June 2018

Costa Mesa

ACTIVE TRANSPORTATION PLAN

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1.0 Introduction

Bicycling, walking, skateboarding and other methods of nonmotorized transportation are inexpensive and healthy transportation choices that have been proven to benefit bicyclists and pedestrians themselves as well as the communities that they live in. Every trip that residents or visitors take by active transportation reduces both traffic and pollution by keeping additional cars off the road. Replacing even the smallest of errands with bicycle or pedestrian trips can significantly reduce an individual's carbon footprint, improve local air quality, and help meet regional sustainability goals. Moreover, individuals who bicycle regularly for transportation or recreation also benefit from quality exercise and better health.

In addition to the health and environmental benefits to the community, improving active transportation bicycle infrastructure in a given neighborhood can improve livability and attractiveness, increasing home values and skilled workforce retention. Improving bicycle and pedestrian access to commercial areas, likewise, improves retail sales, the local economy, and tax revenues. On the individual level, bicycling can provide improved mobility for segments of the population that cannot drive, such as youth, seniors, the disabled, and those who cannot afford a car. Finally, making it easier for residents to bicycle and walk can reduce transportation costs among all population segments that choose to bicycle and walk.

The City of Costa Mesa recognizes bicycling and walking as a valid means of transportation and has authorized the preparation of the Active Transportation Plan in conjunction with the Update to the City's General Plan. The Costa Mesa Bicycle Master Plan is intended to guide the development and maintenance of bicycle-friendly roads and bicycle facilities and inform the population of the cycling support programs across the City. The success of this Plan relies on the continued support of the City, the bicycling community, and other residents who recognize the benefits of cycling in their community.

Purpose

The Costa Mesa Active Transportation Plan outlines the vision, strategies, and actions that will be implemented to improve the active transportation experience in Costa Mesa. This Plan focuses on the completion of the bicycle network by identifying existing and absent connectivity and providing recommendations for potential improvements to the system and programs. The Costa Mesa Active Transportation Plan is designed to:

- Encourage bicycling and walking for both commuting and recreational purposes
- Outline the needed facilities and services
- Maximize funding sources for implementation of bicycle infrastructure
- Enhance quality of life and safety

Plan Organization

The Costa Mesa Active Transportation Plan is organized into the following chapters:

- **Chapter 2 Related Planning Initiatives**

  State and regional initiatives, neighboring city plans, and past local efforts that can inform the Costa Mesa Active Transportation Plan are summarized in this chapter.

- **Chapter 3 Components of Bicycle Planning**

  This section documents the best practices of bicycle planning and includes Class I, II, III, and IV facilities, parking and bicycle infrastructure concepts such as bicycle boxes, intersections, signals, and roundabouts.

- **Chapter 4 Existing Conditions Analysis**

  This chapter reports the existing conditions assessment for Costa Mesa's bicycle infrastructure including bicycle paths, bicycle lanes, and bicycle routes as well as roadways and transit services, highlighting deficiencies as appropriate. This is presented in an easy-to-understand matrix form and a reference map. The chapter also documents certain area details, activity centers, and support facilities.

- **Chapter 5 Policy Framework**

  This chapter presents the vision for the Costa Mesa Active Transportation Plan and lays out the Goals, Objectives, and Policies to achieve this vision.

- **Chapter 6 Recommendations for Future**

  This chapter summarizes the existing network, previously proposed facilities, and newly proposed facilities to create a complete, user-friendly, and well-connected network of bicycle facilities to serve the City of Costa Mesa. Recommendations are presented in an easy-to-understand matrix form along with a reference map.

- **Chapter 7 Implementation Strategy**

  This chapter includes general cost-estimates and potential funding sources.

- **References**

- **Appendix 1: Public Engagement Results**

  Appendix 1 summarizes the public engagement effort for the bicycle planning portion of General Plan's Circulation Element.

- **Appendix 2: Inventory of Existing Bicycling Support Facilities**

  Bicycling Support Facilities such as bicycle parking and change/shower facilities in the City of Costa Mesa are documented in this section.

Replacing even the smallest of errands with bicycle or pedestrian trips can significantly reduce an individual's carbon footprint, improve local air quality, and help meet regional sustainability goals.

Figure 1-1 Bicycle Facility in Fairview Park

2.0 Related Planning Initiatives

The Active Transportation Plan will have a more meaningful impact if it is developed in conjunction with other planning efforts in the vicinity and region at large. This approach helps build on the work done thus far, and creates a wider, continuous network of bicycle facilities. In the case of Costa Mesa, the related efforts include state and regional initiatives, neighboring city plans, and past local efforts. These planning efforts are summarized below.

State and Regional Initiatives

California Complete Streets Act

The California Complete Streets Act of 2008 (AB 1358) defines Complete Streets as "a balanced, multimodal transportation network that meets the needs of all users of streets, roads, and highways, including bicyclists, children, persons with disabilities, motorists, movers of commercial goods, pedestrians, public transportation, and seniors for safe and convenient travel in a manner that is suitable to the rural, suburban, or urban context." The law requires the legislative body of each county and city to adopt a comprehensive, long-term General Plan for the physical development of the county or city with specified elements, including a Circulation Element consisting of the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, any military airports and ports, and other local public utilities and facilities, all correlated with the land use element of the plan (Assembly Bill No. 1358).

Benefits of complete streets include increased transportation choices, economic revitalization, improved return on infrastructure investments, livable communities, improved safety for all users, more walking and bicycling to improve public health, greenhouse gas reduction, and improved air quality.

Orange County Commuter Bikeways Strategic Plan

Developed in 2009 by the Orange County Transportation Authority (OCTA), the Commuter Bikeways Strategic Plan (CBSP) serves as a long-term planning document and bicycle master plan for all of Orange County. The plan provides a comprehensive blueprint of existing bicycle facilities as well as proposed new facilities designed to enhance regional connectivity through the establishment of a network of bicycle facilities and a more balanced transportation system.

The CBSP proposed 12.65 miles of Bicycle Facility for the City of Costa Mesa (refer to Table 2-1 and Figure 2-1) in addition to 43.34 miles of existing facility, at a total cost of $4,746,260 based on 2009 dollar value. (OCTA, 2009 OCTA Commuter Bikeways Strategic Plan, 2009).

Table 2-1: OCTA's CBSP Proposed Facilities in Costa Mesa

Facility	Mileage
Class I	1.11
Class II	10.88
Class III	1.66
Source: http://www.octa.net/pdf/bikeways09.pdf	

Figure 2-1 Existing and Proposed Facilities per the CBSP

OCTA Districts 1 and 2 Bikeways Strategy

The OCTA Districts 1 and 2 Bikeways Strategy (shown in Figure 2-2) represents a collaborative planning effort including OCTA, the County of Orange, Caltrans, and local cities such as Costa Mesa and its neighbors. The objectives of the strategic plan include building consensus amongst the various agencies involved with regard to regional bicycle corridors, providing a set of tools to assist with the implementation of bicycle facilities, and positioning local jurisdictions for funding opportunities. Of the eleven regional bicycle facilities proposed by the Districts 1 and 2 collaborative strategy, two Corridors (B and K) would pass through Costa Mesa (OCTA, 2013).

Corridor B is a 12.3-mile proposed corridor that runs primarily north to south within the City of Costa Mesa. It runs from the Santiago Creek Trail in the north to the Upper Newport Bay trail in Newport Beach. The corridor utilizes Bristol Street to cross under the SR-55 freeway and uses Bear Street to cross over the I-405 freeway and under the SR-73 freeway.

Corridor K is an 11.1-mile bike facility that is proposed within Costa Mesa. The bikeway forms a loop that connects the Pacific Coast Highway corridor in down-town Huntington Beach and Newport Beach at Back Bay. The corridor travels along Indianapolis Avenue, crosses the Santa Ana River Trail, passes along the northern edge of Fairview Park and the western side of the Upper Newport Bay before linking to Pacific Coast Highway at Dover Drive.

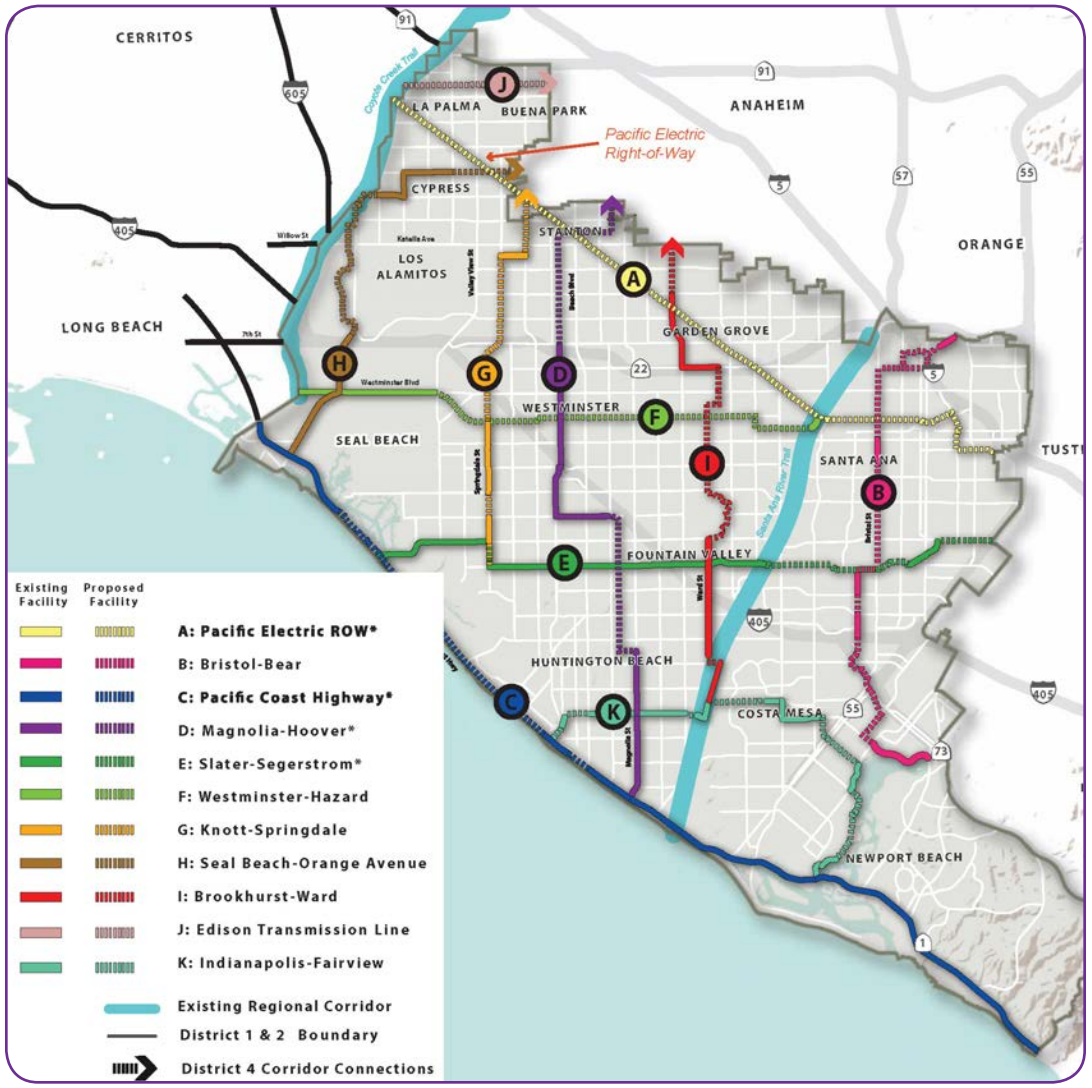

Figure 2-2 OCTA Districts 1 and 2 Bikeways Strategy

Orange County Loop

The Orange County Loop (OC Loop) is a vision for 66 miles of seamless bicycle and pedestrian connections and an opportunity for people to bicycle, walk, and connect to some of California's most scenic beaches and inland reaches. (Refer to Figure 2-3). About 70 percent of the OC Loop is already in place and is used by thousands of people. The OC Loop connects 17 cities, 200 parks, and 180 schools in Orange County. Currently, the OC Loop includes nearly 46 miles of existing off-street trails along the San Gabriel River, Coyote Creek, Santa Ana River and the Coastal/Beach Trail.

The OC Loop provides direct access to Costa Mesa along the western edge, specifically via the Santa Ana River Trail. The OC Loop is largely complete in Costa Mesa but enhancements providing better access to the OC Loop could receive favorable funding recommendations in regional programs.

Figure 2-3 OC Loop Map

Neighboring City Initiatives

Apart from Regional Plans, a review of neighboring cities' bicycle plans is a necessary step towards building consensus when implementing the Costa Mesa Active Transportation Plan and establishing bicycle connections with neighboring cities. The City of Costa Mesa shares its boundaries with 5 municipalities: Newport Beach, Huntington Beach, Irvine, Santa Ana, and Fountain Valley. A summary of each of their respective bicycle plans and their implications for Costa Mesa are provided below.

Newport Beach

Recently adopted by the Newport Beach City Council in October 2014, the Newport Beach Bicycle Master Plan network shown in Figure 2-4 lays out existing and proposed facilities as well as general design, safety, and way-finding strategies to guide future development of bicycle infrastructure. Existing bicycle connections to Costa Mesa from Newport Beach include a number of Class II facilities (Superior Avenue, Placentia Avenue, Irvine Avenue, 16th Street, Dover Drive, and Mariners Drive), the Newport Back Bay Trail (Class I), and a bicycle route on Newport Boulevard to Pacific Coast Highway. Planned new connections to Costa Mesa mentioned in the Newport Beach Bicycle Master Plan include Class III facilities on Santiago Drive, 17th Street, Tustin Avenue, Westminster Avenue, Clay Street, and Fullerton Avenue, as well as bicycle lanes on Santa Ana Avenue.

Huntington Beach

Adopted in November of 2013, the Huntington Beach Bicycle Master Plan provides a blueprint for future bicycle facilities to improve bicycle connectivity and safety. The plan (Refer to Figure 2-5) also encompasses an array of programs designed to promote cycling for transportation as well as recreation and a number of provisions for the safety of both cyclists and motorists, especially on Huntington Beach's high-speed, high-volume arterials and downtown streets. Lastly, the Huntington Beach Bicycle Master Plan stresses regional connections and collaboration with neighboring cities to promote cycling as a viable commuter option. Existing bicycle connections to Costa Mesa from Huntington Beach include a number of Class II facilities (Hamilton Avenue, Atlanta Avenue, Indianapolis Avenue, and Adams Avenue) as well as the Class I bicycle trail along the Santa Ana River—part of the regional OC Loop facility. No new bicycle connections to Costa Mesa are called for in the Huntington Beach Bicycle Master Plan.

Irvine

The Irvine Bicycle Transportation Plan was adopted in 2006 and amended in 2011 to reflect the existing bicycle infrastructure network and the near-term project list (Refer to Figure 2-6). Costa Mesa shares a very small portion of its boundary with the City of Irvine.

Major obstacles in connecting Irvine to Costa Mesa are the John Wayne Airport and SR-55 Freeway. Currently, the only connection from Irvine to Costa Mesa is a bicycle facility along Redhill Avenue. There are no new proposed routes in the plan to connect the two cities.

Figure 2-4 Newport Beach Bicycle Master Plan

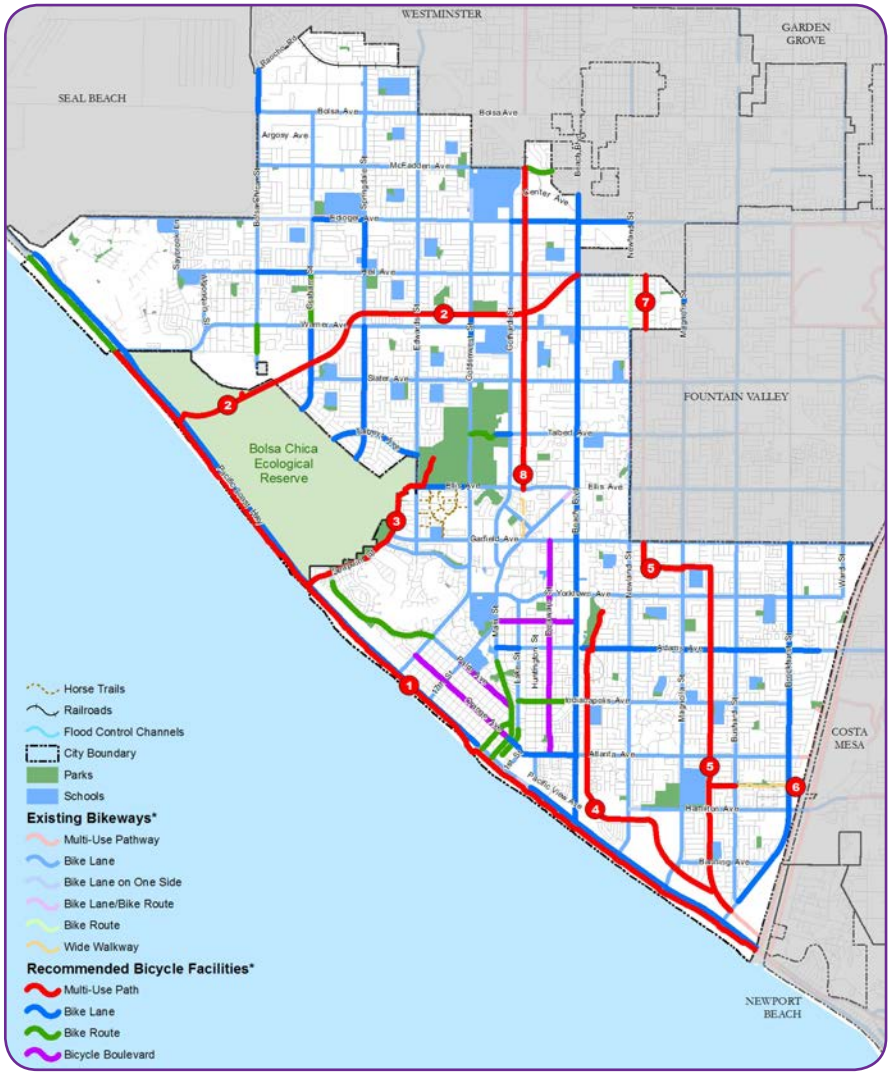

Figure 2-5 Huntington Beach Bicycle Master Plan

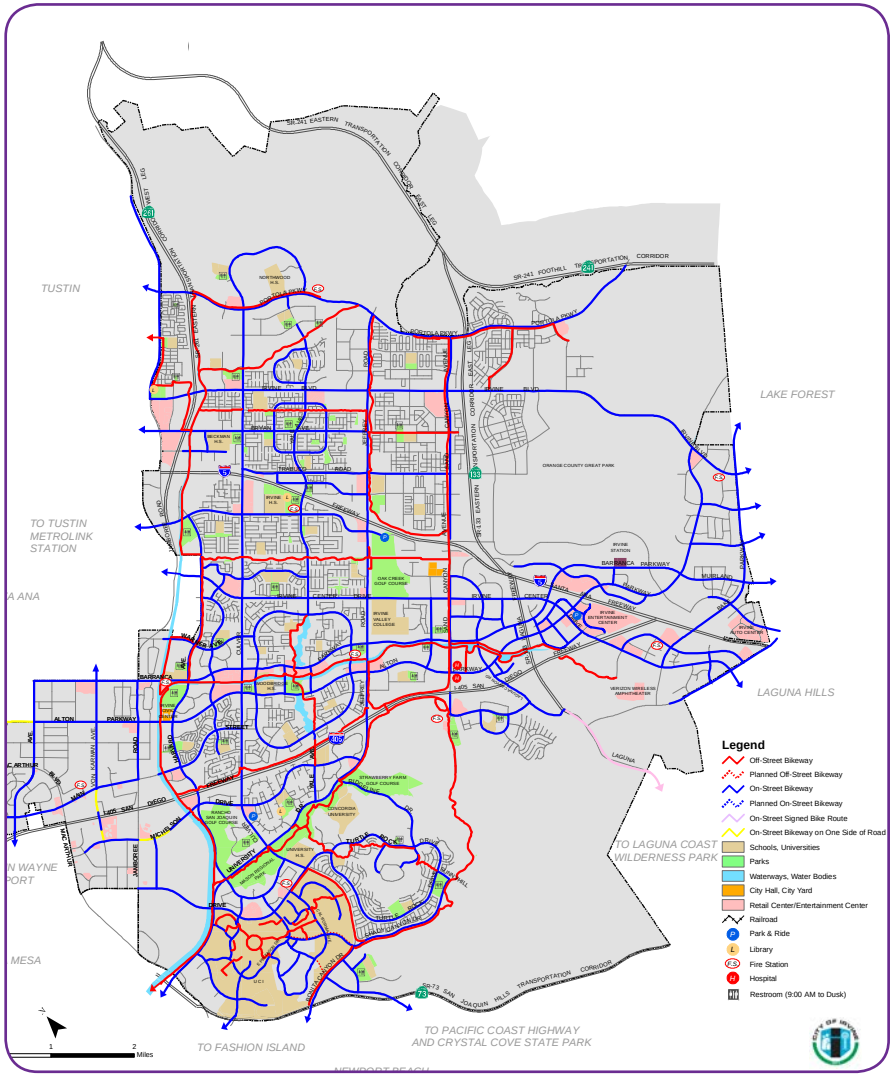

Figure 2-6 Irvine Bicycle Master Plan

Santa Ana

Originally adopted in 1995 and included as part of the City's 1998 General Plan (reformatted in 2010), the existing Santa Ana Bikeway Master Plan lays out the completed network (both then existing and planned bicycle facilities) as envisioned at build-out at that time. However, the Santa Ana Bikeway Master Plan is currently being updated as part of Santa Ana's ongoing effort to update the circulation element of its General Plan (currently undergoing public comment and environmental review pursuant to CEQA regulations). Bicycle connections to Costa Mesa from Santa Ana currently include the Class I facilities on MacArthur Boulevard and the OC Loop segment along the Santa Ana River. The City has adopted a Class I connection along the open channel linking Centennial Regional Park to Costa Mesa, a Class I facility along Flower Street, and a Class II facility on Bristol Street. Proposed additional facilities linking Costa Mesa with Santa Ana, as published in the April 2014 draft of the Bikeway Master Plan, include Class II facilities on South Main Street and Greenville Street.

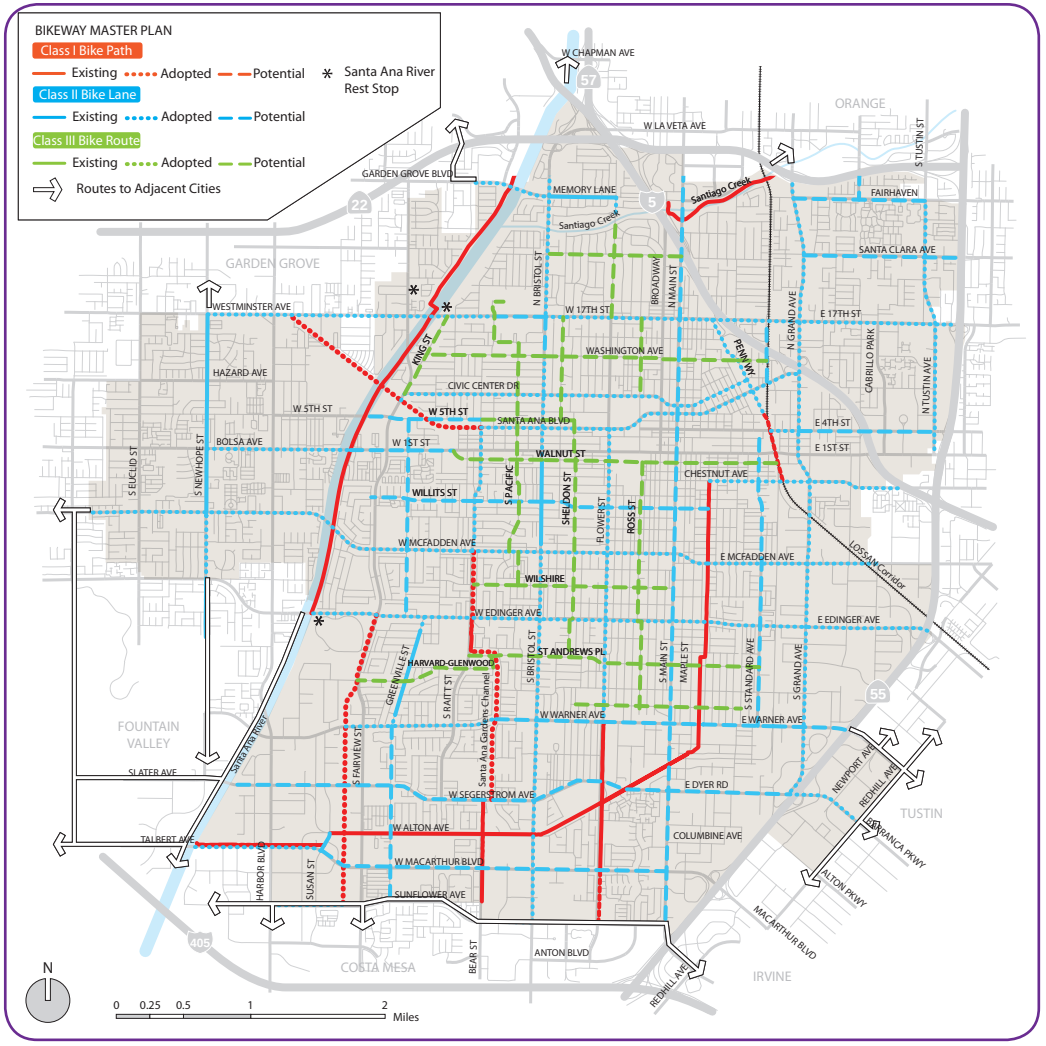

Figure 2-7 Santa Ana Bikeway Master Plan

Fountain Valley

Fountain Valley adopted a General Plan in 1995. The Circulation Element of the General Plan was then updated in 2008. The Trails Plan is a part of this Circulation Element plan (Refer Figure 2-8). The City of Costa Mesa shares a very small portion of its boundary with Fountain Valley. No direct bicycle connections to Costa Mesa are called for in the Fountain Valley Bicycle Plan. However, a connection to the Santa Ana River Trail is proposed by a bicycle lane along Garfield Avenue.

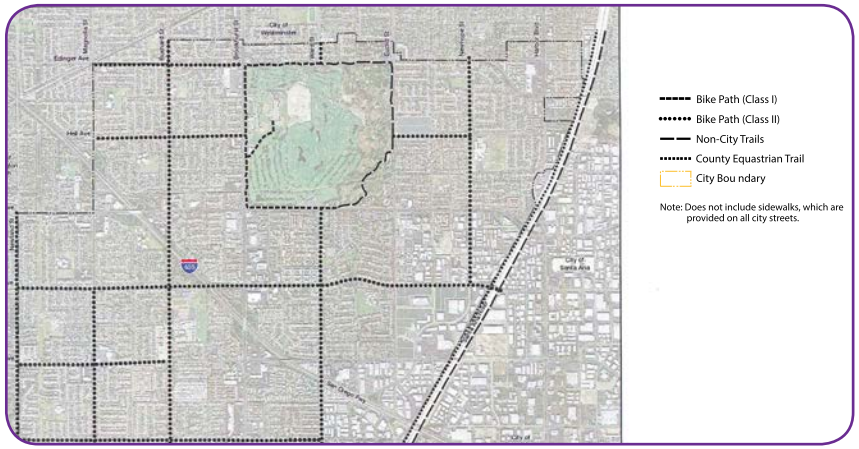

Figure 2-8 Fountain Valley Trails Plan

City of Costa Mesa Initiatives

City of Costa Mesa General Plan

The Costa Mesa General Plan (2015-2035) was adopted by the City Council on June 21, 2016 and the Bicycle Master Plan proposed herein will become a part of the Circulation Element of the General Plan. The previous General Plan was adopted in 2000. The Circulation Element of the 2000 General Plan included a Bicycle Master Plan with Class I, II, and III bicycle facilities and regional trails. This plan made several changes to the previously adopted Master Plan of Bikeways from 1974 (shown in Figure 2-9) in addition to proposed new routes. As of 2016, much of the 2000 Bicycle Master Plan has been implemented. Several additional routes were also implemented.

Major gaps in the plan implemented thus far are highlighted in red in Figure 2-10 and include:

- Connectivity to the east of SR-55 via Del Mar Avenue, 22nd Street, and Baker Street
- Bicycle lane on 18th Street connecting Monrovia Avenue and Orange Avenue
- Bicycle lane on Sunflower Avenue between Park Center Drive and Fairview Road
- Bicycle lane on Adams Avenue between Harbor Boulevard and Mendoza Drive
- Bicycle route on College Avenue, Village Way and Pinecreek Drive connecting to Adams Avenue
- Regional trail on Santa Ana Avenue between Bristol Street and University Drive.

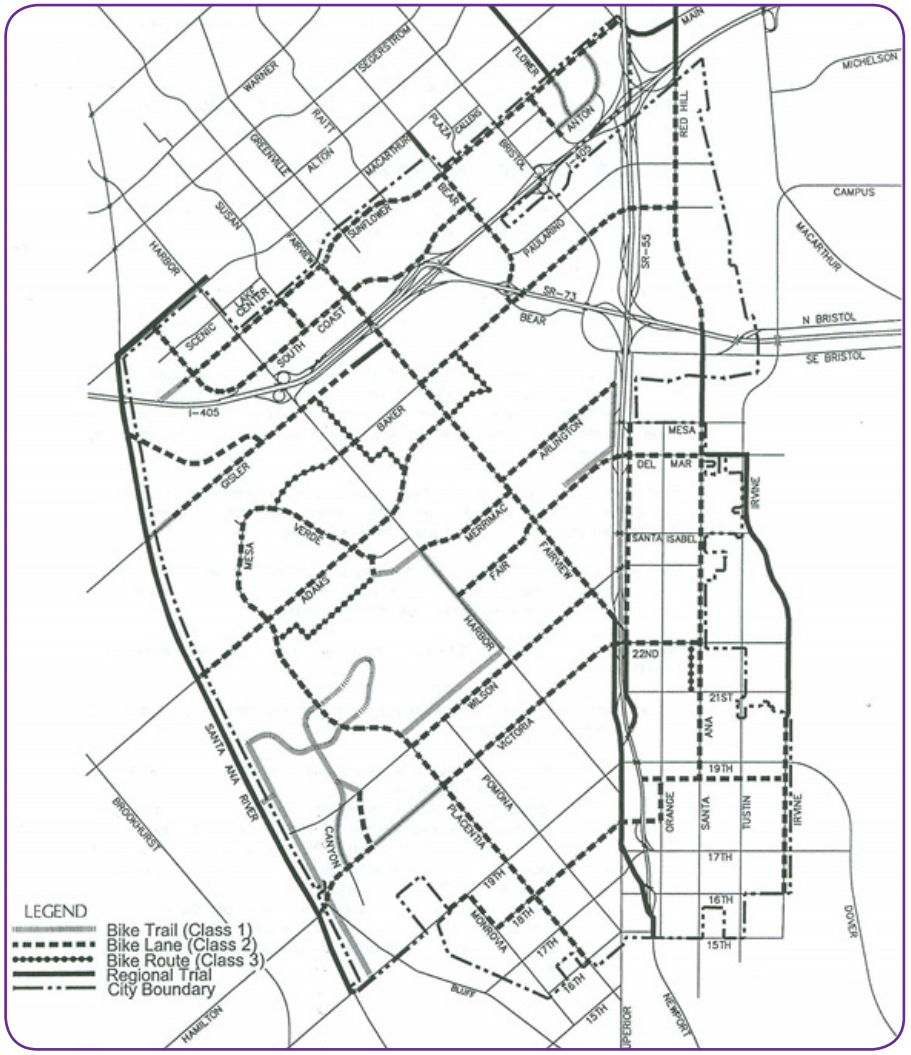

Figure 2-9 Costa Mesa Master Plan of Bikeways (1974)

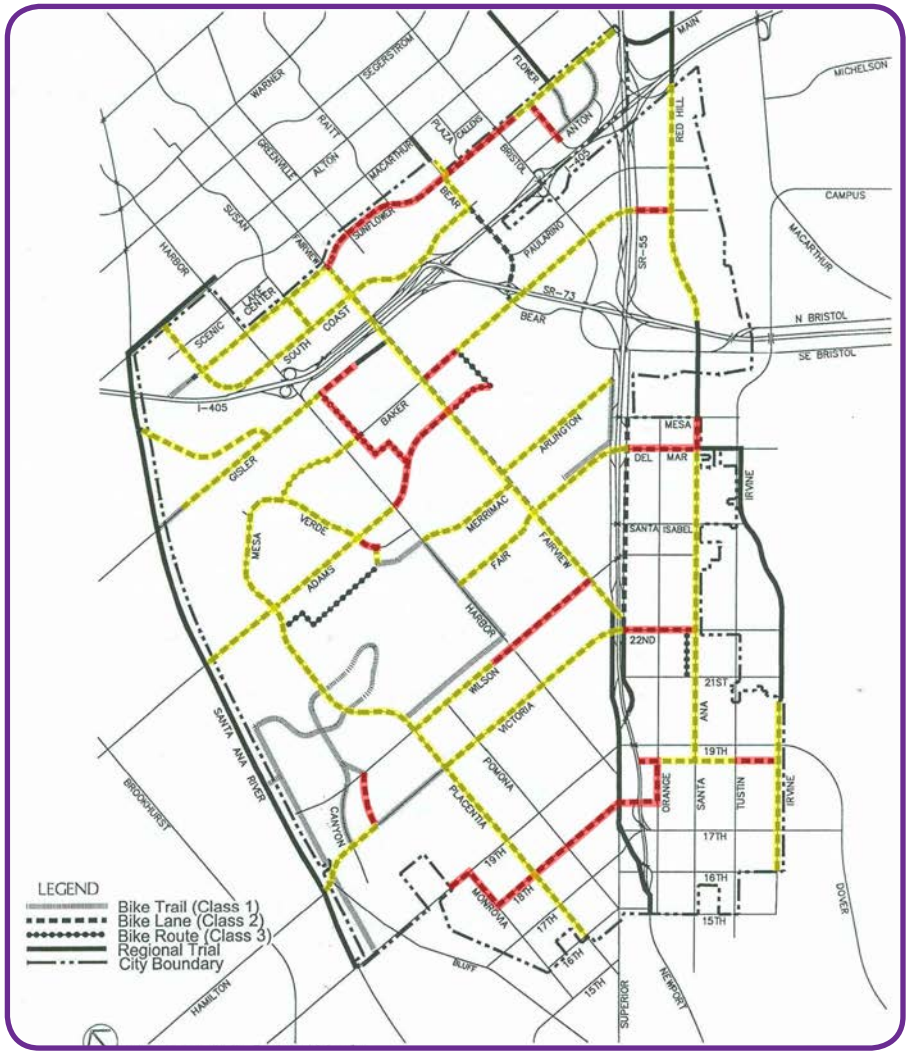

Figure 2-10 Costa Mesa Bikeways Major Gaps

Bicycle Safety Guide

The City of Costa Mesa publishes a Bicycle Map and Safety Guide shown in Figure 2-11 available both digitally on the City's website and on paper. The map shows existing Class I, II, and III facilities (there are no existing Class IV facilities in Costa Mesa at this time), points of interest and other destinations, as well as a handful of notably challenging streets for cyclists. The map is available in two versions with safety information tailored to adult and child audiences, respectively.

Elementary School Bicycle Education Program

The City of Costa Mesa and Newport-Mesa Unified School District kicked off a series of pedestrian and bicycle safety workshops on April 20, 2015. Each safety event, conducted by a traffic safety non-profit Safe Moves, consisted of the workshop itself as well as a bicycle rodeo. The workshops were conducted at 16 elementary schools throughout the City.

Community-Wide Bicycle Education Program

In addition to the elementary school workshops, the City conducted five public bicycle rodeo events that were completed in June 2016. These events were funded through a grant from OCTA's Bicycle Corridor Improvement Program (BCIP).

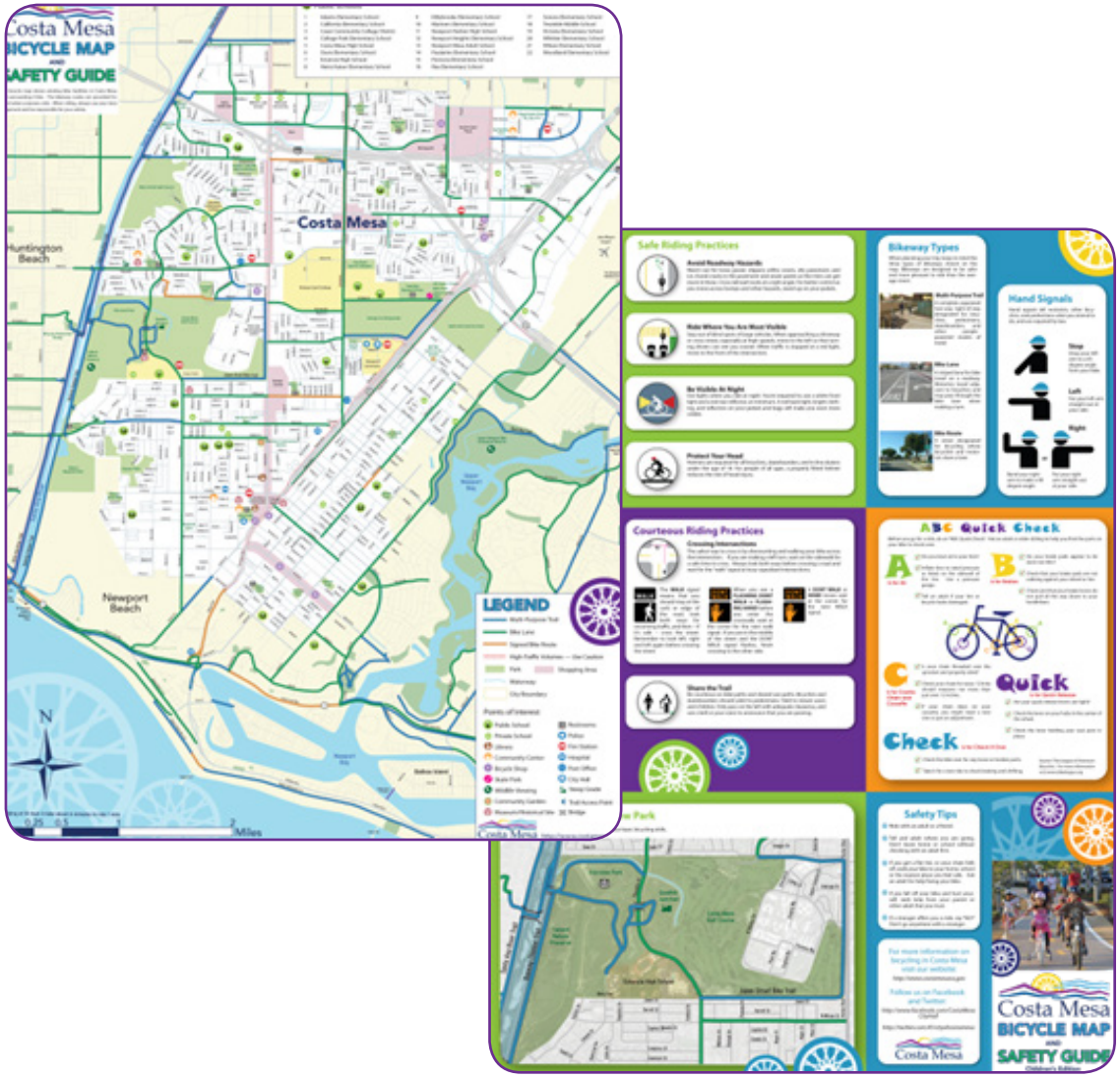

Figure 2-11 City of Costa Mesa Bicycle Map and Safety Guide

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3.0 Components of Active Transportation Planning

Caltrans Classification System

Class I Bicycle Facility (Off-Road Facility - Bicycle Path)

Class I multi-use pathways (or bicycle paths) provide a paved right-of-way that is physically separated from the street or highway. Bicycle paths can provide opportunities for recreation or serve as direct high-speed commute routes. These facilities are commonly found along rivers, ocean fronts, canals, utility right-of-way, and abandoned railroad right-of-way. Class I facilities also close gaps caused by the construction of freeways or the existence of natural barriers (rivers, mountains, etc.).

Class I bicycle paths are facilities with exclusive right-of-way and minimized vehicle cross flows for the exclusive use of bicycles and pedestrians.

Pros:

- Separated from motor vehicles
- Low stress
- Accessible to bicyclists of all skill levels

Cons:

- Relatively expensive
- Require dedicated right-of-way

Figure 3-1 Class I Multi-use Trail

Figure 3-2 Existing Class I Multi-use Trail

Class II Bicycle Facility (On-Road Facility - Bicycle Lane)

Bicycle lanes are intended to delineate the right-of-way assigned to bicyclists and motorists and to provide for more predictable movements by each. Primarily, bicycle lanes serve to better accommodate bicyclists through corridors where sufficient room exists for side-by-side sharing of existing streets by motorists and bicyclists. Class II facilities (or bicycle lanes) provide a striped lane for one-way travel on a street or highway. Class II facilities are marked lanes within a roadway, located adjacent to the curb or parking lane.

Pros:

- Can use existing street right-of-way
- Relatively inexpensive
- Provides designated space for bicyclists

Cons:

- Limited separation from motor vehicles
- Can be intimidating to less experienced bicyclists
- Can result in conflict with car doors opening in cyclist's path when parking is allowed adjacent to the lane

Figure 3-3 Class II Bicycle Lanes

Colored or Paved Bicycle Lanes

Recently, some agencies have started providing green color treatments on striped bicycle lanes to make them more visible to motorists. According to the latest guidelines by MUTCD, the green colored pavement may be used within a bicycle lane or within an extension of a bicycle lane to enhance the visibility of the bicycle lane or extension. Green colored pavement may also be installed as a rectangular background behind the word, symbol, and arrow pavement markings in a bicycle lane. If a pair of dotted lines is used to extend a bicycle lane across an intersection or driveway or a ramp, green colored pavement may be installed between these lines as a supplement to the lines. The extra paint or coating can be expensive to apply and maintain so the specific project recommendation will vary based on the speed and volume of traffic on the roadway and the stage of roadway construction.

Figure 3-4 Class II Colored Bicycle Lanes

Buffered Bicycle Lanes

Buffered bike lanes are similar to conventional bicycle lanes paired with a designated buffer space or "shy zone" separating the bicycle lane from the adjacent motor vehicle travel lane and/or parking lane. The buffered zone can be demarcated with hatched striping and/or raised pavement markings (Botts' dots) or soft hit posts. The buffer is often marked with two solid white lines with diagonal hatching. Double white lines indicate lanes where crossing is discouraged, though not prohibited. These might not be appropriate for roadways with a high density of vehicle curb cuts/ driveways.

Figure 3-5 Class IV Buffered Bicycle Lanes

Class III Bicycle Facility (Share the Road or Sharrow)

Class III facilities (or bicycle routes) provide for shared use with motor vehicle traffic and are identified by signage and/or sharrows. These facilities serve to provide continuity to other bicycle facilities, connections, or to designate preferred routes through high demand corridors.

Pros:

- Can fit within existing street right-of-way
- Relatively inexpensive
- Guides cyclists through low volume preferred bicycle routes
- Helps motorists to expect bicyclists
- Encourages bicyclists to avoid riding too close to parked cars

Cons:

- No separation from motor vehicles
- Can be intimidating to less experienced bicyclists
- Not suitable for high-speed streets

Figure 3-6 Class III Bicycle Facility

Sharrow Markings

Sharrow markings indicate that travel lanes are intended for the use of both bicycles and motor vehicles. They often include bicycle lane markings in the motor-vehicle travel way known as sharrows. Sharrows are a visual reminder for cyclists and cars to share the road and are typically used where there is insufficient width to add a dedicated bicycle lane. The sharrow, when implemented correctly, shows the rider where to ride in the road to increase maximum visibility of the cyclist and move the cyclist out of the "door zone" of parked cars. Sharrow markings and signs can be applied to bicycle routes to more clearly indicate that motorists should expect, and show greater courtesy to, bicyclists.

Figure 3-7 Lanes with Sharrow Marking

Bicycle Boulevards

Bicycle boulevards, also known as neighborhood greenways, are a treatment applied to a street to encourage bicycle travel while discouraging or slowing motor vehicle travel. Bicycle boulevards typically provide traffic devices that are also used for neighborhood traffic calming, such as speed humps, medians, landscaped bulb-outs, roundabouts, and other measures that discourage unnecessary traffic and reduce motor vehicle speeds to 15 mph while allowing bicycle speeds uninterrupted at 15 mph. The net effect is to transform a street into a facility where bicycles have priority while motor vehicles become secondary users.

Figure 3-8 Class III Bike Boulevards

Class IV Bicycle Facility (Cycle Tracks)

In addition to the standard Class I, II, and III bicycle facilities, an additional treatment is now being implemented in cities across the country. Class IV bicycle facilities, also known as cycle tracks, separated bikeways, or protected bikeways, are similar to Class I facilities in that they feature a dedicated bicycle right-of-way. Rather than being independent from a street or highway, Class IV facilities are located inside the road right-of-way. Bicyclists are typically separated from motor vehicles by a barrier such as a curb, delineator posts, parked cars, or median. These facilities can also be designed as two-way cycle tracks.

The State of California recently passed a law defining Class IV bicycle facilities and in 2016 created Design Information Bulletin (DIB) number 89 for Class IV design standards. The law also allows for use of design criteria in the Urban Bikeway Design Guide, published by the National Association of City Transportation Officials (NACTO). Elements of Class IV facilities were formerly considered to be contrary to State design standards until the passage of this law and DIB 89. They are now permitted and are encouraged where feasible by Caltrans.

Class IV Bicycle Facilities are much less common than other classes in California, with examples currently in Temple City, Los Angeles, Long Beach, Redondo Beach, Carlsbad, Santa Cruz, and San Francisco. They are being implemented in cities throughout the U.S., often following the criteria found in the NACTO guide.

Pros:

- Can use existing street right-of-way
- Protected from motor vehicles with a physical barrier
- Accessible to bicyclists of all levels

Cons

- Relatively expensive
- Requires more right-of-way than a Class II or III facility

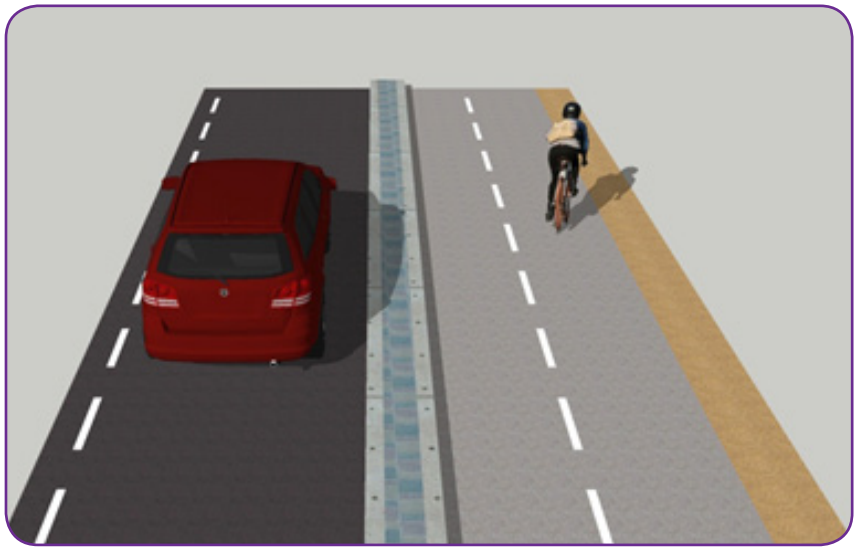

Figure 3-9 Class IV Cycle Tracks

Figure 3-10 Class IV Cycle Tracks

Raised Bicycle Lanes

Slightly elevating the bicycle lane from the travel lane can also provide additional visibility to the bicycle lane, along with a slight physical barrier. They can be raised only slightly over the pavement or to the same level as the sidewalk. This treatment is relatively new in the United States and is not widely accepted yet.

Figure 3-11 Class II Raised Bicycle Lanes

Bicycle Infrastructure Concepts

This section describes other bicycle friendly improvements that can be made to existing infrastructure.

Dedicated Bicycle Signals and Signal Phases

A signal phase is defined as the portion of a traffic signal cycle allocated to a traffic movement at an intersection receiving the right-of-way, or to any combination of traffic movements receiving the right-of-way simultaneously. The combination of all phases is equal to one cycle length. Traffic signals can be timed to allow priority for bicycles or pedestrians. Providing a dedicated bicycle signal can move bicyclists through an intersection safely, while prohibiting motor vehicles from creating a potential conflict.

Figure 3-12 Dedicated Bicycle Signals and Signal Phases

Bicycle Box

A bicycle box is the extension of the bicycle lane into the intersection itself. Bicycle boxes are designed to reduce bicycle and car collisions as they provide bicyclists with a safe and visible way to get ahead of queuing traffic during the red signal phase. Generally a green box with a white bicycle symbol inside is painted on the road before a stop bar. The boxes include the bicycle lanes approaching the box. The Federal Highway Administration's Office of Transportation Operations recently issued a new Interim Approval for the Optional Use of an Intersection Bicycle Box. Interim Approval allows for the provisional use, pending official rule making of a new traffic control device not specifically described in the Manual on Uniform Traffic Control Devices.

Figure 3-13 Bicycle Box at Strathmore and Westwood Plaza at UCLA

Roundabout

Modern roundabouts are potentially the most efficient and the safest form of traffic control for many intersections while also providing opportunities for enhanced landscaping. They are also preferred by bicyclists under many circumstances, as they do not require the bicyclist to stop or lose momentum as previously discussed in the bicycle boulevard section. However, bicycle lanes are typically not striped through roundabout intersections, even on Class II roadways. This allows bicyclists the ability to move from the striped bicycle lane to take control of the travel lane. Alternately, it is recommended that the sidewalks adjacent to the roundabout provide additional width to allow for a multi-use segment, so bicycles can choose to use the sidewalk if they are uncomfortable taking control of the travel lane. Pedestrian crossings within roundabouts are located one car length away from the circulating roadway to shorten the crossing distance, reduce the potential for vehicle-to-pedestrian conflicts, and allow pedestrians to cross between waiting vehicles. Connections from the bicycle lanes to the sidewalk prior to this crosswalk are recommended.

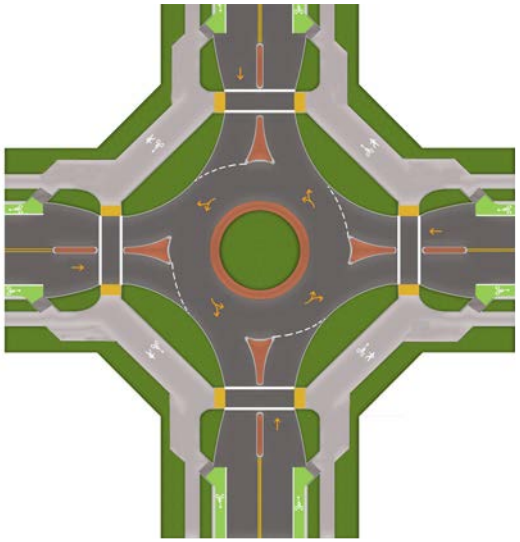

Figure 3-14 Roundabout

Mini Roundabout / Residential Roundabouts

A mini-roundabout is a type of intersection that can be used in residential neighborhoods or at physically-constrained locations in place of stop-controlled intersections. They are compact in size and provide operational efficiency and safety. These residential roundabouts are seen as traffic calming devices and enhance aesthetics of the neighborhoods. A mini-roundabout may offer an environmental benefit compared to conventional intersections through reduced delay, fuel consumption, and vehicle emissions. Sharrows and share-the-road signs can be added to these residential roadways to provide for bicycle facilities.

Figure 3-15 Mini Roundabout

At-Grade Intersections

The Caltrans Highway Design Manual suggests several designs for at-grade crossings that include bicycle lanes. Figure 3-16 depicts a typical at-grade intersection of multilane streets without dedicated right-turn lanes. Bicycle lanes are included on all approaches. A prevalent crash type is between straight-through bicyclists and right-turning motorists not yielding to through bicyclists.

The use of optional right-turn lanes in combination with dedicated right-turn lanes is not recommended in any case where a Class II bicycle lane is present. This may increase the need for dual dedicated right-turn lanes. If right-turn lanes are provided, the bicycle lanes should be located to the left of the lanes. Figure 3-17 depicts an intersection with a left-turn-only bicycle lane, which should be considered when bicycle left-turns are common. A left-turn-only bicycle lane may be considered at any intersection as a tool to provide mobility for bicyclists.

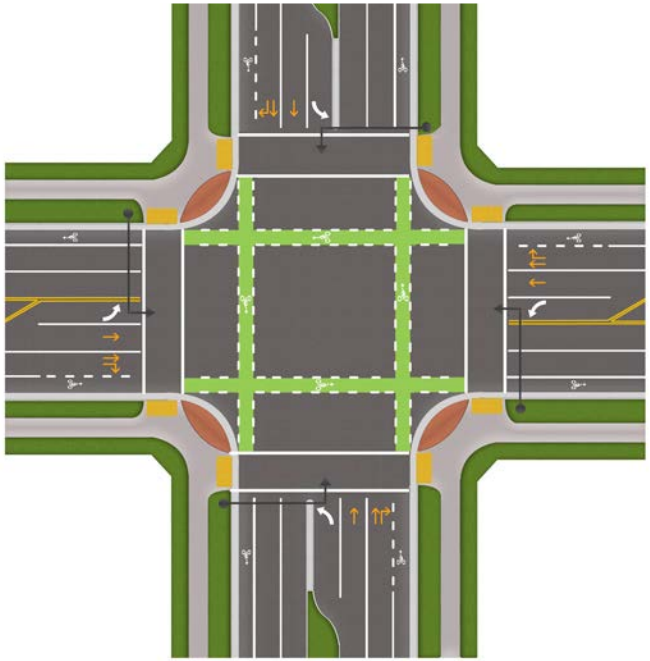

Figure 3-16 Typical Bicycle and Motor Vehicle Movements at Intersection of Multilane Streets

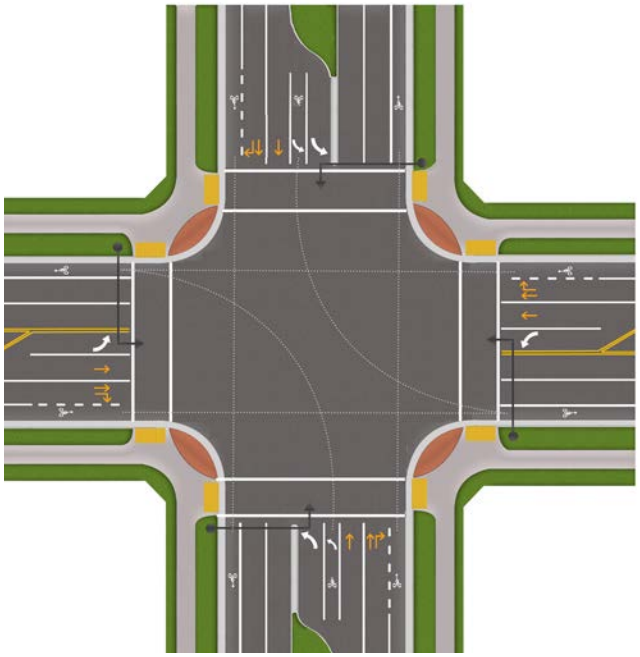

Figure 3-17 Bicycle Left Turn Lane

Protected Bicycle Lanes

While there are standard intersection designs suggested by Caltrans, some innovative designs have surfaced recently. One of them is called protected bicycle lanes and is an adaptation from a Dutch way of designing complex streets. The protected bicycle lane intersections have four main components:

- Corner Refuge Island
- Forward Stop Bar
- Setback Crossings
- Bicycle-Friendly Signal Phasing

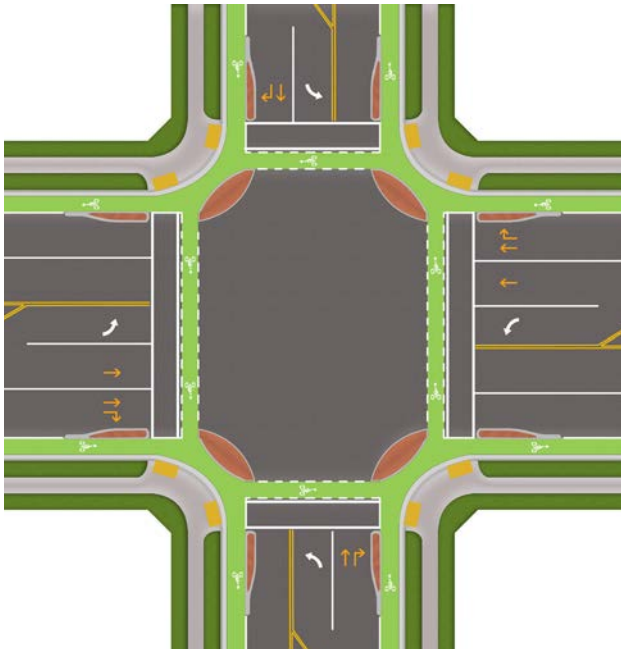

Figure 3-18 Protected Bicycle Lane Intersection

Grade-Separated Intersections

This treatment allows for a secondary bicycle-only intersection adjacent to the vehicular intersection. The intersection is designed at an alternative grade, but operates as a standard four-legged intersection. This removes any potential for conflict between bicycles and motor vehicles. However, disadvantages of this treatment include very high cost and inconvenience.

Figure 3-19 Grade-Separated Intersection

Supporting Facilities

Bicycle parking is the most vital of all support facilities for bicycle transportation. Other supporting facilities such as showers and changing rooms encourage people to use bicycles as a mode of transport rather than just for recreational use.

Bicycle Parking

Bicycle parking should be adequate, attractive, convenient, simple and safe. It should be connected to the (main) bicycle network and close to the destination. Direct access to the destination is essential from the parking area.

Bicycle parking can be divided into short-term and long-term parking. The most common and widely used short-term parking takes the form of bicycle racks, and these come in various shapes and sizes. The selection of an appropriate bicycle rack will depend on factors such as space available, budget, intended character, and frequency of use. Some common types of bicycle racks are inverted U and post and ring (Refer to Figures 3-20 and 3-21). High-density environments can take advantage of two-tier racks, staggered wheel well secured racks, vertical racks, and two-tier racks (Refer to Figures 3-22 to 3-24).

The Association of Pedestrian and Bicycle Professionals suggests avoiding certain kinds of racks in their publication “Essentials of Bicycle Parking”, due to their performance concerns such as security, user friendliness, and limitations. These include wave, coat hanger, wheel well secured, bollard, spiral and swingarm secured (Refer to Figure 3-23 for wheel well secured).

Figure 3-20 Inverted U Bicycle Rack

Figure 3-21 Post and Ring

Figure 3-22 Two-tier Racks

Figure 3-23 Staggered Wheel Well Secured Racks

Figure 3-24 Vertical Racks

Long-term parking places high value on security and weather protection. These include bicycle lockers and sheltered secure enclosures (Refer to Figures 3-25 and 3-26).

Figure 3-25 Bicycle Lockers

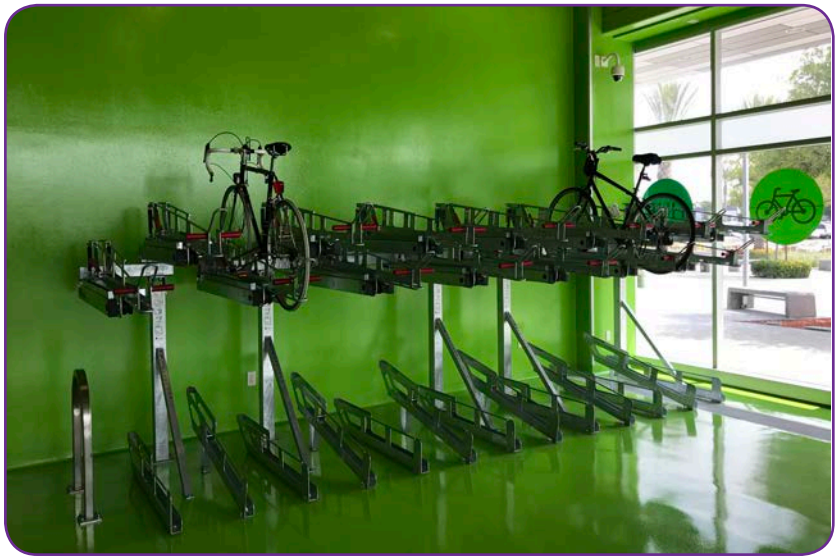

Figure 3-26 Sheltered Secure Enclosures

Accommodating Pedestrians

Walkability, access, and connections are essential components of a circulation system that accommodates pedestrians. Walkability includes design features such as wide sidewalks, safe street crossings, treatments that encourage cautious driving, and comfortable and safe walking environments. Comfortable sidewalks, well-designed pedestrian crossings, pathways, and pedestrian shortcuts allow people to get from one destination point to another with ease.

The City supports the integration of pedestrian-oriented improvements and amenities within the circulation system to improve walkability. Figure 3-28 identifies the primary pedestrian districts in Costa Mesa that will receive focused attention.

Sidewalks and Sidewalk Zones

Sidewalks are not merely places for pedestrians to move about. As public spaces, sidewalks serve as the front steps to the City, activating streets socially and economically. Safe, accessible, and well-maintained sidewalks can enhance general public health and create vibrant social settings. In districts with heavy pedestrian activity—such as in the Westside, SoBECA and South Coast Plaza/Orange County Performing Arts districts—sidewalks should have several zones that accommodate pedestrians. The zones should include a frontage zone, pedestrian-through zone, street furniture zone, and enhancement/buffer zone (See Figure 3-29).

Frontage Zone

The frontage zone is that section of the sidewalk that functions as an extension of the building, whether through entryways and doors or sidewalk cafes and sandwich boards. The frontage zone consists of both the structure and the facade of the building fronting the street, as well as the space immediately adjacent to the building.

Pedestrian Through Zone

The pedestrian through zone is the primary accessible pathway that runs parallel to the street. The through zone ensures that pedestrians have a safe and adequate place to walk and should be five to seven feet wide in residential settings and eight to 12 feet wide in downtown or commercial areas.

Figure 3-27 Example of pedestrian-friendly streets with wide sidewalks, street furniture, and lighting that illuminates the sidewalk (Source: General Plan)

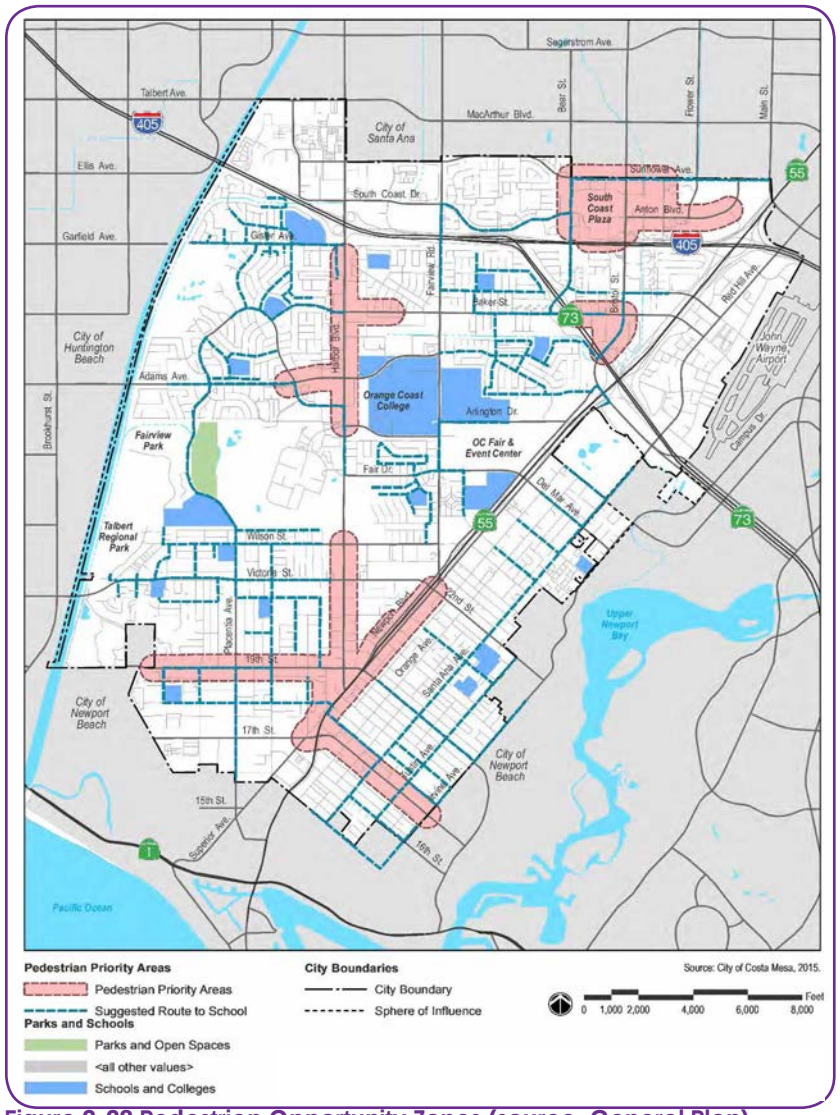

Figure 3-28 Pedestrian Opportunity Zones (source: General Plan)

Street Furniture Zone

The street furniture zone is defined as the section of the sidewalk between the curb and the pedestrian through zone in which street furniture and amenities, such as lighting, benches, newspaper kiosks, utility poles, tree wells, and bicycle parking are provided.

Enhancement/Buffer Zone

The enhancement/buffer zone is the space immediately next to the sidewalk that may consist of a variety of different elements. These include curb extensions, parklets, stormwater management features (e.g., bioswales), parking, bike racks, bike share stations, and curbside bike lanes or cycle tracks.

Importance of Shade and Heat Management

While provisions for street trees, landscaping, and shade are always good public policy, hot summers in Southern California and the potential for more and more record heat with continued global warming makes heat management strategies critical to the development of a viable town center. Summer high temperatures

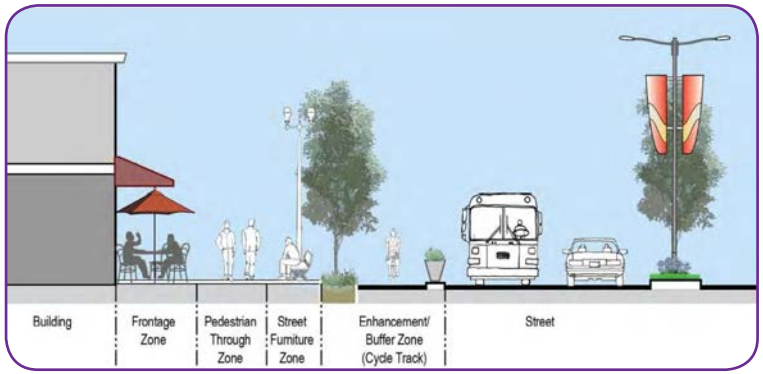

Figure 3-29 Sidewalk Zones (Source: General Plan)

frequently average in the mid 90s and occasionally reach well over 100 degrees Fahrenheit. Temperatures that high can discourage residents from walking or biking for transportation or having meaningful social interactions in public open spaces which can translate into a less active and engaging street scenes as well as negative health outcomes from reduced exercise. Ensuring streetscape projects promote drought tolerant shade trees and landscaping can help reduce the impact of rising temperatures on mode choice while reducing energy costs from air conditioning adjacent buildings. Moreover, breaking up paved areas with landscaping has been proven to help reduce the urban heat island effect. Some jurisdictions such as the City of Los Angeles have begun experimenting with additional innovative heat management strategies such as specialized reflective pavement which is lighter in color and markedly reduces the amount of heat absorbed by public roadways.

Multi-use Trails

Multi-use trails are off-street pedestrian and bicycle facilities that offer opportunities not provided by the road system. Multi-use trails are used for walking and biking including wheelchair users, skaters and skateboarders. Caltrans' Highway Design Manual provides guidelines for Class I bikeways, which are paved multi-use (bicycling and walking) paths that conform to these guidelines. The recommended width for Class I facilities is ten feet, although they can be as narrow as eight feet where necessary and should be 12 feet or more where heavy use is anticipated. Other characteristics of these paths are a clear vertical space of eight feet and two feet of horizontal clearance from the edge of the path to any obstructions (such as signs or other stationary objects such as lighting).

Crosswalks and Markings

Properly designed, marked, and signed crossings improve motorist courtesy toward pedestrians. The City supports the provision of marked crosswalks at protected (signalized or stop-controlled) intersections if their presence minimizes pedestrian-auto conflicts. The City has prioritized improving intersections near schools to create pedestrian-friendly environments under the suggested Safe Routes to School program. Figure 3-28 Pedestrian Opportunity Zones, identifies areas where the City will pursue street enhancements to create pedestrian-friendly environments. Figure 3-30: Street and Intersection Improvements for Pedestrian Safety, outlines the types of design improvements that create safer streets and intersections for pedestrians.

Costa Mesa has approved several projects under its Capital Improvement Programs that invest in all neighborhoods with proven methods to enhance pedestrian safety, including:

- Implementation of traffic-calming devices
- Illuminated crosswalks
- New landscaped parkways and medians to both address pedestrian-orientation and provide effective visual cue to slow traffic
- Completion of sidewalks and curbs
- Extensive traffic signal synchronization

Design Improvements	Supplemental Design Improvements
▪ Traffic Signal	▪ Advance Stop and Yield Lines
▪ Stop Sign	▪ Flashing Lights and Beacons
▪ High-Visibility Crosswalks	▪ Special Intersection Paving
▪ Mid-Block Crosswalks	▪ Raised Crosswalk and Intersections
▪ Pedestrian Refuge Islands	▪ RRFB and HAWKs

HAWK – High Intensity Activated Crosswalk is a pedestrian hybrid beacon that is used at busy crosswalks. The beacon is activated to solid red followed by flashing red when the pedestrian buttor s pushed.

RRFB – Rectangular Rapid Flash Beacons are used at mid-block pedestrian crossings to increase drive awareness of potential pedestrian conflicts. They use irregular flash patterns when activated by pedestrians to get driver attention.

Figure 3-30 Street and Intersection Improvements for Pedestrian Safety (Source: General Plan)

4.0 Existing Conditions Analysis

This chapter reports the existing conditions assessment for Costa Mesa's bicycle infrastructure including bicycle paths, bicycle lanes, and bicycle routes as well as roadways and transit services.

Table 4-1 breaks down the transportation (commute to work) mode share of Costa Mesa, neighboring cities, as well as the State and County based on data from the American Community Survey (2013 Estimate). While this measure does not include other purposes for bicycle riding, it is the only data formally collected to determine the amount of cycling. As the table shows, Costa Mesa already has higher cycling levels than neighboring cities and the county and state averages. This percentage is likely to increase with bicycle network expansion and bicycle education programs.

Table 4-1 Transportation Mode Share (Commute to Work)

Jurisdiction	Bicycle	Walk	Transit*	Carpool	Drive Alone
Costa Mesa	2.2%	2.3%	3.4%	8.6%	79.0%
Huntington Beach	1.1%	1.6%	2.7%	9.4%	79.4%
Newport Beach	1.6%	2.7%	3.0%	6%	79.3%
Irvine	1.5%	4.1%	2.7%	6.9%	78.7%
Santa Ana	1.8%	2.2%	10.2%	12.9%	71.6%
Orange County	1.0%	2.0%	4.0%	9.8%	78.3%
California	1.1%	2.7%	6.8%	10.9%	73.2%
*Transit figure includes public transportation and taxicab data. Source: 2013 American Community Survey 1-Year Estimates					

Collision Rate for Bicyclists

The California Office of Traffic Safety (OTS) publishes collision data for cities and counties in the State of California. Cities are grouped in different categories of similar sized populations. Costa Mesa belongs to Group B that has a total of 56 cities. The results are published in form of OTS ranking. Number 1 in the rankings is the highest, or "worst." So, for Group B, a ranking of 1/56 is the highest or worst, 27/56 is average, and 56/56 is the lowest or best.

The 2013 data shows that there were 87 collisions with injuries or fatalities, giving Costa Mesa an OTS ranking of 3/56 in the bicycle category. This may be in part due to higher commuting and non-commuting uses, but it suggests that the area merits attention. The City will need to deeply study the existing bicycle network, safety education, and excessive car vehicular speeding to reduce these collisions in the future. Distracted and aggressive driving also contribute to collisions and might need increased enforcement of existing traffic laws.

Existing Bicycle Infrastructure

An extensive field review was conducted for this project of the existing roads and bicycle facilities in Costa Mesa.

Figure 4-1 illustrates the Existing Bicycle Facilities Map.

Table 4-2 provides a detailed inventory of the class types, deficiency codes and length in miles for each existing bicycle facility. Table 4-3 identifies the common bicycle problems each deficiency code represents.

Figure 4-1 Existing Bicycle Facilities Map

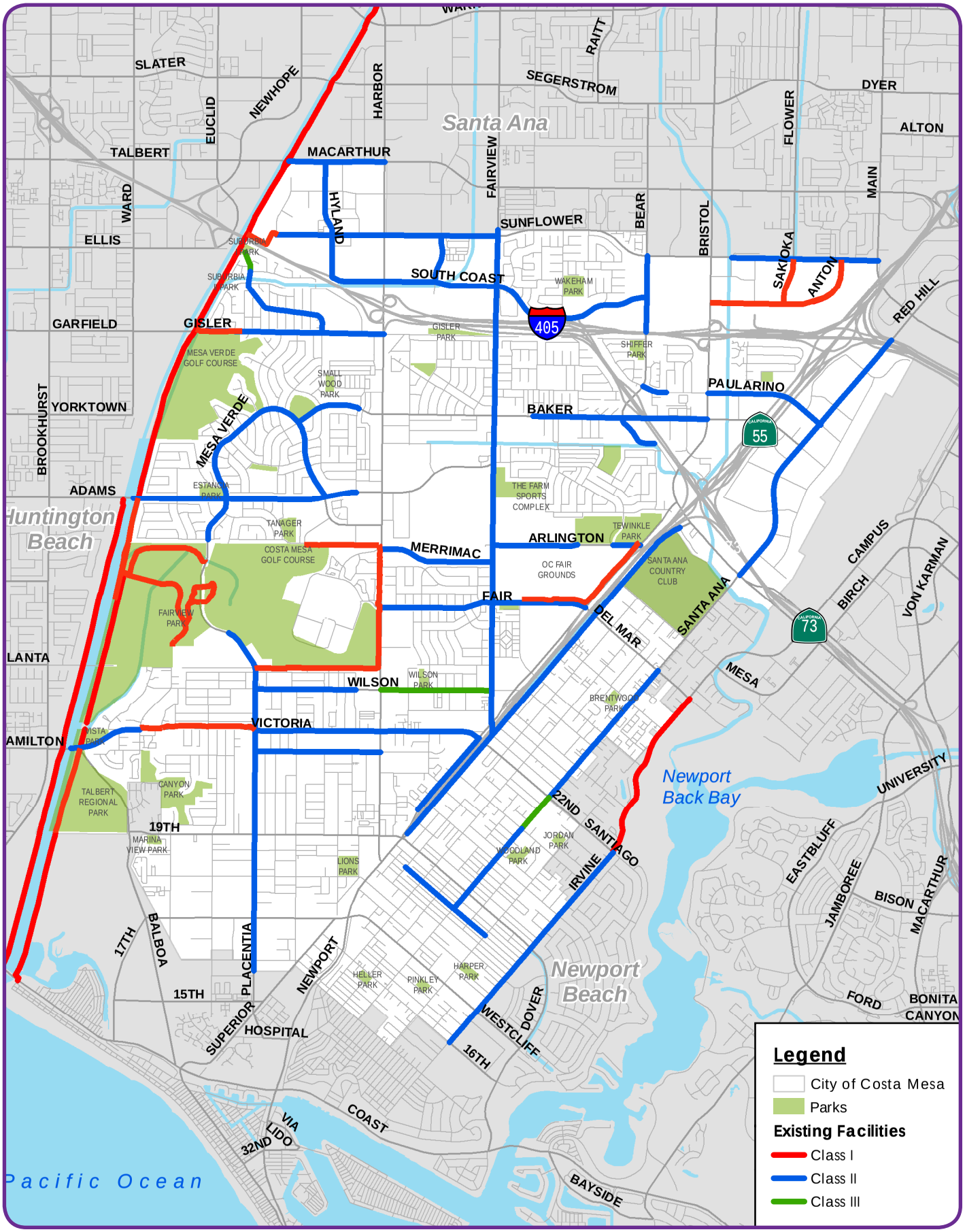

Table 4-2 Existing Bicycling Facilities Inventory

Existing Class I Multi-Use Paths			
Route	**Miles**	**Notes**	**Deficiency Codes***
Anton Boulevard	0.9	Wide walkway from Bristol Street to Sunflower Avenue on the southbound side of Anton Boulevard.	SB/WB, WW
Sakioka Drive	0.3	Wide walkway from Anton Blvd to Sunflower Avenue on the northbound side of Sakioka Drive.	NB, WW
Fairview Park	2.5	Provides several multi-use path facilities including connections to the Santa Ana River Trail and OC Loop facilities, as well as a bicycle and pedestrian bridge over Placentia Avenue. While some of the paths are paved, others remain unpaved reducing their usefulness in wet weather. Improved bicycle and pedestrian access to neighborhoods north and south of the park would improve utility. A narrow, deteriorating asphalt trail just north of Estancia's stadium connects Placentia to the main trail near the restrooms.	IC, N, IS
E. Mesa Verde Drive	0.2	Adams Avenue to Ashwood Street. Short length and ends abruptly at abruptly at Ashwood Street a block from Harbor Boulevard.	NB, WW, SS
Tanager Drive	0.5	Golf Course Drive to Harbor Boulevard. Seems semi-private so increased signage/public bicycle facilities along the route are needed to encourage usage. Extension along the northern edge of the golf course to Fairview Park is a highly desirable route linking existing Class I facilities. Paving is in poor condition.	IS, MG
Placentia Avenue	0.1	Wide walkway from the Corporate Yard entrance to the edge of the Costa Mesa Golf Course. The portion immediately to the south (between the Corporate Yard entrance and the connection with the Joann Street bicycle trail) narrows to a sidewalk insufficiently wide to be considered a Class I facility or win over additional prospective bicyclists.	NB, WW
Joann Street Bicycle Trail	1.4	Wide, landscaped, multi-use trail from Fair Drive to Placentia Avenue on the southbound side of Harbor Boulevard and along the southern boundary of Costa Mesa Golf Course.	SB/WB, IS
Victoria Street	0.7	Wide, striped multi-use trail from Canyon Drive to Placentia Avenue on the eastbound side of Victoria Street.	WB, INT
Fair Drive/Newport Boulevard South	1.0	Wide walkway on the westbound side of Fair Drive from Fairview Road to Arlington Drive.	SB/WB, WW
Sunflower Avenue	0.2	Narrow multi-use trail connecting the Santa Ana River Trail and Orange County Loop to the end of Sunflower Avenue at Cadillac Avenue. Easily missed at the entrance so improved signage is required.	N, IS

Route	Route	Notes	Deficiency Codes*
W. Gisler Avenue	1.1	Multi-use trail connecting the dedicated Santa Ana River Trail, Banning Channel Trail, and Orange County Loop to the end of W. Gisler Avenue at Washington Avenue. Signage making residents aware of entrance, available bicycle destinations, and various Class I trails is required along with center striping for directional lanes.	IS
E. Gisler Avenue	0.1	Narrow walkway from Kerry Lane (Gisler Park) to Fairview Road. Turns sharply with limited lateral clearance. Poor access to Fairview Road.	N, LC
Total Class I Miles	**9.0**		
Existing Class II Bicycle Lanes			
Hyland Avenue	0.7	MacArthur Boulevard to South Coast Drive	
Sunflower Avenue	2.4	Cadillac Avenue to Fairview Road	
Sunflower Avenue	0.9	Park Center Drive to Main Street	WB
Susan Street	0.3	Sunflower Avenue to South Coast Drive	
South Coast Drive	0.3	Hyland Avenue to Bear Street. Major interruptions in both directions for right-turn lanes and driveways. Westbound: Bear Street, South Coast Plaza Entrance, Harbor Boulevard area. Eastbound: Bear Street, Metro Pointe entrance, I-405 Freeway on-ramp by Metro Pointe. The infrastructure has been severely impacted by heavy truck/bus traffic. The street needs to be re-graded and surfaced and provision of bike lanes and or multi-use trail should be studied as a part of redevelopment planning efforts.	MG, RTL, TS
W. Paularino Avenue	0.8	Bristol Street to Red Hill Avenue. Right-turn interruptions: westbound at Bear Street & eastbound at Bristol Street. Eastbound lane becomes very narrow prior to gap.	MG, RTL, N
W. Paularino Avenue	0.1	Bear Street to Platte Drive. Westbound lane interrupted by right-turn lane at Bear Street. Eastbound lane narrows towards Platte Drive and then both lanes end abruptly.	RTL, N
Baker Street	1.0	Coolidge Avenue to Bristol Street. Bicycle lanes disappear westbound at Bear Street and Babb Street and eastbound at Bristol Street.	RTL, SS
California Street	0.8	Moon Park to Gisler Avenue. Class II bicycle lanes exist in both directions from Gisler Avenue to Iowa Street. Class II facility continues northbound only from Iowa Street to New Hampshire Drive where both directions are downgraded to a signed bicycle route (Class III). Bicycle lanes run between parked cars and travel lanes in the door zone area, but zone may be less hazardous due to residential setting.	MG, DZ

Route	Miles	Notes	Deficiency Codes*
Gisler Avenue	0.7	Washington Avenue to Iowa Street. Eastbound bicycle lane stops short of Iowa Street. EB Gisler at Harbor has a dangerous left-turn conflict where cyclists need to negotiate crossing a straight/right-turn lane and two left-turn lanes that enter I-405. A third left-turn lane is being built, which presents a great opportunity to incorporate a left-turn lane for cyclists.	SS, LTC
W. Baker Street	0.6	W. Mesa Verde Drive to Royal Palm Drive. Buffered with wide striped sections in places but not everywhere.	INT, DZ
Adams Avenue	1.5	Santa Ana River Trail to Harbor Boulevard. There is a prolonged gap eastbound at W. Mesa Verde Drive due to neighborhood entrance. Major gaps at right-turn lanes westbound at E. Mesa Verde Drive and eastbound at both Mesa Verde intersections as well as Harbor Boulevard.	RTL, MG, SS, HV
W. Mesa Verde Drive	1.2	W. Adams Avenue to E. Adams Avenue. Bicycle lanes are interrupted by right-turn lanes at both intersections with Adams Avenue.	RTL
Placentia Avenue	3.2	W. Adams Avenue to Superior Avenue. See Placentia Avenue subsection for details.	MG, RTL, TS
Merrimac Way	0.7	Harbor Boulevard to short of Fairview Road	SS, DZ
Fair Drive	0.7	Harbor Boulevard to Fairview Road. Bicycle lanes are interrupted by right-turn lanes at both Fairview Road and Harbor Boulevard.	MG, RTL
Fair Drive	0.6	Fairview Road to Newport Boulevard. A major gap exists in the westbound direction due to the extended double right-turn lanes at the OC Fairgrounds entrance from Newport Boulevard and the SR-55 Freeway. Right-turn lanes also interrupt the westbound bicycle lane at Harbor Boulevard and the second Fairgrounds entrance at Vanguard Way as well as the eastbound bicycle lane at Newport Boulevard.	MG, RTL
Arlington Drive	0.7	Fairview Road to Newport Boulevard. Westbound only from Junipero Drive to Newport Boulevard. A gap exists on either side of Junipero Drive in both directions.	MG, WB
Fairview Road	3.0	MacArthur Boulevard to Newport Boulevard. No northbound bicycle lane from Newport Boulevard to Avocado Street. See Fairview Road subsection for details.	RTL, MG, HV, INT, TS
Newport Boulevard N.	2.4	19th Street to Bristol Street. Narrow bicycle lanes on northbound side only. See Newport Boulevard subsection for details.	HV, NB, N, IRM, RTL, INT
Wilson Street	0.6	Placentia Avenue to Miner Street. Stops short of Harbor Boulevard in both directions and interrupted by a right-turn lane eastbound at Placentia Avenue.	RTL, SS
Santa Ana Avenue	1.0	Santiago Drive/22nd Street to Del Mar Avenue/University Drive. Major gap between Del Mar Avenue and Bristol Street and Class III section between 22nd Street and 21st Street. See Santa Ana Avenue subsection for details.	MG
Santa Ana Avenue	0.6	Broadway to 21st Street. See Santa Ana Avenue subsection for details.	

Route	Miles	Notes	Deficiency Codes*
Broadway	0.6	Fullerton Avenue to Tustin Avenue. Ends abruptly on either end (a block short of Irvine Avenue and Newport Boulevard respectively).	MG
Red Hill Avenue	1.7	Bristol to I-405. Bicycle lane interrupted southbound by right-turn lane at Bristol Street. I-405 overpass is fairly steep which could be dangerous for less conditioned riders.	RTL
Bear Street	0.3	I-405 to City Limit at Sunflower Avenue. The northbound bicycle lane starts a few hundred feet south of I-405 with an incorrectly striped, wide shoulder without bicycle lane markings. Right-turn lanes interrupt the northbound bicycle lane at both South Coast Plaza Entrances before the lane disappears altogether between South Coast Drive and the City Limit at Sunflower Avenue. The southbound bicycle lane starts at Sunflower Avenue and continues uninterrupted until the southern edge of the I-405 overpass. Both bicycle lanes are narrow given the size of Bear Street north of I-405.	MG, HV, N, RTL, IRM
Bear Street	0.3	Baker Street to St. Clair Street. Striped bicycle lane exists southbound only from Baker Street to the curve in the street prior to St. Clair Street. Appears striped but not marked as a bicycle lane.	SB, IRM
Victoria Street	0.4	Santa Ana River to Canyon Drive. Narrow bicycle lanes in both directions given grade approaching the Santa Ana River. Features connection to the Santa Ana River Trail and multi-use trail on Victoria Street starting at Canyon Drive. Connection to the Santa Ana River Trail could be improved and signed better.	N, IS, IC, HV
Victoria Street	1.3	Placentia Avenue to Newport Boulevard. Intersection with Newport Boulevard should be improved. Existing shoulder on the bridge over SR-55 is striped but not marked as a bicycle lane.	INT, MG, IRM
Hamilton Street	0.7	Placentia Avenue to Harbor Boulevard. Both lanes end short of Harbor Boulevard.	SS
Mendoza Drive	0.4	Northbound bicycle lane from Baker Street to El Camino Drive.	NB
Irvine Avenue	1.5	16th Street to north of Baycrest Road. Fast, high-volume street may warrant wider, protected, or colored bicycle lanes to protect cyclists. Connection to Newport Back Bay Multi-use Trail could be improved. Signalization for cyclists looking to cross Irvine Avenue to or from the Back Bay Trail may also be desirable.	HV, N, IRM, TS, IC, DZ
Total Class II Miles	**32.2**		
Existing Class III Bicycle Routes			
Gisler Avenue	0.5	Harbor Boulevard to Gisler Park. No signs or sharrows visible.	IS
Canary Drive	0.6	Placentia Avenue to Golf Course Drive. No signs or sharrows visible.	IS
W. Wilson Street	0.7	Harbor Boulevard to Fairview Road. Bike Route signs exist, but it needs sharrow signs and paint and “Bikes May Use Full Lane” signs.	IS, HV

Santa Ana Avenue	0.2	22nd Street to 21st Street. Class II facility exists northbound but not southbound.	SB, IS
Total Class III Miles	**2.0**		
TOTAL BIKE FACILITY MILEAGE- 43.2 Miles			

*See Table 4-3

Table 4-3 Deficiency Code Explanation

Deficiency Code	Problem
RTL	**Right-turn Lane Conflicts:** Class II facilities that disappear as they approach major intersections to make way for dedicated right-turn lanes. This treatment may put cyclists proceeding straight at increased risk of being hit by motorists turning right.
INT	**Bicycle Lane Location at Intersections:** Bicycle lanes that are situated between right-turn-only lanes and the sidewalk putting cyclists proceeding straight through the intersection at increased risk of being hit by vehicle traffic turning right.
N	**Narrow Bicycle Facilities:** Bicycle facilities in the City that are not wide enough to provide a safe and comfortable route for all but the most experienced cyclists.
LC	**Limited Clearance:** Bicycle facilities that are themselves wide enough but may lack ideal clearance on either side. This is significant as it is makes less experienced riders uncomfortable (and less likely to use the affected facility).
DZ	**Door Zone:** Facilities where bicyclists are expected to ride right alongside parked cars where they run the risk of colliding with an opening car door or being hit by a car entering or leaving a parking stall.
LTC	**Left-Turn Conflicts:** Cyclists that intend to turn left at a given intersection must cross travel lanes to the left-turn lane (or left lane) of wider streets making bicycle connections to the left difficult. This puts cyclists at risk as motorists often do not expect and, therefore, do not look out for cyclists outside of designated bicycle lanes
WW	**Wide Walkway:** Bicycle path facilities that resemble widened sidewalks without minimized cross flows or directional striping. While these facilities may technically be considered Class I facilities, potential conflicts with driveways and pedestrians make them a less effective treatment than a dedicated, optimized bicycleway.
TS	**Inability to Trigger Traffic Signals:** Vehicle detection equipment designed to detect cars that cannot be easily triggered by cyclists on the road.
NB, SB, EB, or WB	**Single Direction Only:** Bicycle facilities for travel in one direction only (limiting the utility of the route and making return trips on the same route less convenient). Identified by the cardinal direction served, ex: Northbound, Southbound, etc.
MG or SS	**Major Gaps or Stopping Short:** Bicycle facilities that have major gaps (interruptions) or that stop short of an intersection at their terminus limiting their utility and potentially endangering cyclists.
HV	**High Traffic Volumes/Speeds:** Bicycle facilities that travel on high-speed, high-volume arterial streets (Newport Boulevard, Fairview Road, Bear Street, etc.) making cycling less desirable than on lower volume streets.
IS or IRM	**Inadequate Signage or Road Markings:** Bicycle facilities without adequate signage or road markings can potentially increase exposure to traffic for cyclists who legally use the roadway because motorists may not know to look out for them.
IC	**Inadequate Connections:** Bicycle facilities that feature poorly executed but potentially valuable connections to neighboring bicycle routes in the vicinity.

Existing Bicycle Facilities Area Details

Placentia Avenue Corridor

Placentia Avenue runs from Adams Avenue in the north to Superior Avenue in Newport Beach to the south. It is a wide arterial street with two lanes in each direction and Class II bicycle lanes along the majority of that span. Daily traffic volumes range from a low of 11,000 in the vicinity of Fairview Park to a high of 24,000 south of Victoria Street (OCTA 2013-14 Traffic Volume Map). Running through Fairview Park, the Costa Mesa Golf Course, and the Talbert Nature Preserve, Placentia Avenue provides access to a number of Class I facilities in those areas to residents and prospective riders to the north and south. Placentia Avenue also provides north-south connectivity to the Joann Street Bicycle Trail and planned Westside/19th Street Bicycle Trail to the south. The length of the street, and the connectivity that it provides as a smaller, bicycle-friendly, north-south arterial, make it a key part of Costa Mesa's overall bicycle network.

Figure 4-2 The Joann Street Bicycle Trail connection at Placentia Avenue

Though Placentia Avenue features buffered bicycle lanes as it passes through the golf course, it also loses its bicycle lanes altogether due to right-turn lanes at 19th Street, at Victoria Street and at Adams Avenue in the northbound direction. The northbound bicycle lane also disappears briefly north of 20th Street and from Hamilton Street to Governor Street. The southbound bicycle lane disappears at Governor Street and reappears midblock between Victoria Street and Hamilton Street.

Additionally, there is a short Class I multi-use trail along the east side of Placentia Avenue that travels northwards from the Corporate Yard entrance. However, it ends just short of the Joann Street bicycle Trail to the south and the Fairview Park trails (and Santa Ana River Trail access they provide) to the north. Though Class II facilities continue in both directions, the short Class I facility is unlikely to attract additional riders wary of riding on the street until it provides direct access to these nearby facilities. Estancia High School provides an additional potential destination along the route and would benefit from expanded bicycle access for less experienced cyclists.

Figure 4-3 Placentia Avenue at Estancia High School with bicycle lanes

Figure 4-4 Placentia Avenue at Fairview Park with buffered bicycle lanes and multi-use trail bridge

Fairview Road Corridor

Fairview Road is a high-speed, high-volume, north-south arterial linking Newport Boulevard and SR-55 with the commercial and employment centers of North Costa Mesa as well as Santa Ana. Daily traffic volumes range from a low of 13,000 just north of Newport Boulevard to a high of 54,000 just north of I-405 (City of Costa Mesa 2015 Study). As one of the major arterials serving Orange Coast College (OCC), Costa Mesa High School, Davis Elementary School, and the Orange County Fair, Fairview Road is also an integral link in Costa Mesa's bicycle network.

At present, Fairview Road features narrow and inconsistent Class II facilities in both directions that disappear for long segments making the route unattractive to less experienced cyclists. Specifically, the southbound bicycle lane disappears between the OCC entrance and Merrimac Way. Additionally, right-turn lanes interrupt the northbound bicycle lane at Sunflower Avenue, South Coast Drive, I-405, both before and after Arlington Street, at Merrimac Way, and at Fair Drive. Likewise, the southbound bicycle lane is interrupted at I-405, Baker Street, Adams Avenue, and Fair Drive. At its southern terminus, the southbound bicycle lane faces a double right-turn at Newport Boulevard, and the northbound bicycle lane does not exist until Avocado Street. There is a wide shoulder on the Fairview Road Bridge over SR-55 but it is not striped as a bicycle lane, and cyclists would have to cross three lanes of traffic on Newport Boulevard to reach the bicycle lane on the northbound side of Fairview Road.

Another limiting factor that affects the Fairview Road corridor is the fact that several potential east-west connections do not quite extend to Fairview Road. For example, bicycle lanes on Baker Street end a block short of Fairview Road, bicycle lanes on Victoria Street end as they approach Newport Boulevard just south of Fairview Road, and bicycle lanes on Wilson Street end at Harbor Boulevard leaving a less desirable Class III facility linking the two. Class II facilities do currently extend from Harbor Boulevard to Fairview Road on both Fair Drive and Merrimac Way.

Figure 4-5 Looking north along Fairview Road at Newport Boulevard, no existing bicycle facilities

Figure 4-6 Looking south along the Fairview Road bridge over SR-55, wide striped shoulder visible

Newport Boulevard Corridor

Newport Boulevard flanks SR-55 for almost its entire passage through the City of Costa Mesa. The frontage road is split into two one-way segments adjacent to the northbound and southbound sections of SR-55 until it merges with traffic from SR-55 at the southern terminus of that freeway. Daily traffic volumes range from a low of 14,000 south of SR-73 (in 2012, City of Costa Mesa 2014 ADT Map) to a high of 96,000 at the southern end of SR-55 (City of Costa Mesa 2014 Study). In the southbound direction, a wide walkway (a continuation of the facility on Fair Drive) exists along the edge of the OC Fairgrounds from Fair Drive to Arlington Drive. The northbound section of Newport Boulevard hosts a single-direction bicycle lane with no major interruptions apart from a right-turn lane conflict south of Victoria Street and street parking stalls north of it. However, the Newport Boulevard North bicycle lane is narrow at times and not always marked apart from a simple stripe that could easily be mistaken for a highway shoulder or parallel parking area.

Despite its long span, the Newport Boulevard bicycle lane stops short of both Bristol Street to the north and the Triangle Square and Costa Mesa Courtyards shopping centers to the South. Most of the bridges over SR-55 have unmarked shoulders that could conceivably host bicycle lanes if safety measures were taken with cross traffic. The Victoria Street Bridge features an isolated, unmarked bicycle lane in the eastbound direction.

Figure 4-7 Looking south on Southbound Newport Boulevard at Fair Drive

Figure 4-8 Looking north along Northbound Newport Boulevard at Cecil Place

Santa Ana Avenue Corridor

Santa Ana Avenue runs parallel to Newport Boulevard through the southeastern portion of Costa Mesa. As a narrower (one lane in each direction apart from a few turn lanes and a 0.5 mile section adjacent to the Santa Ana Country Club before it becomes Red Hill Avenue) local alternative to Newport Boulevard and Irvine Avenue, Santa Ana Avenue could become an important component of Costa Mesa's overall bicycle network. Daily traffic volumes range from a low of 5,000 south of 22nd Street to a high of 10,000 south of Bristol Street (City of Costa Mesa Fall 2010 ADT Map). Currently, the street hosts Class II facilities in both directions for much of its span though major gaps exist to the north and south. Class II facilities run in both directions from Flower Street in the south to Del Mar Avenue in the north, though the southbound bicycle lane becomes a bicycle route from 21st Street to 22nd Street by Heinz Kaiser School.

Though the Santa Ana Avenue bicycle lanes connect to the east-west bicycle lanes on Broadway to the south, no other bicycle facilities intersect with the corridor which limits its utility. Nearby facilities on Irvine Avenue and the Newport Back Bay Multi-Use Trail curve northwards towards Santa Ana Avenue between Santiago Drive and Mesa Drive. The neighboring facilities come within a block of Santa Ana Avenue, though no bicycle connection exists between them. Similarly, the Santa Ana Avenue bicycle lanes end at Del Mar Avenue/University Drive leaving a significant gap between them and the facility that starts at Bristol Street to the north, where Santa Ana Avenue becomes Red Hill Avenue.

Though limited facilities currently exist, the OCTA Districts 1 and 2 Bikeway Strategy (Refer Figure 2-2) identifies University Drive-Santa Ana Avenue-Bristol Street-Bear Street as a potential alignment of proposed regional bicycle Corridor B. If implemented, the aforementioned corridor would increase bicycle connectivity to and from the Santa Ana Avenue corridor. Additionally, many of the other east-west cross streets are fairly wide and could potentially host bicycle facilities, though none currently exist apart from Broadway. The Santa Ana Avenue bicycle lanes also stop short of potential cycling destinations such as the commercial area along 17th Street and Newport Heights Elementary School at 15th Street.

Figure 4-9 Looking south on Santa Ana Avenue from 22nd Street where the southbound bicycle lane becomes a bicycle route

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Existing Activity Centers

Bicycle facilities, however well-designed, are only useful if they take prospective cyclists to and from where they want to go. Though it would be impossible to maintain a database of exactly where each person will ever want to go to and from, it is possible to generalize trip origins and destinations based on major activity centers. Activity centers are major employment centers, shopping centers, schools and colleges, community parks and buildings, local attractions, etc. Essentially, activity centers represent where people go to everyday or frequently: work, school, shop or run errands, and relax or exercise. A few examples of these activity centers are shown in Figure 4-10 through Figure 4-13. Costa Mesa activity centers, categorized by land use, as well as the City's top four employers, are depicted in Figure 4-14. Harbor Boulevard and 17th Street are major shopping areas in the City.

Most Costa Mesa activity centers, with the exception of some schools and parks, are clustered on and around the City's major arterial streets, as shown in Figure 4-14. This poses a challenge to prospective cyclists as those same busy streets are often the least welcoming to cyclists due to their width, travel speed, and lack of adequate bicycle facilities. For example, a number of major local destinations, such as South Coast Plaza, the Cultural Arts Center, and businesses along Harbor Boulevard, have only limited cycling accessibility which limits the efficacy of the entire Costa Mesa bicycle network. Every time prospective cyclists cannot ride to the destinations that are relevant to them safely and conveniently, that is a missed opportunity to get them out of their cars where they do not contribute to congestion or pollution. To address this problem, recommendations for infrastructure improvements and new facility construction prioritize bicycle connectivity to and from activity centers among other factors.

Though some activity centers, such as office parks, tend to maintain fairly constant demand, others, like schools or the Fairgrounds, witness marked seasonal variations in demand.

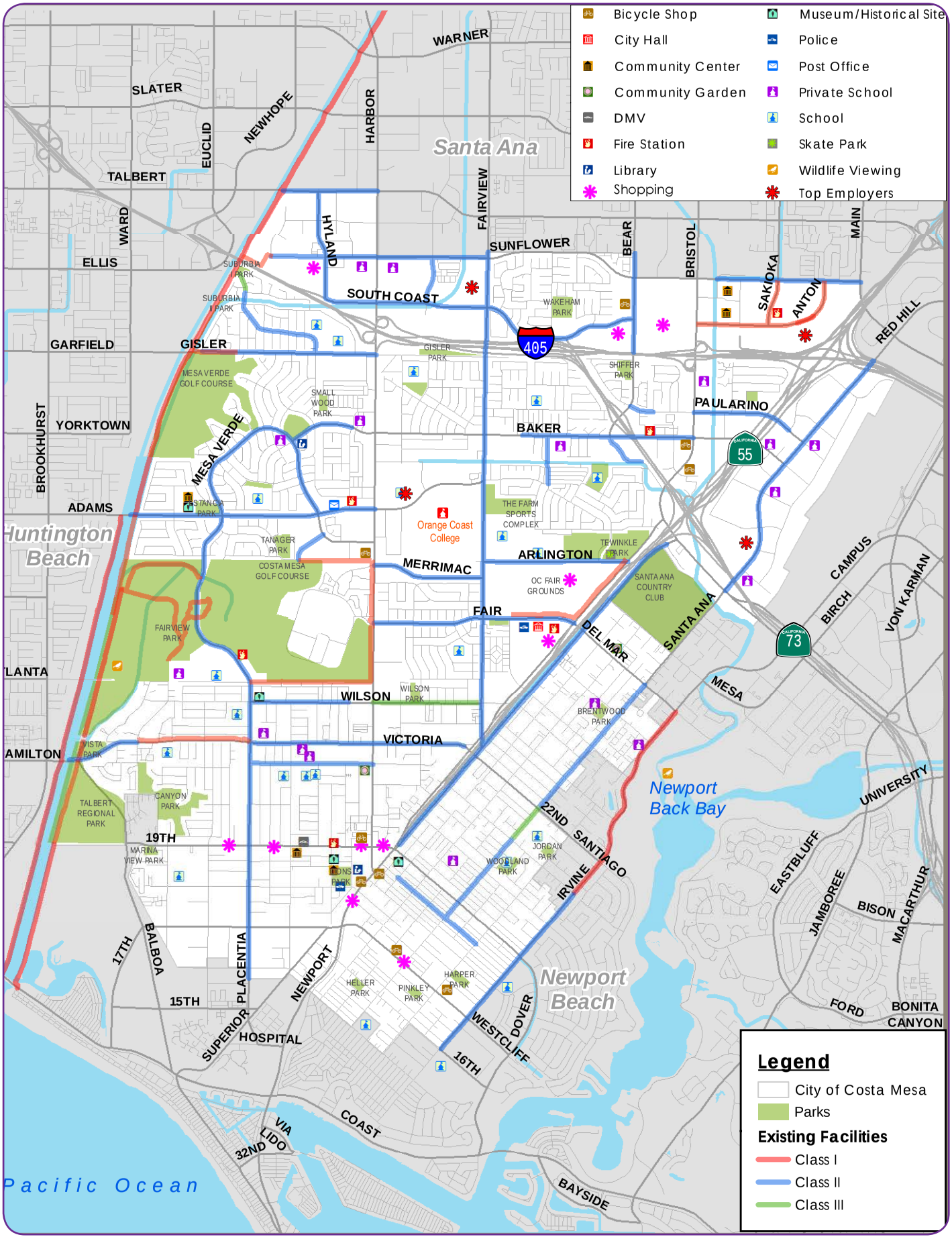
Figure 4-10 Art museum in the City of Costa Mesa

Figure 4-11 Lions Park in the City of Costa Mesa

Figure 4-12 Costa Mesa High School

Figure 4-13 Costa Mesa Neighborhood Community Center

Figure 4-14 Existing Activity Center Map



Existing Support Facilities

Parking

One of the factors that limits the utility of bicycle infrastructure, regardless of connectivity, is the perceived and actual availability of secure bicycle parking at potential destinations. Prospective cyclists must not only be able to get to their destination on their bicycle, but also be confident that they will have somewhere safe and convenient to store it once they arrive. Like automobile parking, bicycle parking should be well-lit and reasonably close to building entrances. However, installing a bicycle rack without giving any thought to its actual utility does not solve this problem. For a bicycle rack to be effective, it must be easy to access without disrupting pedestrians, it must facilitate the parking of multiple bicycles without bending or damaging other bicycles, and it must accommodate convenient locking that secures the bicycle at two points and accommodates U-shaped locks. In some areas covered bicycle parking or bicycle lockers may be more appropriate. Though bicycle racks exist at many schools and commercial areas in Costa Mesa, as shown in Figure 4-15 (following page), providing additional bicycle parking can encourage more residents to take their bicycles for short trips where they would normally take their car.

Showers/Change Rooms

While bicycle racks alone may be enough to entice someone to ride their bicycle to school or the grocery store, it might not necessarily be the case for prospective bicycle commuters. For cyclists looking to ride their bicycles to work, changing room and shower facilities, as shown in Figure 4-16, mean that they do not have to ride in the same clothes that they plan to wear around the workplace all day. Such amenities will definitely encourage employees to bike to work. This is especially significant in the summer when warmer weather can make cycling much more strenuous. Existing shower and locker room facilities are depicted in Figure 4-17 (following page).

An inventory of existing bicycle parking, shower, and changing room/ locker room facilities was conducted in July 2014. Appendix 2 provides an inventory of existing facilities and the destinations they serve.

Transit Connection

Providing convenient bicycle connectivity to transit allows prospective cyclists to reach more distant destinations and makes cycling a more attractive and useful alternative to driving. Bicycle connectivity can be a bicycle lane that gets cyclists to a transit stop and a secure place for them to store their bicycle if they aren't bringing it with them on the bus (a bicycle rack or bicycle lockers), or even changing rooms or showers as in Figure 4-16. Bicycle facilities, bus routes, bus stops, and park and ride facilities are detailed in Figure 4-18 including specific OCTA transit routes within Costa Mesa (Routes 37, 51, and 53 are not shown because they have limited stops within the City limits).

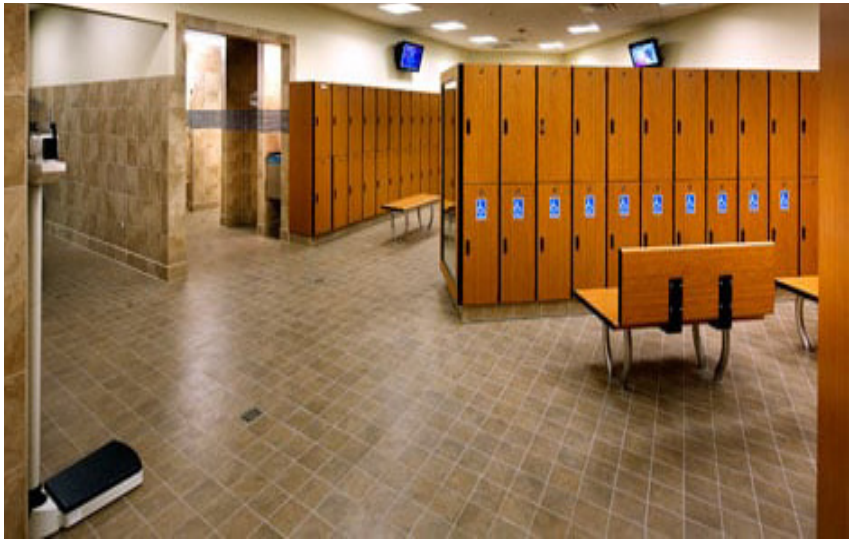


Figure 4-16 Locker Room Facility

Figure 4-15 Existing Bicycle Parking Facilities Map

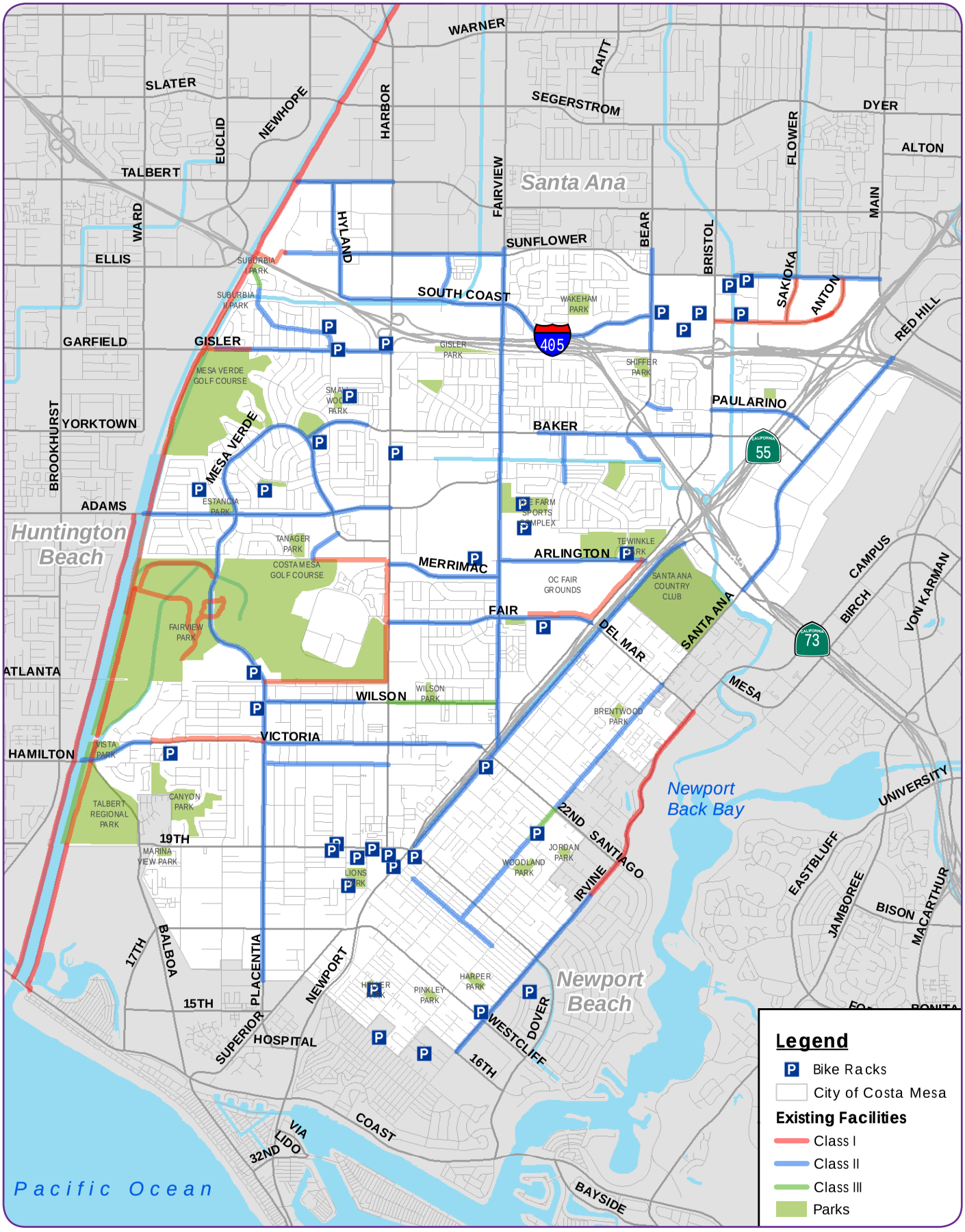


Figure 4-17 Existing Shower and Locker Room Facilities Map

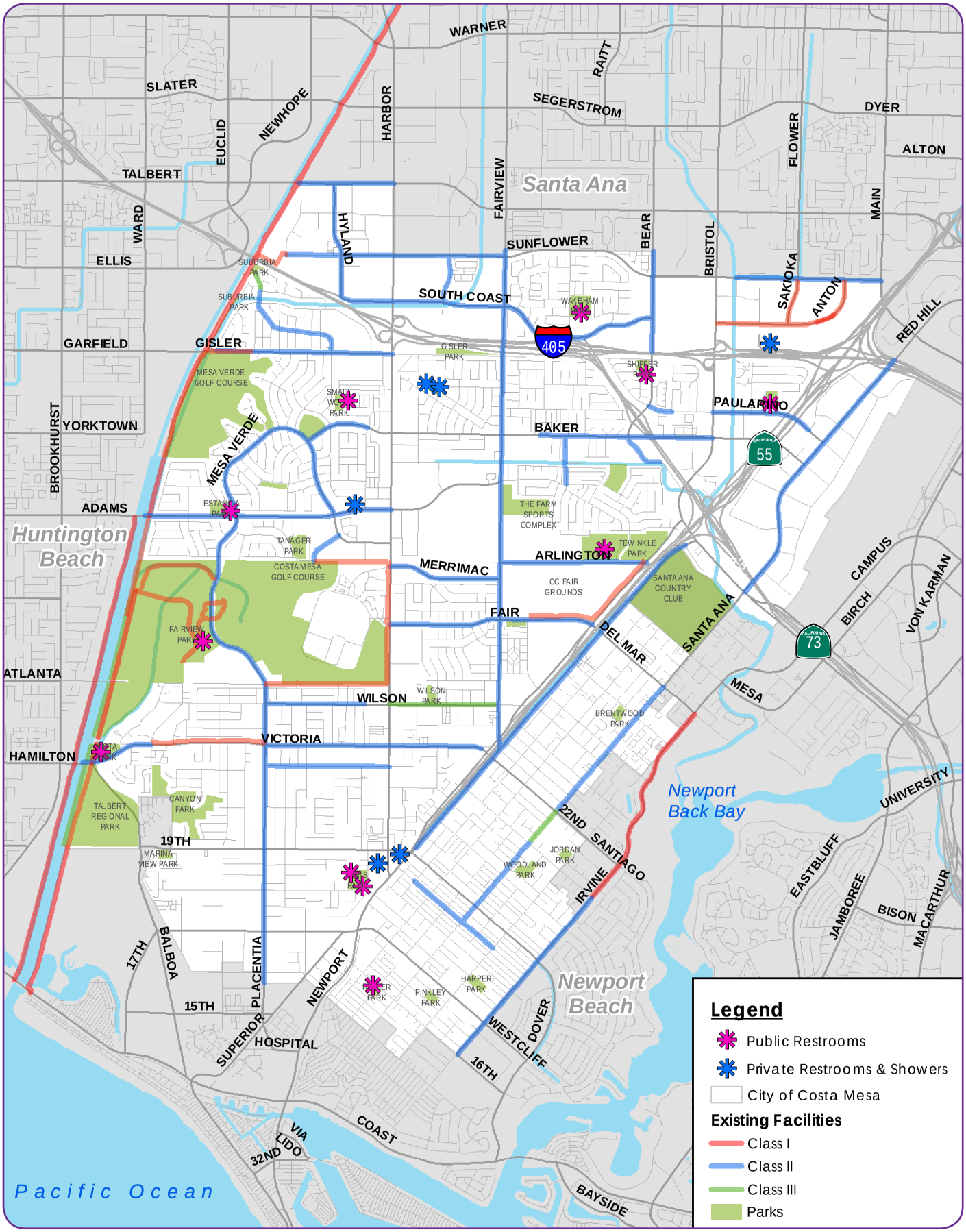
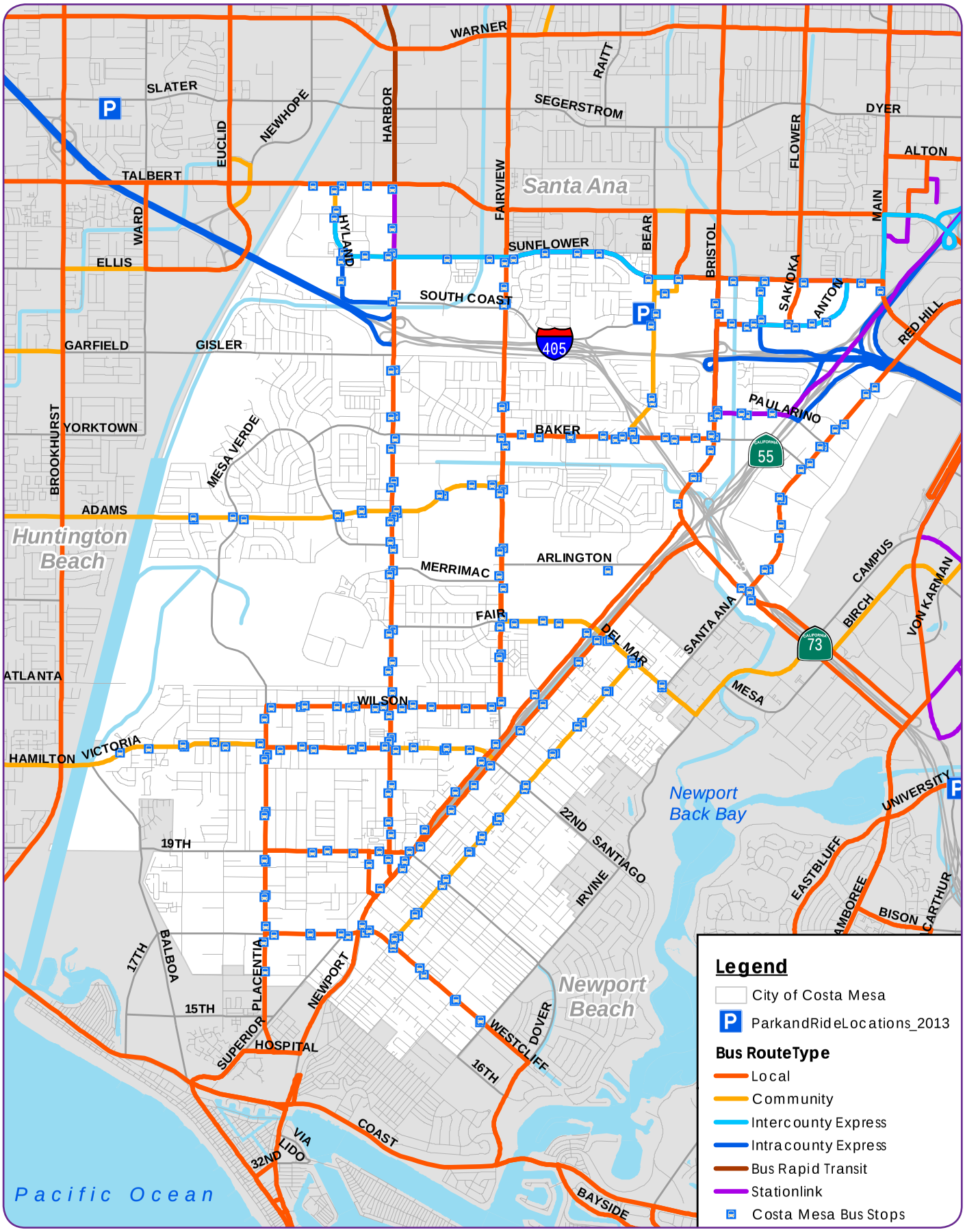


Figure 4-18 Existing Transit Routes and Transit Connector Facilities Map



5.0 Policy Framework

Vision

A successful plan starts with the residents' vision of their community in the future. A vision for the active transportation plan must articulate what the community as a whole agrees to support. That vision determines the goals the Plan should achieve and directly relates to the creation of objectives and policies for implementation.

The Vision statement for the City of Costa Mesa Active Transportation Plan is the result of public engagement efforts that involved various steering committee meetings, City staff consultation, and feedback from the general public. The final vision statement is "The City of Costa Mesa will have a comprehensive and visible transportation network and will promote safety, education, health, recreation, and access to important locations within the city while connecting to the larger regional network".

Goals, Objectives, Policies, and Recommendations

This section outlines the goals, objectives, and policy actions that back the vision of the Plan and serve to guide the development of the active transportation network.

Goals *are broad assertions that state general overall population needs. Goals are formed by balancing key issues and opportunities that influence the active transportation facility framework.*

Objectives *are more particular than goals. Execution of an objective aids the satisfaction of a broader goal.*

Policies *are standards and approaches used to guarantee the success of broader goals and objectives. Policies often complete a number of objectives.*

Recommendations *are additional policies that assist in achieving the desired objectives.*

The City of Costa Mesa will have a comprehensive and visible active transportation network and will promote safety, education, health, recreation and access to important locations within the City while connecting to the larger regional network.

Goal 1.0: Promote a Friendly Active Transportation System in Costa Mesa

Create a bicycle- and pedestrian-friendly environment throughout Costa Mesa for all types of users and all trip purposes in accordance with the five "Es:" Education, Encouragement, Enforcement, Engineering, and Evaluation.

Objective 1.1 *Bikeways and Pedestrian Paths:*

Expand, enhance, and protect the existing bicycle and pedestrian network to provide a comprehensive system of Class I, Class II, Class III, and Class IV facilities to increase connectivity between homes, jobs, schools, transit, and recreational resources in Costa Mesa.

Objective 1.2 Bike and Pedestrian Facilities:

Provide end-of-trip facilities that support the bicycle network.

Objective 1.3 "First and Last Mile" Programs:

Encourage sustainable modes of transportation to fill gaps between the first and last miles of trips (walking, bicycling, ridesharing, transit, taxi and car-sharing).

Policies

1 Develop an extensive bicycle and pedestrian backbone network through the use of standard and appropriate innovative treatments.

2 Plan and install new bicycle lanes where feasible and appropriate.

3 Plan and complete north/south multi-purpose and bicycle routes through the City to augment the east/west routes.

4 Prioritize safe access to major regional trails such as the OC Loop/ Santa Ana River Trail and the Newport Back Bay Trail System. Where feasible, plan and provide a continuous low-stress Class I and/or Class IV facility from east to west across the City between these facilities.

5 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.

6 Where feasible, Class I shared-use paths should be a priority for future developments.

7 Plan and install new shared-use paths in utility corridors and/or along flood control channels, and extend existing bicycle and shared-use paths.

8 Designate walkable districts in the City.

9 Pursue the following mode split goals:

- 50% motor vehicles
- 10% transit
- 10% bicycles
- 20% walking
- 10% carpools, taxi, Uber and other forms

Recommendations

1 Work cooperatively with adjoining jurisdictions and local/regional agencies to coordinate bicycle planning, and implementation activities. Where required, develop consistent active transportation plans and policies with regional and adjacent agencies.

2 Plan and install shared lane markings ("sharrows") and signage on appropriate existing and planned bicycle routes where bicycle lane implementation is demonstrated to be infeasible.

3 Consider every street in Costa Mesa as a street that cyclists could use.

4 Identify citywide infrastructure needed to create the interconnected multi-trail system.

5 Explore favorable opportunities to remove parking to accommodate bicycle lanes.

6 Low stress design techniques should be considered where necessary to attract a wide variety of users.

7 Provide bike parking and bike-related amenities at public facilities and along public rights-of-way.

8 Prioritize schools with the highest auto traffic volume during peak hours and insufficient parking for staff and parents. Plan and install bicycle facilities adjacent those schools.

9 Improve the quality, aesthetics and safety of high-use pedestrian corridors.

10 Establish a goal for all trips of less than three miles to be 30 percent by bicycle, and establish a goal for all trips of less than 1 mile to be 30 percent by walking.

11 Consider implementing a small-scale transportation system to encourage mode shift to popular destinations as defined by users.

12 Encourage bicycle projects that connect local facilities and neighborhoods to major bicycle corridors.

13 Link on-road and off-road bicycle and pedestrian facilities within Costa Mesa to existing and planned facilities in adjacent and regional jurisdictions.

14 Establish designated suggested routes to schools for biking and walking.

15 Pursue public-private partnerships to furnish local businesses with secure bike parking and other related amenities.

16 Develop and adopt bicycle parking equipment standards for bicycle parking to be installed within the public right-of-way and post on the City website.

17 Work with OCTA to maximize bicycle amenities, such as bus stop solar lighting and bicycle lockers, at high-volume transit stops.

18 Develop and implement a bicycle sharing system.

19 Encourage reallocation of roadway rights-of-way where appropriate to accommodate shared-use path and bicycle facilities, while preserving and respecting the character of each adjacent neighborhood.

20 Identify favorable opportunities to retain parallel parking adjacent to sidewalks to maintain pedestrian safety.

21 Work with local schools and colleges to provide ample and secure bike parking and other related amenities for students and employees.

22 Prioritize the installation of bicycle-scale and/or pedestrian-scale lighting.

23 Encourage and incentivize providing attended bicycle parking services, such as a bicycle valet, at major City events, OC Fair, Farmers' Markets, holiday festivals, and other community events.

Goal 2.0: Create a Safer Place to Walk and Ride a Bicycle

Provide a safe, convenient and attractive bicycling and pedestrian environment. Apply design standards, enforcement of traffic laws, maintenance practices, and safety awareness campaigns to encourage and increase the use of bicycle and pedestrian facilities.

Objective 2.1 Design and Way-finding:

Develop bicycle and pedestrian facilities with approved uniform design standards, and implementation of way-finding signage providing information on various destinations.

Objective 2.2 Safety Enforcement:

Continue and expand enforcement activities that enhance safety of bicyclists on bike paths and roadways.

Objective 2.3 Safe Roadway Conditions:

Maintain bicycle and pedestrian facilities that are clear of debris and provide safe conditions for all users.

Objective 2.4 Education:

Increase education of bicycle and pedestrian safety through programs and training of school children and public.

Objective 2.5 Safety Data:

Monitor and analyze bicycle and pedestrian safety.

Policies

1 Utilize Complete Streets elements as demonstrated in most recent versions of National Association of City Transportation Officials (NACTO) Urban Street Design Guide and Bikeway Design Guide.

2 Develop, install and maintain a bicycle and pedestrian way-finding signage program to indicate route turns, the presence of intersecting bikeways, streets and distances to nearby local and major destinations.

3 Develop a list of acceptable plant materials for shared use paths that will not damage, create security problems or hazards for bicyclists. Incorporate canopy trees and native, drought-tolerant landscaping as a standard Class I facility (shared use path) feature. Encourage the use of sustainable drainage designs, such as bio-swales.

4 Train police officers on bicyclists' rights and responsibilities and bicycle/pedestrian/vehicle collision evaluation.

5 Where feasible reduce or eliminate conflict points such as driveways that cross the sidewalk.

6 Support marketing and public awareness campaigns aimed at improving bicycle and pedestrian safety.

7 Work with local bicycle advocacy organizations to develop, promote and support a series of bicycle education classes. Include information on bicycle safety, maintenance and security.

Recommendations

1 Require that all facilities be designed in accordance with the latest federal, state, and local standards.

2 Provide and maintain bicycle and pedestrian signal detectors, informational signage, and lighting, along City bikeways.

3 Crosswalks will include high visibility crossing treatments.

4 Establish an expedited process to report maintenance and safety concerns, e.g. pavement markings (sharrows, missing bicycle lane lines), ramps, curb cut-outs, broken walk/ bike signal buttons,

signage, minor maintenance of bike lanes/paths (street/path sweeping, minor surface patching, inoperable traffic signal bicycle detection).

5 Enforce laws that reduce bicycle/pedestrian/motor vehicle incidents and conflicts.

6 Utilize the City's bicycle-mounted patrol officer program to educate and enforce pedestrian and bicycle user violations not necessarily to punish, but to correct.

7 Develop a partnership with the school community to establish and update suggested routes to schools for bicycling and walking.

8 Establish routine maintenance schedule/standards for bicycle and pedestrian facilities for sweeping, litter removal, landscaping, repainting of striping, signage, and signal actuation devices.

9 Request bicycle and pedestrian collision reports from local law enforcement periodically and consider improvements to address problem areas.

10 Conduct Roadside Safety Audits (RSAs) on a regular basis to provide periodic snapshots of roadway safety, including bicycle, pedestrian, equestrian, skateboard, and other non-motorized modes of travel.

11 Paint direction arrows on all bike lanes and bike paths to reduce the risk of collisions.

12 Promote efficient reporting mechanisms for behaviors that endanger cyclists and pedestrians.

13 Create, fund, and implement bicycle-safety curricula and provide to the public, tourists, various ethnic groups, diverse ages and disadvantaged communities.

14 Provide a user education program developed and promoted to encourage proper trail use and etiquette.

15 Encourage and empower citizens to report maintenance issues that impact bicyclist and pedestrian safety including, but not limited to, potholes, sidewalk lifting, and overgrown vegetation.

16 Establish procedures for responding to citizen reports in a timely manner.

17 Provide multilingual bicycle-safety maps and brochures (print and electronic versions) in languages that are widely used in Costa Mesa.

18 Encourage schools to develop and provide bicycle-safety curricula for use in elementary, middle, and high schools such as the Bicycle Rodeo events.

19 Develop and distribute education material regarding bicycle and pedestrian responsibilities and laws.

Goal 3.0: Integrate Active Transportation Elements into the Circulation System and Land Use Planning

Provide bikeway and walkway facilities that are integrated with other transportation systems and land use planning decisions.

Objective 3.1 Land Use Planning Decisions and Active Transportation:

Consider bicycle and pedestrian facilities during land use planning process.

Objective 3.2 Active Transportation in Developments:

Integrate bicycle and pedestrian facility improvements during planning, design and implementation of transportation projects.

Policies

1 Require new developments to provide adequate bicycle parking and pedestrian access.

2 Incorporate the Costa Mesa Active Transportation Master Plan into the City's General Plan.

3 Encourage the integration of compatible land uses and housing into major development projects to reduce vehicle use.

4 Ensure that all current and proposed land use planning is consistent with the Costa Mesa Active Transportation Master Plan.

5 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 and cycle tracks.

Recommendations

1 Provide a fully integrated network of modern active transportation facilities to and from major activity centers and residential centers.

2 Identify areas where an increase in the need for active transportation can reasonably be anticipated due to housing/business growth.

3 Establish bike boulevards on streets with low traffic volumes and slow speeds to encourage bicycling.

4 Improve the safety of all road users through the implementation of neighborhood traffic calming treatments.

5 Make commercial and recreational areas more enjoyable for pedestrians by implementing measures such as providing shade, planting trees, eliminating visible parking lots and vacant lots, and long stretches of bland building façade.

6 Support the incorporation of bicycle and pedestrian facilities into capital improvement projects, where appropriate to maximize leveraging of funds.

7 Develop creative, artistic and functional bicycle parking solution and install them throughout the City as a standard.

8 Proactively seek new opportunities for acquisition of abandoned rights-of-way and other lands for the development of new multi-use pathways that integrate with the planned network.

9 Collaborate with property owners to increase bicycle parking over time.

10 Detours through or around construction zones should be designed for safety and convenience, and with adequate signage for cyclists and pedestrians.

11 Provide opportunity for public input prior to the removal of an existing bicycle or pedestrian facility or the approval of any development or street improvement that would preclude these planned facilities.

Goal 4.0: Promote an Active Transportation Culture

Develop educational and promotional programs to increase bicycle and pedestrian usage that respects and accommodates all users to foster a more balanced transportation system.

Objective 4.1 An Active Transportation Culture:

Encourage more people to walk and bicycle by supporting programs that foster community support for bicycling and walking, and raise public awareness about active transportation.

Policies

1 Support marketing and public awareness campaigns through a variety of media aimed at promoting bicycling and walking as a safe, healthy, cost-effective, environmentally friendly transportation choice.

2 Achieve "Silver Level Bicycle Friendly Community" by League of American Bicyclists by 2025.

3 Support programs aimed at increasing bicycle and walk trips by providing incentives, recognition, or services that make bicycling and walking a more convenient transportation mode.

4 Promote bicycling and walking at City-sponsored and public events, such as Earth Day, Bike to Work Day/Month, farmers' markets, public health fairs, art walks, craft fairs. civic events, etc.

Recommendations

1 Encourage major employment centers and employers to promote commuting by bicycle including the use of flex-time work schedules to support non-rush bicycle commuting. Build a coalition with City, businesses, schools and residents to promote active transportation.

2 Achieve "Walk Friendly Community" status from WalkFriendly.org by 2025.

3 Achieve "HEAL City" designation by 2019.

4 Promote active transportation events in Costa Mesa to raise awareness and encourage bicycling, including, but not limited to, those that may involve temporary road closures, bike to work/school, senior walks, historic walks, and ciclovias.

5 Encourage and promote bicycle related businesses within Costa Mesa including, but not limited to, involvement of civic clubs and organizations.

6 Encourage participation in bicycle and pedestrian promotion activities by education facilities, arts programs, active transportation clubs, and entertainment providers.

Goal 5.0: Promote the Positive Air Quality, Health, and Economic Benefits of Active Transportation

Encourage active transportation by promoting air quality, health, and economic benefits.

Objective 5.1 Improving the Environment with Active Transportation:

Improve air quality and public health and reduce ambient noise by promoting Active Transportation programs.

Objective 5.2 Incentives:

Provide economic incentives for expanding and enhancing bicycle and pedestrian facilities.

Policies

1 Coordinate with appropriate federal, state, and county health agencies on active transportation programs to achieve health benefits.

2 Encourage developers to include features, amenities and programs that are proven to increase walking and/or bicycling.

3 Encourage the Chamber of Commerce and the business community to promote active transportation in commercial areas to stimulate economic vitality.

Recommendations

1 Determine baseline emissions levels, then track and communicate changes in emissions as modes of transportation trips shift to encourage more walking and biking.

2 Partner with the business and school communities to create a marketing strategy to encourage individual businesses to market Costa Mesa as a bicycle-friendly City.

3 Offer incentives for businesses whose employees walk or bike to work.

4 Incentivize the business community to support pedestrians and bicycle users in tangible ways.

5 Improve the quality of life in Costa Mesa by reducing neighborhood traffic and noise.

6 Increase pedestrian and bicycle trips, thereby reducing vehicle trips and vehicle miles traveled.

Goal 6.0: Monitor, Evaluate, and Pursue Funding for Implementation of the Active Transportation Master Plan

Observe and assess the usage of bicycle and pedestrian facilities periodically and pursue funding for projects that will help achieve the overall implementation of the Active Transportation Master Plan.

Objective 6.1 Monitor and Evaluate the Plans:

Continuously monitor and evaluate Costa Mesa's implementation progress on the Active Transportation Master Plan policies, programs, and projects.

Objective 6.2 Fund the Plans:

Pursue grants and other sources of funding for bicycle and pedestrian projects.

Policies

1 Establish a monitoring program to measure the effectiveness and benefits of the Costa Mesa Active Transportation Master Plan by tracking citywide trends in active transportation though the use of Census data, bicycle and pedestrian counts, travel surveys, and online surveys as part of annual reviews of the General Plan.

2 Ensure that Active Transportation Master Plan programs and projects are implemented in an equitable manner, geographically, socioeconomically, and serving disadvantaged communities.

3 Consider designating a portion of development traffic impact fees to fund bicycle and pedestrian facilities.

Recommendations

1 Strategize use of resources on developing effective and efficient grant application and program administration.

2 Pursue multiple sources of funding and support efforts to maintain or increase federal, state and local funding for the implementation of the Active Transportation Master Plan.

6.0 Recommendations for the Future

Street-by-Street Recommendations

The Costa Mesa Bicycle Master Plan aims to build on the existing network to create a well-connected network of Class I, II, III, and IV facilities to serve the City of Costa Mesa. Figure 6-1 shows the existing as well as proposed facilities and Table 6-1 lists bicycle facilities proposed by this master planning effort.

Table 6-1 Proposed Bicycle Facilities

Proposed Class I Multi-Use Paths			
Route	**Miles**	**Limits**	**Description**
Airport Channel/Delhi Channel Trail	1.27	Bristol Street to Anton Boulevard	Parallel to Bristol Street, under SR-73 on excess right-of-way beneath the freeway overpass, and along the edge of Caltrans right-of-way from Bristol Street to the Paularino Channel, and finally to I-405 along the Santa Ana-Delhi Channel. The Santa Ana-Delhi Channel Trail would utilize existing service roads and improve bicycle and pedestrian access to several residential neighborhoods, retail stores, small businesses, and offices on Bristol Street. This facility would build off of the proposed Paularino Channel Trail providing an additional link of dedicated, off-street bicycle and pedestrian connectivity to northeastern Costa Mesa. The facility could eventually provide increased utility though provisions for a bridge or tunnel over or under I-405 linking Costa Mesa residents south of I-405 to the offices, retail, and cultural spaces north of I-405, though any freeway crossing would be expensive.
Arlington Drive Bicycle Trail	0.86	Fairview Road to Newport Boulevard	The proposed corridor would run from Newport Boulevard to Fairview Road. The previously planned Arlington Drive Multi-purpose Trail would connect the existing Class I facility on Newport Boulevard and Fair Drive to Harbor Boulevard along the northern border of the OC Fairgrounds while improving access to Orange Coast College, Costa Mesa High School, Davis School, and TeWinkle Park.
Auto Club Channel Bicycle Trail	0.37	Sunflower Avenue to South Coast Drive	The planned off-street facility will be developed along Greenville Banning Channel from Sunflower Avenue to South Coast Drive. It will connect the Auto Club of Southern California (one of Costa Mesa's largest employers) to a planned Class I facility in Santa Ana that continues north along the Greenville-Banning Channel. This facility would ultimately provide an additional off-street connection to the Santa Ana River Trail and businesses along the existing flood control channel service roads.
Fairview Channel Bicycle Trail	0.54	East Extension Placentia to Estancia	The proposed segment would start at Placentia Avenue (north of the park) to Estancia High School (south of the park). The trail would connect the east of the park to west of the park using an off-street facility.

Proposed Class I Multi-Use Paths			
Route	**Miles**	**Limits**	**Description**
Fairview Park East	0.17	Canary Drive to Fairview Channel	The facility would run from the end of Canary Drive to Fairview Channel Bicycle Trail. This facility would provide off-street access to Fairview Park, the Santa Ana River Trail, and other proposed Class I facilities in and around Fairview park.
Fairview Park Trail	0.13	End of Canyon Drive to existing trail in Fairview Park	The trail will provide access to Fairview Park from neighborhoods south of the park. All trails within Fairview Park shall conform to and be implemented per specifications in the Fairview Park Master Plan and Measure AA.
Fairview Park Trail	0.16	End of Pacific Avenue to existing trail in Fairview Park	The trail will provide access to Fairview Park from neighborhoods south of the park. All trails within Fairview Park shall conform to and be implemented per specifications in the Fairview Park Master Plan and Measure AA.
Gisler Avenue Trail	0.18	Gister Avenue Class II facility to Fairview Road	A trail connection will be developed to connect the Class II facility on Gisler Avenue to connect to a Class I facility on Fairview Road. All trails within Fairview Park shall conform to and be implemented per specifications in the Fairview Park Master Plan and Measure AA.
Greenville Banning Channel	1.02	Harbor Boulevard to Santa Ana River	The planned off-street facility will be developed along Greenville Banning Channel from Harbor Boulevard to Santa Ana River Trail. It will also connect to LA Times Property Bicycle Trail and Auto Club Channel Bicycle Trail via small stretch of Class II facility along South Coast Drive.
LA Times Property Bicycle Trail	0.27	South Coast Drive to Sunflower Avenue	The planned off-street facility will be developed along an existing path east of LA Times Property, from South Coast Drive to Sunflower Avenue. It will also connect to the Greenville Banning Channel via small stretch of Class II facility along South Coast Drive and ultimately connect to Santa Ana River Channel.
Newport Frontage Road South	0.34	Bristol Street to Arlington Avenue	The proposed segment would start at Arlington Drive and end on Bristol Street. A Class I facility could use either excess Caltrans right-of-way or excess right-of-way along the perimeter of the Costa Mesa Tennis Center along Newport Boulevard to connect the Class I trails around the OC Fairgrounds to proposed facilities along the Paularino Channel. If all other proposed Class I facilities in the corridor were also built, this facility would provide for a dedicated bicycle and pedestrian facility linking the Newport Back Bay Trail System with the Santa Ana River Trail and improve access to the OC Fairgrounds, Orange Coast College, and numerous schools, parks, and retail corridors.
OCC West Bicycle Trail	0.37	Merrimac Way to Adams Avenue	The proposed segment uses the driveway east of Harbor at Mesa apartments from Merrimac Way to Adams Avenue. The facility will be a shared driveway and will connect the trail along Adams Avenue connecting Santa Ana River Trail and trail along Merrimac way connecting Fairview Park.

Proposed Class I Multi-Use Paths			
Route	**Miles**	**Limits**	**Description**
Paularino Channel Trail-1	1.22	Fairview Road to Bristol Street	Connection from Bristol Street to Fairview Road. This section of the proposed Paularino Channel Trail would provide bicyclists and pedestrians an off-street connection between Bristol Street and existing bicycle lanes on Fairview Road, and proposed bicycle lanes on Bristol Street as well as proposed Class I Airport Channel/Delhi Channel Trail. This facility would provide improved bicycle and pedestrian access to nearby businesses and residential neighborhoods while providing one segment of a desirable off street east-west Santa Ana River Trail/Newport Back Bay Trail System connection through central Costa Mesa. Routing would utilize existing flood control channel service roads, excess right-of-way beneath the SR-55 Freeway overpass, and a 24-foot strip of landscaping on OC Flood Control District property on Bristol Street (completion would require coordination with the City of Newport Beach to reach Irvine Avenue and could yield an even more desirable route in an entirely off-street connection to the Newport Back Bay Trail System by extending this route along existing channel service roads through the Newport Beach Golf Course). Paularino Channel Trail to be planned, designed, and constructed with substantial, high quality improvements that would adequately buffer residential properties.
Paularino Channel Trail-2	0.39	Fairview Road to Pinecreek Drive	Connection from Fairview Road to Pinecreek Drive. This section of the proposed Paularino Channel Trail would provide bicyclists and pedestrians an off-street connection between Fairview Road and proposed bicycle lanes on Pinecreek Drive. It will connect to the Paularino Channel Trail-1 from Fairview Road to Bristol Street and ultimately to the Airport Channel/Delhi Channel Trail. Paularino Channel Trail to be planned, designed, and constructed with substantial, high quality improvements that would adequately buffer residential properties.
Susan Street	0.21	I-405 to South Coast Drive	The proposed facility will connect from the trail near the I-405 bridge over Susan Street to the existing bicycle lanes on Susan Street north of South Coast Drive.
Trail along channel	0.27	Santa Ana Avenue to City Boundary (east)	The trail takes advantage of available right of way along an existing channel.
Total New Class I Multi-use Path Miles Proposed	**7.77**		

Proposed Class II Bicycle Lanes		
Route	**Miles**	**Limits**
17th Street	1.13	West City Limits to Newport Boulevard
22nd Street	0.86	Newport Boulevard to Irvine Avenue
Adams Avenue	0.86	Royal Palm Drive to Fairview Road
American Avenue	0.29	Victoria Street to West Wilson Street
Baker Street	0.61	Bristol Street to Red Hill Avenue
Baker Street from e/o Fairview Road to west of Harbor Boulevard	1.06	Fairview Road to Royal Palm
Bear Street	0.14	Sunflower Avenue to the North City Limit
Bear Street	0.57	I-405 to Baker Street
Bristol Street	0.53	Paularino Avenue to Bear Street
Bristol Street	0.27	Santa Ana Avenue to City Boundary (east)
Broadway	0.26	Tustin Avenue to Irvine Avenue
Canyon Drive	0.43	Victoria Street to Fairview Park
College Avenue/Village Way	0.78	Gisler Avenue to Pinecreek Drive
Del Mar Avenue	0.19	Newport Frontage to Elden
East 17th Street	0.98	Newport Boulevard to Irvine Avenue
Gisler Avenue	0.49	Harbor Boulevard to Gisler Class I facility
Golf Course Drive	0.21	Tanager Drive to Mesa Verde Drive East
Hamilton Street	0.29	Harbor Boulevard to Thurin Street
Harbor Boulevard	1.57	Merrimac Way to South Coast Drive
Harbor Boulevard	1.19	Fairview Park to Newport Boulevard
Mendoza Drive	0.30	El Camino Drive to Baker Street
Mesa Verde East	0.53	Adams Avenue to Peterson Place
Monrovia Avenue	0.49	17th Street to 19th Street
Pacific Avenue	0.59	Victoria Street to Fairview Park
Paularino Avenue	0.36	East of Bear Street to Bristonl Street
Pinecreek Drive	0.18	Adams Avenue to Village Way
Pomona Avenue	0.76	Superior Street to 19th Street
Rochester Street	0.48	W 18th Street to Orange Avenue
Santa Ana Avenue	0.50	Bristol Street to Mesa Drive
Santa Ana Avenue	0.38	Broadway to East 17th Street
Sunflower Avenue	1.45	Park Center Drive to Fairview Road
Superior Avenue	0.34	17th Street to Pomona Avenue
West 19th Street	0.32	Balboa Boulevard to Monrovia Avenue
West 18th Street	0.92	Monrovia Avenue to Newport Boulevard
Wilson Street	0.96	Miner Street to Newport Boulevard
Total New Class II Bicycle Lane Miles Proposed	**21.27**	

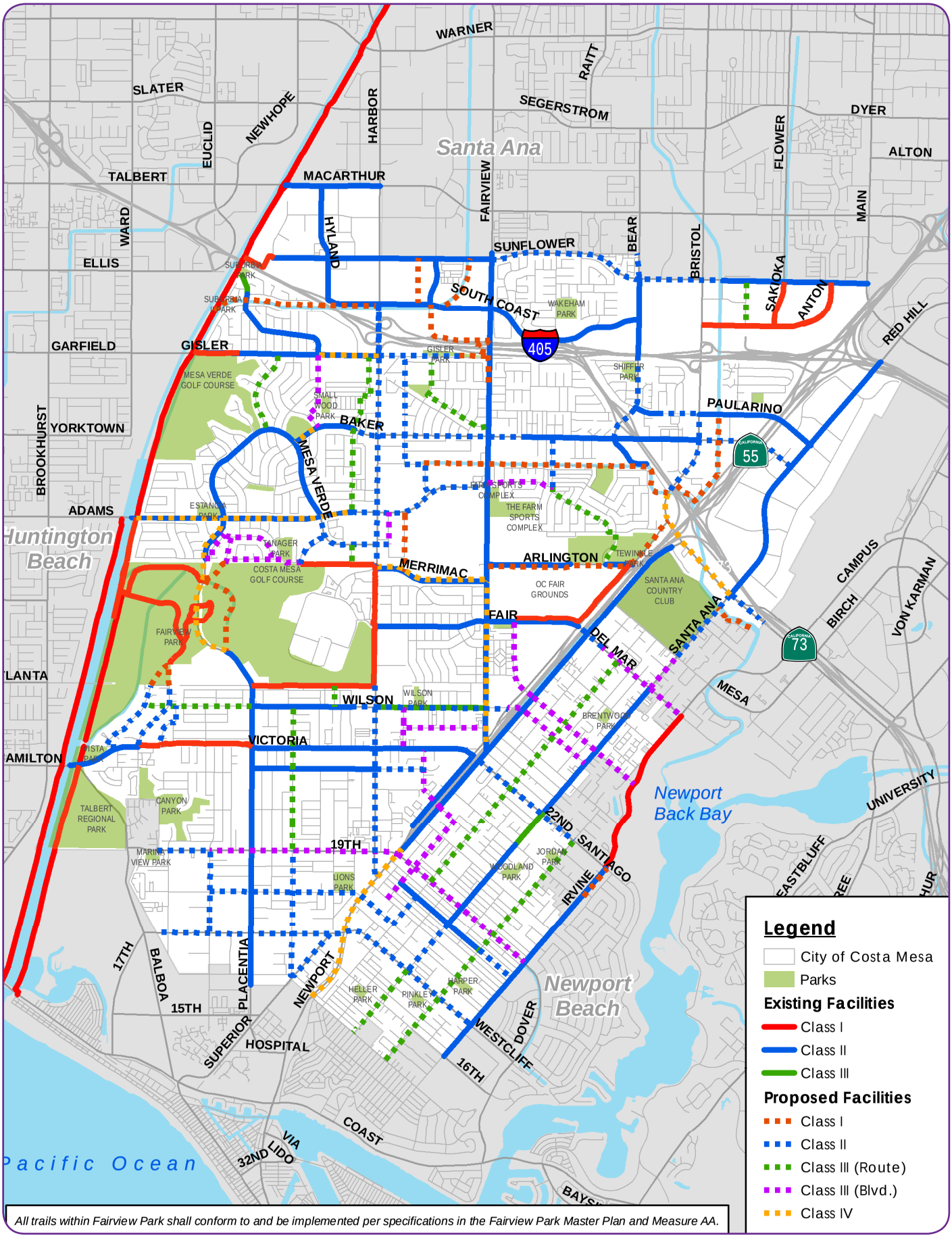
Proposed Class III Bicycle Boulevards		
Route	**Miles**	**Limits**
19th Street	1.14	Newport Boulevard to Monrovia Avenue
Avocado Street	0.50	College Avenue to Fairview Road
Bay Street	0.28	Thurin Street to Fullerton Avenue
Canary Drive	0.13	Oriole Drive to Fairview Park
Cardinal Drive	0.16	Oriole Drive to Swan Circle
College Avenue	0.25	Wilson Street to Victoria Street
Del Mar Avenue	0.38	Elden Avenue to Santa Ana Avenue
East 19th Street	1.02	Newport Boulevard to Irvine Avenue
El Camino Drive	0.40	Fairview Road to Mendoza Drive
Fullerton Avenue	0.63	Bay Street to East 18th Street
Labrador Drive/Gibralter Avenue	0.48	Baker Street to Gisler Avenue
Oriole Drive	0.40	Placentia Avenue to Tanager Drive
Peterson Place	0.20	Mesa Verde Drive East to Adams Avenue
Royal Palm Drive, Mace, Caraway, Cinnamon	1.03	Adams Avenue to Gisler Avenue
Santa Ana Avenue	0.25	Mesa Drive to Del Mar Avenue
Swan Circle	0.02	Cardinal Drive to Placentia Avenue
Tanager Drive	0.48	Golf Course Drive to Canary Drive
Thurin Street	0.24	Victoria Street to Bay Street
University Drive	0.25	Santa Ana Avenue to Irvine Avenue
Vanguard Way/Santa Isabel Avenue	0.81	Fair Drive to Irvine Avenue
Wilson Street	0.50	Newport Boulevard to Santa Ana Avenue
Total New Class III Bicycle Boulevard Miles Proposed	**9.55**	

Proposed Class III Bicycle Routes		
Route	**Miles**	**Limits**
Avenue of Arts	0.27	Anton Boulevard to Sunflower Avenue
Conway Avenue/Killybrooke Lane	0.65	Fairview Road to Garlingford
Coronado Drive	0.46	Presidio Drive to Mendoza Drive
Country Club Drive	0.52	Mesa Verde Drive to Gisler Avenue
Fountain Way	0.13	Wilson Street to Joann Street Bicycle Trail
Harla Avenue	0.11	Mesa Verde Drive East to Bicycle Trail
Junipero Drive	0.25	Presidio Drive to Arlington Drive
Orange Avenue	1.75	Del Mar Avenue to East 19th Street
Pomona Avenue	0.87	Wilson Street to West 19th Street
Santa Ana Avenue	0.50	East 17th Street to South City Limits
Tustin Avenue	1.74	22nd Street to South City Limits
Wilson Street	0.65	Placentia Avenue to Pacific Avenue
Total New Class III Bicycle Routes Miles Proposed	**7.90**	

Proposed Class IV Cycle Tracks		
Route	**Miles**	**Limits**
Adams Avenue	1.69	West City Limit to Royal Palm Drive
Baker Street	0.16	Mesa Verde Drive East to Labrador Drive
Bristol Street	0.75	Newport Boulevard to Paularino Channel
Fairview Road	1.08	Merrimac Way to Newport Boulevard
Gisler Avenue	0.37	Gibraltar Avenue to Harbor Boulevard
Merrimac Way	0.67	Harbor Boulevard to Fairview Road
Newport Boulevard	1.08	19th Street to 15th Street
Placentia Avenue	0.83	Adams Avenue to Estancia High School
Total New Class IV Cycle Track Miles	**6.63**	

Total Proposed Bicycle Facility - 53.1 Miles

Figure 6-1 Existing and Proposed Bicycle Facilities Map



7.0 Implementation Strategy

Proposed Facilities and Cost Estimates

Table 7-1 below provides a list of facilities and their estimated costs.

Table 7-1 Proposed Facilities and Cost Estimates

Proposed Class I Multi-Use Paths			
Route	**Miles**	**Limits**	**Estimated Cost**
Airport Channel/Delhi Channel Trail	1.27	Bristol Street to Anton Boulevard	$2,540,000
Arlington Drive Bicycle Trail	0.86	Fairview Road to Newport Boulevard	$1,720,000
Auto Club Channel Bicycle Trail	0.37	Sunflower Avenue to South Coast Drive	$740,000
Fairview Channel Bicycle Trail	0.54	East Extension Placentia to Estancia	$1,080,000
Fairview Park East (1)	0.17	Canary Drive to Fairview Channel	$340,000
Fairview Park Trail (1)	0.13	End of Canyon Drive to existing trail in Fairview Park	$260,000
Fairview Park Trail (1)	0.16	End of Pacific Drive to existing trail in Fairview Park	$320,000
Gisler Avenue Trail	0.18	Gister Avenue Class II facility to Fairview Road	$360,000
Greenville Banning Channel	1.02	Harbor Boulevard to Santa Ana River	$2,040,000
LA Times Property Bicycle Trail	0.27	South Coast Drive to Sunflower Avenue	$540,000
Newport Frontage Road South	0.34	Bristol Street to Arlington Avenue	$680,000
OCC West Bicycle Trail	0.37	Merrimac Way to Adams Avenue	$740,000
Paularino Channel Trail-1(2)	1.22	Fairview Road to Bristol Street	$2,440,000
Paularino Channel Trail-2 (2)	0.39	Fairview Road to Pinecreek Drive	$780,000
Susan Street	0.21	I-405 to South Coast Drive	$420,000
Trail along channel	0.27	Santa Ana Avenue to City Boundary (east)	$540,000
	7.77		**$15,540,000**

(1) All trails within Fairview Park shall conform to and be implemented per specifications in the Fairview Park Master Plan and Measure AA.

(2) Paularino Channel Trail to be planned, designed, and constructed with substantial, high quality improvements that would adequately buffer residential properties.

Proposed Class II Bicycle Lanes			
Route	**Miles**	**Limits**	**Estimated Cost**
17th Street	1.13	West City Limits to Newport Boulevard	$169,500
22nd Street	0.86	Newport Boulevard to Irvine Avenue	$129,000
Adams Avenue	0.86	Royal Palm Drive to Fairview Road	$129,000
American Avenue	0.29	Victoria Street to West Wilson Street	$43,500
Baker Street	0.61	Bristol Street to Red Hill Avenue	$91,500
Baker Street from e/o Fairview Road to west of Harbor Boulevard	1.06	Fairview Road to Royal Palm	$159,000
Bear Street	0.14	Sunflower Avenue to the North City Limit	$21,000
Bear Street	0.57	I-405 to Baker Street	$85,500
Bristol Street	0.53	Paularino Avenue to Bear Street	$79,500
Bristol Street	0.27	Santa Ana Avenue to City Boundary (east)	$40,500
Broadway	0.26	Tustin Avenue to Irvine Avenue	$39,000
Canyon Drive	0.43	Victoria Street to Fairview Park	$64,500
College Avenue/Village Way	0.78	Gisler Avenue to Pinecreek Drive	$117,000
Del Mar Avenue	0.19	Newport Frontage to Elden	$28,500
East 17th Street	0.98	Newport Boulevard to Irvine Avenue	$147,000
Gisler Avenue	0.49	Harbor Boulevard to Gisler Class I facility	$73,500
Golf Course Drive	0.21	Tanager Drive to Mesa Verde Drive East	$31,500
Hamilton Street	0.29	Harbor Boulevard to Thurin Street	$43,500
Harbor Boulevard	1.57	Merrimac Way to South Coast Drive	$235,500
Harbor Boulevard	1.19	Fairview Park to Newport Boulevard	$178,500
Mendoza Drive	0.30	El Camino Drive to Baker Street	$45,000
Mesa Verde East	0.53	Adams Avenue to Peterson Place	$79,500
Monrovia Avenue	0.49	17th Street to 19th Street	$73,500
Pacific Avenue	0.59	Victoria Street to Fairview Park	$88,500
Paularino Avenue	0.36	East of Bear Street to Bristonl Street	$54,000

Proposed Class II Bicycle Lanes (cont.)			
Route	**Miles**	**Limits**	**Estimated Cost**
Pinecreek Drive	0.18	Adams Avenue to Village Way	$27,000
Pomona Avenue	0.76	Superior Street to 19th Street	$114,000
Rochester Street	0.48	W 18th Street to Orange Avenue	$72,000
Santa Ana Avenue	0.50	Bristol Street to Mesa Drive	$75,000
Santa Ana Avenue	0.38	Broadway to East 17th Street	$57,000
Sunflower Avenue	1.45	Park Center Drive to Fairview Road	$217,500
Superior Avenue	0.34	17th Street to Pomona Avenue	$51,000
West 19th Street	0.32	Balboa Boulevard to Monrovia Avenue	$48,000
West 18th Street	0.92	Monrovia Avenue to Newport Boulevard	$138,000
Wilson Street	0.96	Miner Street to Newport Boulevard	$144,000
	21.27		**$3,190,500**

Proposed Class III Bicycle Boulevards			
Route	**Miles**	**Limits**	**Estimated Cost**
19th Street	1.14	Newport Boulevard to Monrovia Avenue	$456,000
Avocado Street	0.50	College Avenue to Fairview Road	$200,000
Bay Street	0.28	Thurin Street to Fullerton Avenue	$112,000
Canary Drive	0.13	Oriole Drive to Fairview Park	$52,000
Cardinal Drive	0.16	Oriole Drive to Swan Circle	$64,000
College Avenue	0.25	Wilson Street to Victoria Street	$100,000
Del Mar Avenue	0.38	Elden Avenue to Santa Ana Avenue	$152,000
East 19th Street	1.02	Newport Boulevard to Irvine Avenue	$408,000
El Camino Drive	0.40	Fairview Road to Mendoza Drive	$160,000
Fullerton Avenue	0.63	Bay Street to East 18th Street	$252,000
Labrador Drive/Gibralter Avenue	0.48	Baker Street to Gisler Avenue	$192,000
Oriole Drive	0.40	Placentia Avenue to Tanager Drive	$160,000
Peterson Place	0.20	Mesa Verde Drive East to Adams Avenue	$80,000
Royal Palm Drive, Mace, Caraway, Cinnamon	1.03	Adams Avenue to Gisler Avenue	$412,000

Proposed Class III Bicycle Boulevards (cont.)			
Route	**Miles**	**Limits**	**Estimated Cost**
Santa Ana Avenue	0.25	Mesa Drive to Del Mar Avenue	$100,000
Swan Circle	0.02	Cardinal Drive to Placentia Avenue	$8,000
Tanager Drive	0.48	Golf Course Drive to Canary Drive	$192,000
Thurin Street	0.24	Victoria Street to Bay Street	$96,000
University Drive	0.25	Santa Ana Avenue to Irvine Avenue	$100,000
Vanguard Way/Santa Isabel Avenue	0.81	Fair Drive to Irvine Avenue	$324,000
Wilson Street	0.50	Newport Boulevard to Santa Ana Avenue	$200,000
	9.55		**$3,820,000**

Proposed Class III Bicycle Routes			
Route	**Miles**	**Limits**	**Estimated Cost**
Avenue of Arts	0.27	Anton Boulevard to Sunflower Avenue	$5,400
Conway Avenue/Killybrooke Lane	0.65	Fairview Road to Garlingford	$13,000
Coronado Drive	0.46	Presidio Drive to Mendoza Drive	$9,200
Country Club Drive	0.52	Mesa Verde Drive to Gisler Avenue	$10,400
Fountain Way	0.13	Wilson Street to Joann Street Bicycle Trail	$2,600
Harla Avenue	0.11	Mesa Verde Drive East to Bicycle Trail	$2,200
Junipero Drive	0.25	Presidio Drive to Arlington Drive	$5,000
Orange Avenue	1.75	Del Mar Avenue to East 19th Street	$35,000
Pomona Avenue	0.87	Wilson Street to West 19th Street	$17,400
Santa Ana Avenue	0.50	East 17th Street to South City Limits	$10,000
Tustin Avenue	1.74	22nd Street to South City Limits	$34,800
Wilson Street	0.65	Placentia Avenue to Pacific Avenue	$13,000
	7.90		**$158,000**

Proposed Class IV Cycle Tracks			
Route	**Miles**	**Limits**	**Estimated Cost**
Adams Avenue	1.69	West City Limit to Royal Palm Drive	$845,000
Baker Street	0.16	Mesa Verde Drive East to Labrador Drive	$80,000

Proposed Class IV Cycle Tracks (cont.)			
Route	**Miles**	**Limits**	**Estimated Cost**
Bristol Street	0.75	Newport Boulevard to Paularino Channel	$375,000
Fairview Road	1.08	Merrimac Way to Newport Boulevard	$540,000
Gisler Avenue	0.37	Gibraltar Avenue to Harbor Boulevard	$185,000
Merrimac Way	0.67	Harbor Boulevard to Fairview Road	$335,000
Newport Boulevard	1.08	19th Street to 15th Street	$540,000
Placentia Avenue	0.83	Adams Avenue to Estancia High School	$415,000
	6.63		**$3,315,000**

TOTAL BICYCLE FACILITY MILEAGE AND ESTIMATED COST	53.12 Miles	$26,023,500

OCTA Districts 1 and 2 Bikeway Strategic Plan

Corridor B (Newport Back Bay Trail System-Santa Ana)- Bristol Bear: The proposed regional corridor would start on University Drive turning right on Santa Ana Avenue, left on Bristol Street along SR-73, under SR-55, left on Bear Street, under SR-73, over I-405, and past South Coast Plaza before leaving Costa Mesa and heading northwards into Santa Ana.

Corridor K- Indianapolis Fairview: The proposed regional corridor would form a loop connecting Pacific Coast Highway (PCH) in downtown Huntington Beach to Newport Back Bay. The alignment would cross Costa Mesa through Fairview Park, Fair Drive, and Santa Isabel Avenue.

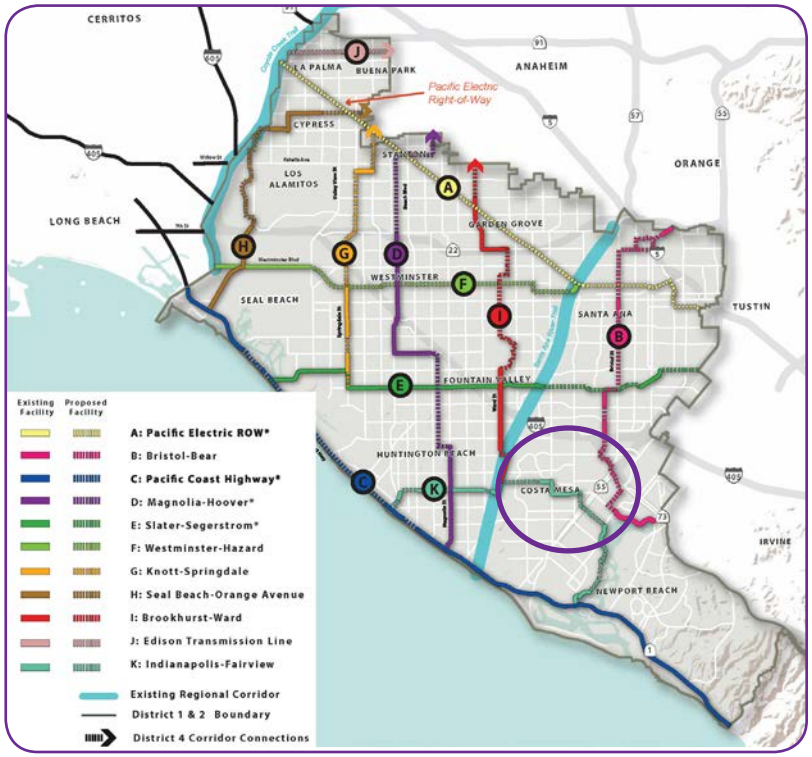


Figure 7-1 OCTA Districts 1 and 2 Bikeway Strategic Plan

Funding Sources

Bicycle projects are funded through a number of sources. Funding can be divided into five categories: local, regional, state, federal, and private funding. The City should tap into all of these sources in order to take maximum advantage of the funds that are available. The following are general descriptions of three categories of financing available for greenway and trail construction.

Local Funding Sources (City)

SB-1183 Vehicle registration fees: surcharge for bicycle infrastructure

This bill authorizes a city, county, or regional park district to impose and collect, as a special tax, a motor vehicle registration surcharge of not more than $5 for bicycle infrastructure purposes until January 1, 2025. The bill requires the Department of Motor Vehicles to administer the surcharge and to transmit the net revenues from the surcharge to the local agency. The bill requires the local agency to use these revenues for improvements to paved and natural surface trails and bikeways, including existing and new trails and bikeways and other bicycle facilities, and for associated maintenance purposes. The bill limits to 5% the amount of net revenues that may be used by the local agency for its administrative expenses in implementing these provisions.

Special Gas Tax Fund

The gas tax fund was established to account for the receipt and disbursement of funds used for construction and maintenance of the road network system of the City. Financing is provided by the City's share of State gasoline taxes.

Traffic Impact Fees Fund

Traffic Impact Fees Fund is established to account for the receipt and disbursement of funds for off-site transportation improvements Citywide. Financing is provided by fees charged to residential and commercial developers.

Park Development Fees Fund

Park Development Fees Fund is established to account for the development and maintenance of the City's park system. Financing is provided by fees charged to residential and commercial developers.

Local Funding Sources (County)

The City of Costa Mesa is located within Orange County. In addition to local City funds that are allocated to maintain City streets, the County of Orange has funding available through Measure M2, the Bicycle Corridor Improvement Program (BCIP), and the Transportation Development Act (TDA).

Measure M2

Measure M2 is a local sales tax initiative which imposes a .5-cent sales tax in Orange County, enacted in 2009, and administered by OCTA. Under Measure M2, local return funds are distributed to incorporated cities within Orange County as well as the County of Orange. Eligible uses include roadway improvements, signal synchronization, transit, and bicycle & pedestrian facilities.

Bicycle Corridor Improvement Program (BCIP)

The Bicycle Corridor Improvement Program (BCIP) is a funding program administered by OCTA to connect local city and county projects to competitive federal grant programs. Funding is provided by the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) who select projects to receive Congestion Mitigation and Air Quality Improvement (CMAQ) Program and Transportation Alternatives Program (TAP) funds. Eligible uses include construction and right-of-way acquisition of bicycle facilities and trails. Requested funds must be between $100,000 and $1 million with at least 12 percent local matching funds.

The City was awarded a $1 million grant from the BCIP for the design and construction of the Westside Bicycle Trail in 2014.

Transportation Development Act (TDA)

OCTA distributes approximately $2.5 million a year in TDA funding for bicycle facilities. TDA funds are derived from a $0.25 statewide sales tax for transportation of which 2 percent is reserved for pedestrian and bicycle facilities. Projects are submitted to OCTA through a competitive call for projects and scored based on a set of performance criteria. Higher scores translate to a higher likelihood of receiving funding.

Regional Funding Sources

The Southern California Association of Governments (SCAG) aids local jurisdictions with integrated land use and transportation planning projects. As the successor to the Compass Blueprint Growth Vision Program, the Sustainable Communities Strategy was adopted on April 4, 2012 and provides an avenue for SCAG to provide direct funding to innovative planning initiatives through Sustainability Program Grants. In addition to land use and transportation planning assistance, the Sustainability program provides funding through the Green Region Initiative aimed at local sustainability as well as Active Transportation funding for pedestrian and bicycle planning efforts.

SCAQMD Clean Air Fund

Local jurisdictions can apply for South Coast Air Quality Management District (SCAQMD) Clean Air Fund grants to support projects that encourage increased walking, bicycling, and/or transit ridership. Eligible active transportation projects include the design, development, or installation of bikeways, bicycle facility improvements, installing bicycle lockers or bus bicycle racks, and even bicycle loan programs. Applicant agencies must provide 10-15 percent in local matching funds to be eligible.

State Funding Sources

The City of Costa Mesa is located within the State of California, which has additional funding sources available.

State Transportation Improvement Program (STIP)

The STIP is a five-year state-regional program, adopted every two even years, of capital improvements on and off the State Highway System that increase the capacity of the transportation system. The STIP is funded from the State Highway Account (SHA), the primary funds of which are the $0.18 per gallon state gasoline tax and Federal (primarily STP) funds. The California Transportation Commission (CTC) must approve each County's STIP in its entirety. CTC allocation is required by the end of the fiscal year that the project is listed in the STIP.

The program provides funding for capital acquisition and construction of State highways and freeways, carpool lanes, local roads, public transit, pedestrian and bicycle facilities, grade separations, Transportation Demand Management (TDM), sound walls, and safety projects.

Active Transportation Program (ATP)

The ATP is funded by approximately $129 million of various state and federal funds from appropriations in the annual Budget Act. Funds for the program are appropriated to the Department of Transportation (Caltrans), for allocation by the CTC. The ATP consolidates existing federal and state transportation programs, including the Transportation Alternatives Program (TAP), Bicycle Transportation Account (BTA), and State Safe Routes to School (SR2S), into a single program with a focus to make California a national leader in active transportation. The program provides funding to improve walking or bicycling, and to enable and encourage children, including those with disabilities, to walk and bicycle to school; to make walking and bicycling to school safe and more appealing; and to improve safety, reduce traffic and air pollution.

State and regional requirements mandate that three percent of projects benefit Disadvantaged Communities. For a project to contribute towards this mandate, as well as earn additional points in the scoring process for benefiting a disadvantaged community, a "direct, meaningful, and assured benefit" to that community must be demonstrated. Disadvantaged communities are defined in the ATP guidelines as those among the 25 percent most disadvantaged in the state according to the CalEPA, those where at least 75 percent of public school students are eligible for free or reduced price lunches, and those where the median income is below 80 percent of the statewide median income or $48,857 (California Transportation Commission 2015 ATP Guidelines).

As the median income metric is derived from census tract level information, four Costa Mesa Census Tracts (CT) might qualify: CT 637.01 ($37,679) south of Victoria Street and east of Placentia Avenue, CT 637.02 ($44,263) south of Victoria Street and west of SR-55, CT 636.04 ($40,643) south of 19th Street and west of Placentia Avenue, and CT 636.05 ($43,651) north of 16th Street and east of Placentia Avenue.

Bicycle Transportation Account (BTA) is part of ATP. The funds provide state funds for city and county projects that improve safety and convenience for bicycle commuters. Cities and counties are eligible applicants. A city or county may apply for funds on behalf of another agency that is not a city or county. To be eligible for funding the jurisdiction has to prepare and adopt a Bicycle Transportation Plan (BTP) that complies with Streets and Highways Code Section 891.2.

Approvals from Regional Transportation Planning Agency and Caltrans Bicycle Facilities Unit are needed. BTP adoption establishes eligibility for five consecutive BTA funding cycles.

Project categories include bicycleways, bicycle parking, bicycle racks on public transit vehicles, traffic control devices, safety improvements on existing bicycleways, planning, and improvement and maintenance of bicycleways. However, bicycleway projects must conform to the Highway Design Manual (HDM), Chapter 1000 and the California Manual on Uniform Traffic Control Devices (CA MUTCD).

The BTA provides $7.2 million in state funds, per Streets and Highways Code Section 2106. A 10 percent match from the local agency is required.

Other Funding Sources

Other potential State funding sources are listed in Table 7-2 below.

Table 7-2 Other Potential State Funding Sources

Grant Source	Comments
Community-Based Transportation Planning Grants	Administered by Caltrans and funded at approximately $3 million annually, Community Based Transportation Planning Grants are awarded to projects that feature livable community concepts such as enhanced bicycle access and walkability. Projects cannot exceed $300,000.
Environmental Justice: Context-Sensitive Planning	Administered by Caltrans and funded at approximately $3 million annually, Context-Sensitive Planning grants fund projects that emphasize economic sustainability, transit-oriented development, mixed-use construction, and expanded access to multiple modes of transportation including active transportation. Each grant cannot exceed $250,000.
Office of Traffic Safety (OTS) Grant Program	The California Office of Traffic Safety funds education, enforcement, and engineering projects that improve safety on existing facilities. Eligible projects include traffic safety studies, helmet giveaways, and safety education programs.

Federal Funding Sources

In addition to local sources, the Federal Government has money available for transportation improvements including bicycle and pedestrian facilities and programs.

Fixing America's Surface Transportation (FAST) Act

The FAST Act is the first federal law in over a decade to provide long-term funding certainty for surface transportation infrastructure planning and investment. The FAST Act authorizes $305 billion over fiscal years 2016 through 2020 for highway, highway and motor vehicle safety, public transportation, motor carrier safety, hazardous materials safety, rail, research and development, technology, and statistics programs. This program is the most prominent funding source for biking and walking infrastructure projects and makes some policy changes as stated below:

- Nonprofit organizations are eligible to apply for funds. This makes it easier for nonprofits to do safety and education for Safe Routes to School programs. It also means that nonprofits who run bike share programs can apply directly.
- Funding increases from $820 million to $835 million in 2016 and 2017 and to $850 million in 2018, 2019 and 2020.
- The program maintains its competitive nature.

The FAST Act creates a priority safety fund to reduce bicycle and pedestrian fatalities. Only states in which 15% or more of overall fatalities are bicyclists or pedestrians will receive funds. The FAST Act also directs the US DOT to encourage states and Metropolitan Planning Organizations to set design standards to accommodate all road users. It also requires the US DOT to produce a report on implementation and best practices in two years.

More information regarding various funding opportunities under FAST Act can be found on FHWA website (http://www.fhwa.dot.gov/federalaid/projects.pdf).

Highway Safety Improvement Program (HSIP)

The Highway Safety Improvement Program funds construction projects that reduce traffic fatalities and serious injuries on public roads or public bicycle and pedestrian paths or trails. Eligible projects must identify a specific safety problem that will be corrected. A minimum of 90% of the project cost must be safety-related construction items and a maximum of 10% of the project cost can be used for non-safety construction items, such as landscaping. The maximum for individual project grants is $1.5 million and the minimum is $100,000. Projects are evaluated based on the Benefit/Cost ratio and the projects with the highest B/C ratio are selected for funding. Proposed projects first go through Statewide Project Selection, which allocates 70%-80% of HSIP funds. Projects that are not selected then go through District Project Selection, which allocates the remaining 20%-30% of HSIP funds. High Risk Rural Road Projects have a lower statewide B/C ratio cutoff.

Calls for projects are generally made every 1-2 years. Applications must be submitted to the respective Caltrans District Local Assistance Office and directed to the attention of the District Local Assistance Engineer. Information on Cycle 8, the most recent call for projects (May 2016) can be found here: http://www.dot.ca.gov/hq/LocalPrograms/HSIP/apply_now.htm. The next call for projects (HSIP Cycle 9) is expected to be announced around May 2018.

Transportation Investments Generating Economic Recovery (TIGER)

Congress designed TIGER grants to incentivize innovative, collaborative solutions to difficult transportation problems and generate economic development. Since 2009 when it was launched, the TIGER grant program has funded $5.1 billion to 421 projects in all 50 states, DC, Puerto Rico, Guam the Virgin Islands and tribal communities. The seventh round of TIGER grants in 2015 generated 625 applications requesting $9.8 billion worth of projects of which bicycle and pedestrian projects made up six percent. There was an eighth round of funding in July 2016.

Pilot Transit-Oriented Development Planning Program

The Pilot Transit-Oriented Development Planning Program allocates funding to promote planning projects that aim to improve pedestrian and bicycle access to transit hubs. Table 7-3 summarizes other potential Federal funding sources.

Table 7-3 Other Potential Federal Funding Sources

Grant Source	Description
Bus and Bus Facilities Program (Part of the Bus Livability Initiative)	Administered by the Federal Transit Administration (FTA), Bus & Bus Facilities Program grants can be used to fund infrastructure that improves bicycle and pedestrian access to public transit stations, provide bicycle shelter or parking facilities in the vicinity of transit stations, and install bicycle racks on buses.
Rivers, Trails, and Conservation Assistance (RCTA) Program	Administered by the National Park Service, RCTA staff members provide technical expertise and assistance to local jurisdictions to help preserve watersheds, open space, and develop bicycle and pedestrian trails and greenways improving resident access to said open spaces. Eligible projects include bicycleway plans, corridor studies, public outreach, and trail assistance.

Private Funding Sources

In addition to the various levels of government funding available, a number of private charities and advocacy groups recognize the benefits of active transportation. These charities and groups provide grants for transportation improvements including bicycle and pedestrian facilities and outreach programs. These are listed in Table 7-4 below.

Table 7-4 Potential Private Funding Sources

Grant Source	Description
Health Foundations	Organizations like Kaiser Permanente and the California Endowment sponsor efforts to promote bicycling and walking due to their public health benefits as they relate to obesity prevention and exercise promotion.
PeopleForBikes	Formerly Bikes Belong, PeopleForBikes issues grants for planning, design, and construction of bicycle improvements, support facilities, and related programs. Funding is capped at $10,000 and requires 50 percent matching funds from the recipient.
Surdna Foundation	The Surdna Foundation provides assistance to nonprofits addressing the environment, the arts, community revitalization, and effective citizenry.
Rails to Trails Conservancy	The Rails to Trails Conservancy advocacy organization provides technical assistance for projects that plan to convert abandoned rail corridors to multi-use trails for bicycles and pedestrians.

Appendix 1 Public Engagement Results

The City of Costa Mesa hosted a community engagement workshop on September 18, 2013, for the Circulation Element and Bicycle Master Plan Update. Approximately 40 community members participated in the workshop held in Costa Mesa's Emergency Operations Center at 99 Fair Drive, Costa Mesa.

The second part of the workshop addressed the Bicycle Master Plan Update with a presentation describing existing bicycle infrastructure and common deficiencies. Participants were asked to comment on the bicycle network and make infrastructure recommendations. The participants' comments were recorded both verbally and on various bicycle maps. All feedback from workshop attendees was reviewed and incorporated into the recommendations of this plan.

Additionally, the Costa Mesa City Council voted unanimously to establish the Bikeway and Walkability Committee on February 3, 2015, to guide the expansion of the bicycleway network and improve connectivity.

Common Themes/Questions

Common themes heard during the workshop were:

Circulation Element

- How did Bluff Road get added to the Master Plan of Arterial Highways (MPAH)?
- When developers apply for variances for higher densities, does the City take into account the parking and traffic problems associated with those variances?
- Does the City look at the impacts of projects? For example, Harbor Boulevard/ Mesa Verde Drive East and how that traffic will impact the existing conditions?
- New development approvals do not require enough parking.
- What does it mean when roadways are "downgraded?"

Bicycle Master Plan Update

- Stripe one-way arrows to prevent bicyclists from riding in the wrong direction.
- Are bicycles allowed to ride on sidewalks?
- Bicycle facilities/racks are needed to promote bicycling.
- Recent Broadway improvements – traffic calming project or bicycle project?
- Define how sharrows work.
- Will Bicycle Master Plan consider future population centers when making recommendations for future bicycle infrastructure?
- Request for bicycle transportation systems to reduce traffic.
- Cyclists do not obey traffic rules.
- Policy needed to encourage people to bicycle responsibly.
- Bicycle education program needed to enforce traffic laws?
- Do other cities provide bells (for bicyclists) to warn pedestrians?
- What is policy to handle bicyclists that ride impaired (i.e., drunk riding)? Are bicyclists cited?

Appendix 2 Inventory of Existing Bicycling Support Facilities

Existing Bicycle Racks	
Location	**Notes**
Volcom Skate Park	
Lions Park	
Heller Park	
24 hour Fitness	(Costa Mesa Courtyards)
Triangle Square 1	(Newport Boulevard)
Triangle Square 2	(Harbor Boulevard)
Mothers Market	(19th Street & Newport Boulevard)
Estancia High School	(on Placentia Avenue)
Heinz Kaiser Elementary School	(on Santa Ana Avenue)
Newport Harbor High School	(Off-Street - Newport Beach)
Costa Mesa High School	(Off-Street)
Adams Elementary School	(Off-Street)
California Elementary School	(Off-Street)
TeWinkle Middle School	(on Gisler Avenue)
Newport Heights Elementary School	
Victoria Elementary School	(Off-Street)
Wilson Elementary School	(Off-Street)
OCC 1	(Even with Arlington Drive 1/3 across west)
Costa Mesa City Hall	
The Farm Sports Complex	
Estancia Park/Balearic Community Center	
South Coast Plaza 1	(S. Parking Structure/Bloomingdales)
South Coast Plaza 2	(Near Z'Tejas)
South Coast Plaza 3	(Macy's Sublevel)
South Coast Plaza 4	(Near Security Office/Parking Structure)

Existing Bicycle Racks (cont.)	
Location	**Notes**
Plaza Tower Parking Structure	
Center Tower Parking Structure	
Park Center Parking Structure	
Neighborhood Community Center	
Newport Mesa Plaza	(Off of East 17th Street)
Goodwill	(Off of 19th Street Near Myers Place)
McDonalds	(Off of 19th St at Myers Place)
Jack in the Box	(Off of Harbor Boulevard between Village Way and Dale Way)
In-N-Out Burger	(Off of Harbor Boulevard south of I-405)
Stater Brothers	(Newport Boulevard N, south of Victoria Street)
Costa Mesa Senior Center	(Off-Street)
Near loading docks north of The Capital Grill	(Off Street)

Existing Changing Rooms and Showers		
Location	**Type**	**Notes**
Costa Mesa Aquatic Center	Public	(Downtown Rec Center) Swimmers Only
24 Hour Fitness Costa Mesa Active	Private	
24 Hour Fitness Costa Mesa Newport Supersport	Private	
24 Hour Fitness Costa Mesa Sport	Private	
24 Hour Fitness South Coast Metro Center Supersport	Private	
Halecrest Park/Pool Club	Private