyclists and motor vehicles. Adding vertical separation such as bollards, flags or planters creates a physically protected bicycle lane.

Class I Bikeways (Cycle Tracks) are paths elevated from the roadway by a curb, for the exclusive use of bicyclists. Cycle tracks feature design elements that enhance safety and level of service beyond that provided by older "sidepath" designs.

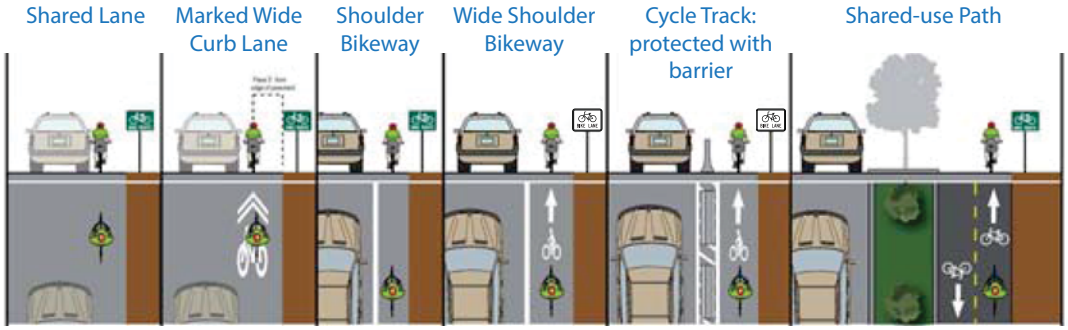
Class 1 Bikeways (Shared-use Paths) are facilities separated from roadways for use by bicyclists and pedestrians.

Facility Continua

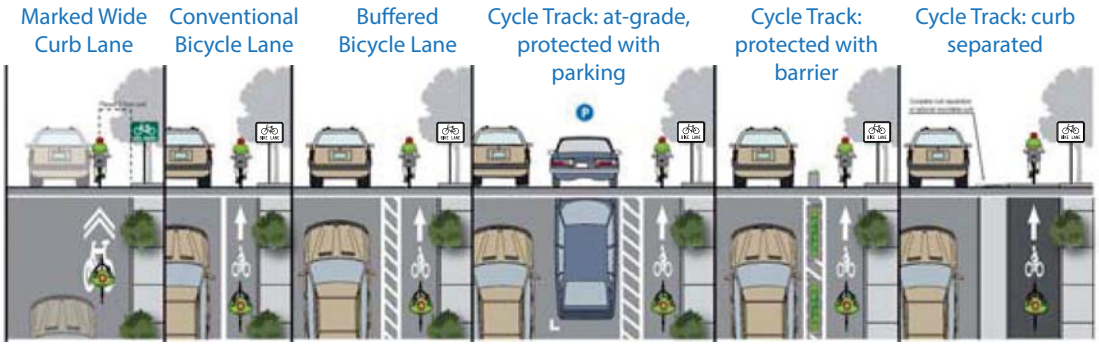
The following continua illustrate the range of bicycle facilities applicable to various roadway environments, based on the roadway type and desired degree of separation. Engineering judgment, traffic studies, previous municipal planning efforts, community input and local context should be used to refine criteria when developing bicycle facility recommendations for a particular street. In some corridors, it may be desirable to construct facilities to a higher level of treatment than those recommended in relevant planning documents in order to enhance user safety and comfort. In other cases, existing and/or future motor vehicle speeds and volumes may not justify the recommended level of separation, and a less intensive treatment may be acceptable.

Least Protected → Most Protected

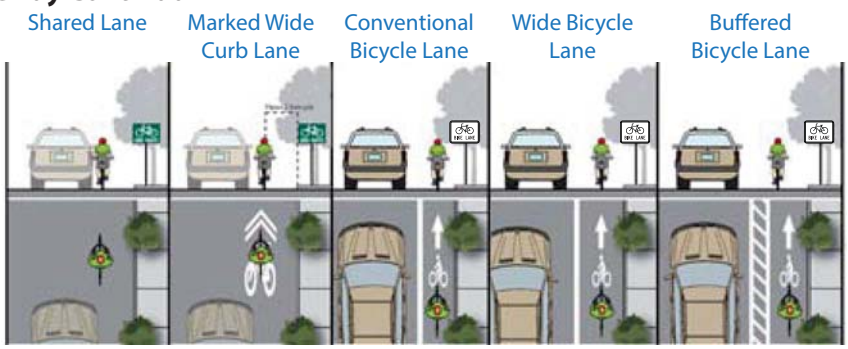
Arterial/Highway Bikeway Continuum (without curb and gutter)



Arterial/Highway Bikeway Continuum (with curb and gutter)



Collector Bikeway Continuum



Shared Roadways

On shared roadways, bicyclists and motor vehicles use the same roadway space. These facilities are typically used on roads with low speeds and traffic volumes, however they can be used on higher volume roads with wide outside lanes or shoulders. A motorist will usually have to cross over into the adjacent travel lane to pass a bicyclist, unless a wide outside lane or shoulder is provided.

Shared roadways employ a large variety of treatments from simple signage and shared lane markings to more complex treatments including directional signage, traffic diverters, chicanes, chokers, and/or other traffic calming devices to reduce vehicle speeds or volumes.

Bicycle Boulevards

Bicycle boulevards are a special class of shared roadways designed for a broad spectrum of bicyclists. They are low-volume local streets where motorists and bicyclists share the same travel lane. Treatments for bicycle boulevards are selected as necessary to create appropriate automobile volumes and speeds, and to provide safe crossing opportunities of busy streets.

This Section Includes:

Signed Shared Roadway


Marked Shared Roadway


Bicycle Boulevard

Signed Shared Roadway

Description

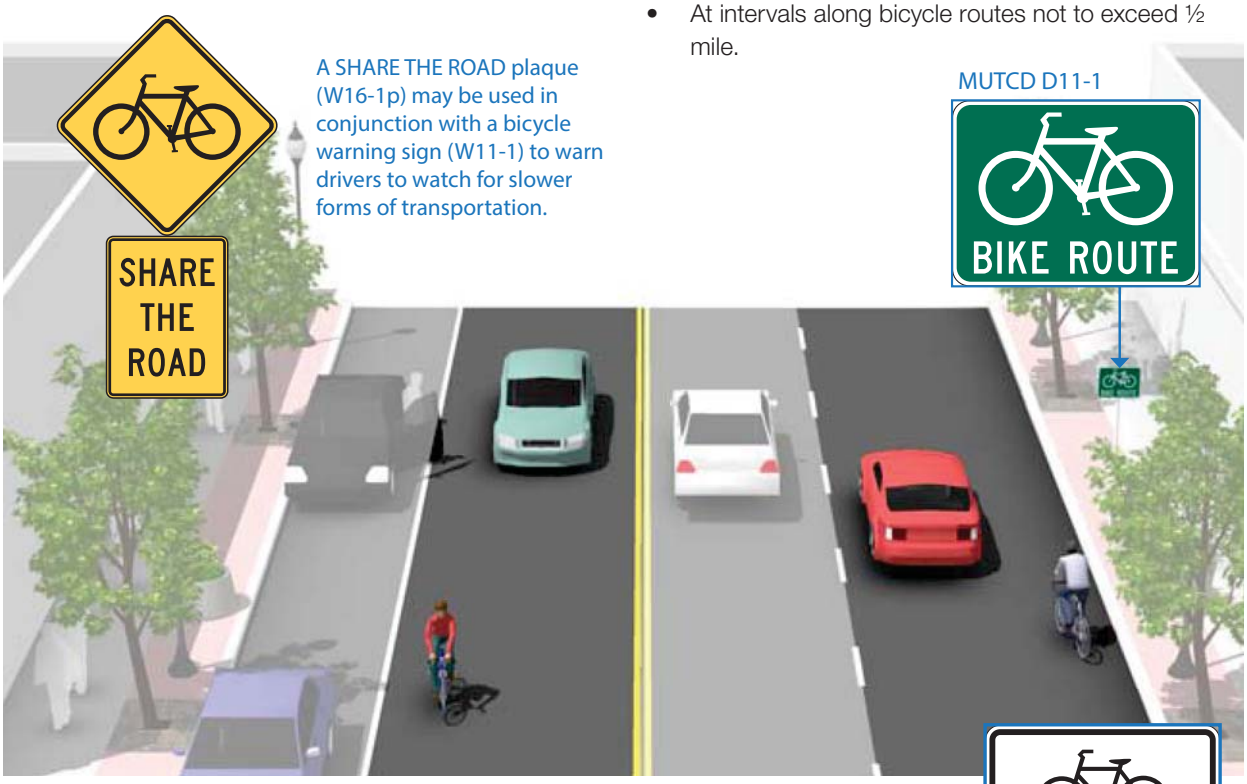
Signed Shared Roadways are facilities shared with motor vehicles. They are typically used on roads with low speeds and traffic volumes, however can be used on higher volume roads with wide outside lanes or shoulders. A motorist will usually have to cross over into the adjacent travel lane to pass a bicyclist, unless a wide outside lane or shoulder is provided.

Guidance

Lane width varies depending on roadway configuration.

Bicycle Route signage (D11-1) should be applied at intervals frequent enough to keep bicyclists informed of changes in route direction and to remind motorists of the presence of bicyclists. Commonly, this includes placement at:

- Beginning or end of Bicycle Route.
- At major changes in direction or at intersections with other bicycle routes.
- At intervals along bicycle routes not to exceed ½ mile.



A SHARE THE ROAD plaque (W16-1p) may be used in conjunction with a bicycle warning sign (W11-1) to warn drivers to watch for slower forms of transportation.

MUTCD D11-1

Discussion

A Bicycle May Use Full Lane sign (R4-11) may be used on a lane that is too narrow for a bicyclist and motorist to share the road side by side within the same lane.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
Caltrans *CA-MUTCD.* 2012
Caltrans. *California HDM.* 2012.

Materials and Maintenance

Maintenance needs for bicycle wayfinding signs are similar to other signs, and will need periodic replacement due to wear.

Marked Shared Roadway

Description

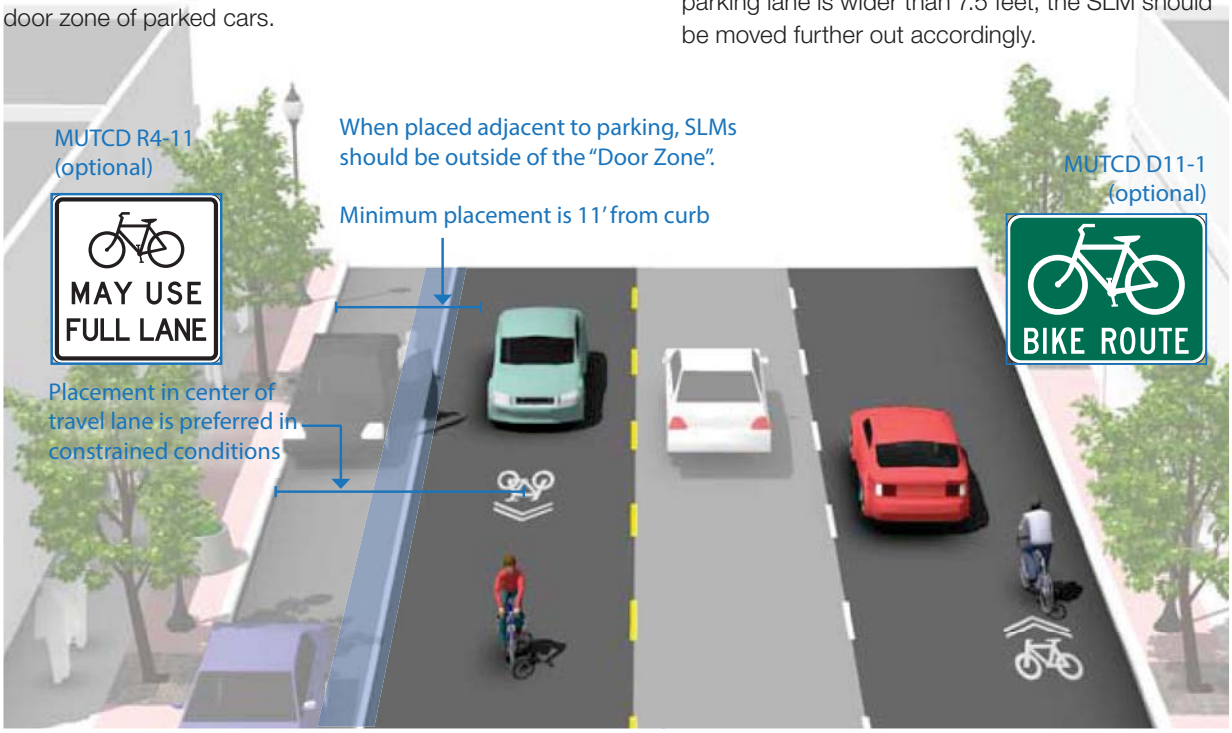
A marked shared roadway is a general purpose travel lane marked with shared lane markings (SLM, popularly known as “sharrows”) used to encourage bicycle travel and proper positioning within the lane.

In constrained conditions, the SLMs are placed in the middle of the lane to discourage unsafe passing by motor vehicles. On a wide outside lane, the SLMs can be used to promote bicycle travel to the right of motor vehicles.

In all conditions, SLMs should be placed outside of the door zone of parked cars.

Guidance

- Lower than 35 mph speed limit preferred.
- In extreme circumstances, SLMs may be placed on roadways above 35 mph.
- In constrained conditions, preferred placement is in the center of the travel lane to minimize wear and promote single file travel.
- Minimum placement of SLM marking centerline is 11 feet from edge of curb where on-street parking is present, 4 feet from edge of curb with no parking. If parking lane is wider than 7.5 feet, the SLM should be moved further out accordingly.



Discussion

Bike Lanes should be considered on roadways with outside travel lanes wider than 15 feet, or where other lane narrowing or removal strategies may provide adequate road space. SLMs shall not be used on shoulders, on designated **Bike Lanes**, or to designate **Bicycle Detection** at signalized intersections. (MUTCD 9C.07)

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
Caltrans *CA-MUTCD.* 2012
NACTO. *Urban Bikeway Design Guide.* 2012.

Materials and Maintenance

Placing SLMs between vehicle tire tracks will increase the life of the markings and minimize the long-term cost of the treatment.

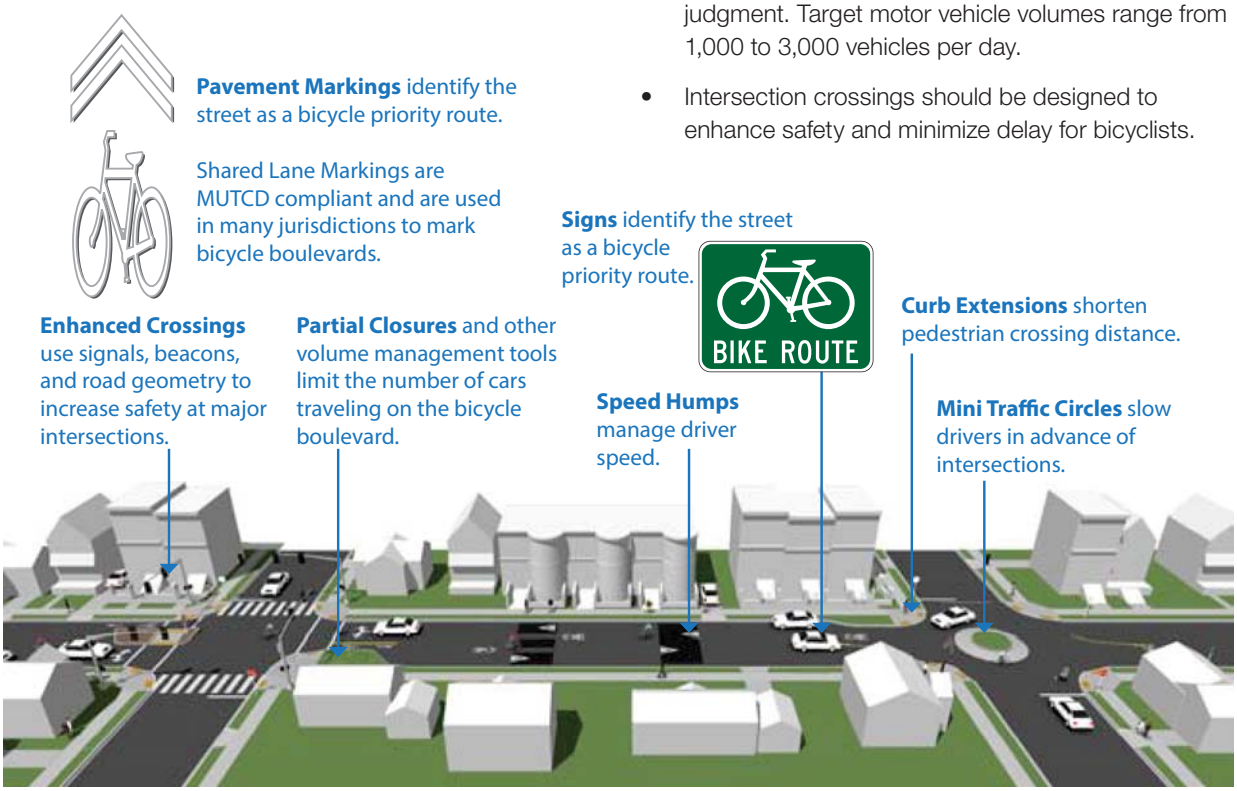
Bicycle Boulevard

Description

Bicycle boulevards (also known as "Neighborhood Greenways") are low-volume, low-speed streets modified to enhance bicyclist comfort by using treatments such as signage, pavement markings, traffic calming and/or traffic reduction, and intersection modifications. These treatments allow the through movement of bicyclists while discouraging similar through-trips by non-local motorized traffic.

Guidance

- Signs and pavement markings are the minimum treatments necessary to designate a street as a bicycle boulevard.
- Bicycle boulevards should have a maximum posted speed of 25 mph. Use traffic calming to maintain an 85th percentile speed below 22 mph.
- Implement volume control treatments based on the context of the bicycle boulevard, using engineering judgment. Target motor vehicle volumes range from 1,000 to 3,000 vehicles per day.
- Intersection crossings should be designed to enhance safety and minimize delay for bicyclists.



Discussion

Bicycle boulevard retrofits to local streets are typically located on streets without existing signalized accommodation at crossings of collector and arterial roadways. Without treatments for bicyclists, these intersections can become major barriers along the bicycle boulevard and compromise safety.

Additional References and Guidelines

NACTO. *Urban Bikeway Design Guide.* 2012.
Ewing, Reid and Brown, Steven. (2009). U.S. Traffic Calming Manual.

Materials and Maintenance

Vegetation should be regularly trimmed to maintain visibility and attractiveness.

Separated Bikeways

Designated exclusively for bicycle travel, separated bikeways are segregated from vehicle travel lanes by striping (Class II), or physical measures such as bollards or curbs (Class I Cycle Tracks). Separated bikeways are most appropriate on arterial and collector streets where higher traffic volumes and speeds warrant greater separation.

Separated bikeways can increase safety and promote proper riding by:

- Defining road space for bicyclists and motorists, reducing the possibility that motorists will stray into the bicyclists' path.
- Discouraging bicyclists from riding on the sidewalk.
- Reducing the incidence of wrong way riding.
- Reminding motorists that bicyclists have a right to the road.

This Section Includes:


Bicycle Lane


Bicycle Lane and Diagonal Parking


Buffered Bicycle Lane


Cycle Track

Bicycle Lane

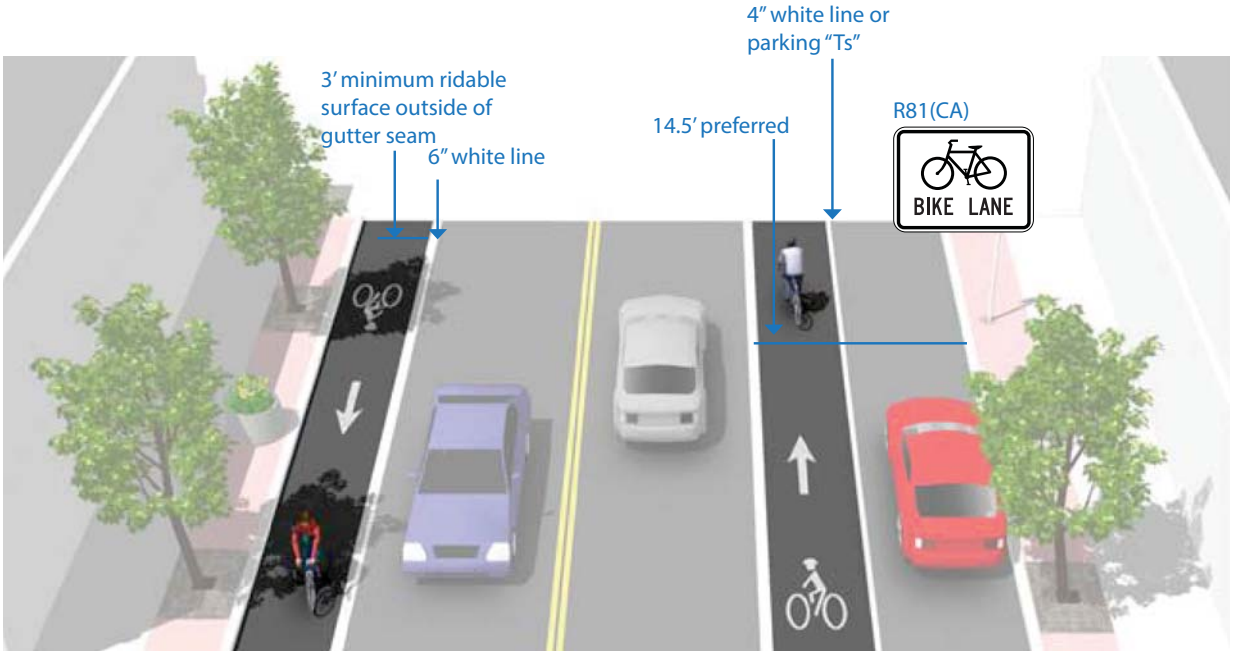
Description

Bike lanes designate an exclusive space for bicyclists through the use of pavement markings and signage. The bike lane is located adjacent to motor vehicle travel lanes and is used in the same direction as motor vehicle traffic. Bike lanes are typically on the right side of the street, between the adjacent travel lane and curb, road edge or parking lane.

Many bicyclists, particularly less experienced riders, are more comfortable riding on a busy street if it has a striped and signed bikeway than if they are expected to share a lane with vehicles.

Guidance

- 4 foot minimum when no curb and gutter is present.
- 5 foot minimum when adjacent to curb and gutter or 3 feet more than the gutter pan width if the gutter pan is wider than 2 feet.
- 14.5 foot preferred from curb face to edge of bike lane. (12 foot minimum).
- 7 foot maximum width for use adjacent to arterials with high travel speeds. Greater widths may encourage motor vehicle use of bike lane.



Discussion

Wider bicycle lanes are desirable in certain situations such as on higher speed arterials (45 mph+) to increase separation between passing vehicles and bicyclists. Consider **Buffered Bicycle Lanes** when further separation is desired.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
Caltrans *CA-MUTCD.* 2012
NACTO. *Urban Bikeway Design Guide.* 2012.
Caltrans. *California HDM.* 2012.

Materials and Maintenance

Paint can wear more quickly in high traffic areas; consider thermoplastic or epoxy materials for reduced life cycle costs.

Bicycle Lane and Diagonal Parking

Description

In certain areas with high parking demand such as urban commercial areas, diagonal parking can be used to increase parking supply.

Back-in diagonal parking improves sight distances between drivers and bicyclists when compared to conventional head-in diagonal parking. Back-in parking is best paired with a dedicated bicycle lane.

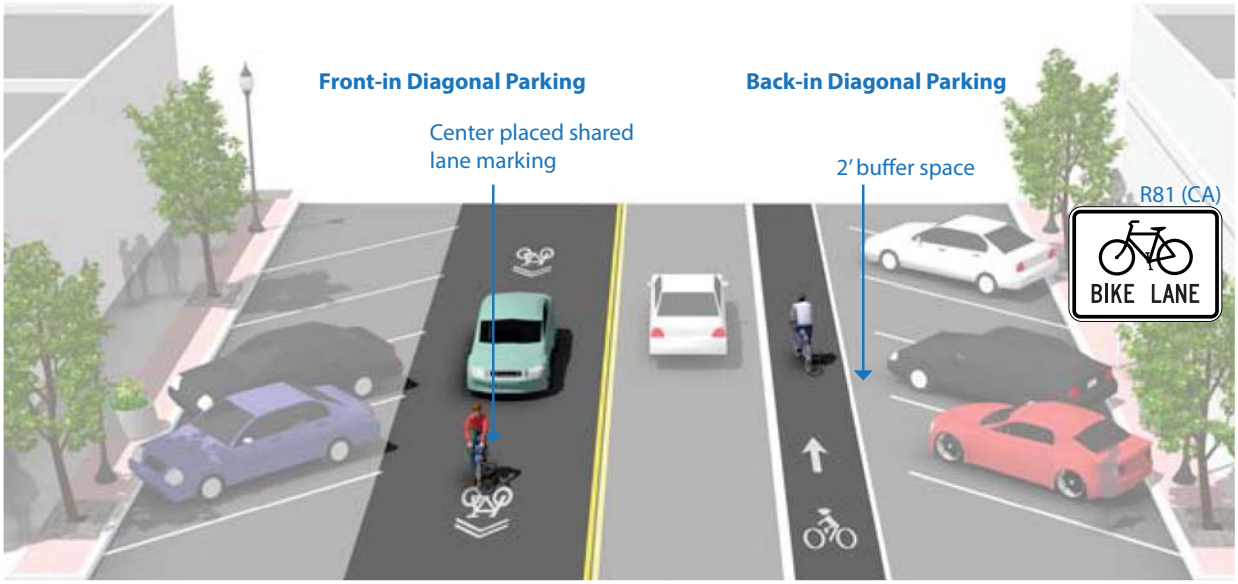
Guidance

Front-in Diagonal Parking

- Shared lane markings are the preferred facility with front-in diagonal parking

Back-in Diagonal Parking

- 5 foot minimum marked width of bike lane
- Parking bays are sufficiently long to accommodate most vehicles (so vehicles do not block bike lane)



Discussion

Conventional front-in diagonal parking is not compatible or recommended with the provision of bike lanes, as drivers backing out of conventional diagonal parking have limited visibility of approaching bicyclists. Under these conditions, shared lane markings should be used to guide bicyclists away from reversing automobiles. Examples of back-in diagonal parking within the State of California include the cities of Chico, Sacramento, San Francisco, and Ventura.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
Caltrans. *Main Street, California.* 2013.

Materials and Maintenance

Paint can wear more quickly in high traffic areas; consider thermoplastic or epoxy materials for reduced life cycle costs.

Buffered Bicycle Lane

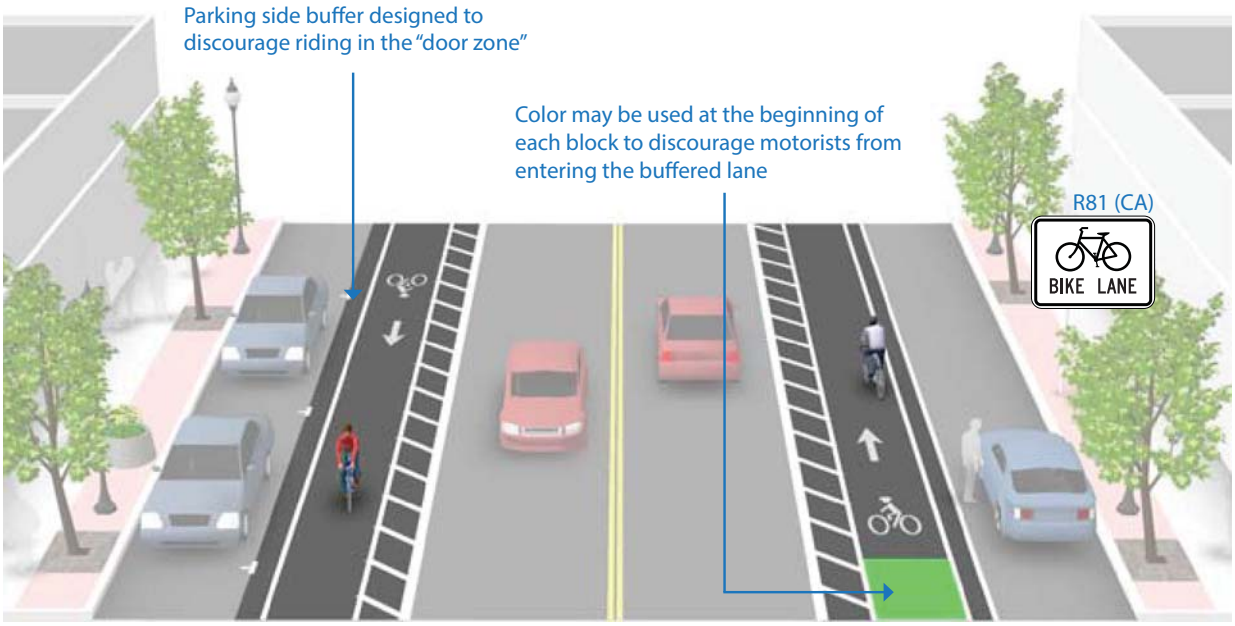
Description

Buffered bike lanes are conventional bicycle lanes paired with a designated buffer space, separating the bicycle lane from the adjacent motor vehicle travel lane and/or parking lane. Buffered bike lanes are allowed as per MUTCD guidelines for buffered preferential lanes (section 3D-01).

Buffered bike lanes are designed to increase the space between the bike lane and the travel lane or parked cars. This treatment is appropriate for bike lanes on roadways with high motor vehicle traffic volumes and speed, adjacent to parking lanes, or a high volume of truck or oversized vehicle traffic.

Guidance

- Where bicyclist volumes are high or where bicyclist speed differentials are significant, the desired bicycle travel area width is 7 feet.
- Buffers should be at least 2 feet wide. If 3 feet or wider, mark with diagonal or chevron hatching. For clarity at driveways or minor street crossings, consider a dotted line for the inside buffer boundary where cars are expected to cross.



Discussion

Commonly configured as a buffer between the bicycle lane and motor vehicle travel lane, a parking side buffer may also be provided to help bicyclists avoid the 'door zone' of parked cars.

Additional References and Guidelines

NACTO. *Urban Bikeway Design Guide.* 2012.
AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
Caltrans *CA-MUTCD.* 2012

Materials and Maintenance

Paint can wear more quickly in high traffic areas; consider thermoplastic or epoxy materials for reduced life cycle costs.

Cycle Track

Description

A cycle track is an exclusive bike facility that combines the user experience of a separated path with the on-street infrastructure of a conventional bike lane. A cycle track is physically separated from motor traffic and distinct from the sidewalk. Cycle tracks have different forms but all share common elements—they provide space that is intended to be exclusively or primarily used by bicycles, and are separated from motor vehicle travel lanes, parking lanes, and sidewalks.

Raised cycle tracks may be at the level of the adjacent sidewalk or set at an intermediate level between the roadway and sidewalk to separate the cycle track from the pedestrian area.

Guidance

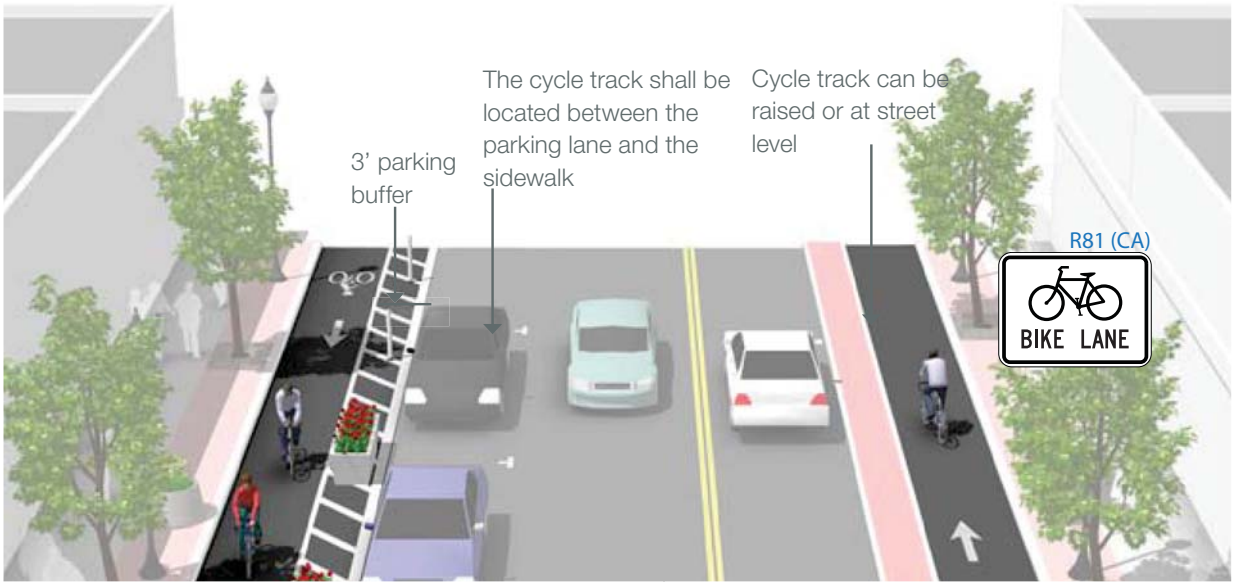
Cycle tracks should ideally be placed along streets with long blocks and few driveways or mid-block access points for motor vehicles.

One-Way Cycle Tracks

- 7 foot recommended width to allow passing; 5 foot minimum width in constrained locations. Add additional shy space if contained by vertical elements such as curbs.

Two-Way Cycle Tracks

- Cycle tracks located on one-way streets have fewer potential conflict areas than those on two-way streets.
- 12 foot recommended minimum for two-way facility. 8 foot minimum in constrained locations



Discussion

Special consideration should be given at transit stops to manage bicycle and pedestrian interactions. Driveways and minor street crossings are unique challenges to cycle track design. Parking should be prohibited within 30 feet of the intersection to improve visibility.

Additional References and Guidelines

NACTO. *Urban Bikeway Design Guide.* 2012.

Materials and Maintenance

In cities with winter climates, barrier separated and raised cycle tracks may require special equipment for snow removal.

Separated Bikeways at Intersections

Intersections are junctions at which different modes of transportation meet and facilities overlap. An intersection facilitates the interchange between bicyclists, motorists, pedestrians and other modes in order to advance traffic flow in a safe and efficient manner. Designs for intersections with bicycle facilities should reduce conflict between bicyclists (and other vulnerable road users) and vehicles by heightening the level of visibility, denoting clear right-of-way and facilitating eye contact and awareness with other modes. Intersection treatments can improve both queuing and merging maneuvers for bicyclists, and are often coordinated with timed or specialized signals.

The configuration of a safe intersection for bicyclists may include elements such as color, signage, medians, signal detection and pavement markings. Intersection design should take into consideration existing and anticipated bicyclist, pedestrian and motorist movements. In all cases, the degree of mixing or separation between bicyclists and other modes is intended to reduce the risk of crashes and increase bicyclist comfort. The level of treatment required for bicyclists at an intersection will depend on the bicycle facility type used, whether bicycle facilities are intersecting, and the adjacent street function and land use.

This Section Includes:


Bike Box


Bike Lane at Right Turn Only Lanes


Colored Bike Lane in Conflict Areas


Combined Bike Lane / Turn Lane


Intersection Crossing Markings


Bike Lane at High Speed Interchanges


Diverging Diamond Interchanges Design

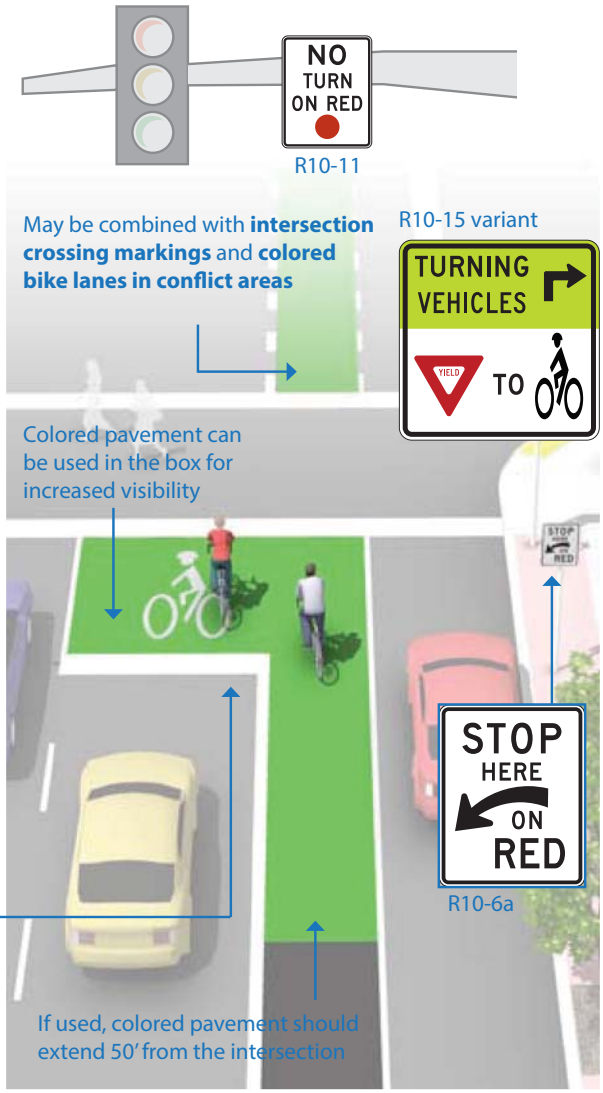
Bike Box

Description

A bike box is a designated area located at the head of a traffic lane at a signalized intersection that provides bicyclists with a safe and visible space to get in front of queuing motorized traffic during the red signal phase. Motor vehicles must queue behind the white stop line at the rear of the bike box.

Guidance

- 14 foot minimum depth
- A "No Turn on Red" (MUTCD R10-11) sign shall be installed overhead to prevent vehicles from entering the Bike Box.
- A "Stop Here on Red" sign should be post-mounted at the stop line to reinforce observance of the stop line.
- A "Yield to Bikes" sign should be post-mounted in advance of and in conjunction with an egress lane to reinforce that bicyclists have the right-of-way going through the intersection.
- An ingress lane should be used to provide access to the box.
- A supplemental "Wait Here" legend can be provided in advance of the stop bar to increase clarity to motorists.



Discussion

Bike boxes should be placed only at signalized intersections, and right turns on red shall be prohibited for motor vehicles. Bike boxes should be used in locations that have a large volume of bicyclists and are best utilized in central areas where traffic is usually moving more slowly.

Additional References and Guidelines

NACTO. *Urban Bikeway Design Guide.* 2012.
FHWA. *Interim Approval (IA-14).* 2011.

Materials and Maintenance

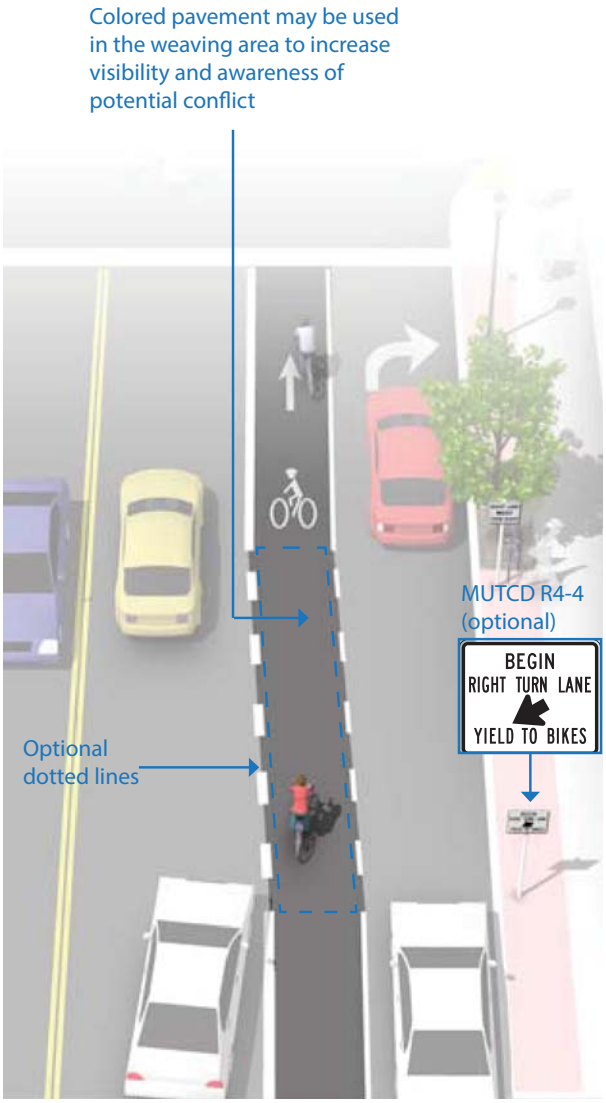
Because the effectiveness of markings depends entirely on their visibility, maintaining markings should be a high priority.

Bike Lane at Right Turn Only Lane

Description

The appropriate treatment at right-turn lanes is to place the bike lane between the right-turn lane and the right-most through lane or, where right-of-way is insufficient, to use a **shared bike lane/turn lane**.

The design (right) illustrates a bike lane pocket, with signage indicating that motorists should yield to bicyclists through the conflict area.



Guidance

At auxiliary right turn only lanes (add lane):

- Continue existing bike lane width; standard width of 5 to 6 feet or 4 feet in constrained locations.
- Use signage to indicate that motorists should yield to bicyclists through the conflict area.
- Consider using **colored conflict areas** to promote visibility of the mixing zone.

Where a through lane becomes a right turn lane:

- Do not define a dotted line merging path for bicyclists.
- Drop the bicycle lane in advance of the merge area.
- Use shared lane markings to indicate shared use of the lane in the merging zone.

Discussion

For other potential approaches to providing accommodations for bicyclists at intersections with turn lanes, please see **combined bike lane/turn lane**, **bicycle signals**, and **colored bike facilities**.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
Caltrans *CA-MUTCD.* 2012
NACTO. *Urban Bikeway Design Guide.* 2012.
Caltrans. *California HDM.* 2012.
Caltrans. *Complete Intersections.* 2010.

Materials and Maintenance

Because the effectiveness of markings depends entirely on their visibility, maintaining markings should be a high priority.

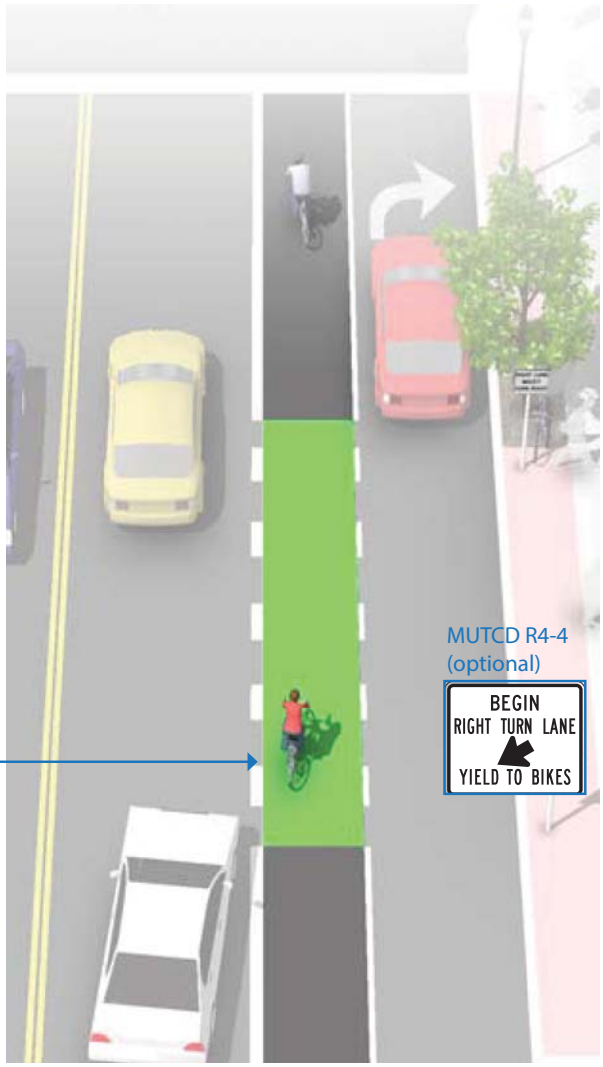
Colored Bike Lane in Conflict Areas

Description

Colored pavement within a bicycle lane increases the visibility of the facility and reinforces priority of bicyclists in conflict areas.

Guidance

- Green colored pavement was given interim approval by the Federal Highways Administration in March 2011. See interim approval for specific color standards.
- The colored surface should be skid resistant and retro-reflective.



Discussion

Evaluations performed in Portland, OR, St. Petersburg, FL and Austin, TX found that significantly more motorists yielded to bicyclists and slowed or stopped before entering the conflict area after the colored treatment.

Additional References and Guidelines

FHWA. *Interim Approval (IA-14).* 2011.
NACTO. *Urban Bikeway Design Guide.* 2012.

Materials and Maintenance

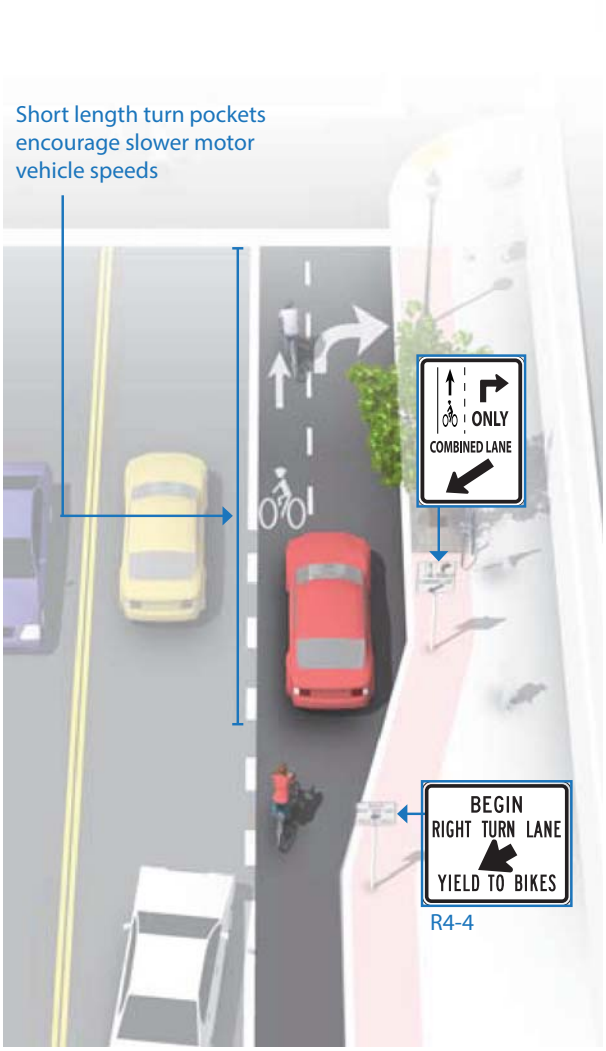
Because the effectiveness of markings depends entirely on their visibility, maintaining markings should be a high priority.

Combined Bike Lane / Turn Lane

Description

The combined bicycle/right turn lane places a standard-width bike lane on the left side of a dedicated right turn lane. A dotted line delineates the space for bicyclists and motorists within the shared lane. This treatment includes signage advising motorists and bicyclists of proper positioning within the lane.

This treatment is recommended at intersections lacking sufficient space to accommodate both a standard **through bike lane** and right turn lane.



Guidance

- Maximum shared turn lane width is 13 feet; narrower is preferable.
- Bike Lane pocket should have a minimum width of 4 feet with 5 feet preferred.
- A dotted 4 inch line and bicycle lane marking should be used to clarify bicyclist positioning within the combined lane, without excluding cars from the suggested bicycle area.
- A “Right Turn Only” sign with an “Except Bicycles” plaque may be needed to make it legal for through bicyclists to use a right turn lane.

Discussion

Case studies cited by the Pedestrian and Bicycle Information Center indicate that this treatment works best on streets with lower posted speeds (30 MPH or less) and with lower traffic volumes (10,000 ADT or less). May not be appropriate for high-speed arterials or intersections with long right turn lanes.

Additional References and Guidelines

NACTO. *Urban Bikeway Design Guide.* 2012.
AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.

Materials and Maintenance

Because the effectiveness of markings depends on their visibility, maintaining markings should be a high priority.

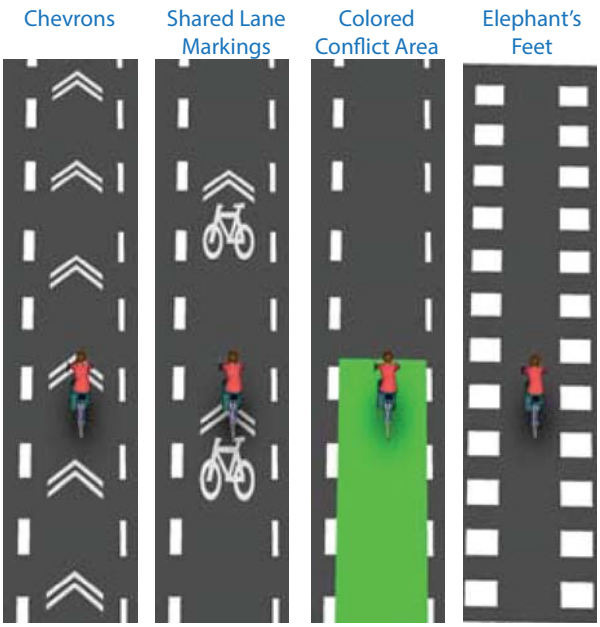
Intersection Crossing Markings

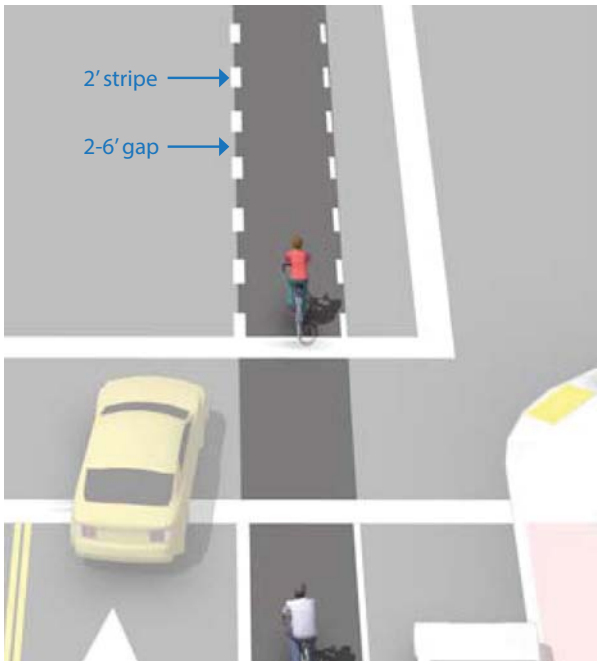
Description

Bicycle pavement markings through intersections indicate the intended path of bicyclists through an intersection or across a driveway or ramp. They guide bicyclists on a safe and direct path through the intersection and provide a clear boundary between the paths of through bicyclists and either through or crossing motor vehicles in the adjacent lane.

Guidance

- See MUTCD Section 3B.08: "dotted line extensions"
- Crossing striping shall be at least six inches wide when adjacent to motor vehicle travel lanes. Dotted lines should be two-foot lines spaced two to six feet apart.
- Chevrons, shared lane markings, or **colored bike lanes in conflict areas** may be used to increase visibility within conflict areas or across entire intersections. Elephant's Feet markings are common in Europe and Canada.





Discussion

Additional markings such as chevrons, shared lane markings, or **colored bike lanes in conflict areas** are strategies currently in use in the United States and Canada. Cities considering the implementation of markings through intersections should standardize future designs to avoid confusion.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
Caltrans *CA-MUTCD.* 2012
NACTO. *Urban Bikeway Design Guide.* 2012.

Materials and Maintenance

Because the effectiveness of marked crossings depends entirely on their visibility, maintaining marked crossings should be a high priority.

Two-Stage Turn Box

Description

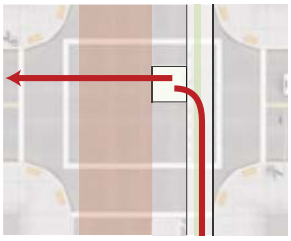
A two-stage turn box offers bicyclists a safe way to make left turns at multi-lane signalized intersections from a right side cycle track or bike lane.

On right side cycle tracks, bicyclists are often unable to merge into traffic to turn left due to physical separation, making the provision of two-stage left turn boxes critical. Design guidance for two-stage turns apply to both bike lanes and cycle tracks.

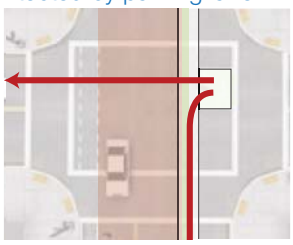
Guidance

- The queue box shall be placed in a protected area. Typically this is within an on-street parking lane or cycle track buffer area.
- 6' minimum depth of bicycle storage area
- Bicycle stencil and turn arrow pavement markings shall be used to indicate proper bicycle direction and positioning.
- A "No Turn on Red" (MUTCD R10-11) sign shall be installed on the cross street to prevent vehicles from entering the turn box.

Cycle track turn box protected by physical buffer:

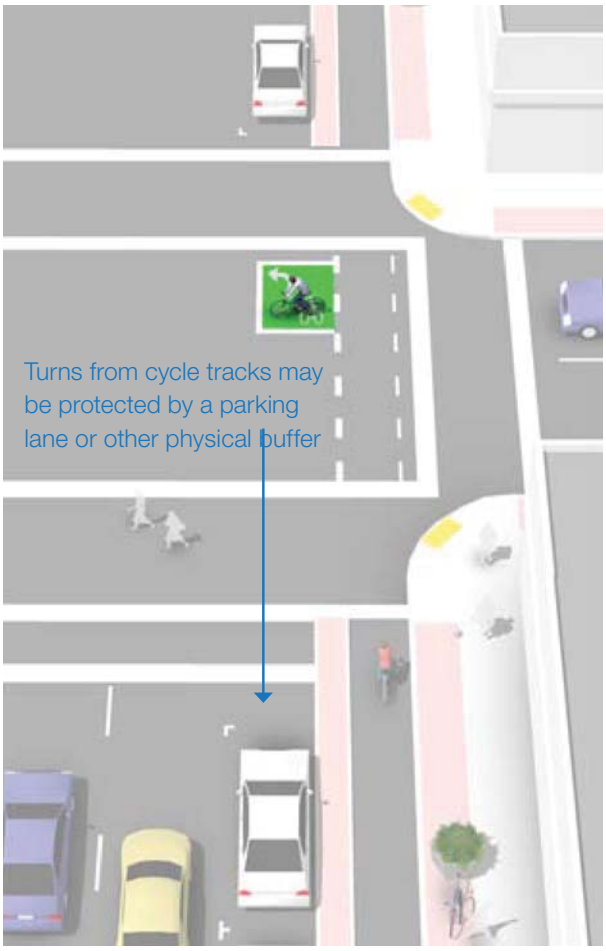


Bike lane turn box protected by parking lane:



Turns from a bicycle lane may be protected by an adjacent parking lane or crosswalk setback space

Turns from cycle tracks may be protected by a parking lane or other physical buffer



Discussion

While two stage turns may increase bicyclist comfort in many locations, this configuration will typically result in higher average signal delay for bicyclists versus a vehicular style left turn maneuver.

Additional References and Guidelines

NACTO. *Urban Bikeway Design Guide.* 2012.

Materials and Maintenance

Paint can wear more quickly in high traffic areas or in winter climates.

Bike Lane at Diverging Ramp Lanes

Description

Some arterials may contain high speed freeway-style designs such as merge lanes and exit ramps, which can create difficulties for bicyclists. The entrance and exit lanes typically have intrinsic visibility problems because of low approach angles and feature high speed differentials between bicyclists and motor vehicles.

Strategies to improve safety focus on increasing sight distances, creating formal crossings, and minimizing crossing distances.

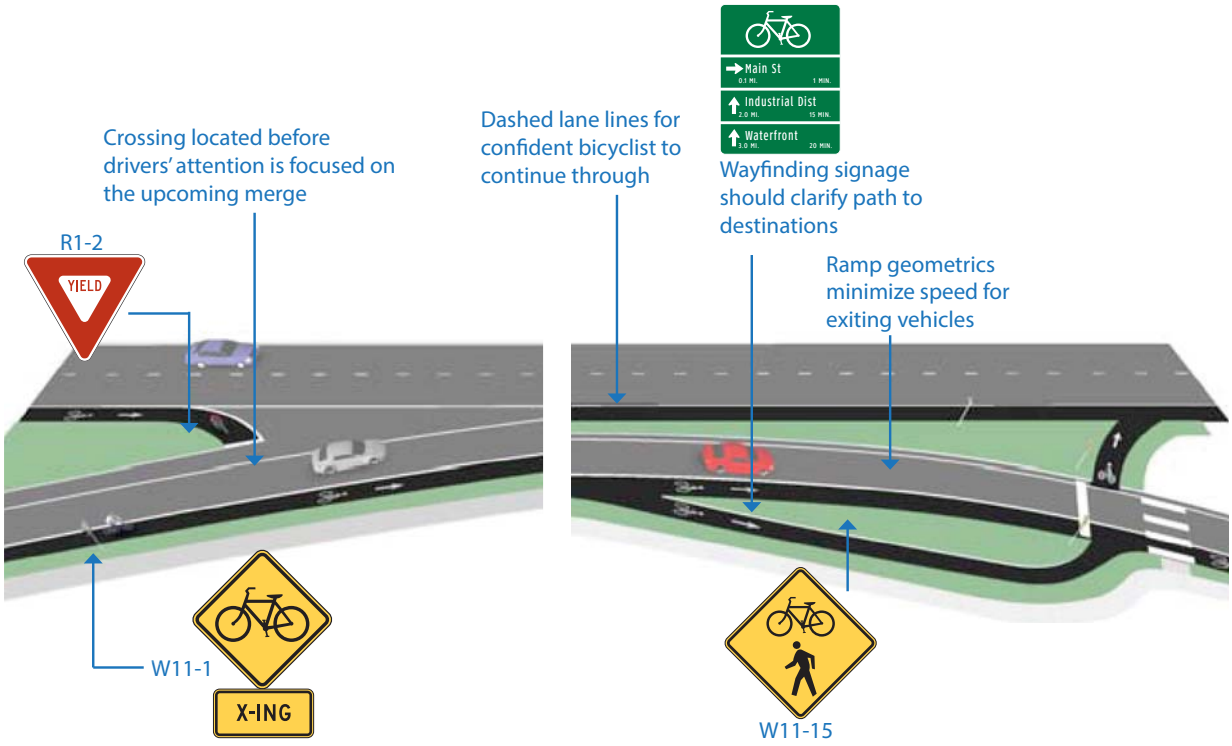
Guidance

Entrance Ramps:

Angle the bike lane to increase the approach angle with entering traffic. Position crossing before drivers' attention is focused on the upcoming merge.

Exit Ramps:

Use a jug handle turn to bring bicyclists to increase the approach angle with exiting traffic, and add yield striping and signage to the bicycle approach.



Discussion

While the jug-handle approach is the preferred configuration at exit ramps, provide the option for through bicyclists to perform a vehicular merge and proceed straight through under safe conditions.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
Caltrans *CA-MUTCD.* 2012
Caltrans. *Complete Intersections.* 2010.

Materials and Maintenance

Locate crossing markings out of wheel tread when possible to minimize wear and maintenance costs.

Freeway Interchange Design

Description

Freeway Interchanges can be significant obstacles to bicycling if they are poorly designed. Travel through some interchange designs may be particularly challenging for youth bicyclists.

Key design features at conflict areas through interchanges should be included to improve the experience for bicyclists.

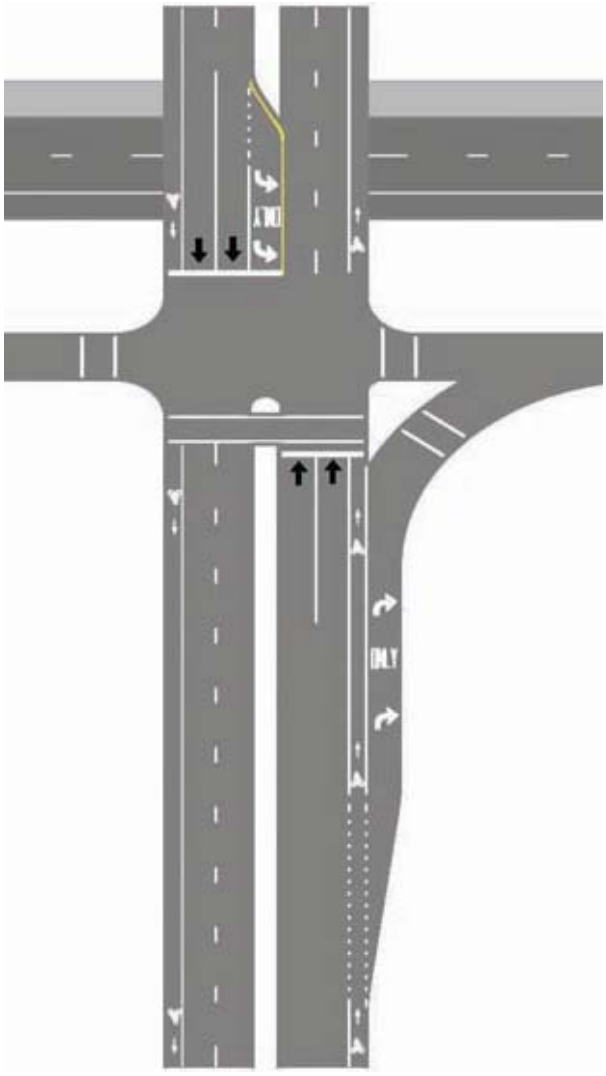
Guidance

Entrance Ramps:

- A right-turn lane should be configured with a taper as an "add-lane" for motorists turning right onto the freeway entrance ramp.
- A bike lane should be provided along the left side of the right turn lane. Dotted through bike lane striping provides clear priority for bicyclists at right turn 'add lane' on-ramps.

Exit Ramps:

- Motorists existing the freeway and turning onto the crossroad should be controlled by a stop sign, signal, or yield sign, rather than allowing a free-flowing movement.



Source: AASHTO. Guide for the Development of Bicycle Facilities. 2012.

Discussion

The on-ramps should be configured as a right-turn-only "add lane" to assert through bicyclist priority. Designs that are functional for bicycle passage typically encourage slowing or require motor vehicle traffic to slow or stop. Designs that encourage high-speed traffic movements are difficult for bicyclists to negotiate.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
Caltrans *CA-MUTCD.* 2012
Caltrans. *Complete Intersections.* 2010.

Materials and Maintenance

Locate crossing markings out of wheel tracks when possible to minimize wear and maintenance costs.

Bicyclists at Single Lane Roundabouts

Description

Roundabouts are circular intersections designed with yield control for all entering traffic, channelized approaches and geometry to induce desirable speeds. They are used as an alternative to intersection signalization.

Other roundabout-like intersection designs include:

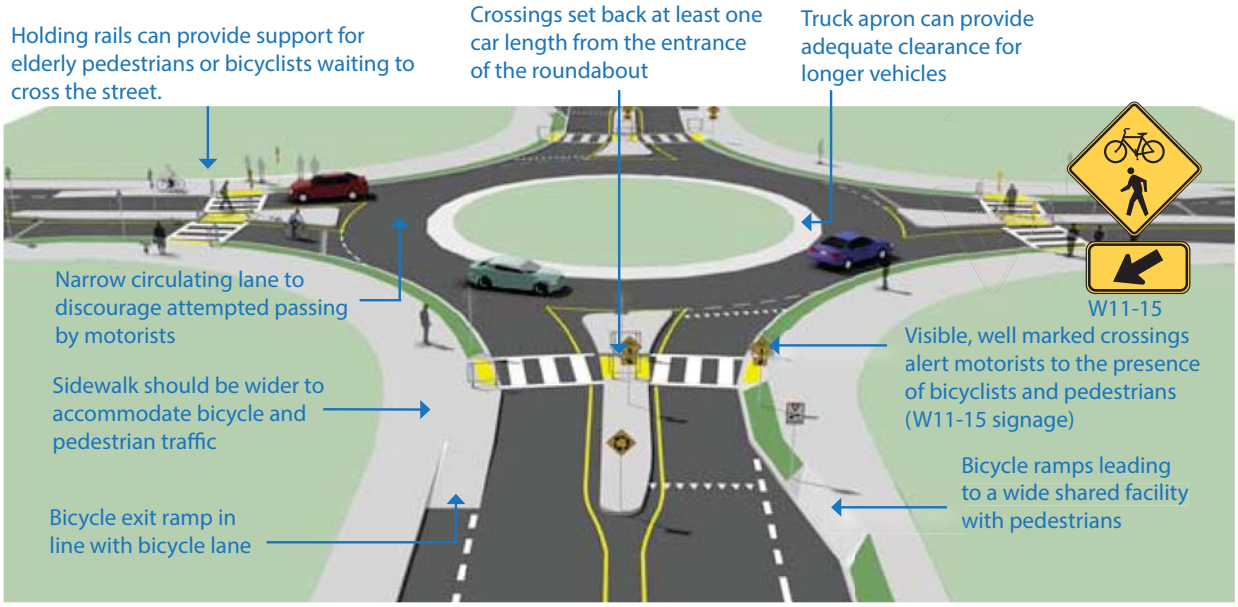
Traffic Circles (also known as rotaries) are old style circular intersections where traffic signals or stop signs are used to control one or more entry.

Mini Roundabouts (also called neighborhood traffic circles) are small-sized circular intersections of local streets. They may be uncontrolled or stop controlled, and do not channelize entry.

Guidance

It is important to indicate to motorists, bicyclists and pedestrians the right-of-way rules and correct way for them to circulate in the roundabout.

- 25 mph maximum circulating design speed. Design approaches/exits to the lowest speeds possible.
- Encourage bicyclists navigating the roundabout like motor vehicles to “take the lane.”
- Maximize yielding rate of motorists to pedestrians and bicyclists at crosswalks.
- Provide separated facilities for bicyclists who prefer not to navigate the roundabout on the roadway.



Discussion

On bicycle routes a roundabout is preferable to stop control as bicyclists do not like to lose their momentum due to the physical effort required. At intersections of shared-use paths, pedestrian and bicycle only roundabouts are an excellent form of non-motorized user traffic control.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
TRB. *NCHRP 672 Roundabouts: An Informational Guide.* 2010
TRB. *NCHRP Report 572 Roundabouts in the United States.* 2007.
Hourdos, John et al. *Investigation of Pedestrian/Bicyclist Risk in Minnesota Roundabout Crossings.* 2012.
TRB. *NCHRP 674 Crossing Solutions at Roundabouts and Channelized Turn Lanes for Pedestrians with Vision Disabilities.* 2011.
Shaw and Moler. *Bicyclist- and Pedestrian-Only Roundabouts.* 2009. FHWA.
Brown, Rick. *The Case of Roundabouts.* 2012.

Materials and Maintenance

Signage and striping require routine maintenance.

Channelized Turn Lane

Description

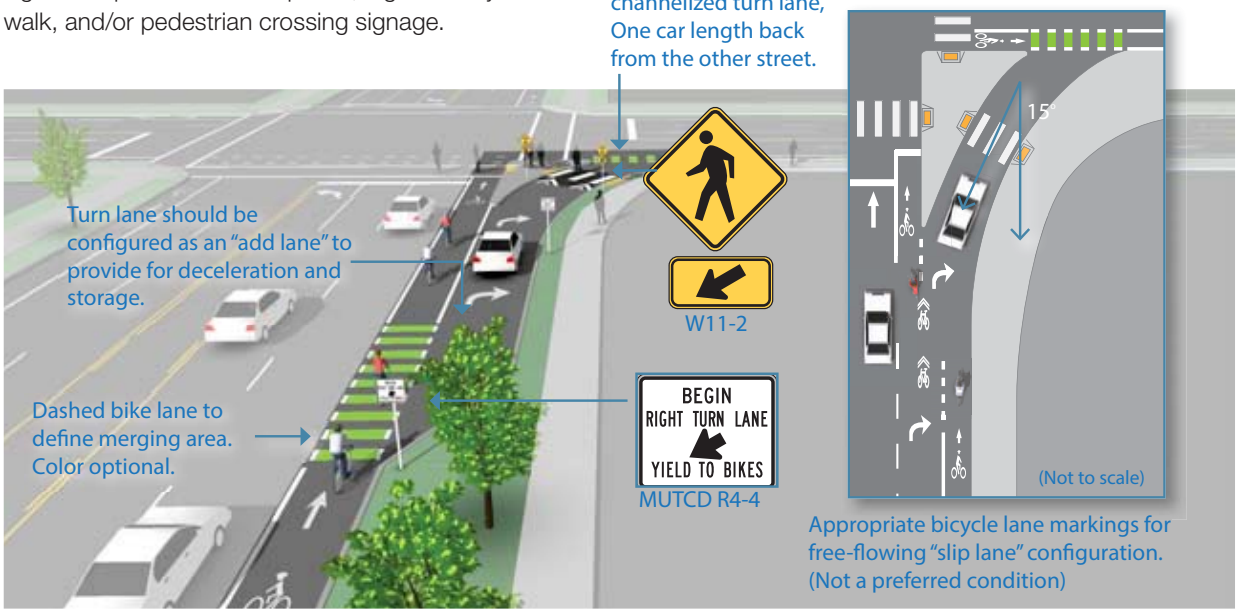
In some intersections of arterials streets, design vehicle requirements or intersection angles may result in wide turning radii at corners. Configuring the intersection as a channelized (or free-right) turn lane with a raised refuge island can improve conditions for pedestrians trying to cross the street.

Similar to a median refuge island, the raised refuge island can reduce crossing distances, allow staged crossing of the roadway, and improve visibility of pedestrians crossing the roadway.

To improve safety and comfort for pedestrians, measures to slow traffic at the pedestrian crossing are recommended such as provision of a raised crosswalk, signalized pedestrian walk phase, high visibility crosswalk, and/or pedestrian crossing signage.

Guidance

- The preferred angle of intersection between the channelized turn lane and the roadway being joined is no more than 15 degrees to allow for simultaneous visibility of pedestrians and potential roadway gaps.
- Design with a maximum 30-35 foot turning radius.
- Signing: Pedestrian crossing sign assembly (W11-2) or Yield (R1-2) to encourage yielding. Yield to Bikes (R4-4) or similar if bike lanes are present.
- Raised Crossings in the channelized turn lane may slow driver speed through the turning area.



Discussion

This design requires trucks to turn into multiple receiving lanes, and may not be appropriate on the approach to streets with one through lane. Channelized turn lanes can be very challenging for blind pedestrians. NCHRP 674 identified the use of sound strips (a full lane rumble strip-like device) in conjunction with flashing beacons to increase yielding compliance.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
TRB. *NCHRP 674 Crossing Solutions at Roundabouts and Channelized Turn Lanes for Pedestrians with Vision Disabilities.* 2011.
ITE. *Designing Walkable Urban Thoroughfares.* 2010.

Materials and Maintenance

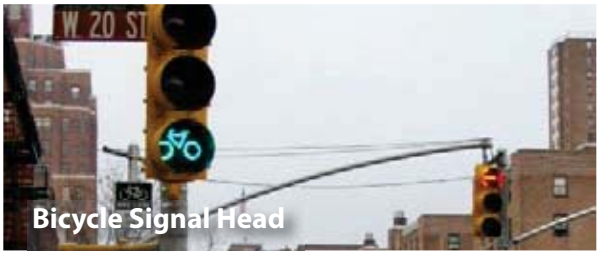
Signage and striping require routine maintenance.

Signalization

Determining which type of signal or beacon to use for a particular intersection depends on a variety of factors. These include speed limits, Average Daily Traffic (ADT), anticipated bicycle crossing traffic, and the configuration of planned or existing bicycle facilities. Signals may be necessary as part of the construction of a protected bicycle facility such as a cycle track with potential turning conflicts, or to decrease vehicle or pedestrian conflicts at major crossings. An intersection with bicycle signals may reduce stress and delays for a crossing bicyclist, and discourage illegal and unsafe crossing maneuvers.

This Section Includes:


Bicycle Detection and Actuation



Bicycle Signal Head

Active Warning Beacon


Hybrid Beacon (HAWK)

Bicycle Detection and Actuation

Description

Push Button Actuation

User-activated button mounted on a pole facing the street.

Loop Detectors

Bicycle-activated loop detectors are installed within the roadway to allow the presence of a bicycle to trigger a change in the traffic signal. This allows the bicyclist to stay within the lane of travel without having to maneuver to the side of the road to trigger a push button.

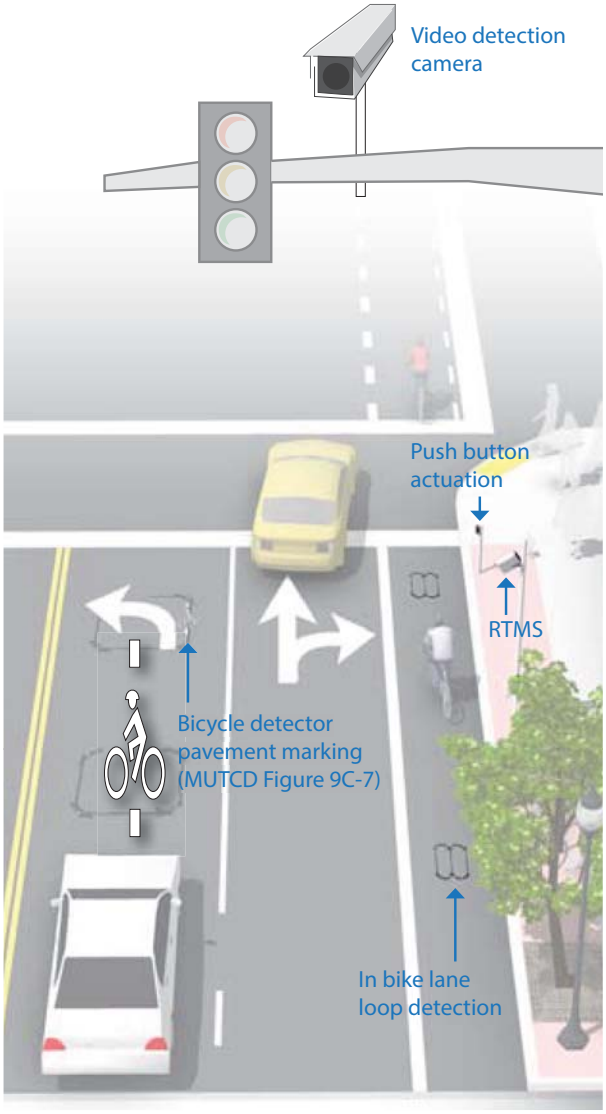
Loops that are sensitive enough to detect bicycles should be supplemented with pavement markings to instruct bicyclists how to trip them.

Video Detection Cameras

Video detection systems use digital image processing to detect a change in the image at a location. These systems can be calibrated to detect bicycles. Video camera system costs range from $20,000 to $25,000 per intersection.

Remote Traffic Microwave Sensor Detection (RTMS)

RTMS is a system which uses frequency modulated continuous wave radio signals to detect objects in the roadway. This method marks the detected object with a time code to determine its distance from the sensor. The RTMS system is unaffected by temperature and lighting, which can affect standard video detection.



Discussion

Proper bicycle detection should meet two primary criteria: 1) accurately detects bicyclists and 2) provides clear guidance to bicyclists on how to actuate detection (e.g., what button to push, where to stand).
The requirement for bicycle detection at all new and modified approaches to traffic signals is formalized in Policy Directive 09-06 and is included in the CA MUTCD 2012.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
NACTO. *Urban Bikeway Design Guide.* 2012.
Caltrans *CA-MUTCD.* 2012
Caltrans. *Policy Directive 09-06.* 2009.
Caltrans. *Complete Intersections.* 2010.

Materials and Maintenance

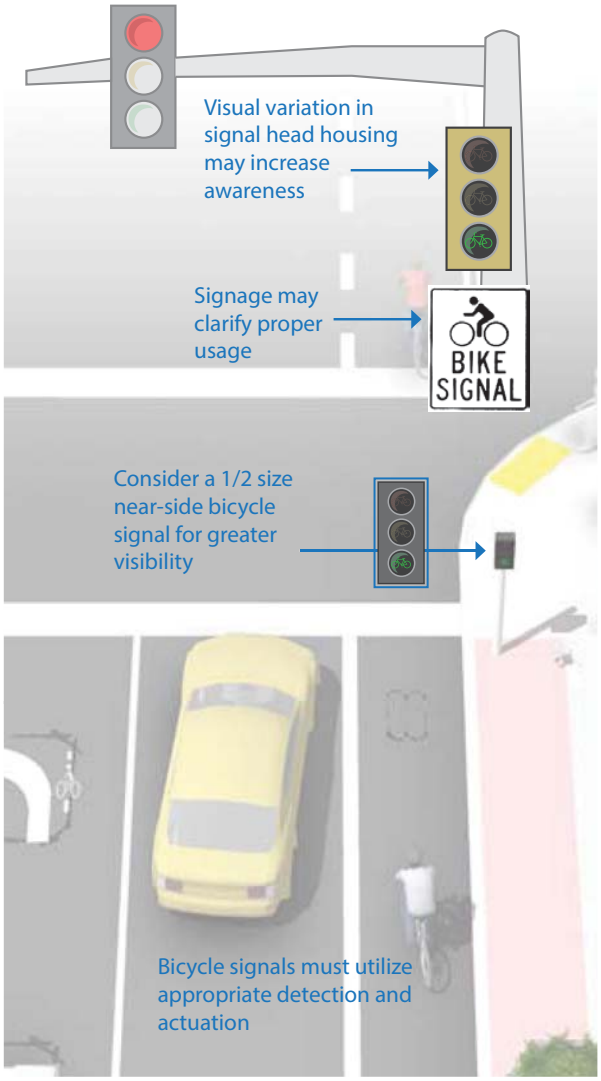
Signal detection and actuation for bicyclists should be maintained with other traffic signal detection and roadway pavement markings.

Bicycle Signal Head

Description

A bicycle signal is an electrically powered traffic control device that should only be used in combination with an existing conventional or hybrid signal. Bicycle signals are typically used to improve identified safety or operational problems involving bicycle facilities. Bicycle signal heads may be installed at signalized intersections to indicate bicycle signal phases and other bicycle-specific timing strategies. Bicycle signals can be actuated with bicycle sensitive loop detectors, video detection, or push buttons.

Bicycle signal heads use standard three-lens signal heads in green, yellow, and red. Bicycle signals are typically used to provide guidance for bicyclists at intersections where they may have different needs from other road users (e.g., bicycle-only movements, or leading bicycle intervals).



Guidance

California MUTCD Bicycle Signal Warrant is based off bicyclist volumes, collision history, or geometric warrants:

- Those with high volume of bicyclists at peak hours
- Those with high numbers of bicycle/motor vehicle crashes, especially those caused by turning vehicle movements
- Where a multi-use path intersects a roadway
- At locations to facilitate a bicycle movement that is not permitted for a motor vehicle

Discussion

See CA MUTCD Section 4C.102 for detailed warrant requirements.

For improved visibility, smaller (4 inch lens) near-sided bicycle signals should be considered to supplement far-side signals.

Additional References and Guidelines

NACTO. *Urban Bikeway Design Guide.* 2012.
The National Committee on Uniform Traffic Control Devices has formed a Task Force that is considering adding guidance to the MUTCD on the use of bicycle signals.

Materials and Maintenance

Bicycle signal heads require the same maintenance as standard traffic signal heads, such as replacing bulbs and responding to power outages.

Active Warning Beacon

Description

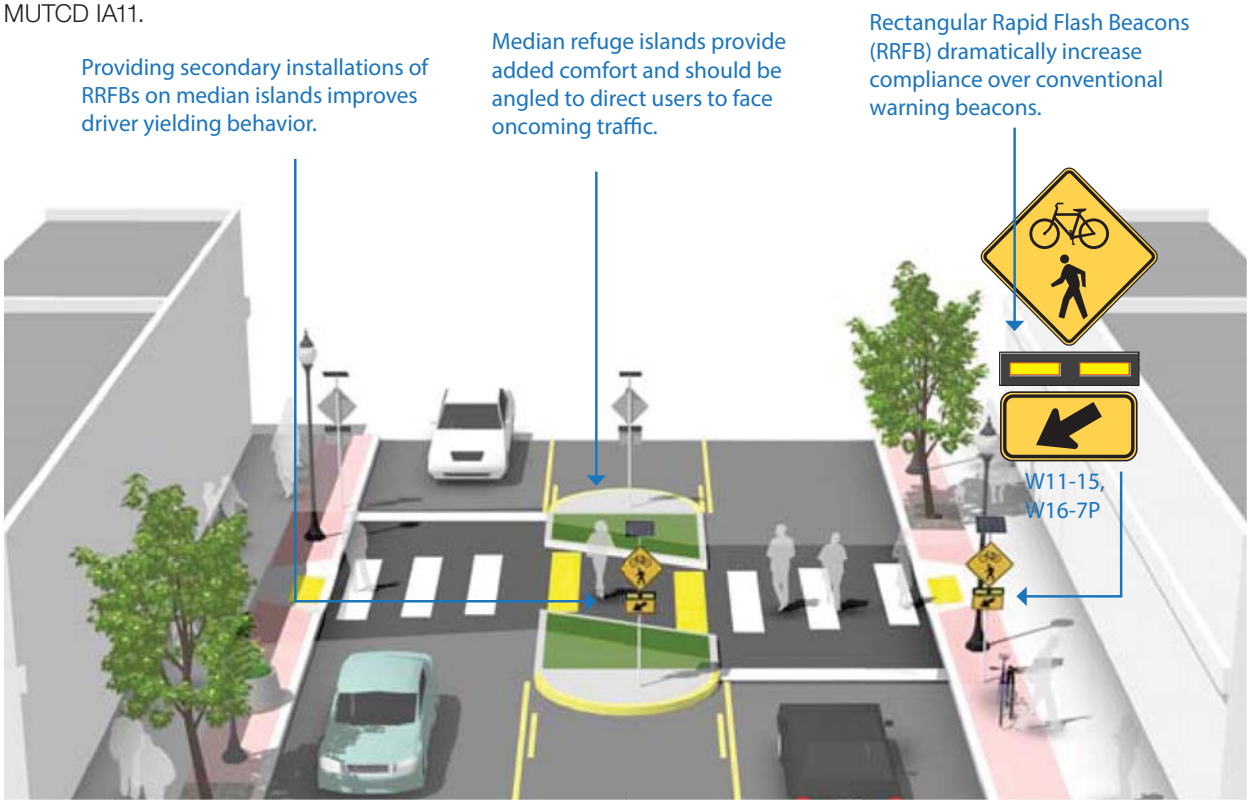
Active warning beacons are user actuated illuminated devices designed to increase motor vehicle yielding compliance at crossings of multi lane or high volume roadways.

Types of active warning beacons include conventional circular yellow flashing beacons, in-roadway warning lights, or Rectangular Rapid Flash Beacons (RRFB).

RRFBs have blanket approval in California per FHWA MUTCD IA11.

Guidance

- Warning beacons shall not be used at crosswalks controlled by YIELD signs, STOP signs or traffic signals.
- Warning beacons shall initiate operation based on pedestrian or bicyclist actuation and shall cease operation at a predetermined time after actuation or, with passive detection, after the pedestrian or bicyclist clears the crosswalk.



Discussion

Rectangular rapid flash beacons have the highest compliance of all the warning beacon enhancement options. A study of the effectiveness of going from a no-beacon arrangement to a two-beacon RRFB installation increased yielding from 18 percent to 81 percent. A four-beacon arrangement raised compliance to 88 percent.

Additional References and Guidelines

NACTO. *Urban Bikeway Design Guide.* 2012.
Caltrans *CA-MUTCD.* 2012
FHWA. *Interim Approval (IA-11).* 2008.
Caltrans. *Complete Intersections.* 2010.

Materials and Maintenance

Depending on power supply, maintenance can be minimal. If solar power is used, RRFBs can run for years without issue.

Pedestrian Hybrid Beacon

Description

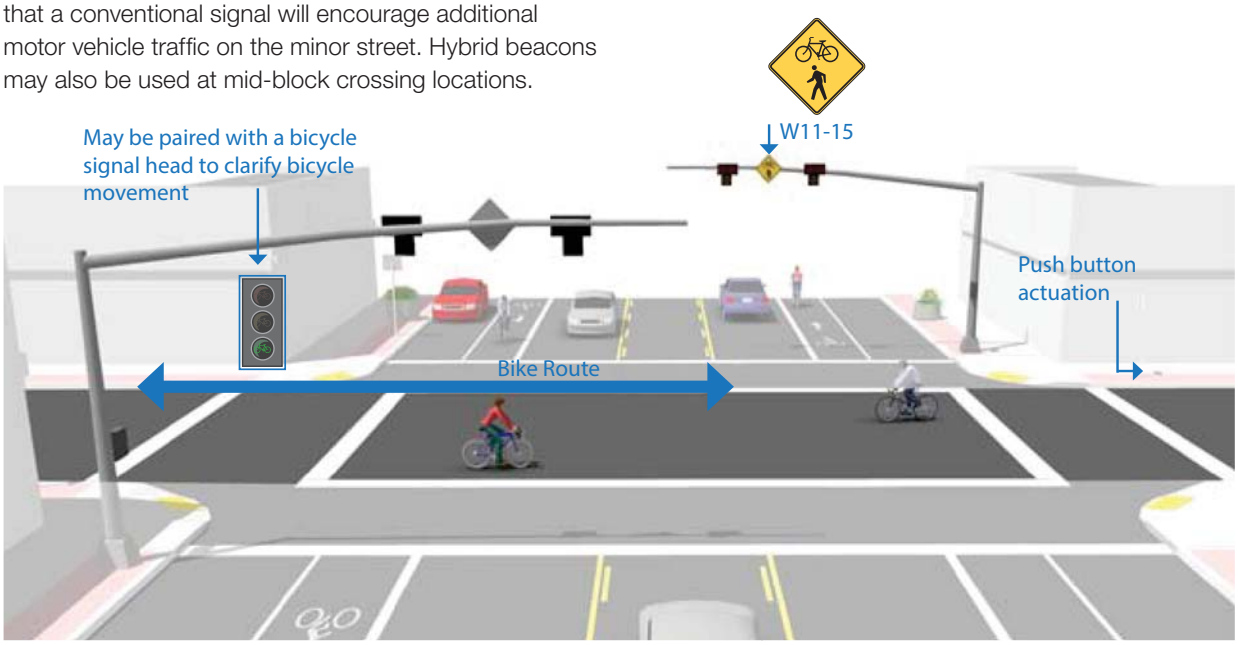
A pedestrian hybrid beacon, previously known as a High-intensity Activated Crosswalk (HAWK), consists of a signal-head with two red lenses over a single yellow lens on the major street, and pedestrian and/or **bicycle signal heads** for the minor street. There are no signal indications for motor vehicles on the minor street approaches. At a cost of about $85,000 per installation, a beacon is less than a third of the cost of a typical traffic signal.

Pedestrian hybrid beacons are used to improve non-motorized crossings of major streets in locations where side-street volumes do not support installation of a conventional traffic signal or where there are concerns that a conventional signal will encourage additional motor vehicle traffic on the minor street. Hybrid beacons may also be used at mid-block crossing locations.

Guidance

Pedestrian hybrid beacons may be installed without meeting traffic signal control warrants if roadway speed and volumes are excessive for comfortable user crossing.

- If installed within a signal system, signal engineers should evaluate the need for the pedestrian hybrid beacon to be coordinated with other signals.
- Parking and other sight obstructions should be prohibited for at least 100 feet in advance of and at least 20 feet beyond the marked crosswalk to provide adequate sight distance.



Discussion

The hybrid beacon can significantly improve the operation of a bicycle route, particularly along **bicycle boulevard** corridors. Each crossing, regardless of traffic speed or volume, requires additional review by a registered transportation engineer to identify sight lines, potential impacts on traffic, signal timing, capacity and safety.

Additional References and Guidelines

Caltrans *CA-MUTCD.* 2012
NACTO. *Urban Bikeway Design Guide.* 2012.
FHWA. *Safety Effectiveness of the HAWK Pedestrian Crossing Treatment.* 2010.

Materials and Maintenance

Signing and striping need to be maintained to help users understand any unfamiliar traffic control.

Bikeway Signing

The ability to navigate through a city is informed by landmarks, natural features and other visual cues. Signs throughout the city should indicate to bicyclists:

- Direction of travel
- Location of destinations
- Travel time/distance to those destinations

These signs will increase users' comfort and accessibility to the bicycle systems.

Signage can serve both wayfinding and safety purposes including:

- Helping to familiarize users with the bicycle network
- Helping users identify the best routes to destinations
- Helping to address misperceptions about time and distance
- Helping overcome a "barrier to entry" for people who are not frequent bicyclists (e.g., "interested but concerned" bicyclists)

A community-wide bicycle wayfinding signage plan would identify:

- Sign locations
- Sign type – what information should be included and design features
- Destinations to be highlighted on each sign – key destinations for bicyclists
- May include approximate distance and travel time to each destination

Bicycle wayfinding signs also visually cue motorists that they are driving along a bicycle route and should use caution. Signs are typically placed at key locations leading to and along bicycle routes, including the intersection of multiple routes. Too many road signs tend to clutter the right-of-way, and it is recommended that these signs be posted at a level most visible to bicyclists rather than per vehicle signage standards.

This Section Includes:


Wayfinding Sign Type


Wayfinding Sign Placement

Wayfinding Sign Types

Description

A bicycle wayfinding system consists of comprehensive signing and/or pavement markings to guide bicyclists to their destinations along preferred bicycle routes. There are three general types of wayfinding signs:

Confirmation Signs

- Indicate to bicyclists that they are on a designated bikeway. Make motorists aware of the bicycle route.
- May include destinations and distance/time. Do not include arrows.

Turn Signs

- Indicate where a bikeway turns from one street onto another street. Can be used with pavement markings.
- Include destinations and arrows.

Decisions Signs

- Mark the junction of two or more bikeways.
- Inform bicyclists of the designated bike route to access key destinations.
- Destinations and arrows are required, distances are optional but recommended.
- The inclusion of bicycle travel time is non-standard, but is recommended.

Discussion

There is no standard color for bicycle wayfinding signage. Section 1A.12 of the MUTCD establishes the general meaning for signage colors. Green is the color used for directional guidance and is the most common color of bicycle wayfinding signage in the US, including those in the MUTCD.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
Caltrans *CA-MUTCD.* 2012
NACTO. *Urban Bikeway Design Guide.* 2012.

Materials and Maintenance

Maintenance needs for bicycle wayfinding signs are similar to other signs and will need periodic replacement due to wear.

Wayfinding Sign Placement

Guidance

Signs are typically placed at decision points along bicycle routes – typically at the intersection of two or more bikeways and at other key locations leading to and along bicycle routes.

Decisions Signs

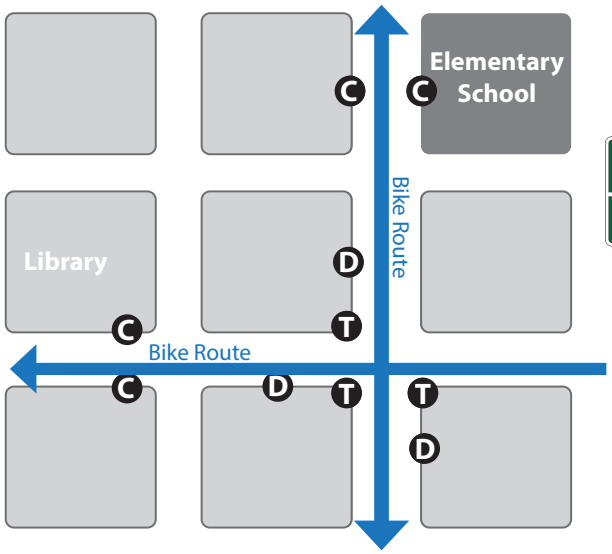
- Near-side of intersections in advance of a junction with another bicycle route.
- Along a route to indicate a nearby destination.

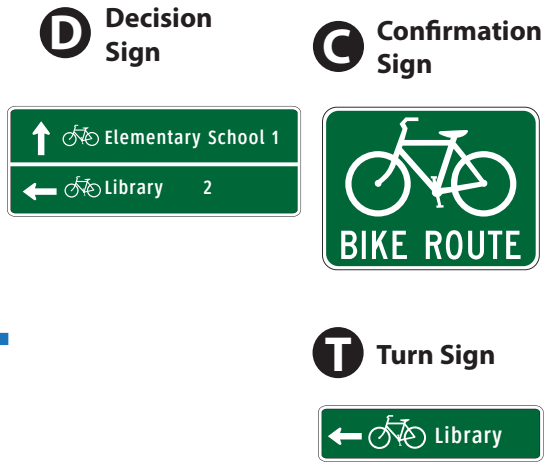
Confirmation Signs

- Every ¼ to ½ mile on off-street facilities and every 2 to 3 blocks along on-street bicycle facilities, unless another type of sign is used (e.g., within 150 feet of a turn or decision sign). Should be placed soon after turns to confirm destination(s). Pavement markings can also act as confirmation that a bicyclist is on a preferred route.

Turn Signs

- Near-side of intersections where bike routes turn (e.g., where the street ceases to be a bicycle route or does not go through). Pavement markings can also indicate the need to turn to the bicyclist.





Discussion

It can be useful to classify a list of destinations for inclusion on the signs based on their relative importance to users throughout the area. A particular destination's ranking in the hierarchy can be used to determine the physical distance from which the locations are signed.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
Caltrans *CA-MUTCD.* 2012
NACTO. *Urban Bikeway Design Guide.* 2012.

Materials and Maintenance

Maintenance needs for bicycle wayfinding signs are similar to other signs and will need periodic replacement due to wear.

Retrofitting Existing Streets to add Bikeways

Most major streets are characterized by conditions (e.g., high vehicle speeds and/or volumes) for which dedicated bike lanes are the most appropriate facility to accommodate safe and comfortable riding. Although opportunities to add bike lanes through roadway widening may exist in some locations, many major streets have physical and other constraints that would require street retrofit measures within existing curb-to-curb widths. As a result, much of the guidance provided in this section focuses on effectively reallocating existing street width through striping modifications to accommodate dedicated bike lanes.

Although largely intended for major streets, these measures may be appropriate for any roadway where bike lanes would be the best accommodation for bicyclists.

This Section Includes:

Lane Narrowing

Description

Lane narrowing utilizes roadway space that exceeds minimum standards to provide the needed space for bike lanes. Many roadways have existing travel lanes that are wider than those prescribed in local and national roadway design standards, or which are not marked. Most standards allow for the use of 11 foot and sometimes 10 foot wide travel lanes to create space for bike lanes.

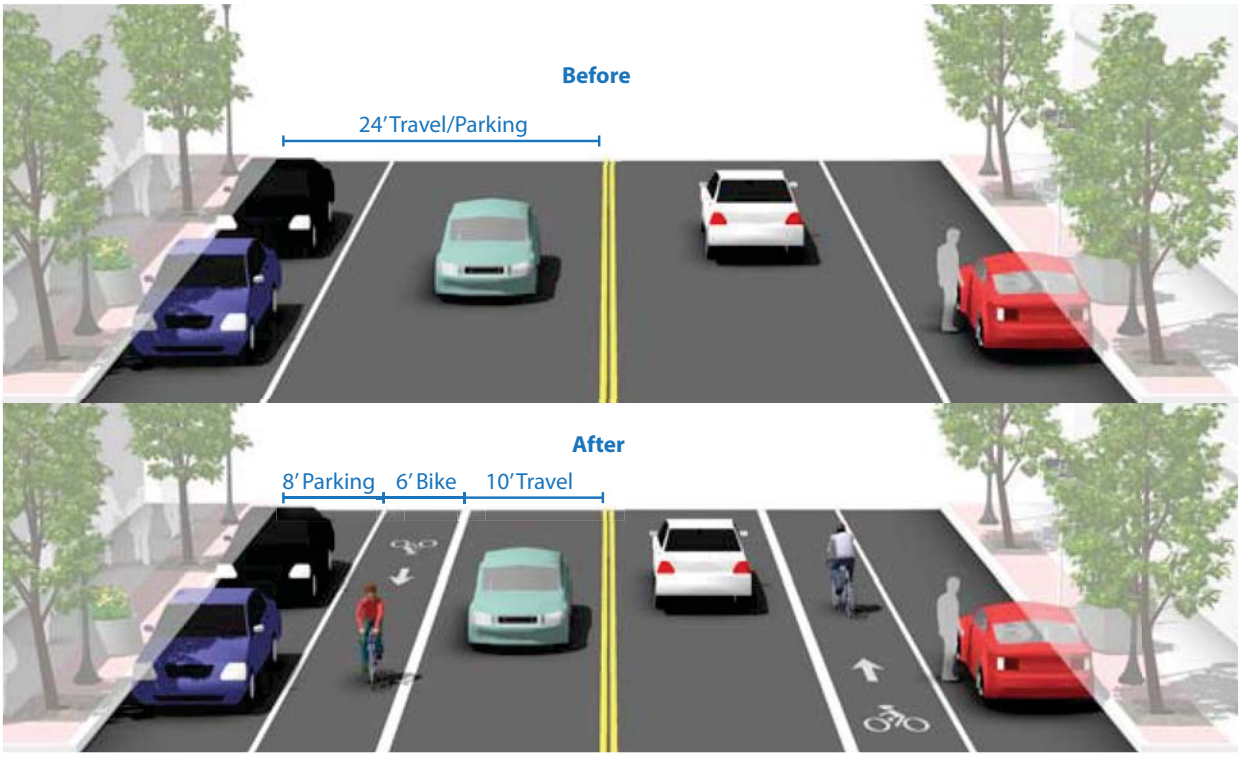
Guidance

Vehicle lane width:

- Before: 10-15 feet
- After: 10-11 feet

Bicycle lane width:

- Guidance on **Bicycle Lanes** applies to this treatment



Discussion

Special consideration should be given to the amount of heavy vehicle traffic and horizontal curvature before the decision is made to narrow travel lanes. Center turn lanes can also be narrowed in some situations to free up pavement space for bike lanes.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
AASHTO. *A Policy on Geometric Design of Highways and Streets.* 2011.
Caltrans. *California HDM.* 2012.
Caltrans. *Main Street, California.* 2013.

Materials and Maintenance

Repair rough or uneven pavement surface. Use bicycle compatible drainage grates. Raise or lower existing grates and utility covers so they are flush.

Lane Reconfiguration

Description

The removal of a single travel lane will generally provide sufficient space for bike lanes on both sides of a street. Streets with excess vehicle capacity provide opportunities for bike lane retrofit projects.

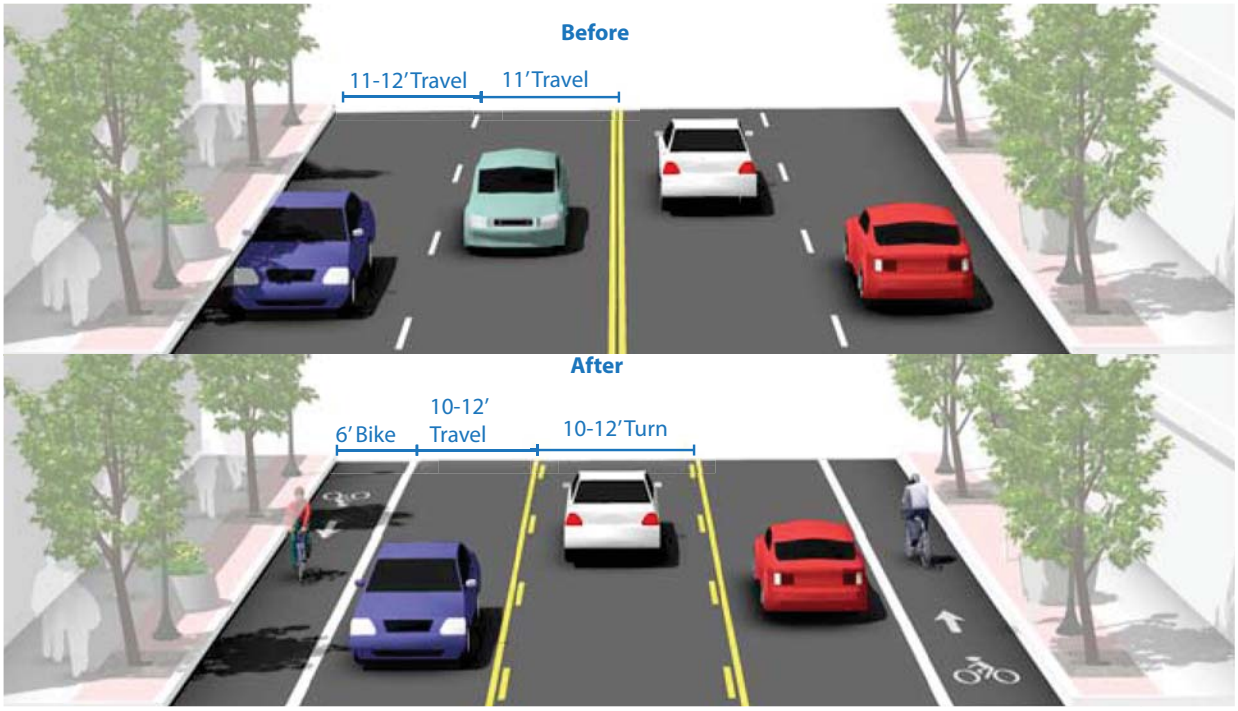
Guidance

Vehicle lane width:

- Width depends on project. No narrowing may be needed if a lane is removed.

Bicycle lane width:

- Guidance on **Bicycle Lanes** applies to this treatment.



Discussion

Depending on a street's existing configuration, traffic operations, user needs and safety concerns, various lane reduction configurations may apply. For instance, a four-lane street (with two travel lanes in each direction) could be modified to provide one travel lane in each direction, a center turn lane, and bike lanes.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
FHWA. *Evaluation of Lane Reduction "Road Diet" Measures on Crashes.* 2010.
Caltrans. *Main Street, California.* 2013.

Materials and Maintenance

Repair rough or uneven pavement surface. Use bicycle compatible drainage grates. Raise or lower existing grates and utility covers so they are flush.

Shared-use Paths

A shared-use path allows for two-way, off-street bicycle use and also may be used by pedestrians, skaters, wheelchair users, joggers and other non-motorized users. These facilities are frequently found in parks, along rivers, beaches, and in greenbelts or utility corridors where there are few conflicts with motorized vehicles. Path facilities can also include amenities such as lighting, signage, and fencing (where appropriate).

Key features of greenways include:

- Frequent access points from the local road network.
- Directional signs to direct users to and from the path.
- A limited number of at-grade crossings with streets or driveways.
- Terminating the path where it is easily accessible to and from the street system.
- Separate treads for pedestrians and bicyclists when heavy use is expected.

This Section Includes:

General Design Practices

Description

Shared-use paths can provide a desirable facility, particularly for recreation, and users of all skill levels preferring separation from traffic. Bicycle paths should generally provide directional travel opportunities not provided by existing roadways.

Guidance

Width

- 8 feet is the minimum allowed for a two-way bicycle path and is only recommended for low traffic situations.
- 10 feet is recommended in most situations and will be adequate for moderate to heavy use.
- 12 feet is recommended for heavy use situations with high concentrations of multiple users. A separate track (5' minimum) can be provided for pedestrian use.

Lateral Clearance

- A 2 foot or greater shoulder on both sides of the path should be provided. An additional foot of lateral clearance (total of 3') is required by the MUTCD for the installation of signage or other furnishings.
- If bollards are used at intersections and access points, they should be colored brightly and/or supplemented with reflective materials to be visible at night.

Overhead Clearance

- Clearance to overhead obstructions should be 8 feet minimum, with 10 feet recommended.

Striping

- When striping is required, use a 4 inch dashed yellow centerline stripe with 4 inch solid white edge lines.
- Solid centerlines can be provided on tight or blind corners, and on the approaches to roadway crossings.

Discussion

The AASHTO Guide for the Development of Bicycle Facilities generally recommends against the development of **shared-use paths along roadways**.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
Caltrans *CA-MUTCD.* 2012
Flink, C. *Greenways.* 1993.
Caltrans. *California HDM.* 2012.

Materials and Maintenance

Asphalt is the most common surface for bicycle paths. The use of concrete for paths has proven to be more durable over the long term.

Paths in River and Utility Corridors

Description

Utility and waterway corridors often offer excellent shared-use path development and bikeway gap closure opportunities. Utility corridors typically include powerline and sewer corridors, while waterway corridors include canals, drainage ditches, rivers, and beaches. These corridors offer excellent transportation and recreation opportunities for bicyclists of all ages and skills.

Guidance

Shared-use paths in utility corridors should meet or exceed **general design practices**. If additional width allows, wider paths, and landscaping are desirable.

Access Points

Any access point to the path should be well-defined with appropriate signage designating the pathway as a bicycle facility and prohibiting motor vehicles.

Path Closure

Public access to the path may be prohibited during the following events:

- Canal/flood control channel or other utility maintenance activities
- Inclement weather or the prediction of storm conditions

Discussion

Similar to railroads, public access to flood control channels or canals is undesirable by all parties. Appropriate fencing may be required to keep path users within the designated travel way. Creative design of fencing is encouraged to make the path facility feel welcoming to the user.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
Caltrans *CA-MUTCD.* 2012
Flink, C. *Greenways.* 1993.

Materials and Maintenance

If concrete is used, saw cut concrete joints rather than troweled improve the experience of path users.

Paths in Abandoned Rail Corridors

Description

Commonly referred to as Rails-to-Trails or Rail-Trails, these projects convert vacated rail corridors into off-street paths. Rail corridors offer several advantages, including relatively direct routes between major destinations and generally flat terrain.

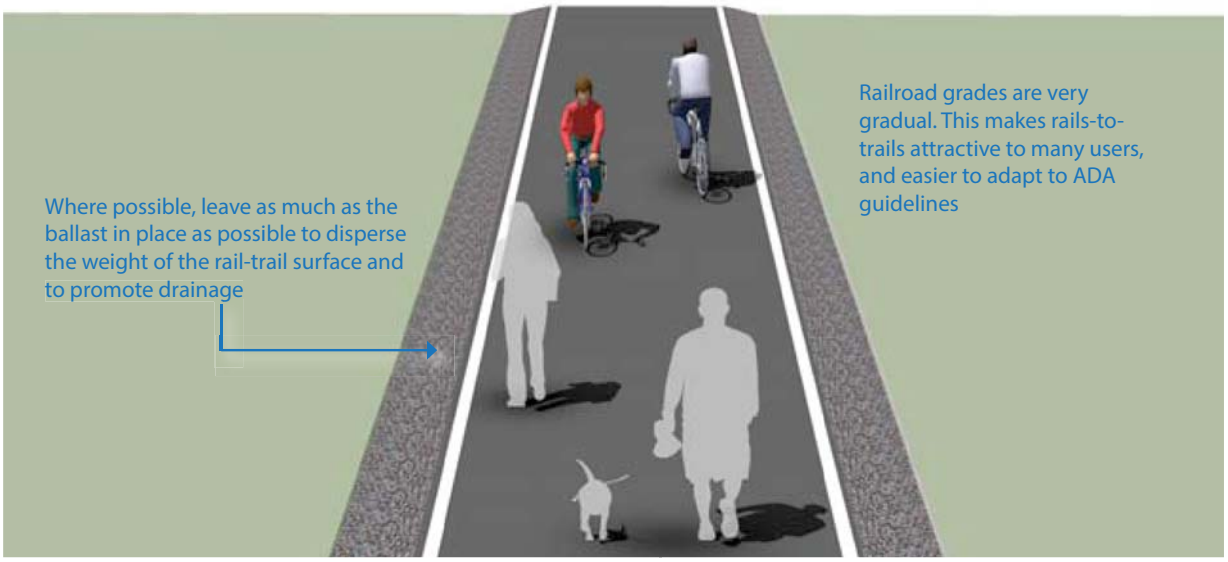
In some cases, rail owners may rail-bank their corridors as an alternative to a complete abandonment of the line, thus preserving the rail corridor for possible future use.

Guidance

Shared-use paths in abandoned rail corridors should meet or exceed **general design practices**. If additional width allows, wider paths and landscaping are desirable.

In full conversions of abandoned rail corridors, the subbase, superstructure, drainage, bridges, and crossings are already established. Design becomes a matter of working with the existing infrastructure to meet the needs of a rail-trail.

If converting a rail bed adjacent to an active rail line, see **Paths in Active Rail Corridors**.



Discussion

It is often impractical and costly to add material to existing railroad bed fill slopes. This results in trails that meet minimum path widths, but often lack preferred shoulder and lateral clearance widths.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
Caltrans *CA-MUTCD.* 2012
Flink, C. *Greenways.* 1993.

Materials and Maintenance

If concrete is used, saw cut concrete joints rather than troweled improve the experience of path users.

Paths in Active Rail Corridors

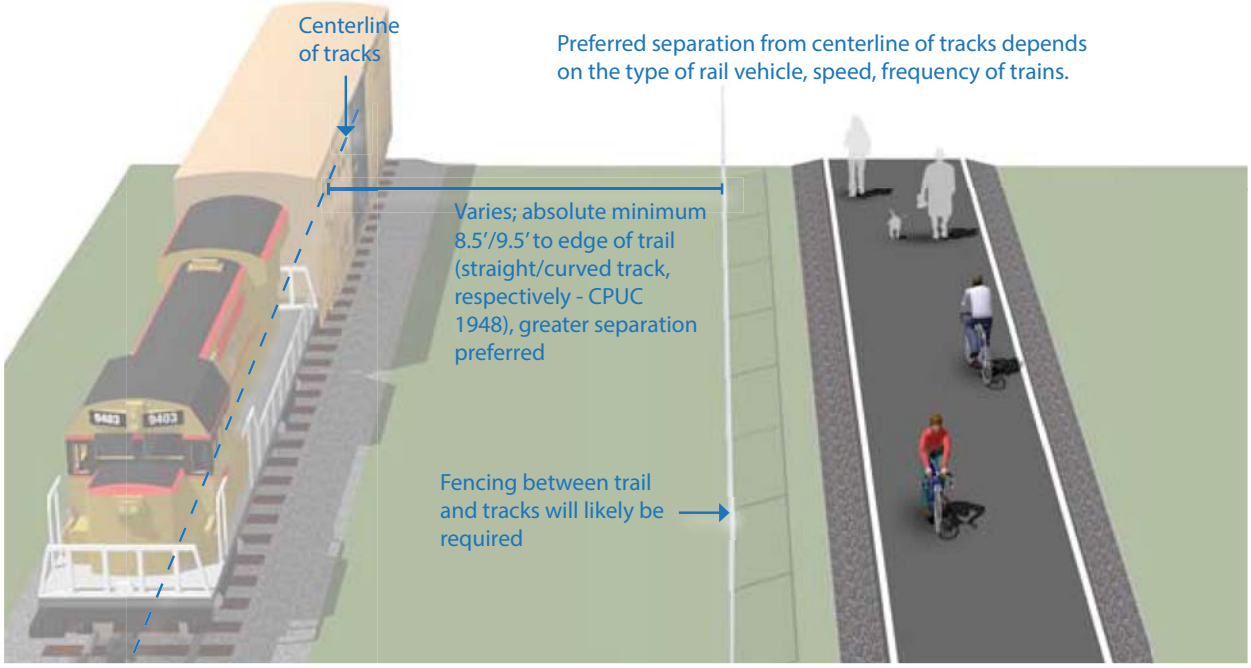
Description

Rails-with-Trails projects typically consist of paths adjacent to active railroads. It should be noted that some constraints could impact the feasibility of rail-with-trail projects. In some cases, space needs to be preserved for future planned freight, transit or commuter rail service. In other cases, limited right-of-way width, inadequate setbacks, concerns about safety/trespassing, and numerous mid-block crossings may affect a project's feasibility.

Guidance

Paths in utility corridors should meet or exceed **general design standards**. If additional width allows, wider paths, and landscaping are desirable.

If required, fencing should be a minimum of 5 feet in height with higher fencing than usual next to sensitive areas such as switching yards. Setbacks from the active rail line will vary depending on the speed and frequency of trains, and available right-of-way.



Discussion

Railroads typically require fencing with all rail-with-trail projects. Concerns with trespassing and security can vary with the amount of train traffic on the adjacent rail line and the setting of the bicycle path, i.e. whether the section of track is in an urban or rural setting.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
Caltrans *CA-MUTCD.* 2012
FHWA. *Rails-with-Trails: Lessons Learned.* 2002.
California Public Utilities Commission. General Orders.

Materials and Maintenance

If concrete is used, saw cut concrete joints rather than troweled improve the experience of path users.

Local Neighborhood Accessways

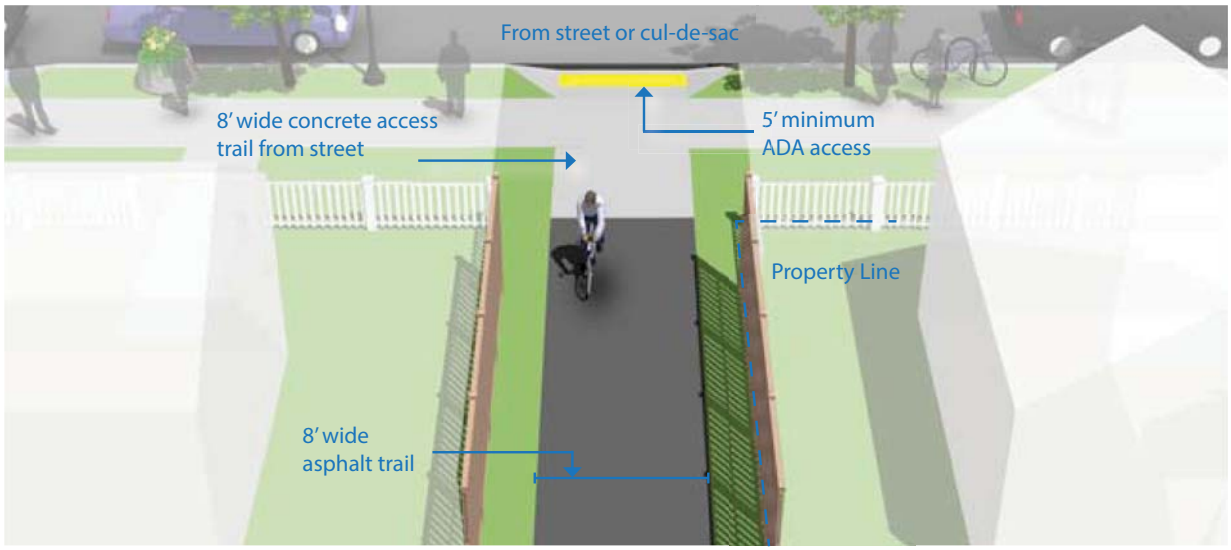
Description

Neighborhood accessways provide residential areas with direct bicycle and pedestrian access to parks, trails, greenspaces, and other recreational areas. They most often serve as small trail connections to and from the larger trail network, typically having their own rights-of-way and easements.

Additionally, these smaller trails can be used to provide bicycle and pedestrian connections between dead-end streets, cul-de-sacs, and access to nearby destinations not provided by the street network.

Guidance

- Neighborhood accessways should remain open to the public.
- Trail pavement shall be at least 8' wide to accommodate emergency and maintenance vehicles, meet ADA requirements and be considered suitable for multi-use.
- Trail widths should be designed to be less than 8' wide only when necessary to protect large mature native trees over 18" in caliper, wetlands or other ecologically sensitive areas.
- Access trails should slightly meander whenever possible.



Discussion

Neighborhood accessways should be designed into new subdivisions at every opportunity and should be required by City/County subdivision regulations.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
Caltrans *CA-MUTCD.* 2012

Materials and Maintenance

If concrete is used, saw cut concrete joints rather than troweled improve the experience of path users.

Path/Roadway Crossings

At-grade roadway crossings can create potential conflicts between path users and motorists, however, well-designed crossings can mitigate many operational issues and provide a higher degree of safety and comfort for path users. This is evidenced by the thousands of successful facilities around the United States with at-grade crossings. In most cases, at-grade path crossings can be properly designed to provide a reasonable degree of safety and can meet existing traffic and safety standards. Path facilities that cater to bicyclists can require additional considerations due to the higher travel speed of bicyclists versus pedestrians.

In addition to guidance presented in this section, see previous entries for **Active Warning Beacons** and **Pedestrian Hybrid Beacons** for other methods for enhancing trail crossings.

This Section Includes:

Marked/Unsignalized Crossings

Description

A marked/unsignalized crossing typically consists of a marked crossing area, signage and other markings to slow or stop traffic. The approach to designing crossings at mid-block locations depends on an evaluation of vehicular traffic, line of sight, pathway traffic, use patterns, vehicle speed, road type, road width, and other safety issues such as proximity to major attractions.

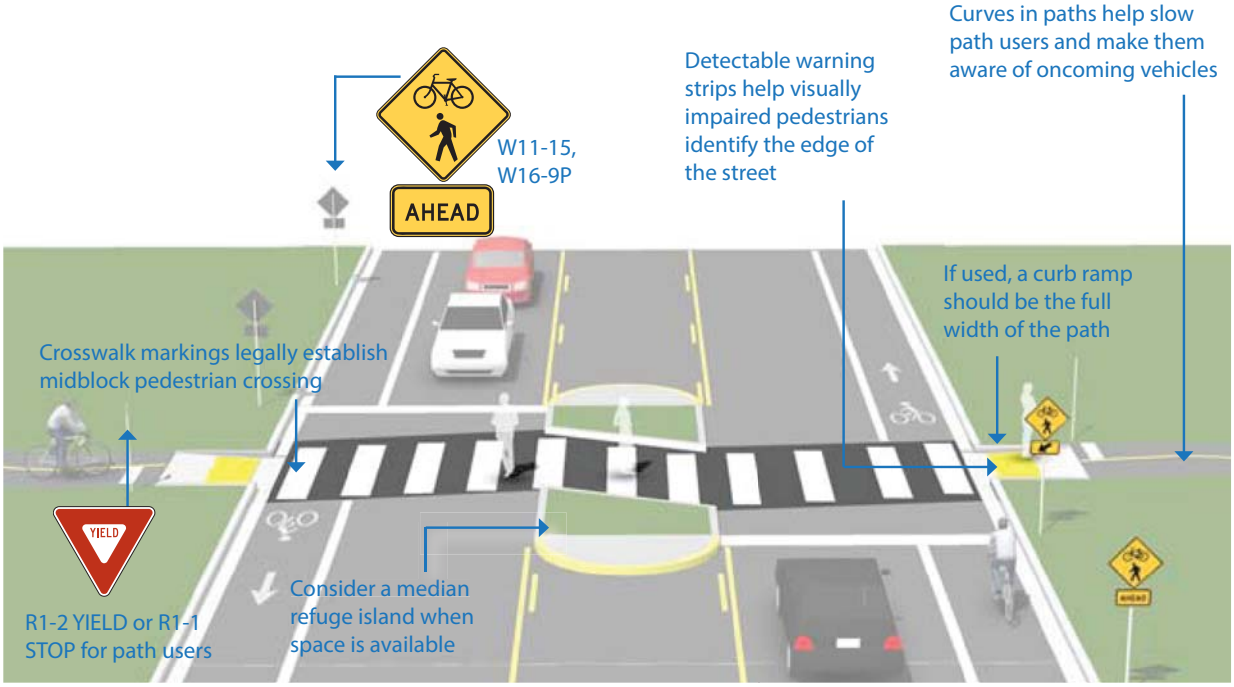
When space is available, using a median refuge island can improve user safety by providing pedestrians and bicyclists space to perform the safe crossing of one side of the street at a time.

Guidance

Maximum traffic volumes
- ≤9,000-12,000 Average Daily Traffic (ADT) volume
- Up to 15,000 ADT on two-lane roads, preferably with a median
- Up to 12,000 ADT on four-lane roads with median

Maximum travel speed
- 35 MPH

Minimum line of sight
- 25 MPH zone: 155 feet
- 35 MPH zone: 250 feet
- 45 MPH zone: 360 feet



Discussion

Unsignalized crossings of multi-lane arterials over 15,000 ADT may be possible with features such as sufficient crossing gaps (more than 60 per hour), median refuges, and/or active warning devices like rectangular rapid flash beacons.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
Caltrans *CA-MUTCD.* 2012
Caltrans. *California HDM.* 2012.

Materials and Maintenance

Locate markings out of wheel tread when possible to minimize wear and maintenance costs.

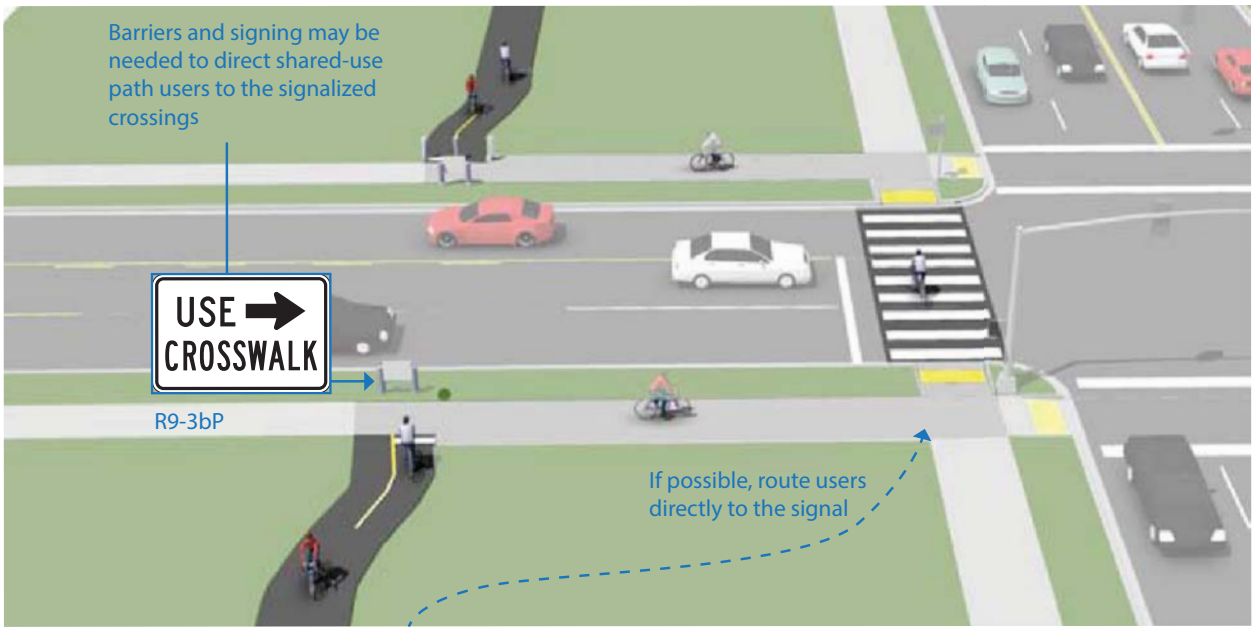
Signalized Crossings

Description

Path crossings within approximately 400 feet of an existing signalized intersection with pedestrian crosswalks are typically diverted to the signalized intersection to avoid traffic operation problems when located so close to an existing signal. For this restriction to be effective, barriers and signing may be needed to direct path users to the signalized crossing. If no pedestrian crossing exists at the signal, modifications should be made.

Guidance

Path crossings should not be provided within approximately 400 feet of an existing signalized intersection. If possible, route path directly to the signal.



Discussion

In the US, the minimum distance a marked crossing can be from an existing signalized intersection varies from approximately 250 to 660 feet. Engineering judgement and the context of the location should be taken into account when choosing the appropriate allowable setback.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
AASHTO. *Guide for the Planning, Design, and Operation of Pedestrian Facilities.* 2004.

Materials and Maintenance

If a sidewalk is used for crossing access, it should be kept clear of snow and debris and the surface should be level for wheeled users.

Overcrossings

Description

Bicycle/pedestrian overcrossings provide critical non-motorized system links by joining areas separated by barriers such as deep canyons, waterways or major transportation corridors. In most cases, these structures are built in response to user demand for safe crossings where they previously did not exist.

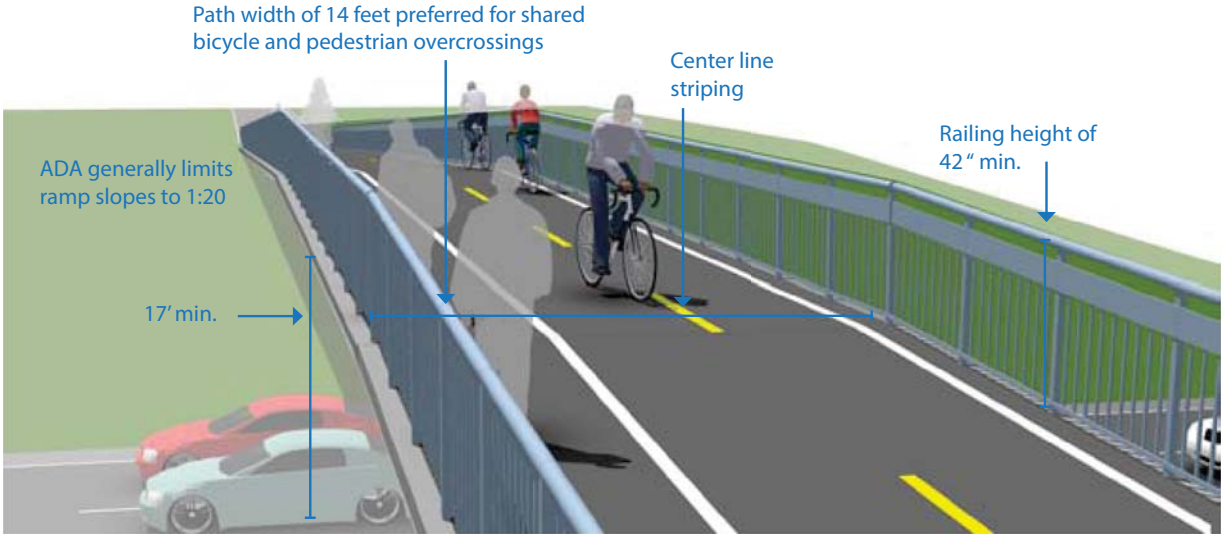
Grade-separated crossings may be needed where existing bicycle/pedestrian crossings do not exist, where ADT exceeds 25,000 vehicles, and where 85th percentile speeds exceed 45 miles per hour.

Guidance

- 8 foot minimum width, 14 feet preferred. If overcrossing has any scenic vistas additional width should be provided to allow for stopping. A separate 5 foot pedestrian area may be provided for facilities with high bicycle and pedestrian use.
- 10 foot headroom on overcrossing; clearance below will vary depending on feature being crossed.

  Roadway: 17 feet
  Freeway: 18.5 feet
  Heavy Rail Line: 23 feet

- The overcrossing should have a centerline stripe even if the rest of the path does not have one.



Discussion

Overcrossings for bicycles and pedestrians typically fall under the Americans with Disabilities Act (ADA), which strictly limits ramp slopes to 5% (1:20) with landings at 400 foot intervals, or 8.33% (1:12) with landings every 30 feet.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
AASHTO. *Guide for the Planning, Design, and Operation of Pedestrian Facilities.* 2004.

Materials and Maintenance

Potential issues with vandalism. Overcrossings can be more difficult to clear of snow than undercrossings.

Bicycle Support Facilities

Bicycle Parking

Bicyclists expect a safe, convenient place to secure their bicycle when they reach their destination. This may be short-term parking of 2 hours or less, or long-term parking for employees, students, residents, and commuters.

Access to Transit

Safe and easy access to bicycle parking facilities is necessary to encourage commuters to access transit via bicycle. Providing bicycle access to transit and space for bicycles on buses and rail vehicles can increase the feasibility of transit in lower-density areas, where transit stops are beyond walking distance of many residences. People are often willing to walk only a quarter- to half-mile to a bus stop, while they might bike as much as two or more miles to reach a transit station.

This Section Includes:


Bicycle Parking


On-Street Bicycle Corral


Bicycle Lockers


Secure Parking Areas (SPA)


Bicycle Access to Transit

Bicycle Parking

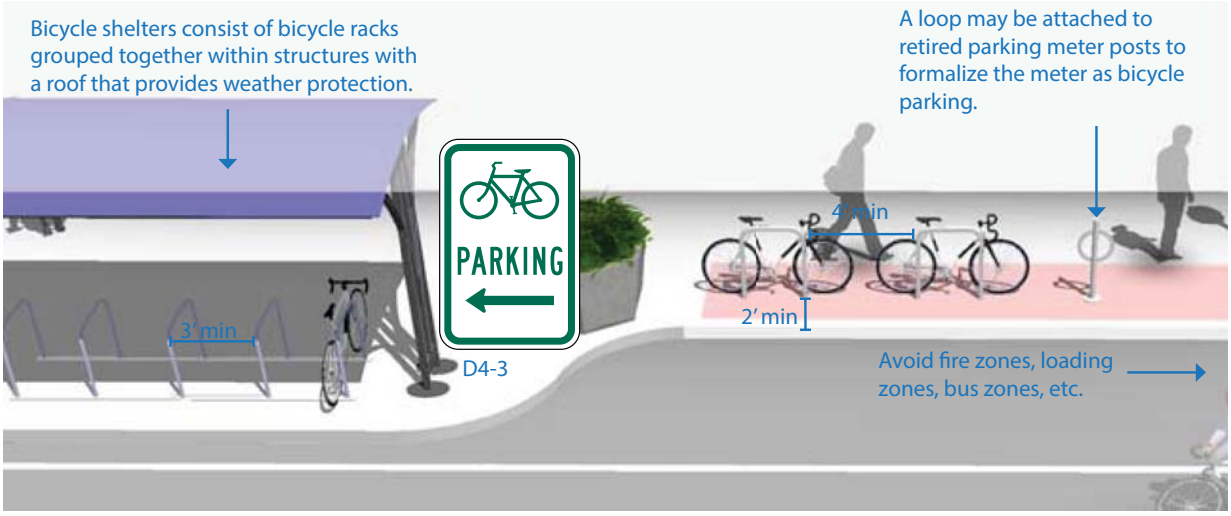
Description

Short-term bicycle parking is meant to accommodate visitors, customers, and others expected to depart within two hours. It should have an approved standard rack, appropriate location and placement, and weather protection. The Association for Pedestrian and Bicycle Professionals (APBP) recommends selecting a bicycle rack that:

- Supports the bicycle in at least two places, preventing it from falling over.
- Allows locking of the frame and one or both wheels with a U-lock.
- Is securely anchored to ground.
- Resists cutting, rusting and bending or deformation.

Guidance

- 2' minimum from the curb face to avoid 'dooring.'
- Close to destinations; 50' maximum distance from main building entrance.
- Minimum clear distance of 6' should be provided between the bicycle rack and the property line.
- Should be highly visible from adjacent bicycle routes and pedestrian traffic.
- Locate racks in areas that cyclists are most likely to travel.



Discussion

Where the placement of racks on sidewalks is not possible (due to narrow sidewalk width, sidewalk obstructions, street trees, etc.), bicycle parking can be provided in the street where on-street vehicle parking is allowed in the form of **on-street bicycle corrals**.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
APBP. *Bicycle Parking Guide 2nd Edition.* 2010.

Materials and Maintenance

Use of proper anchors will prevent vandalism and theft. Educate snow removal crews to avoid burying racks during winter months.

On-Street Bicycle Corral

Description

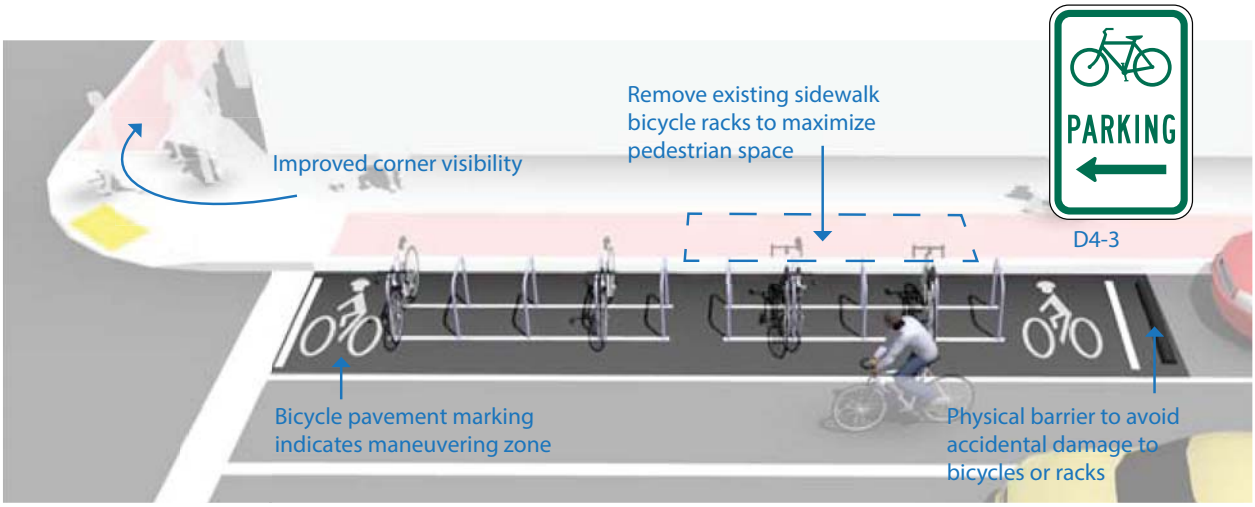
Bicycle corrals (also known as on-street bicycle parking) consist of bicycle racks grouped together in a common area within the street traditionally used for automobile parking. Bicycle corrals are reserved exclusively for bicycle parking and provide a relatively inexpensive solution to providing high-volume bicycle parking. Bicycle corrals can be implemented by converting one or two on-street motor vehicle parking spaces into on-street bicycle parking. Each motor vehicle parking space can be replaced with approximately 6-10 bicycle parking spaces.

Bicycle corrals move bicycles off the sidewalks, leaving more space for pedestrians, sidewalk café tables, etc. Because bicycle parking does not block sightlines (as large motor vehicles would do), it may be possible to locate bicycle parking in 'no-parking' zones near intersections and crosswalks.

Guidance

See guidelines for sidewalk **Bicycle Rack** placement and clear zones.

- Bicyclists should have an entrance width from the roadway of 5' – 6'.
- Can be used with parallel or angled parking.
- Parking stalls adjacent to curb extensions are good candidates for bicycle corrals since the concrete extension serves as delimitation on one side.



Discussion

In many communities, the installation of bicycle corrals is driven by requests from adjacent businesses, and is not a city-driven initiative. In other areas, the city provides the facility and business associations take responsibility for the maintenance of the facility.

Additional References and Guidelines

APBP. *Bicycle Parking Guide 2nd Edition.* 2010.

Materials and Maintenance

Physical barriers may obstruct drainage and collect debris. Establish a maintenance agreement with neighboring businesses.

Bicycle Lockers

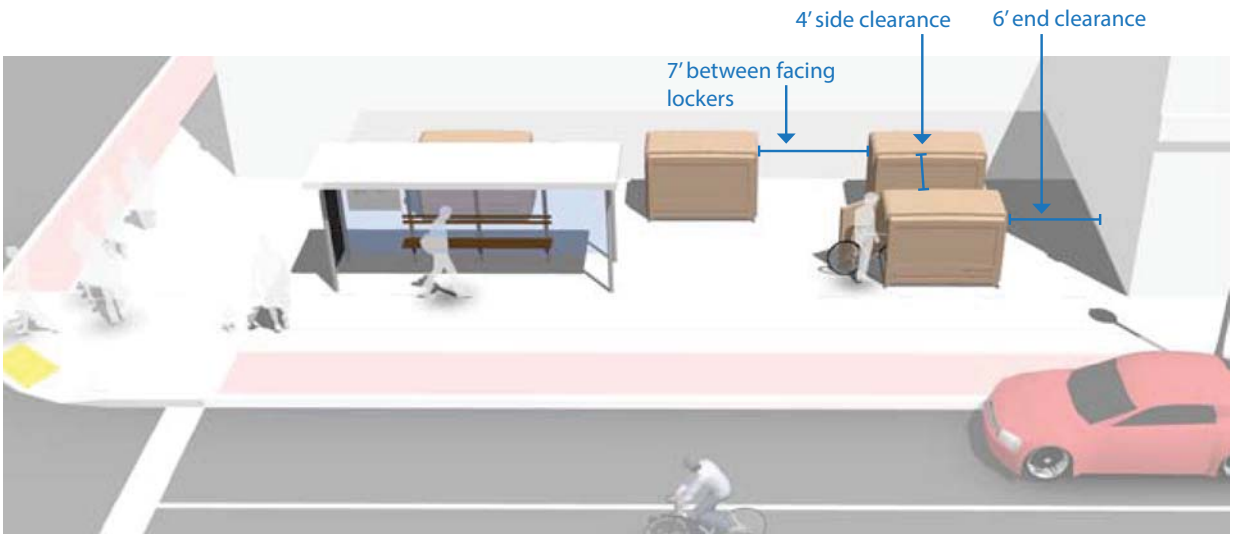
Description

Bicycle lockers are intended to provide long-term bicycle storage for employees, students, residents, commuters, and others expected to park more than two hours. Long-term facilities protect the entire bicycle, its components and accessories against theft and against inclement weather, including snow and wind-driven rain.

Bicycle lockers provide space to store a few accessories or rain gear in addition to containing the bicycle. Some lockers allow access to two users - a partition separating the two bicycles can help users feel their bike is secure. Lockers can also be stacked, reducing the footprint of the area, although that makes them more difficult to use.

Guidance

- Minimum dimensions: width (opening) 2.5'; height 4'; depth 6'.
- 4 foot side clearance and 6 foot end clearance.
- 7 foot minimum distance between facing lockers.
- Locker designs that allow visibility and inspection of contents are recommended for increased security.
- Access is controlled by a key or access code.



Discussion

Long-term parking facilities are more expensive to provide than short-term facilities, but are also significantly more secure. Although many bicycle commuters would be willing to pay a nominal fee to guarantee the safety of their bicycle, long-term bicycle parking should be free wherever automobile parking is free.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
APBP. *Bicycle Parking Guide 2nd Edition.* 2010.

Materials and Maintenance

Regularly inspect the functioning of moving parts and enclosures. Change keys and access codes periodically to prevent access to unapproved users.

Secure Parking Areas (SPA)

Description

A Secure Parking Area for bicycles, also known as a BikeSPA or Bike & Ride (when located at transit stations), is a semi-enclosed space that offers a higher level of security than ordinary bike racks. Accessible via key-card, combination locks, or keys, BikeSPAs provide high-capacity parking for 10 to 100 or more bicycles. Increased security measures create an additional transportation option for those whose biggest concern is theft and vulnerability.

Guidance

Key features may include:

- Closed-circuit television monitoring.
- Double high racks & cargo bike spaces.
- Bike repair station with bench.
- Bike tube and maintenance item vending machine.
- Bike lock "hitching post" – allows people to leave bike locks.
- Secure access for users.

Discussion

Long-term parking facilities are more expensive to provide than short-term facilities, but are also significantly more secure. Although many bicycle commuters would be willing to pay a nominal fee to guarantee the safety of their bicycle, long-term bicycle parking should be free wherever automobile parking is free.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
APBP. *Bicycle Parking Guide 2nd Edition.* 2010.

Materials and Maintenance

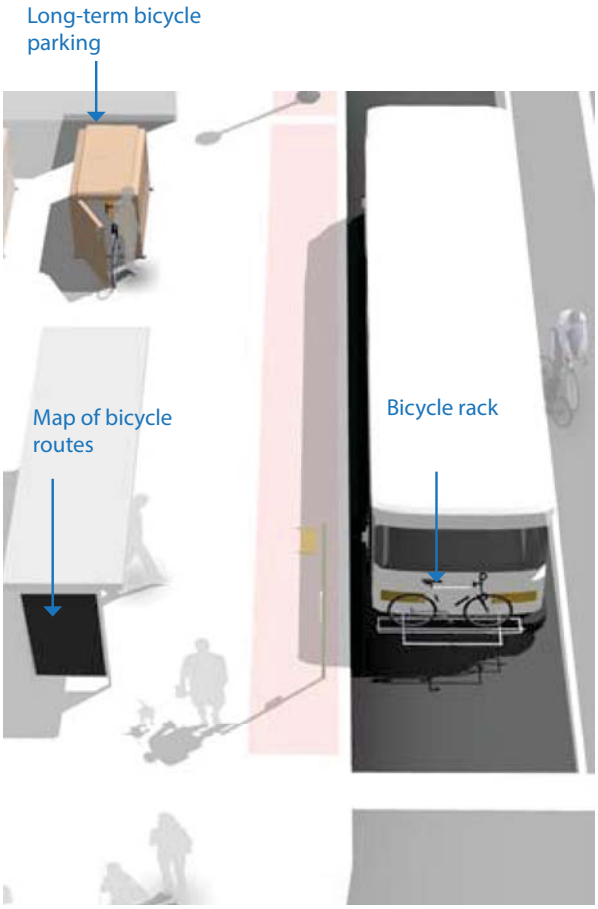
Regularly inspect the functioning of moving parts and enclosures. Change keys and access codes periodically to prevent access to unapproved users.

Bicycle Access to Transit

Description

Safe and easy access to transit stations and secure bicycle parking facilities is necessary to encourage commuters to access transit via bicycle. Bicycling to transit reduces the need to provide expensive and space consuming car parking spaces.

Many people who ride to a transit stop will want to bring their bicycle with them on the transit portion of their trip, so buses and other transit vehicles should be equipped accordingly.



Guidance

Access

- Provide direct and convenient access to transit stations and stops from the bicycle and pedestrian networks.
- Provide maps at major stops and stations showing nearby bicycle routes.
- Provide wayfinding signage and pavement markings from the bicycle network to transit stations.

Bicycle Parking

- The route from bicycle parking locations to station/stop platforms should be well-lit and visible.
- Signing should note the location of bicycle parking, rules for use, and instructions as needed.
- Provide safe and secure long-term parking such as **bicycle lockers** at transit hubs. Parking should be easy to use and well maintained.

Discussion

Providing bicycle routes to transit helps combine the long-distance coverage of bus and rail travel with the door-to-door service of bicycle riding. Transit use can overcome large obstacles to bicycling, including distance, hills, riding on busy streets, night riding, inclement weather, and breakdowns.

Additional References and Guidelines

APBP. *Bicycle Parking Guide 2nd Edition.* 2010.
FHWA. *University Course on Bicycle and Pedestrian Transportation. Lesson 18: Bicycle and Pedestrian Connections to Transit*. 2006.

Materials and Maintenance

Regularly inspect the functioning of long-term parking moving parts and enclosures.

Bikeway Maintenance

Regular bicycle facility maintenance includes sweeping, maintaining a smooth roadway, ensuring that the gutter-to-pavement transition remains relatively flat, and installing bicycle-friendly drainage grates. Pavement overlays are a good opportunity to improve bicycle facilities. The following recommendations provide a menu of options to consider to enhance a maintenance regimen.

This Section Includes:


Sweeping


Gutter to Pavement Transition


Roadway Surface


Drainage Grates

Recommended Walkway and Bikeway Maintenance Activities

Maintenance Activity	Frequency
Inspections	Seasonal – at beginning and end of Summer
Pavement sweeping/blowing	As needed, with higher frequency in the early Spring and Fall
Pavement sealing	5 - 15 years
Pothole repair	1 week – 1 month after report
Culvert and drainage grate inspection	Before Winter and after major storms
Pavement markings replacement	As needed
Signage replacement	As needed
Shoulder plant trimming (weeds, trees, brambles)	Twice a year; middle of growing season and early Fall
Tree and shrub plantings, trimming	1 – 3 years
Major damage response (washouts, fallen trees, flooding)	As soon as possible

Sweeping

Description

Bicyclists often avoid shoulders and bike lanes filled with gravel, broken glass and other debris; they will ride in the roadway to avoid these hazards, potentially causing conflicts with motorists. Debris from the roadway should not be swept onto sidewalks (pedestrians need a clean walking surface), nor should debris be swept from the sidewalk onto the roadway. A regularly scheduled inspection and maintenance program helps ensure that roadway debris is regularly picked up or swept.

Guidance

- Establish a seasonal sweeping schedule that prioritizes roadways with major bicycle routes.
- Sweep walkways and bikeways whenever there is an accumulation of debris on the facility.
- In curbed sections, sweepers should pick up debris; on open shoulders, debris can be swept onto gravel shoulders.
- Pave gravel driveway approaches to minimize loose gravel on paved roadway shoulders.
- Perform additional sweeping in the Spring to remove debris from the Winter.
- Perform additional sweeping in the Fall in areas where leaves accumulate .

Gutter to Pavement Transition

Description

On streets with concrete curbs and gutters, 1 to 2 feet of the curbside area is typically devoted to the gutter pan, where water collects and drains into catch basins. On many streets, the bikeway is situated near the transition between the gutter pan and the pavement edge. This transition can be susceptible to erosion, creating potholes and a rough surface for travel.

Guidance

- Ensure that gutter-to-pavement transitions have no more than a ¼" vertical transition.
- Examine pavement transitions during every roadway project for new construction, maintenance activities, and construction project activities that occur in streets.
- Inspect the pavement 2 to 4 months after trenching construction activities are completed to ensure that excessive settlement has not occurred.
- Provide at least 3 feet of pavement outside of the gutter seam.

Roadway Surface

Description

Bicycles are much more sensitive to subtle changes in roadway surface than are motor vehicles. Various materials are used to pave roadways, and some are smoother than others. Compaction is also an important issue after trenches and other construction holes are filled. Uneven settlement after trenching can affect the roadway surface nearest the curb where bicycles travel. Sometimes compaction is not achieved to a satisfactory level, and an uneven pavement surface can result due to settling over the course of days or weeks. When resurfacing streets, use the smallest chip size and ensure that the surface is as smooth as possible to improve safety and comfort for bicyclists.

Guidance

- Maintain a smooth pothole-free surface.
- Ensure that on new roadway construction, the finished surface on bikeways does not vary more than ¼".
- Maintain pavement so ridge buildup does not occur at the gutter-to-pavement transition or adjacent to railway crossings.
- Inspect the pavement 2 to 4 months after trenching construction activities are completed to ensure that excessive settlement has not occurred.
- If chip sealing is to be performed, use the smallest possible chip on bike lanes and shoulders. Sweep loose chips regularly following application.
- During chip seal maintenance projects, if the pavement condition of the bike lane is satisfactory, it may be appropriate to chip seal the travel lanes only. However, use caution when doing this so as not to create an unacceptable ridge between the bike lane and travel lane.

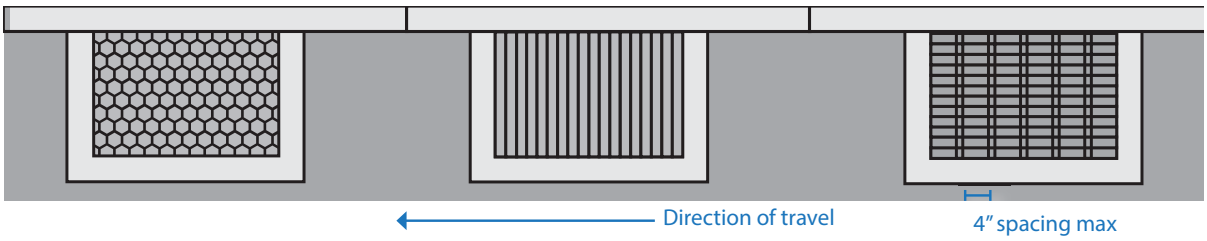
Drainage Grates

Guidance

- Require all new drainage grates be bicycle-friendly, including grates that have horizontal slats on them so that bicycle tires and assistive devices do not fall through the vertical slats.
- Create a program to inventory all existing drainage grates, and replace hazardous grates as necessary – temporary modifications such as installing rebar horizontally across the grate should not be an acceptable alternative to replacement.

Description

Drainage grates are typically located in the gutter area near the curb of a roadway. Drainage grates typically have slots through which water drains into the municipal storm sewer system. Many older grates were designed with linear parallel bars spread wide enough for a tire to become caught so that if a bicyclist were to ride on them, the front tire could become caught in the slot. This would cause the bicyclist to tumble over the handlebars and sustain potentially serious injuries.



Appendix H: Wayfinding and Signage Plan

Signage Design

Bicycle wayfinding signage provides destination, direction, and distance information to bicyclists navigating through Newport Beach. The proposed design guidelines use standard signs from the California Manual on Uniform Traffic Control Devices (CA MUTCD) including:

- D11-1: Bicycle Route Guide Sign
- D1-3a: Destination Supplemental Sign
- D3-1: Named Route Title Sign
- M7-1 through M7-7: Directional Arrow Supplemental Sign

Using signage standards outlined in the CA MUTCD allows for signage that is consistent throughout jurisdictions. Proposed signs for Newport Beach include revised modifications to enhance the branding of the bicycle network and bicycle facilities. The Newport Beach bicycle wayfinding signage system recommends the following four sign types as shown in **Figure H-1**:

- **Standard signs:** Confirm a bicyclist is riding on a designated bikeway. When used on one of the City's named routes, the name of the route is added below the standard sign.
- **Turn signs:** Specify where a bikeway turns to prepare bicyclists in advance. Turn signs also ease navigation when cyclists are following routes that traverse multiple streets.
- **Hybrid Confirmation and Decision signs**: Confirm a bicyclist is riding on a designated bikeway; include mileage to key destinations that can be accessed by the bikeways; and provide directional arrows to key destinations. These can also be used to identify the junction of two or more bikeways.
- **Bicycle Boulevard signs:** Used only on designated bike boulevards, these signs contain destination and distance information, as well as graphic treatments to create an identity for the route. This helps indicate to cyclists as well as drivers that this street has been prioritized for bicycle travel. The specific design of these signs, and the degree of customization for the City, will require a thorough design process.

Table H-1 displays design and placement standards for the four recommended sign types presented in this chapter. **Figures H-2 and H-3** provide layout details for bike route signage, and **Figure H-4** provides example signs for bicycle boulevards.

Image 66 - *D11-1: Bicycle Route Guide Sign*

Image 67 - *Example Named Route Confirmation and Decision Sign*

***Table H-1**-Design Standards for Recommended Sign Types*

Type	Sign Type	Design Standards	Placement
Standard Signs	• Bicycle Route Guide Sign D11-1 size: 24" wide x18" tall • Route name (where appropriate) D3-1 size: 24" wide x 4" or 6" tall	• When route names fit on one line, use a 4" tall sign; when names do not fit on one line a two-line entry may be used with a 6" tall sign	• One sign per ¼ directional mile (mid-block) and at the far side of key intersections • Add route name sign when signs are placed along one of the City's designated named routes (see table x)

Turn Signs	• Bicycle Route Guide Sign D11-1 size: 24" wide x 18" tall
	• Directional Arrow Supplemental Signs M7-1 through M7-7 size: 12" wide x 9" tall
		N/A	• Signs should be placed the at the following distances before an intersection depending on the number of lanes a bicyclist must travel across in order to initiate a legal left turn:
			  • 25 feet before a zero lane merge
			  • 100 feet before a one lane merge
			  • 200 feet before a two lane merge

Hybrid Confirmation and Decision Signs	• Bicycle Route Guide Sign D11-1 size: 24" wide x18" tall
	• Destination Supplemental Signs D1-3a size: 24" wide
		• Maximum of one destination per plaque
		• A maximum of three destinations shall be listed
		• Destinations shall use upper case and lower case letters
		• For destination names that do not fit on one line abbreviations or two-line entry may be used
		• Destinations shall be listed by closest proximity to the sign placement
		• Signs shall include the bikeway's endpoint along the length of the route
		• Where a bikeway ends at a location with no obvious destination, use the closest major destination on an intersecting bikeway or the intersecting street if there is no obvious destination
		• Left and straight arrows shall be aligned left on the sign; right arrows shall be aligned to the right
			• Two signs per directional mile
			• Signs should be placed at the following distances before an intersection depending on the number of lanes a bicyclist must travel across in order to initiate a legal left turn:
			  • 25 feet before a zero lane merge
			  • 100 feet before a one lane merge
			  • 200 feet before a two lane merge

Bike Boulevard Signs	• Custom design, 24" wide x 18" tall • Destination signs per Hybrid Signs above or per custom design	TBD	• Every ¼ mile and at key junction points along designated bike boulevards.

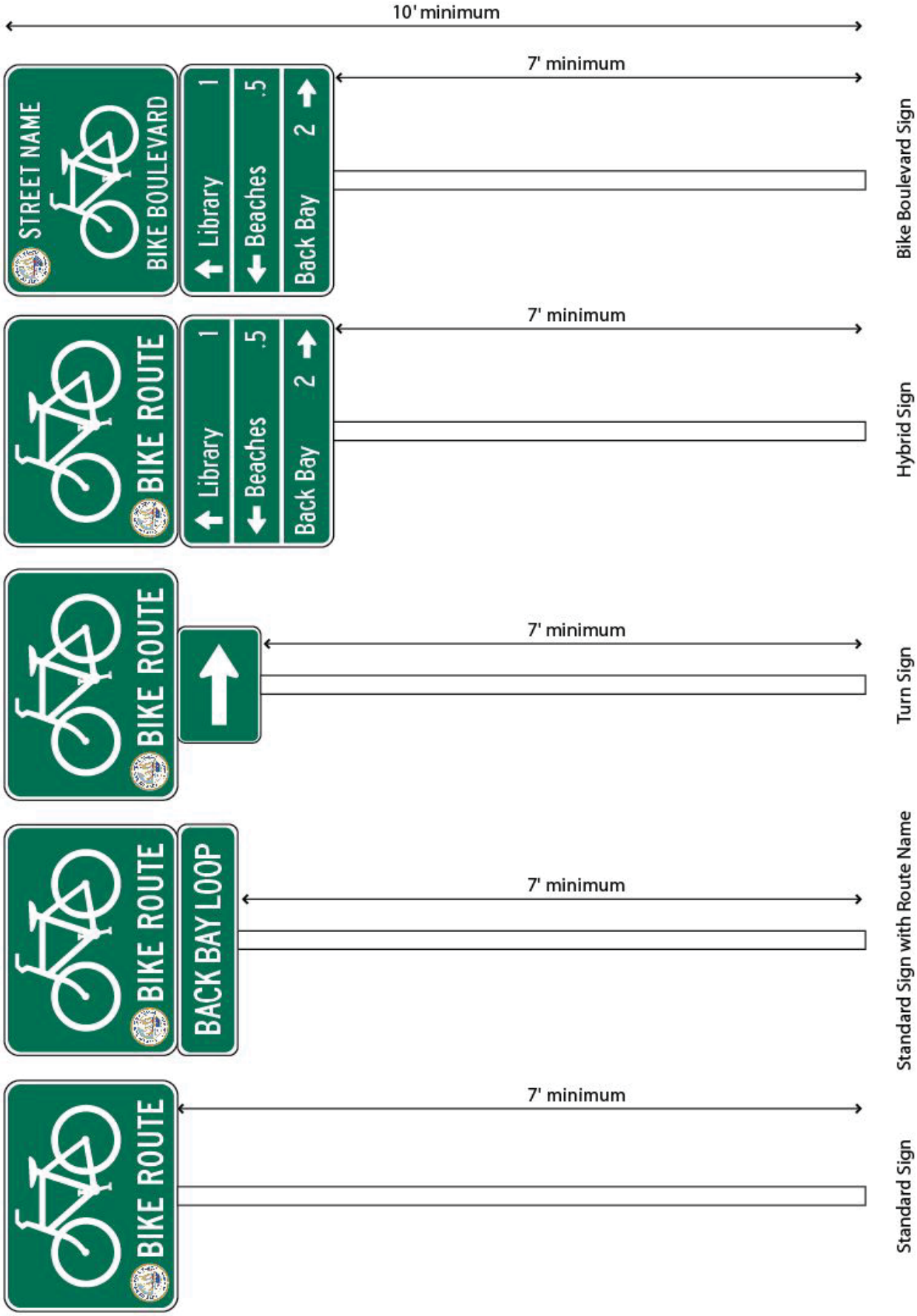


Figure H-1 *Sign Types*

Figure H-2 *Newport Beach D11-1 Layout Details*

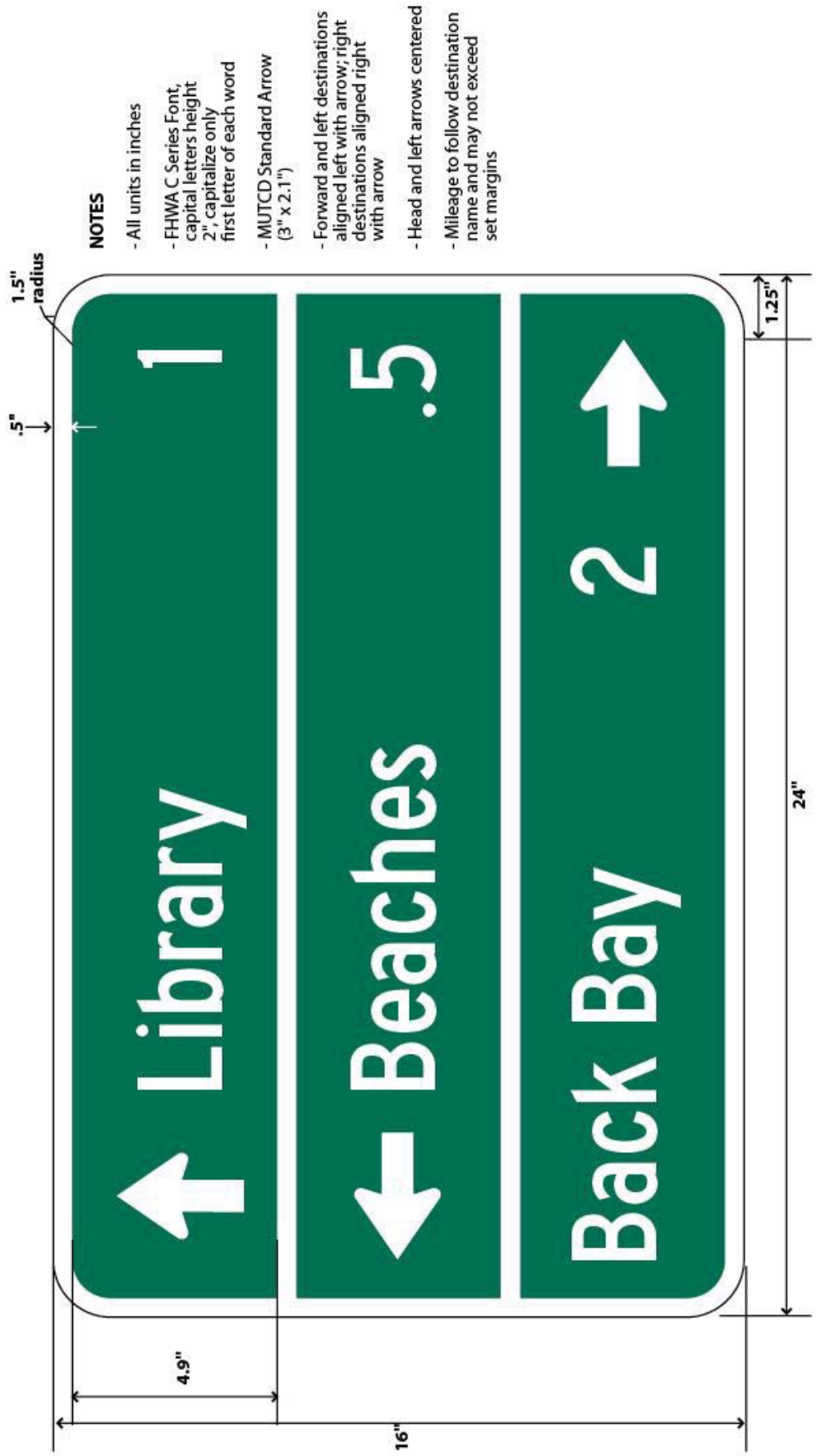


Figure H-3 *D1-3a Layout Details*

Figure H-4 *Example Bike Boulevard Signage*

Berkeley, CA

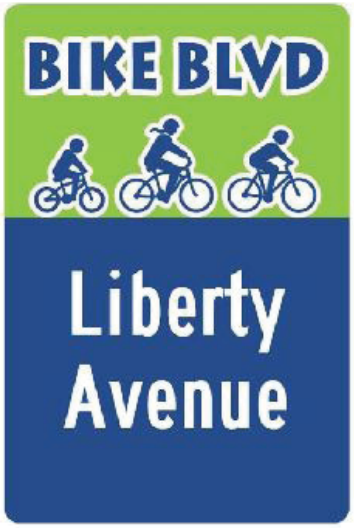
Palo Alto, CA

San Luis Obispo, CA

Milwaukie, OR

Milwaukee, WI

Tucson, AZ



As noted earlier in this chapter, recommended signs deviate slightly from CA MUTCD standard signs. **Table H-2** discusses the differences between the CA MUTCD and recommended sign standards for use in Newport Beach.

Table H-2 *CA MUTCD Sign Modifications*

Modification	Explanation for Modification
Reduce horizontal perimeter from 1.5" to 0.75"	Increases ability to accommodate lengthy destination names
Maintains 24" wide supplemental sign (D1-1b)	Consistency across the network increases user familiarly as well as allows for the addition of destinations as the bikeway network is implemented
Uses FHWA 2000 (Highway Gothic) C series condensed font series (rather than D series)	Increases ability to accommodate lengthy destination names; maintains 2" cap height; consistent with the cities of Chicago and Seattle
Inclusion of Newport Beach City logo on D11-1 sign, by reducing cap height of "BIKE ROUTE" to 2" (from 3")	Providing a logo allows for improved identification and branding of the Newport Beach bicycle network.

In order to maintain consistency and quality control in the wayfinding system, it is important to follow a set of specifications for sign placement and installation. **Table H-3** identifies key specifications for the recommended Newport Beach wayfinding signage.

Table H-3 *Specifications for Signage Implementation*

Specifications
• The standard pole for bikeway guide signs is a 2" square perforated unistrut pole. • The pole should be placed 18" to 24" in the ground, depending upon the overall weight of the signs and the soil/pavement conditions. • Heavy sign installations may require poles up to 36" into the ground. • Poles of 12' in length are generally adequate to accommodate a D11-1 with a supplementary D1-3a sign. Longer poles are needed if additional signs will share the same pole. • The D11-1 should be installed at 10' in height as measured from the top edge of the sign. This height will allow for the installation of supplementary signs while maintaining a minimum 7' clearance to the bottom edge of the bottom sign. • When a D11-1 is mounted on a pole with an existing parking restriction sign, the D11-1 and any supplementary sign should be located above the parking restriction sign. • Signs should not be mounted to utility poles or traffic signal mast arms. • Existing poles should be used wherever practical.

Signage Locations

Table H-4 presents a list of suggested key destinations within Newport Beach for inclusion in signage. The City may modify this list in the future as needed.

Table H-4 Key Destinations by Category

Destinations
Regional Facilities
OC Parks Mountain to Sea Trail (San Diego Creek Trail & Peters Canyon Regional Bikeway)
OC Parks Bayview Trail
OC Parks Santa Ana River Trail
Crystal Cove State Park Coastal Trail
Activity Centers
Newport Beach Civic Center
Libraries (Central, Mariners, Balboa, and Corona del Mar)

Destinations
Community Centers (Balboa, Bonita Creek, Carroll Beek, Cliff Drive, Youth Center, Newport Coast OASIS Senior Center, and West Newport)
Back Bay Science Center
Peter & Mary Muth Interpretive Center
Hoag Hospital
Regional Parks (Upper Newport Bay Nature Preserve, Arroyo Park, Bob Henry Park, Bonita Canyon Sports Park, Bonita Creek Park, Buffalo Hills Park, Coastal Peak Park, Crystal Cove State Park, Eastbluff Park, Grant Howald Park, Irvine Terrace Park, Lincoln Athletic Center, Mariners Mark & VJ Community Center, Peninsula Park, San Miguel Park)
Beaches
Beaches along the Peninsula
Corona del Mar State Beach
Little Corona Beach
Crystal Cove State Park
Newport and Balboa Piers
Transportation Centers
Newport Transportation Center (NTC)
John Wayne Airport, Orange County
Newport Beach City Bike Parking

Kiosks

In addition to an effective signage system, the Newport Beach Wayfinding and Signage plan also proposes the installation of informational kiosks to support the proposed bikeway network and signage. Proposed kiosk locations should be located at key destinations and include bicycle facility information for the surrounding area as well as the City of Newport Beach as a whole.

Figure H-5 presents a sample kiosk prototype. This prototype is a conceptual design only, and its specific design would need to be determined at a later date. It is recommended that a single kiosk design be developed and used throughout the City to help establish the bike network's identity and ease wayfinding for riders. Kiosks should provide the following information:

- A map of the City's bicycle network with key destinations and bike parking locations
- The Newport Beach City logo
- Recommended supplemental resources for the kiosks include:
- Bicycle parking information
- Fold-up bicycle maps of the Newport Beach bicycle network
- Fold-up maps of the Orange County bicycle network (published by OCTA)
- Information regarding bicycle-related activities in the area
- Bike safety information and other bicycle resources

Agency Collaboration

Newport Beach should consider working with nearby agencies to provide wayfinding elements that are congruent with adjacent cities and Orange County as a whole. This will allow bicyclists to easily navigate to and from bikeways in adjacent communities and link into a larger countywide network. The City should coordinate efforts with the following adjacent jurisdictions:

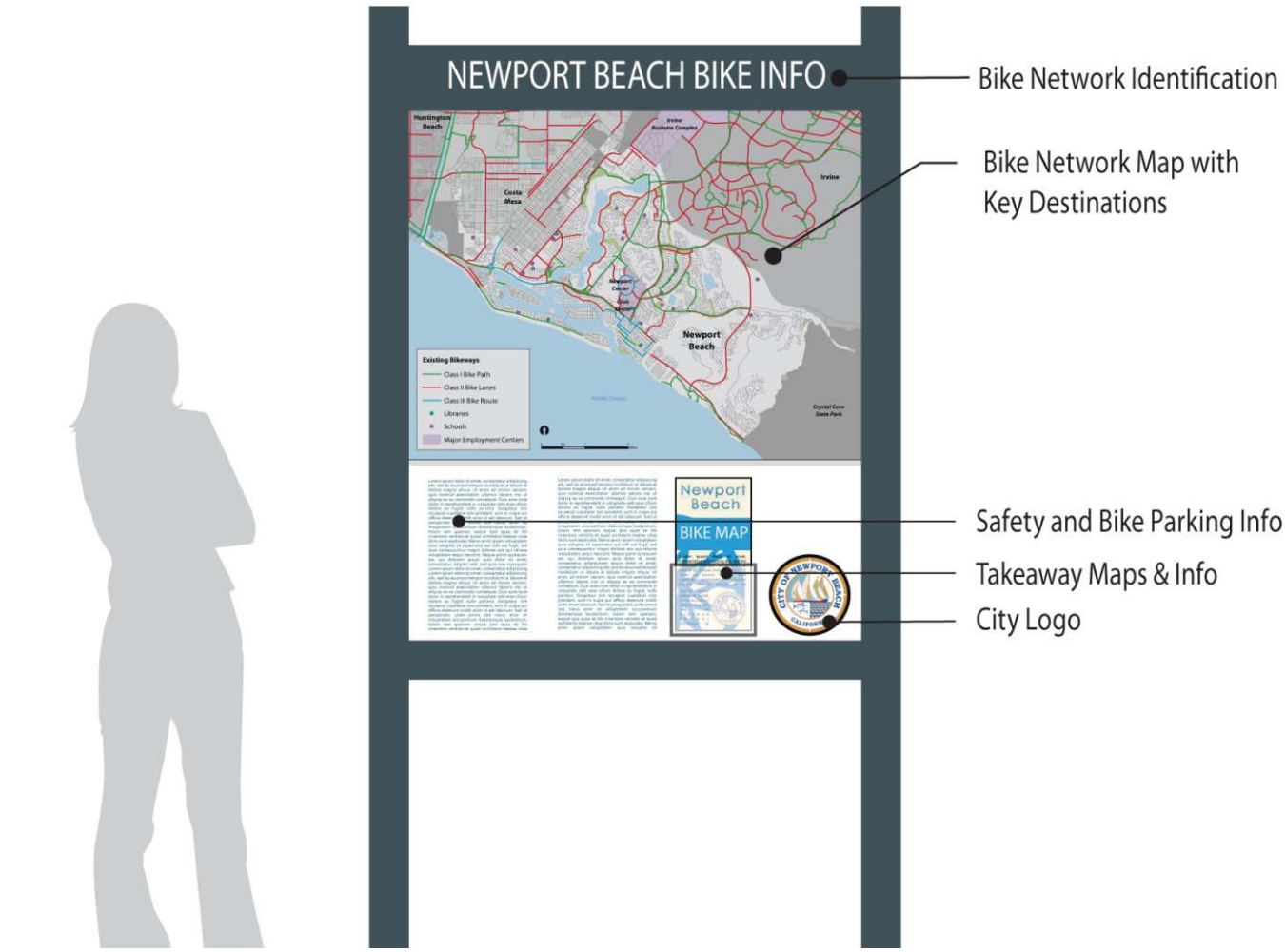
- City of Huntington Beach
- City of Laguna Beach
- City of Costa Mesa
- City of Irvine
- City of Santa Ana
- Orange County

Newport Beach should also consider partnering with the following agencies to install wayfinding signage that will help bicyclists navigate to the City's bikeways:

- Orange County Transportation Authority (OCTA)
- OC Parks
- California State Parks
- University of California, Irvine

Additionally, the City should consider partnering with non-profit organizations, schools, and bicycle advocacy groups like the Orange County Bicycle Coalition in pursuit of funding opportunities and grants for wayfinding signage. Potential funds would help with capital and maintenance expenses. Partnerships often strengthen grant applications and improve the likelihood of selection.

Figure H-5 *Sample Kiosk Prototype*



Route Naming System

It is proposed that major routes within the City receive standardized names to provide consistency among maps and signage and to solidify the overall identity of the bike network. The routes are listed in **Table H-5**, and were chosen based upon the projected number of users on the route, its connectivity to major destinations, and its function as an attraction in itself. **Figure H-6** shows the location of named routes, and **Figure H-7** illustrates the Route Identification Signs.

Table H-5 *Named Routes within the Bicycle Network*

Route	Major Streets and Destinationsv
Back Bay Loop	Back Bay Drive, Santiago Drive, Pacific Coast Highway, Back Bay Science Center, Upper Newport Bay Nature Preserve
Balboa Pier Route	Bayside Drive, Marine Avenue, Balboa Island Ferry, Palm Drive
Newport Pier Route	Tustin Avenue, Riverside Avenue, Pacific Coast Highway, Newport Boulevard, 32nd Street, Oceanfront
Coastal Route	Pacific Coast Highway

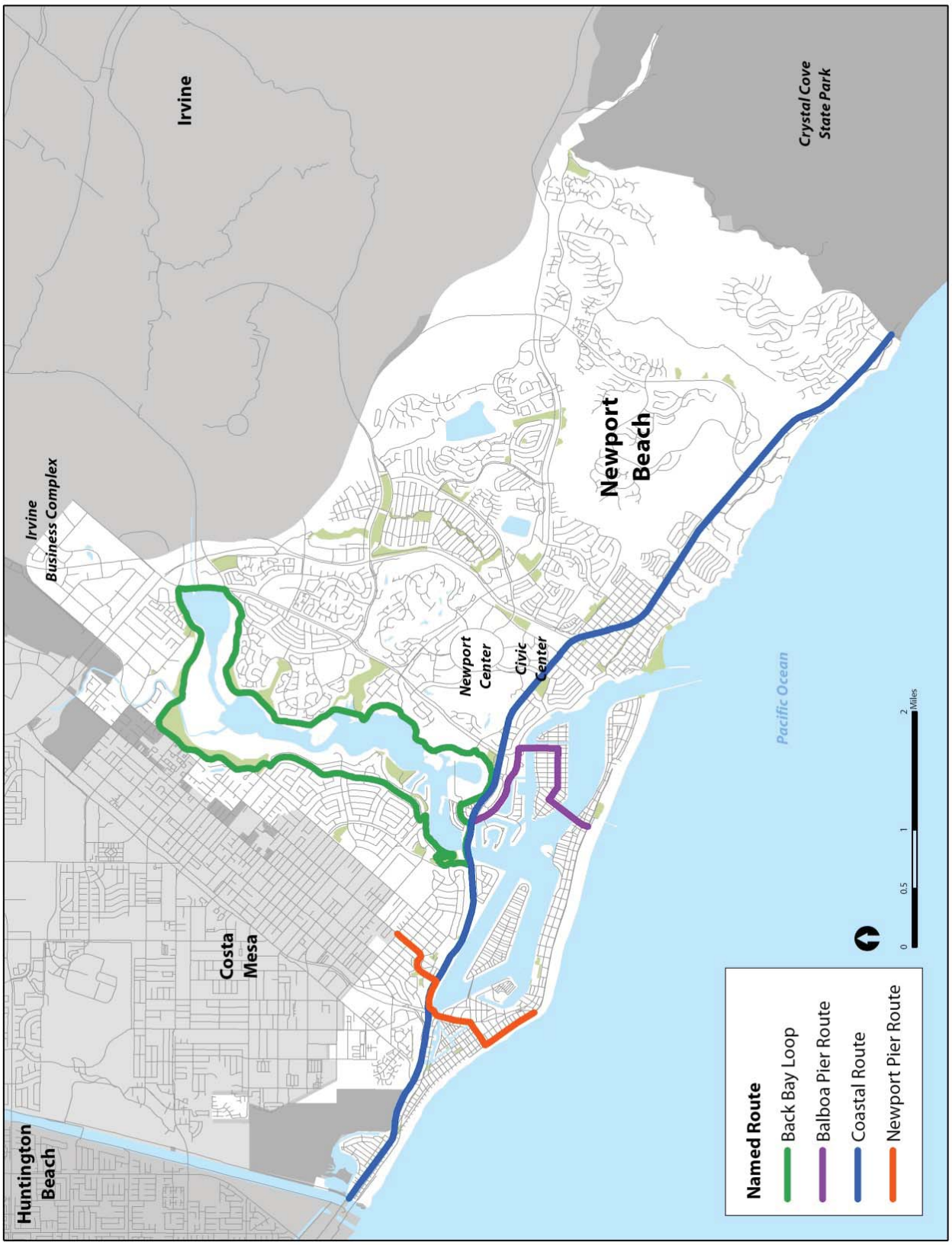
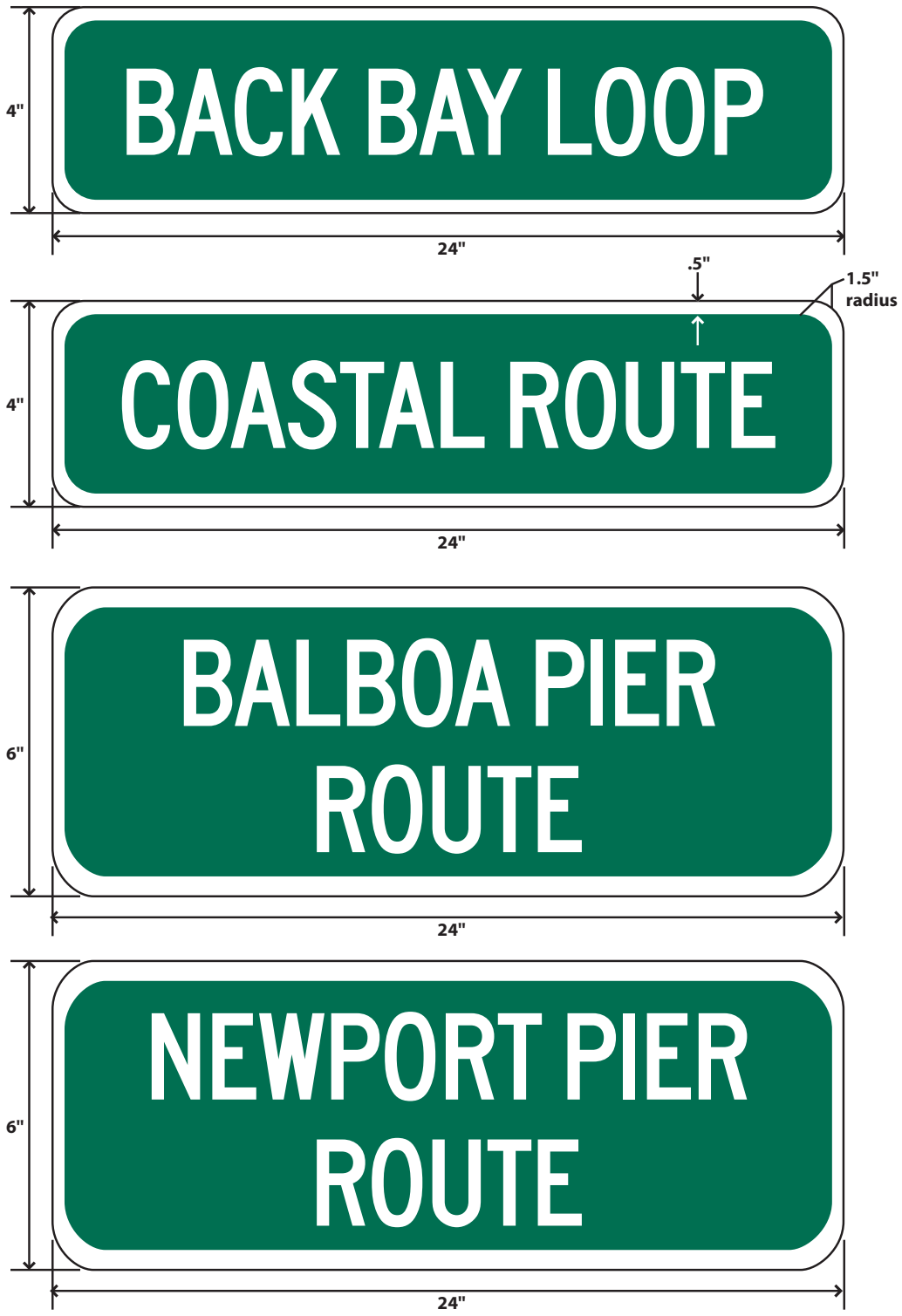


Figure H-6 *Named Route Map*

Figure H-7 *Route Identification Signs*



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Appendix I: Bicycle Facilities Prioritization Methodology

Recommended Bicycle Facilities Prioritization Methodology

Each criterion contains information about a facility and its ability to address an existing or future need in Newport Beach. The resulting project ranking determines each project's relative importance in funding and scheduled construction.

Prioritization Criteria

The following criteria are used to evaluate each proposed bicycle facility by its ability to address demand and deficiencies in the existing bicycle network and by its ease of implementation The criteria are organized into "utility" and "implementation" prioritization factors.

Utility Prioritization Factors

Utility criteria include conditions of bicycle facilities that enhance the bicycle network. Each criterion is discussed below.

Bicycle Incidents

Bicycle facilities have the potential to increase safety by reducing the potential conflicts between bicyclists and motorists, which often result in incidents. Proposed facilities that are located on roadways with past bicycle-automobile incidents are important to the City. Locations where bicycle fatalities have occurred will receive increased priority ranking.

Public Input

The City solicited public input through community workshops and an online survey. Facilities that community members identified as desirable for future bicycle facilities are of priority to the network because they address the needs of the public.

Gap Closure

Gaps in the bicycle network come in a variety of forms, ranging from a "missing link" on a roadway to larger geographic areas without bicycle facilities. Gaps in the bikeway network discourage bicycle use because they limit access to key destinations and land uses. Facilities that fill a gap in the existing and proposed bicycle network are of high priority.

Connectivity to Existing Facilities

Proposed bikeways that connect to existing bicycle facilities in the City and to adjacent jurisdictions' bikeways increase the convenience of bicycle travel. Proposed facilities that fit this criterion are of high importance to the City.

Connectivity to Regional Facilities

Linkage to existing and future regional bikeways in Orange County will enhance future connectivity between the City and surrounding communities. For the purposes of this evaluation, linkage to the following facilities would be identified as regional connections:

- OCTA Districts 1 & 2 Bikeways Collaborative Corridor B – Bristol-Bear;
- OCTA Districts 1 & 2 Bikeways Collaborative Corridor C – Pacific Coast Highway;
- OCTA Districts 1 & 2 Bikeways Collaborative Corridor K – Indianapolis-Fairview;
- OC Parks Mountain to Sea Trail (San Diego Creek Trail & Peters Canyon Regional Bikeway)
- OC Parks Bayview Trail
- OC Parks Santa Ana River Trail
- Crystal Cove State Park Coastal Trail

Connectivity to Activity Centers

Improved linkage to key employment, recreational, and civic destinations within the community can increase bicycling activity and reduce in-town vehicular travel for short-distance trips. These activity centers generate many trips which could be made by bicycle if the proper facilities were available. The following activity centers will be reviewed for improved access related to the recommended bikeway improvements:

- Newport Center employment/commercial area
- Airport employment area
- Newport Beach Civic Center
- Libraries (Central, Mariners, Balboa, and Corona del Mar)
- Community Centers (Balboa, Bonita Creek, Carroll Beek, Cliff Drive, Youth Center, Newport Coast, OASIS Senior Center, and West Newport)
- K-12 public schools
- Orange County Museum of Art
- Back Bay Science Center
- Peter & Mary Muth Interpretive Center
- Hoag Hospital
- Regional Parks (Upper Newport Bay Nature Preserve, Arroyo Park, Bob Henry Park, Bonita Canyon Sports Park, Bonita Creek Park, Buffalo Hills Park, Coastal Peak Park, Crystal Cove State Park, Eastbluff Park, Grant Howald Park, Irvine Terrace Park, Lincoln Athletic Center, Mariners Mark & VJ Community Center, Peninsula Park, San Miguel Park)

Connectivity to Beaches

Given the scenic beauty of the Newport Beach coastline, connectivity to beaches is identified as a key attraction. Improved bicycling access to the beach has repeatedly been identified by the community and the recommendations will be reviewed for enhanced access to the following beaches and beach-related destinations:

- Beaches along the Peninsula
- Corona del Mar State Beach
- Little Corona Beach
- Crystal Cove State Park
- Newport and Balboa Piers

Connectivity to Multi-Modal Transportation Centers

Bicycle facilities that link to modes of public transportation increase the geographical distance bicyclists are able to travel. Proposed bicycle facilities that connect to transit stops and centers improve bicyclists' mobility and are therefore key pieces of the bicycle network. Priority ranking will be given to bikeways that connect to the Newport Transportation Center (NTC) located at 1550 Avocado Avenue.

Implementation Prioritization Factors

Implementation criteria address the ease of implementing each proposed project. Each criterion is discussed below.

Permitting

Projects that can be implemented by the City of Newport Beach have higher readiness factors, and those that require permitting and approvals from other agencies governing roadways and land within the City will score lower. Examples include collaboration with adjacent jurisdictions, approval by Caltrans, or permitting by the California Coastal Commission. The following is a list of potential agencies where coordination, collaboration, and/or permitting may be required to implement bikeway projects:

- City of Costa Mesa
- City of Huntington Beach
- City of Irvine
- City of Laguna Beach
- California State Parks
- Caltrans
- Orange County Parks
- Orange County Waste & Recycling
- California Coastal Commission
- OCTA

Project Cost

Projects that are less expensive do not require as much funding as other projects and are therefore easier to implement. Projects that cost less are of higher priority to the City.

Project Ranking

Table I-1 shows how the criteria described in the previous section translate into weights for project prioritization and ranking. Weights are based on direct, secondary, or no service at all. Direct service means that a facility intersects with a facility/destination, whereas secondary access occurs when the primary facility runs in close proximity to an existing or proposed facility/destination.

Table I-1 *Ranking Criteria and Weighting*

Criteria	Raw Score	Multipler	Total Score	Description
Utility Prioritization Factors				
Bicycle Incidents	2	3	6	Provides a bicycle facility on a roadway that experienced 3 or more bicycle incidents or a bicycle fatality between 2008-2013
	1	3	3	Provides a bicycle facility on a roadway that experienced 1-2 bicycle incidents between 2008-2013
	0	3	0	Provides a bicycle facility on a roadway that did not experience any bicycle incidents between 2008-2013
Public Input	2	2	4	Roadway was identified by the public as desirable for a future facility multiple times
	1	2	2	Roadway was identified by the public as desirable for a future facility once
	0	2	0	Roadway was not identified by the public as desirable for a future facility

Table I-1 *Ranking Criteria and Weighting (continued)*

Criteria	Raw Score	Multipler	Total Score	Description
Gap Closure	2	3	6	Fills a network gap between two existing facilities
	1	3	3	Fills a network gap between an existing facility and a proposed facility
	0	3	0	Does not directly or indirectly fill a network gap
Connectivity: Existing	2	3	6	Provides direct access to an existing bicycle facility
	1	3	3	Provides secondary connectivity to an existing bicycle facility
	0	3	0	Does not directly or indirectly access an existing bicycle facility
Connectivity: Regional	2	1	2	Provides direct access to a regional existing/proposed bicycle facility
	1	1	1	Provides secondary connectivity to a regional existing/proposed bicycle facility
	0	1	0	Does not directly or indirectly access a regional existing/proposed bicycle facility
Connectivity: Activity Centers	2	2	4	Provides direct access to more than 3 activity centers
	1	2	2	Provides direct access to 1-3 activity centers
	0	2	0	Does not provide direct access to an activity center
Connectivity: Beaches	2	2	4	Provides direct access to a beach
	1	2	2	Provides secondary connectivity to a beach
	0	2	0	Does not directly or indirectly connect to a beach
Connectivity: Multi-Modal	2	2	4	Provides direct access to the Newport Transportation Center
	1	2	2	Provides secondary connectivity to the Newport Transportation Center
	0	2	0	Does not directly or indirectly access to the Newport Transportation Center
Implementation Prioritization Factors				
Permitting	2	1	2	Does not require permitting from agency (other than City of Newport Beach)
	1	1	1	Requires permitting or approval from 1 agency (other than City of Newport Beach)
	0	1	0	Requires permitting or approval from 2 or more agencies (other than City of Newport Beach)
Project Cost	2	1	2	Will cost $40,000 or less to implement
	1	1	1	Will cost between $40,000 and $200,000 to implement
	0	1	0	Will cost over $200,000 to implement

Table A-10 shows that the maximum potential score for recommended projects is 40 points.

Table I-2 Ranking Maximum Score

Criteria	Maximum Score
Utility Prioritization Factors	
Bicycle Incidents	6
Public Input	4
Gap Closure	6
Connectivity: Existing	6
Connectivity: Regional	2
Connectivity: Activity Centers	4
Connectivity: Beaches	4
Connectivity: Multi-Modal	4
Implementation Prioritization Factors	
Permitting	2
Project Cost	2
Total	**40**

A total of 126 bicycle facility projects were identified and grouped into the following three tiers by each projects prioritization score

- **Tier 1** (29-40 points): Tier 1 projects have the highest potential for addressing the City's goals for bicycle transportation and are intended for near-term project implementation. The highest score received by a project was 33 points. A total of 30 projects are listed in Tier 1.
- **Tier 2** (24-28 points): Tier 2 projects are intended for mid-term implementation. A total of 34 projects are listed in Tier 2.
- **Tier 3** (0-23 points): Tier 3 projects are not currently ready for implementation but are included as long-term potential bicycle-specific projects. A total of 62 projects are listed in Tier 3.

Appendix J: Recommended Bicycle Facilities and Prioritization Rankings

Table J-1 *Tier 1 Projects (Score of 29-40)*

Facility Type	Location	Start	End	Bicycle -Related Incidents	Public Input	Gap Closure	Connectivity: Existing	Connectivity: Regional	Connectivity: Activity Centers	Connectivity: Beaches	Connectivity: Multi-Modal	Permitting	Project Cost	Total Score (40 max)
Spot	West Coast Highway/ Newport Boulevard Intersection	--	--	6	4	6	6	2	2	4	0	1	2	**33**
Spot	West Balboa Boulevard (from 23rd Street to 21st Street)	--	--	6	4	3	6	1	4	4	0	2	2	**32**
II	West Coast Highway (Enhance Existing)	Orange Street	Newport Boulevard	6	4	6	6	2	2	4	0	1	1	**32**
Spot	32nd Street/Newport Boulevard Intersection	--	--	6	4	6	6	1	0	4	0	2	2	**31**
II	Balboa Boulevard	East Coast Highway	43rd Street	6	4	6	6	2	0	4	0	2	1	**31**
II	East Coast Highway (Enhance Existing)	Pelican Point Drive	0.2 miles west of East City Limit	6	4	6	6	2	2	4	0	1	0	**31**
II	Irvine Avenue (Enhance Existing)	17th Street	University Drive	6	4	6	6	2	4	0	0	2	1	**31**
II	Newport Boulevard	Via Lido	32nd Street	6	4	6	6	1	0	4	0	2	2	**31**
II	San Joaquin Hills Road (Enhance Existing/ Planned)	Jamboree Road	Newport Coast Drive	6	4	6	6	0	2	0	4	2	1	**31**
II	Seashore Drive (Enhance Existing)	Orange Street	Balboa Boulevard	6	4	6	6	1	0	4	0	2	2	**31**
Spot	Superior Avenue/ West Coast Highway Intersection	--	--	6	4	6	6	2	0	4	0	1	2	**31**
II	West Coast Highway	Western City Limits	Orange Street	6	4	6	6	2	0	4	0	1	2	**31**

Table J-1 *Tier 1 Projects (Score of 29-40) (continued)*

Facility Type	Location	Start	End	Bicycle -Related Incidents	Public Input	Gap Closure	Connectivity: Existing	Connectivity: Regional	Connectivity: Activity Centers	Connectivity: Beaches	Connectivity: Multi-Modal	Permitting	Project Cost	Total Score (40 max)
Spot	West Coast Highway (from Santa Ana River Trail to Orange Street)	--	--	6	4	6	6	2	0	4	0	1	2	**31**
II	Back Bay Drive (Enhance Existing)	Shellmaker Road	Eastbluff Road	6	4	6	6	2	2	2	0	2	0	**30**
III	East Coast Highway (Enhance Existing)	Poppy Avenue	Seaward Road	3	4	6	6	2	2	4	0	1	2	**30**
III	Newport Boulevard Alley	Via Lido	32nd Street	6	4	6	6	1	0	4	0	2	1	**30**
Spot	Newport Pier Parking Lot	--	--	6	4	6	6	1	2	4	0	1	0	**30**
II	Riverside Avenue	Cliff Drive	Avon Street	6	0	6	6	2	2	4	0	2	2	**30**
III	West Coast Highway (Convert Class III to Class II)	Newport Boulevard	Dover Drive	6	4	6	6	2	2	2	0	1	1	**30**
Spot	West Coast Highway/ Orange Street Intersection (Southwest Corner)	--	--	6	4	3	6	2	2	4	0	1	2	**30**
II	32nd Street	Newport Boulevard	Via Lido	6	4	6	6	1	0	2	0	2	2	**29**
III	Bayside Drive	East Coast Highway	Existing Class I North of Coast Highway	6	4	6	6	2	2	0	0	2	1	**29**
Spot	Bayside Drive/East Coast Highway Intersection	--	--	6	4	6	6	2	0	2	0	1	2	**29**

Table J-1 *Tier 1 Projects (Score of 29-40) (continued)*

Facility Type	Location	Start	End	Bicycle -Related Incidents	Public Input	Gap Closure	Connectivity: Existing	Connectivity: Regional	Connectivity: Activity Centers	Connectivity: Beaches	Connectivity: Multi-Modal	Permitting	Project Cost	Total Score (40 max)
Spot	Bayview Trail	--	--	6	4	6	6	2	2	0	0	1	2	**29**
I	Coast Highway	Bayside Drive	Dover Drive	6	4	6	6	2	2	2	0	1	0	**29**
Spot	Dover Drive/West Coast Highway Intersection	--	--	6	4	6	6	2	2	0	0	1	2	**29**
II	East Coast Highway	Seaward Road	Pelican Point Drive	3	4	6	6	2	2	4	0	1	1	**29**
I	Eastbluff Drive	Bayview Trail/Jamboree Road	Back Bay Drive	6	4	6	6	2	2	2	0	1	0	**29**
Spot	Riverside Avenue/ West Coast Highway Intersection	--	--	6	4	6	6	2	0	2	0	1	2	**29**
III	West Coast Highway (from Newport Boulevard to Riverside Drive)	--	--	6	4	6	6	2	2	2	0	1	0	**29**

Table J-2 *Tier 2 Projects (Score of 24-28)*

Facility Type	Location	Start	End	Bicycle-Related Incidents	Public Input	Gap Closure	Connectivity: Existing	Connectivity: Regional	Connectivity: Activity Centers	Connectivity: Beaches	Connectivity: Multi-Modal	Permitting	Project Cost	Total Score (40 max)
III	East Coast Highway (Enhance Existing)	0.2 miles west of East City Limit	Eastern City Limits	3	2	6	6	2	2	4	0	1	2	**28**
II	Irvine Avenue	East 15th Street	East 16th Street	6	4	6	6	1	2	0	0	2	1	**28**
Spot	Irvine Avenue/ Santiago Drive Intersection	--	--	6	4	6	6	2	0	0	0	2	2	**28**
II	Jamboree Road	Bayview Way	Bristol Street North	6	2	6	6	2	2	0	0	2	2	**28**
II	Newport Coast Drive (Enhance Existing)	East Coast Highway	SR-73 Freeway	6	4	6	6	2	2	0	0	1	1	**28**
I	Santa Ana River Trail Extension	Seashore Drive	Santa Ana River Trail East Bank Southerly Terminus	6	4	6	6	2	0	4	0	0	0	**28**
Spot	Crystal Cove Trail at Ruby's Shake Shack	--	--	0	4	6	6	2	2	4	0	1	2	**27**
II	East Coast Highway (Enhance Existing)	Dover Drive	Avocado Avenue	6	4	6	6	2	2	0	0	1	0	**27**
III	Goldenrod Avenue (Enhance Existing)	East Coast Highway	Northern Edge of Harbor View Elementary School	3	0	6	6	2	2	4	0	2	2	**27**
III	Marguerite Avenue	Ocean Boulevard	Fifth Avenue	6	0	3	6	2	2	4	0	2	2	**27**
I	New Class I Trail to Arroyo Park	North of MacArthur Boulevard	Ford Road	6	4	6	6	1	2	0	0	2	0	**27**
III	Poppy Avenue	Fifth Avenue	Ocean Avenue	3	2	6	6	2	0	4	0	2	2	**27**
III	Santiago Drive	Polaris Drive	Irvine Avenue	6	4	6	6	2	0	0	0	2	1	**27**
III	Balboa Boulevard	32nd Street	G Street	6	4	3	3	1	2	4	0	2	1	**26**

***Table J-2** Tier 2 Projects (Score of 24-28) (continued)*

Facility Type	Location	Start	End	Bicycle-Related Incidents	Public Input	Gap Closure	Connectivity: Existing	Connectivity: Regional	Connectivity: Activity Centers	Connectivity: Beaches	Connectivity: Multi-Modal	Permitting	Project Cost	Total Score (40 max)
II	Bayside Drive	Mid-block Signal	Marine Avenue	6	4	6	6	2	0	0	0	1	1	**26**
III	Jamboree Road	Coast Highway	Bayside Drive	6	2	6	6	2	0	0	0	2	2	**26**
II	Newport Center Drive	San Miguel Drive	San Miguel Drive	6	0	6	6	1	2	0	2	2	1	**26**
II	32nd Street (Enhance Existing)	Balboa Boulevard	Newport Boulevard	6	4	3	6	1	0	4	0	1	0	**25**
I	Bayview Trail Extension	Jamboree Road	Back Bay Drive	6	2	6	6	2	2	0	0	1	0	**25**
I	Crystal Cove Park Trail Extension (includes Bridge)	Southern End of Existing Off-Street Trail	El Moro State Park Signal	3	2	6	6	2	2	4	0	0	0	**25**
III	Hospital Road	Superior Avenue	Old Newport Boulevard	6	0	6	6	1	2	0	0	2	2	**25**
III	Main Street	Ocean Front Path	Edgewater Avenue	6	0	3	6	0	2	4	0	2	2	**25**
II	San Joaquin Hills Road	Jamboree Road	Back Bay Drive	6	0	6	6	0	2	0	2	2	1	**25**
III	Seashore Drive	Santa Ana River Trail East Bank	Orange Street	6	0	3	6	2	0	4	0	2	2	**25**
III	47th Street	Balboa Boulevard	Seashore Drive	6	0	3	6	1	0	4	0	2	2	**24**
II	Avocado Avenue	East Coast Highway	Waterfront Drive	0	2	6	6	2	2	0	2	2	2	**24**
Spot	Bayside Drive/Marine Avenue Intersection	--	--	3	2	6	6	1	0	2	0	2	2	**24**
I	Constellation Trail	Constellation Drive	Bayview Trail	6	4	3	6	2	2	0	0	1	0	**24**
Spot	Dover Drive South of 16th Street	--	--	6	4	0	6	2	2	0	0	2	2	**24**
III	Fifth Avenue	East Coast Highway	Iris Avenue	6	0	3	3	2	4	2	0	2	2	**24**
II	Marguerite Avenue	Harbor View Drive	San Joaquin Hills Road	3	0	6	6	1	2	2	0	2	2	**24**
III	Marine Avenue	South Bay Front Alley	Bayside Drive	6	4	3	6	1	0	0	0	2	2	**24**

Table J-2 *Tier 2 Projects (Score of 24-28) (continued)*

Facility Type	Location	Start	End	Bicycle-Related Incidents	Public Input	Gap Closure	Connectivity: Existing	Connectivity: Regional	Connectivity: Activity Centers	Connectivity: Beaches	Connectivity: Multi-Modal	Permitting	Project Cost	Total Score (40 max)
III	Orchid Avenue	Ocean Boulevard	Fifth Avenue	3	0	6	6	2	0	4	0	2	1	**24**
II	Pelican Hill Road	Newport Coast Drive	Newport Coast Drive	6	2	6	6	1	0	0	0	2	1	**24**

Table A -13 *Tier 3 Projects (Score of 23 or less)*

Facility Type	Location	Start	End	Bicycle-Related Incidents	Public Input	Gap Closure	Connectivity: Existing	Connectivity: Regional	Connectivity: Activity Centers	Connectivity: Beaches	Connectivity: Multi-Modal	Permitting	Project Cost	Total Score (40 max)
II	Bison Avenue	Jamboree Road	MacArthur Boulevard	6	4	3	6	0	0	0	0	2	2	**23**
I	Coyote Canyon Landfill Off-Street Path	Bonita Canyon Drive/ Chambord	San Joaquin Hills Road/ Newport Coast Drive	6	2	6	6	0	2	0	0	1	0	**23**
III	Newport Hills Drive West	Ford Road	Buffalo Hills Trail	3	2	6	6	0	2	0	0	2	2	**23**
III	Santiago Drive	Irvine Avenue	Tustin Avenue	6	2	3	6	2	0	0	0	2	2	**23**
III	Westcliff Drive	Irvine Avenue	Dover Drive	6	0	6	6	1	0	0	0	2	2	**23**
III	Fernleaf Avenue	Bayside Drive	Ocean Avenue	3	2	3	6	0	0	4	0	2	2	**22**

Table J-3 *Tier 3 Projects (Score of 23 or less) (continued)*

Facility Type	Location	Start	End	Bicycle-Related Incidents	Public Input	Gap Closure	Connectivity: Existing	Connectivity: Regional	Connectivity: Activity Centers	Connectivity: Beaches	Connectivity: Multi-Modal	Permitting	Project Cost	Total Score (40 max)
I	New Bridge over Superior Avenue	Superior Avenue	Future Banning Ranch Class I	6	0	3	6	1	2	2	0	2	0	**22**
Spot	Northbound SR-73 On-Ramp/Newport Coast Drive Intersection	--	--	3	4	6	6	0	0	0	0	1	2	**22**
II	Ridge Park Road	San Joaquin Hills Road	East Coastal Peak	6	2	3	6	0	2	0	0	2	1	**22**
II	San Nicolas Drive	Newport Center Drive	Avocado Avenue	3	0	3	6	0	2	0	4	2	2	**22**
II	MacArthur Boulevard	Campus Drive	Jamboree Road	3	4	3	6	0	2	0	0	2	1	**21**
I	Port Streets Off-Street Trail Improvements	Pacific View Drive	Ford Road	0	4	6	6	0	2	0	0	2	1	**21**
Spot	Southbound SR-73 Off-Ramp/Newport Coast Drive	--	--	3	4	6	6	0	0	0	0	1	1	**21**
III	46th Street	Balboa Boulevard	Seashore Drive	0	2	3	6	1	0	4	0	2	2	**20**
Spot	Back Bay Drive near Park Newport	--	--	3	4	0	6	2	2	0	0	1	2	**20**
Spot	Bayside Drive near the Dunes Entrance	--	--	0	4	3	6	2	2	0	0	1	2	**20**
Spot	Bayside Drive/El Paseo Drive	--	--	0	2	6	6	1	0	2	0	1	2	**20**
III	Clay Street	Orange Avenue	East 15th Street (East of St. Andrews Road)	6	0	3	6	0	2	0	0	2	1	**20**
II	Jamboree Road	Bristol Street North	Campus Drive	0	4	6	6	1	2	0	0	1	0	**20**

Table J-3 *Tier 3 Projects (Score of 23 or less) (continued)*

Facility Type	Location	Start	End	Bicycle-Related Incidents	Public Input	Gap Closure	Connectivity: Existing	Connectivity: Regional	Connectivity: Activity Centers	Connectivity: Beaches	Connectivity: Multi-Modal	Permitting	Project Cost	Total Score (40 max)
III	Mesa Drive	Birch Street	Bayview Trail (150' southeast of Bayview Avenue)	0	0	6	6	2	2	0	0	2	2	**20**
I	New Class I Trail along Old Newport Boulevard	Avon Street Class I	Newport Boulevard Bridge Undercrossing	6	0	3	6	1	0	2	0	1	1	**20**
I	New Class I Trail (Avon Street Extension)	Old Newport Boulevard	Avon Street	6	0	3	6	1	0	2	0	2	0	**20**
II	Newport Ridge Drive East/West	San Joaquin Hills Road	San Joaquin Hills Road	3	0	6	6	0	2	0	0	2	1	**20**
Spot	San Joaquin Hills Road (from Marguerite Avenue to Spyglass Hill Road)	--	--	0	4	6	6	0	0	0	0	2	2	**20**
III	Avon Street	Riverside Avenue	Western Terminus	6	2	3	3	1	0	0	0	2	2	**19**
Spot	Ridge Park Road and Vista Ridge Road	--	--	3	4	0	6	0	2	0	0	2	2	**19**
III	Tustin Avenue	Cliff Drive	East 15th Street	6	0	3	6	1	0	0	0	2	1	**19**
II	Vista Ridge Road	Ridge Park Road	Newport Coast Drive	3	4	3	6	0	0	0	0	2	1	**19**
III	Beacon Street	Tustin Avenue	Irvine Avenue	3	0	3	6	0	2	0	0	2	2	**18**
III	East Bay Avenue	Palm Street	Main Street	3	0	3	6	0	0	2	0	2	2	**18**
III	Goldenrod Avenue	Seaview Avenue	Ocean Boulevard	0	0	3	6	1	0	4	0	2	2	**18**
Spot	Newport Coast Drive/ Ridge Park Road Intersection	--	--	3	2	3	6	0	2	0	0	2	0	**18**
II	Campus Drive	MacArthur Boulevard	Jamboree Road	0	0	6	6	0	2	0	0	1	2	**17**

***Table J-3** Tier 3 Projects (Score of 23 or less) (continued)*

Facility Type	Location	Start	End	Bicycle-Related Incidents	Public Input	Gap Closure	Connectivity: Existing	Connectivity: Regional	Connectivity: Activity Centers	Connectivity: Beaches	Connectivity: Multi-Modal	Permitting	Project Cost	Total Score (40 max)
II	Dove Street	Campus Drive	Bristol Street North	0	0	6	6	0	2	0	0	2	1	**17**
II	Birch Street	Bristol Street South	Jamboree Road	3	0	3	6	0	2	0	0	1	1	**16**
III	G Street	Balboa Boulevard	Ocean Boulevard	3	2	3	0	0	0	4	0	2	2	**16**
III	Via Lido	Lafayette Road/32nd Street	Via Lido Soud	0	4	3	3	0	0	2	0	2	2	**16**
III	East 15th Street	Western Terminus	Placentia Avenue	0	0	3	6	0	2	0	0	2	2	**15**
III	East Ocean Boulevard	G Street	Channel Road	0	4	0	3	0	0	4	0	2	2	**15**
III	Goldenrod Avenue	First Avenue	Second Avenue	0	0	3	3	1	0	4	0	2	2	**15**
III	Pacific View Drive	Lincoln Elementary School West Driveway	Marguerite Avenue	0	0	3	6	0	2	0	0	2	2	**15**
II	Palm Street	Ocean Front Path	Balboa Boulevard	0	0	3	6	0	0	4	0	1	1	**15**
III	Port Seabourne Place	Newport Hills Drive West	Buffalo Hills Trail	0	0	3	6	0	2	0	0	2	2	**15**
II	Spruce Avenue	Bristol Street North	Quail Street	0	0	3	6	0	2	0	0	2	2	**15**
III	Agate Avenue	South Bay Front	North Bay Front	6	2	0	0	0	2	0	0	2	2	**14**
III	Marguerite Avenue	San Joaquin Hills Road	Pacific View Drive	0	0	3	6	1	0	0	0	2	2	**14**
III	Ocean Boulevard	Fernleaf Avenue	Poppy Avenue	3	2	0	0	1	0	4	0	2	2	**14**
III	Palm Street	Balboa Boulevard	Edgewater Avenue	0	0	3	3	0	0	4	0	2	2	**14**
II	Quail Street	Campus Drive	Dove Street	0	0	3	6	0	2	0	0	2	1	**14**
III	St. Andrews Road	Cliff Drive	East 15th Street	0	0	3	6	0	2	0	0	2	1	**14**
I	Lincoln School Trail	Pacific View Drive	San Joaquin Hills Road	0	0	3	6	0	2	0	0	1	1	**13**
II	Santa Ana Avenue	Cliff Drive	15th Street	3	2	0	0	0	2	2	0	2	2	**13**
III	Fullerton Avenue	Cliff Drive	East 15th Street	0	0	3	6	0	0	0	0	2	1	**12**

Table J-3 *Tier 3 Projects (Score of 23 or less) (continued)*

Facility Type	Location	Start	End	Bicycle-Related Incidents	Public Input	Gap Closure	Connectivity: Existing	Connectivity: Regional	Connectivity: Activity Centers	Connectivity: Beaches	Connectivity: Multi-Modal	Permitting	Project Cost	Total Score (40 max)
I	New Class I Trail Near Sunset Ridge Park	Recommended Superior Avenue Bridge	Future Bluff Road Class II Bike Lanes	0	2	3	0	1	0	2	0	2	0	**10**
III	Park Avenue	South Bay Front	East Bay Front	6	0	0	0	0	0	0	0	2	2	**10**
III	Westminster Avenue	Old Newport Boulevard	East 15th Street	3	0	0	0	1	0	2	0	2	2	**10**
III	North Bay Front Alley	Marine Avenue	Agate Avenue	3	2	0	0	0	0	0	0	2	2	**9**
III	Santa Ana Avenue	Old Newport Boulevard	Cliff Drive	0	2	0	0	1	0	2	0	2	2	**9**
III	South Bay Front Alley	Agate Avenue	Marine Avenue	3	0	0	0	0	2	0	0	2	2	**9**
II	Westerly Place	Quail Street	Dove Street	0	0	0	0	0	2	0	0	2	2	**6**
II	Von Karman Avenue/ Newport Place Drive	Dove Street	Campus Drive	0	0	0	0	0	2	0	0	2	1	**5**
III	Orange Avenue	Clay Street	East 15th Street	0	0	0	0	0	0	0	0	2	2	**4**

Appendix K: Potential Funding Sources

Table K-1 *Potential Funding Sources*

Grant Source	Remarks
Federal	
Bus and Bus Facilities Program: State of Good Repair	Can be used for projects to provide access for bicycles to public transportation facilities, to provide shelters and parking facilities for bicycles in or around public transportation facilities, or to install equipment for transporting bicycles on public transportation vehicles.
Bus Livability Initiative	Can be used for bicycle and pedestrian support facilities, such as bicycle parking, bike racks on buses, pedestrian amenities, and educational materials
Federal Transit Act	Typical funded projects have included bike lockers at transit stations and bike parking near major bus stops. Guideline for the use of 10% of the annual CMAQ funds starting in fiscal year 2012-2013 for bike/pedestrian projects through a competitive call to local agencies.
Land and Water Conservation Fund	Federal fund provides matching grants to state and local governments for the acquisition and development of land for outdoor recreation use. Lands acquired through program must be retained in perpetuity for public recreational use. Individual project awards are not available. Recent call deadline was February 2014.
MAP-21 – Surface Transportation Program	A wide variety of bicycle and pedestrian improvements are eligible, including on-street bicycle facilities, off-street trails, sidewalks, crosswalks, bicycle and pedestrian signals, parking, and other ancillary facilities.
MAP-21 – Highway Safety Improvement Program (HSIP)	Projects must address a safety issue and may include education and enforcement programs. This program includes the Railroad-Highway Crossings and High Risk Rural Roads programs.
MAP-21 – Pilot Transit-Oriented Development Planning Program	Provides funding to advance planning efforts that seek to increase access to transit hubs for pedestrian and bicycle traffic.
MAP-21 – Congestion Mitigation and Air Quality Improvement Program (CMAQ)	The amount of CMAQ funds depends on the state's population share and on the degree of air pollution. Recent revisions were made to bring CMAQ in line with the new MAP-21 legislation. There is a broader emphasis on projects that are proven to reduce PM-2.5. Eligible projects include: "Constructing bicycle and pedestrian facilities (paths, bike racks, support facilities, etc.) that are not exclusively recreational and reduce vehicle trips; (and) non-construction outreach related to safe bicycle use." Studies that are part of the project development pipeline (e.g., preliminary engineering) are eligible for funding. "An assessment of the project's expected emission reduction benefits should be completed prior to project selection."
National Center for Environmental Health – Health Impact Assessment for Improved Community Design	The grant program aims to increase the capacity of public health departments to include health considerations in transportation and land use planning decisions. The grant will provide an average of $145,000 per year for 3 years to 6 awardees. The most recent Letter of Intent Deadline was March 28, 2014. It appears that the grant is available every 3 years.
New Opportunities for Bicycle and Pedestrian Infrastructure Financing Act	A proposed bill in Congress to set aside 1% of TIFIA's $1 billion for bicycle and pedestrian infrastructure projects, such as the conversion of abandoned rail corridors for trails, bicycle signals, and path lighting. For these projects, TIFIA's minimum project cost would be $2 million. Eligible costs include: planning & feasibility studies, construction, and land acquisition. The bill reserves 25% of project funding for low-income communities.

Table K-1 *Potential Funding Sources (continued)*

Grant Source	Remarks
Rivers, Trails, and Conservation Assistance Program	RTCA staff provides technical assistance to communities so they can conserve rivers, preserve open space, and develop trails and greenways.
Transportation Investments Generating Economic Recovery (TIGER) Program	Can be used for innovative, multimodal and multi-jurisdictional transportation projects that promise significant economic and environmental benefits to an entire metropolitan area, a region, or the nation. These include bicycle and pedestrian projects. Project minimum is $10 million.
U.S. Environmental Protection Agency – Brownfields Program	Assessment grants provide funding for a grant recipient to inventory, characterize, assess, and conduct planning and community involvement related to brownfields sites (locations that have been host to a hazardous substance, pollutant, or contaminant). Revolving Loan Fund (RLF) grants provide funding for a grant recipient to capitalize a revolving loan fund and to provide sub-grants to carry out cleanup activities at brownfield sites. Cleanup grants provide funding for a grant recipient to carry out cleanup activities at brownfield sites.
State	
Caltrans Active Transportation Program (ATP)	Funds construction, planning, and design of facilities for pedestrians, bicyclists, and other non-motorized forms of transportation. The next application cycle has not yet been finalized, but it is expected to open in late 2014 or early 2015.
Clean Water State Revolving Fund Program	The CWSRF program offers low interest financing agreements for water quality projects, which can include "implementation of nonpoint source projects or program." Annually, the program disburses between $200 and $300 million. Stormwater management components of bicycle infrastructure projects may be eligible for this funding source. Applications are accepted on a continuous basis.
Climate Ready Grant Program	Climate Ready grants are available for projects located along the coast and coastal watersheds. Shared-use trails are eligible. $1.5 million total; $50,000 minimum grant; $200,000 maximum. Managed by California Coastal Conservancy. More information is available at: http://scc.ca.gov/2013/06/21/announcing-climate-ready-grant-opportunities/
Community Based Transportation Planning Grants	Eligible projects that exemplify livable community concepts including enhancing bicycle and pedestrian access. Administered by Caltrans. $3 million, each project not to exceed $300,000.
Environmental Enhancement and Mitigation Program (EEMP)	Funds may be used for land acquisition. Individual grants limited to $350,000.
Environmental Justice: Context-Sensitive Planning	Funds projects that foster sustainable economies, encourage transit-oriented and mixed use development, and expand transportation choices, including walking and biking. Projects can be design and education, as well as planning. Administered by Caltrans. $3 million, each grant not to exceed $250,000.
Habitat Conservation Fund	Provides funds to local entities to protect threatened species, to address wildlife corridors, to create trails, and to provide for nature interpretation programs which bring urban residents into park and wildlife areas. $2 million available annually. Application deadline is typically in October.
Office of Traffic Safety (OTS) Grant Program	Funds safety improvements to existing facilities, safety promotions including bicycle helmet giveaways and studies to improve traffic safety. The grant cycle typically begins with a Request for Proposals in October, which are due the following January. In 2009, OTS awarded $82 million to 203 agencies.

Table K-1 *Potential Funding Sources (continued)*

Grant Source	Remarks
Petroleum Violation Escrow Account (PVEA)	Funds programs based on public transportation, computerized bus routing and ride sharing, home weatherization, energy assistance and building energy audits, highway and bridge maintenance, and reducing airport user fees.
Public Access Program	Funds the protection and development of public access areas in support of wildlife-oriented uses, including helping to fund construction of ADA trails.
Recreational Trails Program	Administered in California as part of the ATP. $5.8 million guaranteed set-aside. Managed by the California Department of Parks and Recreation.
Safe Routes to School (SRTS)	In 2014, federal SRTS funds were rolled into the State's ATP to streamline grant allocation. $24 million combined in ATP for state and federal Safe Routes to School projects for the 2014 cycle. SRTS is primarily a construction program to enhance safety of pedestrian and bicycle facilities near schools. A small percentage of funds can be used for programmatic improvements. Improvements can be made to target students of all grade levels.
Sustainable Communities Planning Grant and Incentives Program	Funded by Prop 84 bond funds, this grant program funds the development and implementation of plans that lead to significant reductions in greenhouse gas emissions, such as rehabilitation of existing infrastructure and the enhancement of recreational resources. The minimum grant award is $50,000; the maximum award is $500,000, unless the application is a joint proposal, in which case the maximum award is $1 million. The 10% local match requirement is waived for a proposal that qualifies for the Environmental Justice set-aside.
Watershed Protection Program (Proposition 13)	Grants to municipalities, local agencies, or nonprofit organizations to develop local watershed management plans (maximum $200,000 per local waters hed plan) and/or implement projects (maximum $5 million per project) consistent with watershed plans. Sixty percent of the funds will be allocated to projects in the Counties of Los Angeles, Orange, Riverside, San Diego, San Bernardino, and Ventura. Administered by the Division of Financial Assistance.
Regional	
Clean Air Fund (AB 434/2766 – Vehicle Registration Fee Surcharge)	Administered by SCAQMD. Local jurisdictions and transit agencies can apply. Funds can be used for projects that encourage biking, walking, and/or use of public transit. For bicycle-related projects, eligible uses include: designing, developing and/or installing bikeways or establishing new bicycle corridors; making bicycle facility enhancements/ improvements by installing bicycle lockers, bus bike racks; providing assistance with bike loan programs (motorized and standard) for police officers, community members and the general public. Matching requirement: 10-15%.
Orange County Measure M2 Local Return	The Measure M2 half-cent sales tax provides funds for major transportation improvements for Orange County freeways, streets and roads, transit and environmental programs. Roadway improvements can include bicycle and pedestrian facilities. Funds are distributed quarterly to cities that meet the annual eligibility requirements. More information is available at: http://www.octa.net/Measure-M/Then-and-Now/Measure-M-%282011-2041%29/
OCTA Bicycle Corridor Improvement Program (BCIP) Call for Projects	The BCIP Call for Projects is a $4.3 million bicycle program available to local Orange County agencies. The call for projects typically occurs every other year. The previous application cycle closed in Fall 2013. Guidelines and application are available at: http://www.octa.net/BCIPcall.aspx
SCAG Sustainability Program	SCAG provides assistance to member agencies for integrated land use and transportation planning. More information is available at: http://sustain.scag.ca.gov/Pages/Grants%20and%20Local%20Assistance/GrantsLocalAssistance.aspx

Table K-1 *Potential Funding Sources (continued)*

Grant Source	Remarks
Private	
Health Foundations	Focus pedestrian improvements for an obesity prevention strategy. Examples include California Wellness Foundation, Kaiser, and the California Endowment.
PeopleForBikes	PeopleForBikes (formerly Bikes Belong) provides grants for up to $10,000 with a 50% match that recipients may use towards the engineering, design, and construction of bike paths, lanes, bridges, and end-of-trip facilities, as well as programs.
Surdna Foundation	The Surdna Foundation makes grants to nonprofit organizations in the areas of environment, community revitalization, effective citizenry, the arts, and the nonprofit sector.

Appendix L: Active Transportation Program (ATP) Compliance Table

Table L-1 *Active Transportation Program (ATP) Compliance*

Requirement	Section
a. The estimated number of existing bicycle trips in the plan area and the estimated increase in the number of bicycle trips resulting from implementation of the plan.	Ch. 4
b. The number and location of collisions, serious injuries, and fatalities suffered by bicyclists in the plan area, both in absolute numbers and as a percentage of all collisions and injuries, and a goal for collision, serious injury, and fatality reduction after implementation of the plan.	Ch. 2, 4, 6
c. A map and description of existing and proposed land use and settlement patterns which shall include, but not be limited to, locations of residential neighborhoods, schools, shopping centers, public buildings, major employment centers, and other major destinations.	Ch. 3
d. A map and description of existing and proposed bicycle transportation facilities.	Ch. 3, 5
e. A map and description of existing and proposed end-of-trip bicycle parking facilities. These shall include, but not be limited to, parking at schools, shopping centers, public buildings, and major employment centers.	Ch. 5
f. A description of existing and proposed policies related to bicycle parking in public locations, private parking garages and parking lots and in new commercial and residential developments.	Ch. 2
g. A map and description of existing and proposed bicycle transport and parking facilities for connections with and use of other transportation modes. These shall include, but not be limited to, parking facilities at transit stops, rail and transit terminals, ferry docks and landings, park and ride lots, and provisions for transporting bicyclists and bicycles on transit or rail vehicles or ferry vessels.	Ch. 5
h. A map and description of existing and proposed facilities for changing and storing clothes and equipment. These shall include, but not be limited to, locker, restroom, and shower facilities near bicycle parking facilities.	Ch. 5
i. A description of proposed signage providing wayfinding along bicycle networks to designated destinations.	Ch. 5, Appendix
j. A description of the policies and procedures for maintaining existing and proposed bicycle facilities, including, but not limited to, the maintenance of smooth pavement, freedom from encroaching vegetation, maintenance of traffic control devices including striping and other pavement markings, and lighting.	Ch. 2
k. A description of bicycle safety and education programs conducted in the area included within the plan, efforts by the law enforcement agency having primary traffic law enforcement responsibility in the area to enforce provisions of the Vehicle Code pertaining to bicycle operation, and the resulting effect on accidents involving bicyclists.	Ch. 3
l. A description of the extent of citizen and community involvement in development of the plan, including disadvantaged and underserved communities.	Ch. 4
m. A description of how the bicycle transportation plan has been coordinated and is consistent with other local or regional transportation, air quality, or energy conservation plans, including, but not limited to, general plans and a Sustainable Community Strategy in a Regional Transportation Plan.	Ch. 2
n. A description of the projects and programs proposed in the plan and a listing of their priorities for implementation, including the methodology for project prioritization and a proposed timeline for implementation.	Ch. 5, 6, Appendix
o. A description of past expenditures for bicycle facilities and programs, and future financial needs for projects and programs that improve safety and convenience for bicycle riders in the plan area. Include anticipated revenue sources and potential grant funding.	Ch. 3, 6, Appendix
p. A description of steps necessary to implement the plan and the reporting process that will be used to keep the adopting agency and community informed of the progress being made in implementing the plan.	Ch. 6
q. A resolution showing adoption of the plan by the City.	Pending