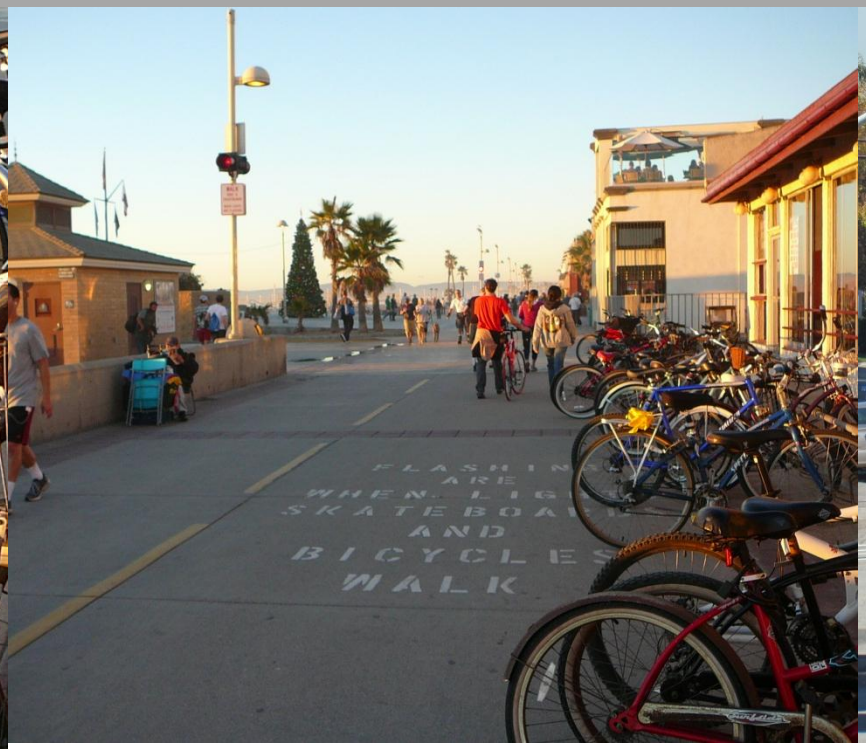
South Bay Bicycle Master Plan



alta
PLANNING + DESIGN

August, 2011

South Bay Bicycle Master Plan

- Multi-jurisdictional bike plan – **First of its kind!**
- 20 year implementation timeline

SOUTH BAY BICYCLE COALITION

LOS ANGELES COUNTY BICYCLE COALITION
WWW.LA-BIKE.ORG

COUNTY OF LOS ANGELES Public Health
Made possible by the U.S Department of Health and Human Services through the Los Angeles County Department of Public Health.

RENEW LOS ANGELES COUNTY

Plan Purpose

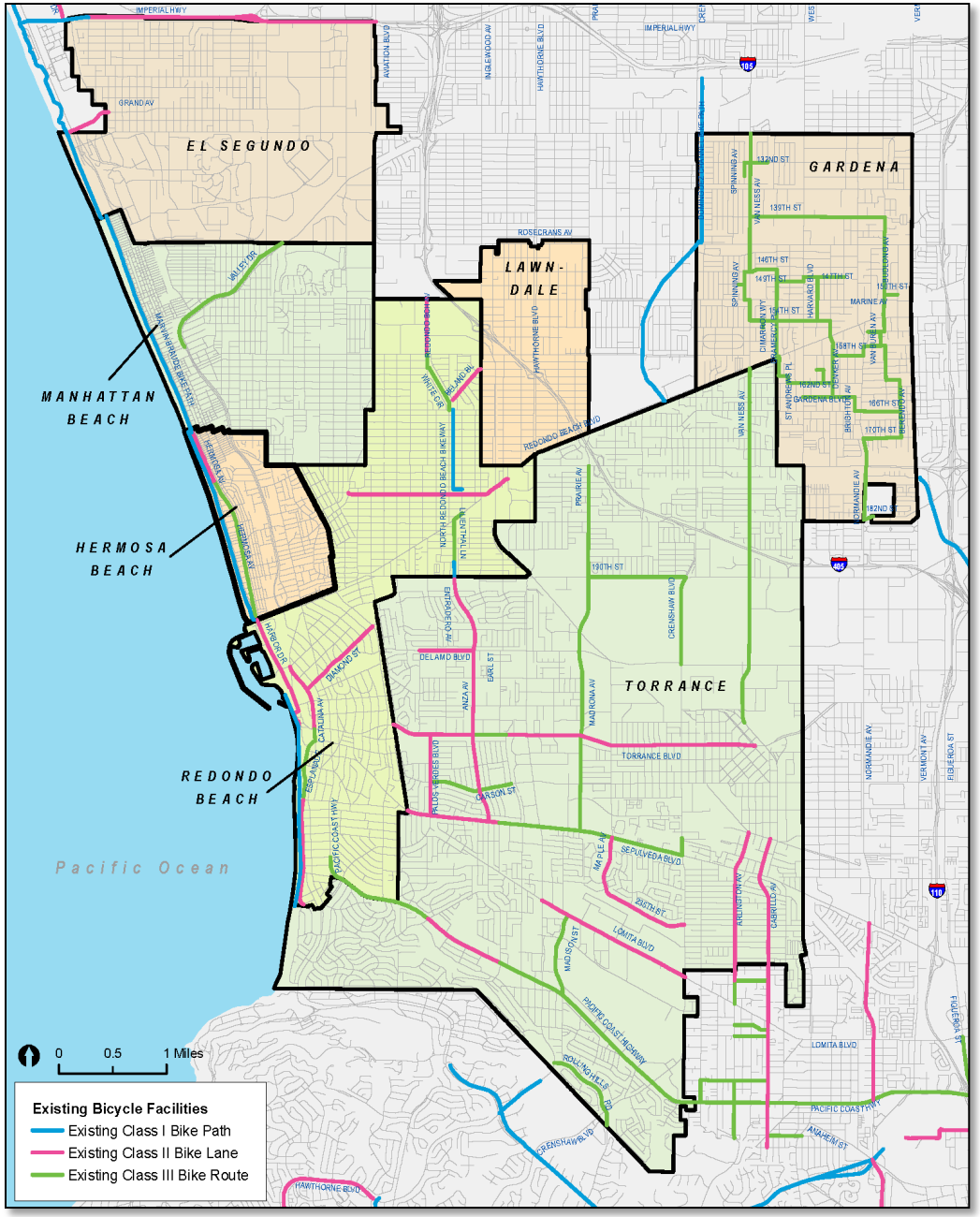
Guidelines, policies and a unified vision for the following priorities:

- Regional connectivity
- Encourage new bicyclists
- Support active transportation
- Improve road safety

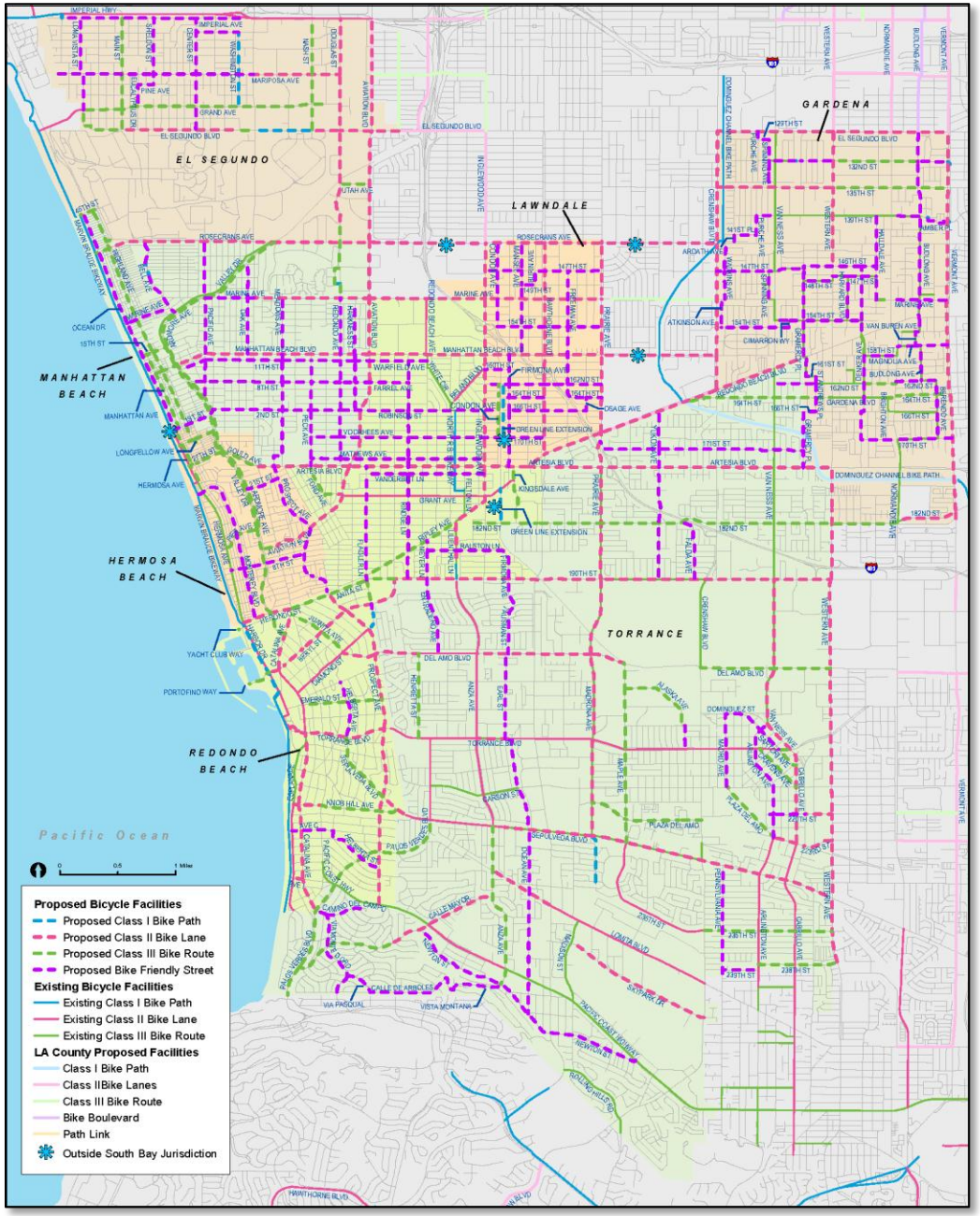
Plan Benefits

- Grant funding
- Property values, business revenues, job creation (Toronto, Indianapolis IN, Seminole FL, Fort Worth TX, Baltimore MD)
- Increased bike ridership – If you build it they will come! (Portland OR, New York NY, Boulder CO)
- Increased road safety for all users (Davis CA, San Francisco CA, Vancouver, New York)

Existing Network



Proposed Network



Proposed Network

City	Existing Mileage	Proposed Mileage	Roadway Mileage	20 Year Implementation Cost*
El Segundo	5.8	21.3	84.8	$1,589,000
Gardena	15.7	31.3	114.7	$1,170,000
Hermosa Beach	5.1	9.4	44.3	$269,000
Lawndale	0.0	19.7	44.1	$1,008,000
Manhattan Beach	3.2	31.0	105.3	$1,153,000
Redondo Beach	14.1	38.1	128.0	$1,895,000
Torrance	29.3	63.0	355.4	$2,449,000
TOTAL	**73.2**	**213.8**	**876.6**	**$9,533,000**

- Proposed network based on:
  - Accepted standards/ guidelines
  - Public input
  - Connectivity
  - Gap closure
  - Topography
  - Safety
  - Parallel bikeways

*Cost based on 2011 dollars

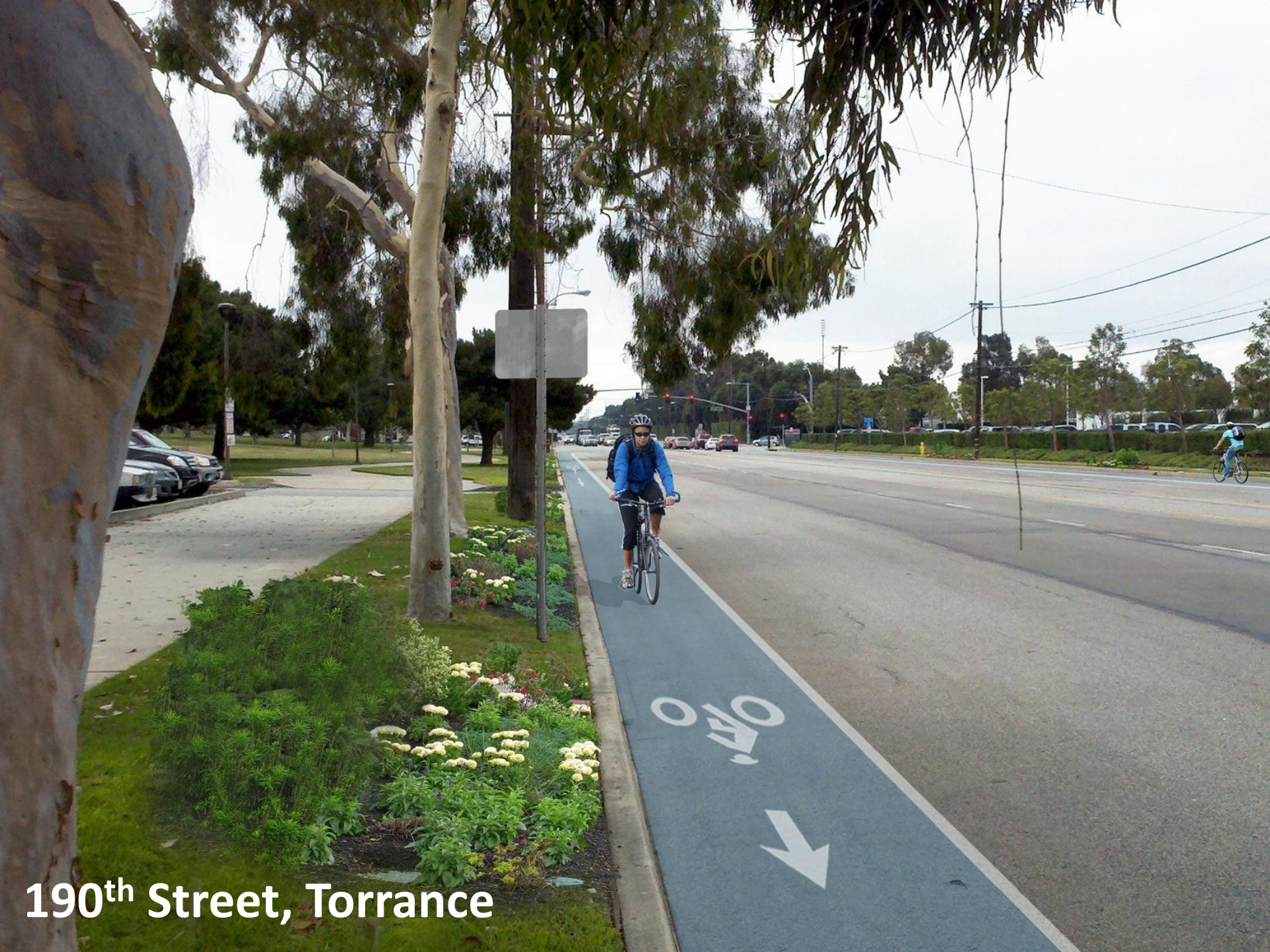
Funding Sources

- Federal
  - Highway Safety Improvement Program
  - Community Transformation Grant
- State
  - Bicycle Transportation Account
  - Safe Routes to School
- Regional
  - Metro Call for Projects
  - Measure R, Proposition A/C
- Other
  - Bikes Belong
  - Public/private partnerships

Proposed Network: Conceptual Photo Renderings


190th Street, Torrance

190th Street, Torrance


190th Street, Torrance


El Segundo Blvd, El Segundo


El Segundo Blvd, El Segundo


Gramercy Pl, Gardena


Gramercy Pl, Gardena


Gramercy Pl, Gardena

Prospect Ave, Hermosa Beach

Source: Healthways/Bluezones Vitality City and Walkable Movable Communities Institute

Prospect Ave, Hermosa Beach

Source: Healthways/Bluezones Vitality City and Walkable Movable Communities Institute

Prospect Ave, Hermosa Beach

Source: Healthways/Bluezones Vitality City and Walkable Movable Communities Institute

Prospect Ave, Hermosa Beach

Source: Healthways/Bluezones Vitality City and Walkable Movable Communities Institute

Aviation Blvd, Redondo Beach

Source: Healthways/Bluezones Vitality City and Walkable Movable Communities Institute

Aviation Blvd, Redondo Beach

Source: Healthways/Bluezones Vitality City and Walkable Movable Communities Institute

Aviation Blvd, Redondo Beach

Source: Healthways/Bluezones Vitality City and Walkable Movable Communities Institute

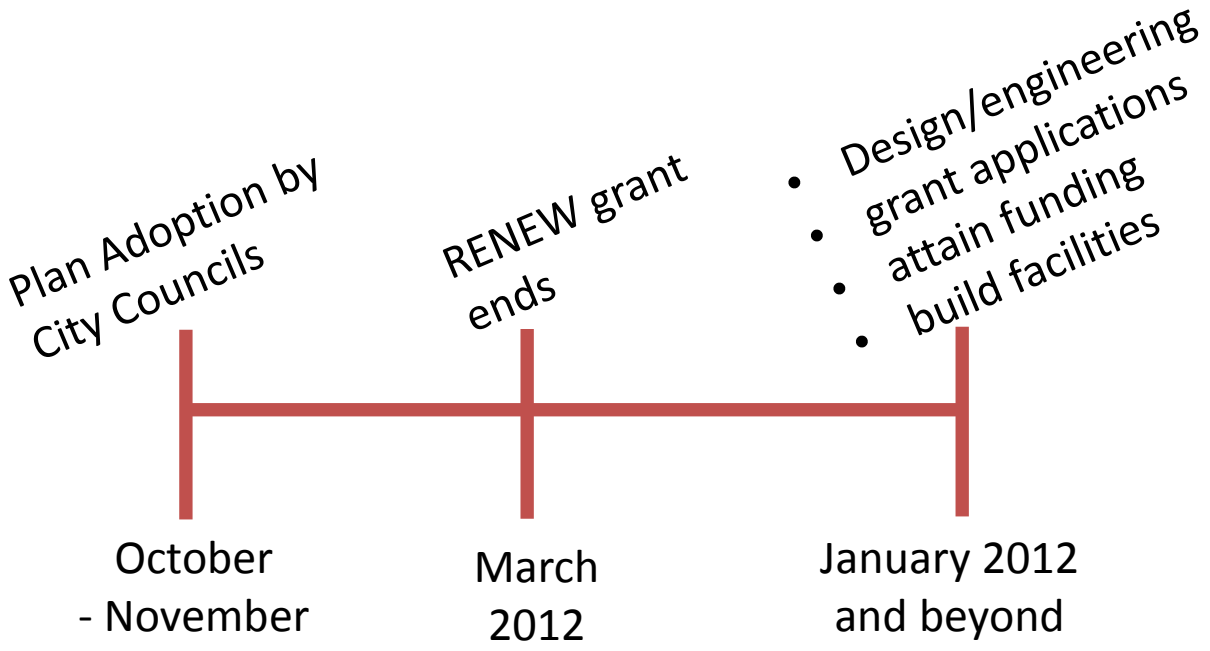
Aviation Blvd, Redondo Beach

Source: Healthways/Bluezones Vitality City and Walkable Movable Communities Institute

Aviation Blvd, Redondo Beach

Source: Healthways/Bluezones Vitality City and Walkable Movable Communities Institute

Next Steps


Plan Adoption by City Councils
RENEW grant ends
Design/engineering
grant applications
attain funding
build facilities
October - November
March 2012
January 2012 and beyond

Appendix Slides

Project Prioritization

- Projects have been prioritized based upon utility and ease of implementation over the next 20 years
- Ranking determines importance in funding and schedule of construction

Utility Prioritization Factors	Total Weight for Scoring
Gap Closure	6
Connectivity to Existing Facilities	6
Connectivity to Proposed Facilities	2
Connectivity to Activity Centers	4
Connectivity to Multi-Modal Transportation Centers	4
Safety	2
Identified by the Public as Desirable Connection	2
Underserved Communities	2
Implementation Prioritization Factor	**Total Weight for Scoring**
Project Cost	2
Parking Displacement	2

Health and Safety

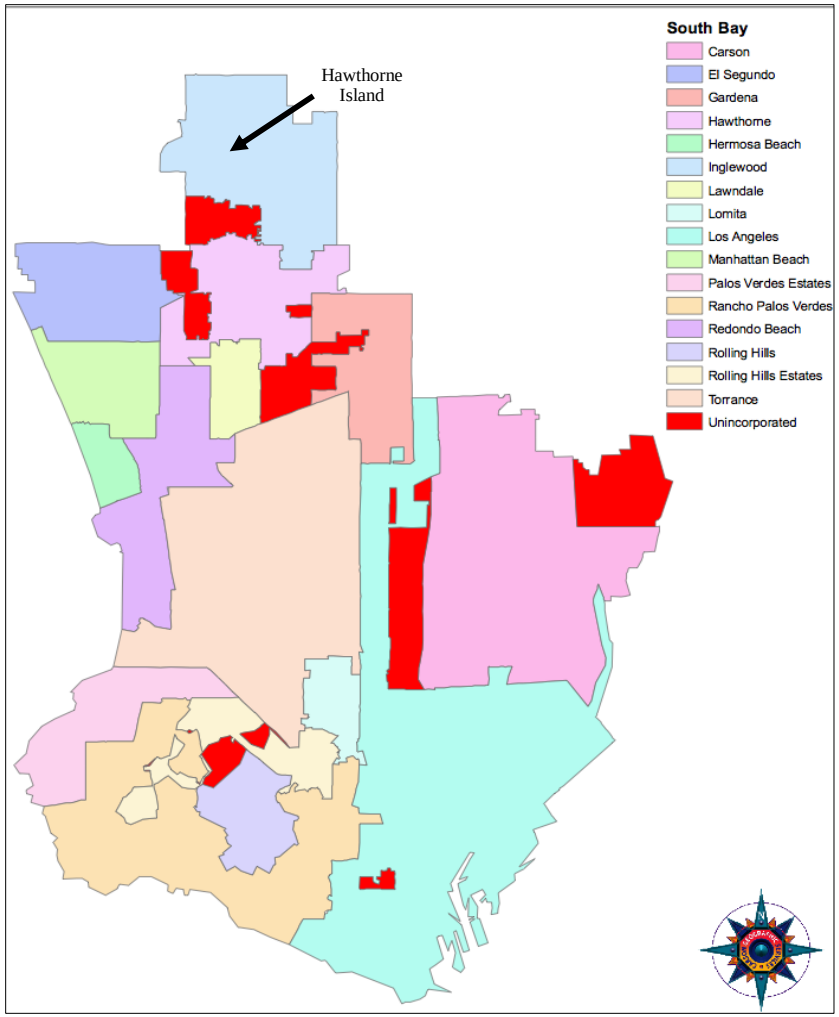
- **54%** of Americans live less than 5 miles from their jobs; 1.67% of these Americans commute by bicycle (*Bicycle Magazine*)

- In one generation, the percentage children who walk or bike to school dropped **70%**. Childhood obesity has tripled *(Center for Disease Control and Prevention)*

- More cyclists on the road **reduce** the accident rate as drivers become more aware *(CycleHelmets.org)*

Obesity Rates

Prevalence of Childhood Obesity in the South Bay



City/Community	Prevalence of Childhood Obesity, 2007
Alondra Park	25.9*
El Segundo	13.4
Gardena	27.8
Hawthorne	25.9
Hermosa Beach	17.2*
Inglewood	27.0
Lawndale	24.5
Lomita	26.7
Manhattan Beach	3.4
Redondo Beach	13.8
Torrance	12.5
West Carson	38.2

Safety Benefits

•**Safer Roads:** Cities with prominent bike facilities and more cyclists experience **lower cycling fatalities**…

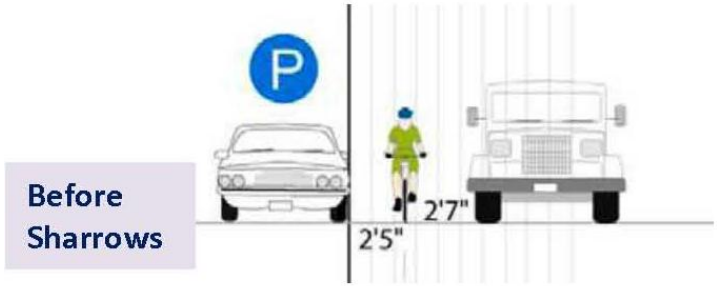
Bike Fatalities per 100 Million Bike Trips:

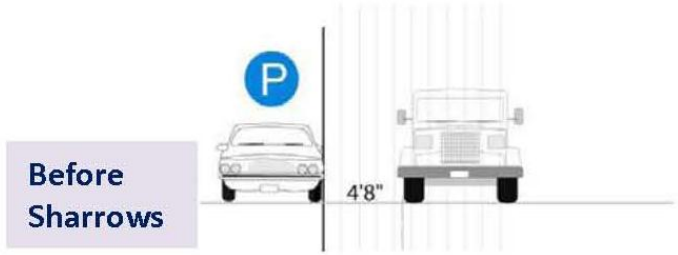
- Netherlands: 1.6%
- Germany: 2.4%
- USA: 26.3%

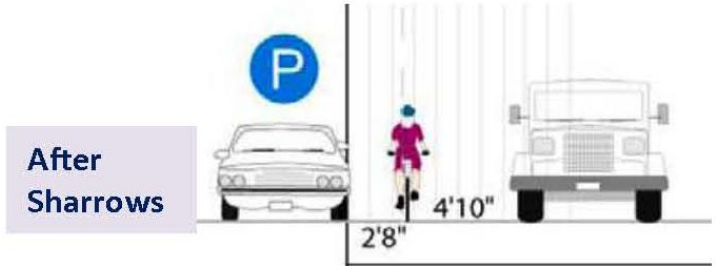
Safety Benefits

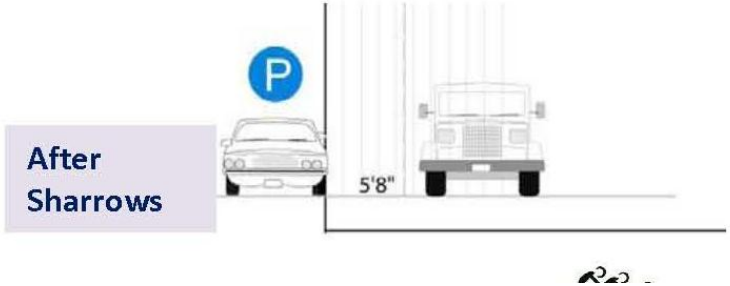
In San Francisco, Sharrows…

- Reduced wrong-way riding by 80%
- Improved car-spacing in the absence of bicyclists
- Reduced sidewalk riding by 35%









Economic Benefits

- Road services for a single-occupant car costs 8.83cents/mile
- Same services for a cyclist cost .33cents/mile
- Florida: improvements to a biking trail system resulted in a **20% increase** of use, the users of this trail **spent** an average of **$12.79/day** along the trail.
- Indianapolis: homes within a mile radius of bikeway trail improvements experienced a **$13,000 increase in property values.**
- Toronto: cyclists visit their neighborhood retail area more often and spend more than motorist.

Bicycle Facility Types

- Class I Bike Paths
- Class II Bike Lanes
- Class III Bike Routes
- Bike Friendly Streets

Bike Friendly Streets

Traffic Diverters

Bicycle Signage

Bicycle Signals

Bulbouts and pedestrian crossings

Pavement markings and wayfinding

Cycletracks

15th St NW – Washington, DC

Beyond DC - http://www.flickr.com/photos/beyonddc/5760683172/sizes/l/in/set-72157622405652500/

Cycletracks

Prospect Park West – Brooklyn, NY

New York DOT -
http://www.nyc.gov/html/dot/html/bicyclists/prospectparkwest.shtml#documents

Cycletracks

Joann St – Costa Mesa, CA

Kent Lundberg - https://picasaweb.google.com/100230371957597195589/CostaMesaCycleTrack#5636765990624429378

SOUTH BAY BICYCLE MASTER PLAN

The South Bay Bicycle Master Plan

Draft Final Plan - August 2011

alta

County of Los Angeles Public Health

RENEW Los Angeles County

Los Angeles County Bicycle Coalition www.la-bike.org

South Bay Bicycle Coalition

South Bay Bicycle Master Plan: Draft Final Plan

Acknowledgements

Prepared for:

Los Angeles County Bicycle Coalition--

South Bay Bicycle Coalition

Prepared by:

Alta Planning + Design

Brett Hondorp, Principal

Sam Corbett, Senior Associate

Jessie Holzer, Planner

alta

PLANNING + DESIGN

Table of Contents

List of Figures

List of Tables

Foreword

The South Bay Bicycle Master Plan is the result of an innovative partnership between long-standing bike advocacy non-profit Los Angeles County Bicycle Coalition (LACBC) and local grass-roots bike advocates the South Bay Bicycle Coalition (SBBC). The two groups came together with the common goal of improving the safety and convenience of bicycling in Los Angeles County, and specifically in the South Bay Region.

In December of 2009, the South Bay Bicycle Coalition approached a number of South Bay cities (defined as those cities encompassed by the South Bay Cities Council of Governments) to ask for their support and involvement in a multi-city bicycle master planning process. Seven of the cities responded favorably and within the specified time frame for grant eligibility. Those seven responsive cities are the cities that are represented in this master plan. The participating cities include: El Segundo, Gardena, Hermosa Beach, Lawndale, Manhattan Beach, Redondo Beach, and Torrance. This plan seeks to provide improved and increased connectivity across these seven cities. All seven City Councils have adopted supportive resolutions and have dedicated in-kind staff time to assist with plan review and data gathering.

Funding for this master planning process is made possible through the Department of Health and Human Services through the Los Angeles County Department of Public Health's Renew Environments for Nutrition, Exercise and Wellness in Los Angeles County (RENEW-LAC) initiative. RENEW-LAC is made possible by funds from the Center for Disease Control and Prevention – Communities Putting Prevention to Work Initiative. RENEW seeks to implement policy, systems and environmental change to improve nutrition, increase physical activity and reduce obesity, especially in disadvantaged communities. Engaging communities in active transportation through pedestrian and bicycle-friendly policies is one objective of the RENEW initiative.

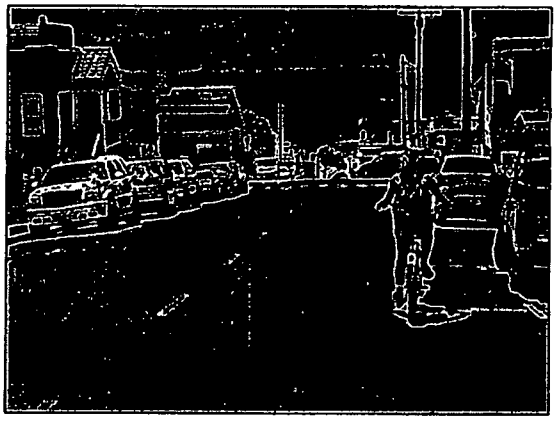
The Los Angeles County Bicycle Coalition and the South Bay Bicycle Coalition are partnering to improve bicycling in the South Bay.

Photo Source: Kelly Morphy/WALC Institute for Vitality City

This page intentionally left blank.

Executive Summary

The South Bay Bicycle Master Plan is intended to guide the development and maintenance of a comprehensive bicycle network and set of programs and policies throughout the cities of El Segundo, Gardena, Hermosa Beach, Lawndale, Manhattan Beach, Redondo Beach, and Torrance for the next 20 years. As the first-ever multi-jurisdictional bike plan, it has a unique focus on cross-city consistency and connectivity that is often lacking in singular city bike plans. Upon plan adoption, each participating city will be eligible for grant funding sources which they are not currently receiving.



Implementation of this plan is meant to promote and increase bicycle ridership for all levels of ability across the South Bay.

Implementation of this plan is meant to promote and increase bicycle ridership for all levels of ability across the South Bay. The South Bay has an existing base of recreational and enthusiast bicyclists; this plan's primary objective is to increase the number of those bicyclists, as well as create a larger base of utilitarian bicyclists, including bicycle commuters, through safe, accessible and consistent bicycle infrastructure, and the policies and programs that support it.

As discussed in Chapter One, there are numerous benefits that a bicycle master plan provides to both community members and the cities that implement it, including improved community health and quality of life, increased property values, decreased bicycle collisions and improved air quality mitigation, among others.

For a condensed review of the plan, please see the following sections:

- Chapter Two: Goals, Objectives, and Policies are meant to compliment the proposed network and are focused upon the six Es of a successful bike plan: evaluation and planning, engineering, education, enforcement, encouragement, and equity
- Chapters Three through Nine: Individual City Chapters include a discussion of a given city's existing bikeways, a high-level needs analysis, and the proposed bicycle facility improvements; the verbiage presented in each of these chapters is very similar to one another; as such it is recommended that the reader focuses on the city chapter of their preference

- **Chapter Ten: Recommended Programs** expands upon a few of the ideas presented through policy and provides the cities with further toolbox strategies to address the "six E's" of a successful bike plan
- **Chapter Eleven: Wayfinding and Signage** presents the regional wayfinding plan for the participating cities to inform bicyclists how to navigate through the network
- **Chapter Twelve: Funding** identifies potential funding sources that the cities could apply for to implement the proposed network presented in this Plan

As previously stated, this plan has a 20-year implementation time line. Adoption of this plan is the first of many steps that will need to be taken prior to implementation of any given proposed facility. Prior to facility implementation, each city will need to have their traffic engineering staff review the proposed facility and design the appropriate treatments. The majority of these facilities will be exempt from environmental review, although some may be subject to the California Environmental Quality Act (CEQA), as well as further public hearings and Council approval.

This Executive Summary contains a glossary of terms; the existing regional bike network; proposed regional and city-specific bikeway network maps; and a city-by-city breakdown of proposed bikeway mileage.

The following table discusses terms that are presented in this plan:

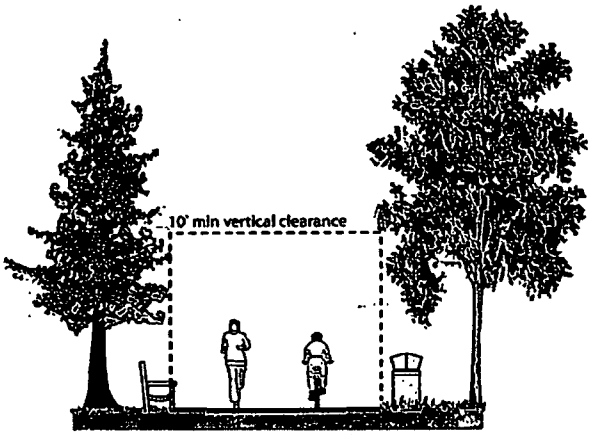
Word	Definition
Assembly Bill 1358	California Assembly Bill 1358, also known as the Complete Streets Act of 2008, amended the California Government Code §65302 to require that all major revisions to a city or county's Circulation Element include provisions for the accommodation of all roadway users including bicyclists and pedestrians. Accommodations include bikeways, sidewalks, crosswalks, and curb extensions.. See section 2.2.2.1 of this plan for more information.
Mobility Coordinator	A part- or full-time employee dedicated to the implementation of alternative transportation, which can include bicycle program administration. As related to bicycles, a mobility coordinator tracks, coordinates and oversees implementation of bike facilities, programs, grant applications and data collection.
Bicycle Facility	A street or off-road path designed for bicycle travel
Bike Path	A completely separated, paved right-of-way designated for the exclusive use of bicycles and pedestrians
Bike Lane	A restricted right-of-way striped on a street and designated for the exclusive use of bicycles, with crossflows by pedestrians and motorists permitted

Word	Definition
Bike Route	An on-street right-of-way designated by signs or pavement markings to be shared between bicyclists and motorists
Bicycle Transportation Account (BTA)	An annual program of the State of California providing state funds for city and county projects that improve safety and convenience for bicycle commuters. To establish eligibility for these funds, local agencies must have a Bicycle Transportation Plan that complies with Caltrans requirements in CA Streets and Highways Code Section 891.2. This plan complies with BTA requirements.
Class I, II, and III Bikeways	State of California definitions for Bicycle Paths, Bicycle Lanes, and Bicycle Routes, respectively, in the California Streets and Highways Code Section 890.4. For additional detail see Section 3 of this plan.
Complete Streets	Complete streets refers to the principle that all transportation improvements should address the safety, access, and mobility of all travelers, including motorists, bicyclists, pedestrians, transit riders, and the disabled. Caltrans Deputy Directive 64 formally states that Caltrans views all transportation improvements as opportunities to improve conditions for all users, and adopts such a policy for all planning, programming, design, construction, operations, and maintenance activities and products on the State Highway System.
Bike Friendly Street	Local roads that have been enhanced with treatments that prioritize bicycle travel. These treatments include wayfinding signage, pavement markings and traffic calming
Bike Station	Modeled after the secure indoor bicycle parking facilities provided by the private firm BikeStation, these are locations that provide bicycle storage and other amenities such as showers and bicycle repair stations. They are often located near transit stations.
Bike Valet	The provision of monitored bicycle parking, typically at a large event
Sharrows	Pavement markings denoting the safe and legal riding position for bicyclists. The name "sharrows" derives from "shared-use arrows." Among other things, sharrows clarify bicyclists' right to occupy the center of a travel lane, and encourage bicyclists to ride away from parked cars, so that they are not in danger of being struck by opening doors.

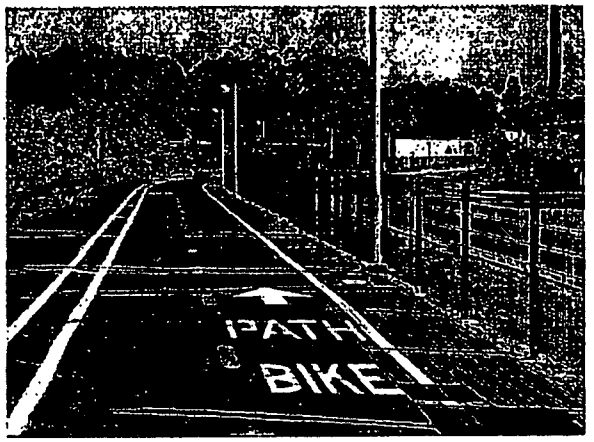
The following graphics describe the proposed bicycle facility types presented in this Plan: Class I Bike Paths, Class II Bike Lanes, Class III Bike Routes, and Bicycle Friendly Streets.

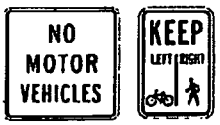
Class I Bike Paths

Provide completely separated right-of-way for exclusive use by bicycles and pedestrians with cross-flow minimized.



8'-10' typical width
2' graded shoulders recommended

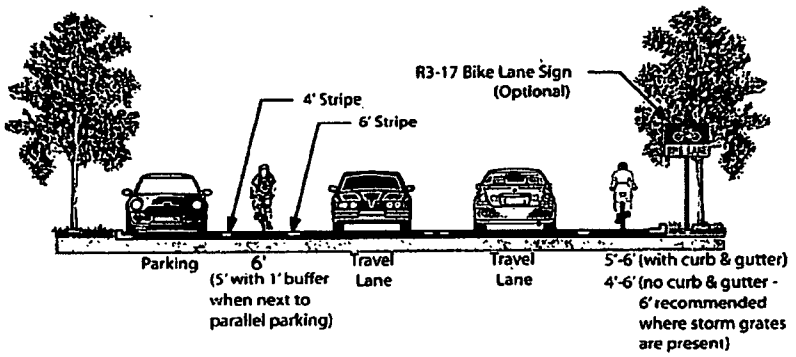


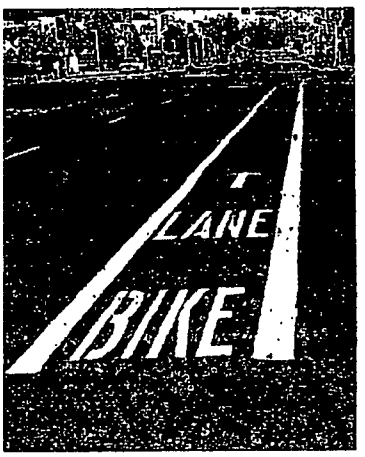


R5-3: No Motor Vehicles sign
R9-7: Shared-Use Path Restriction sign

Class II Bike Lanes

Provide striped lane for one-way bike travel on a street or highway



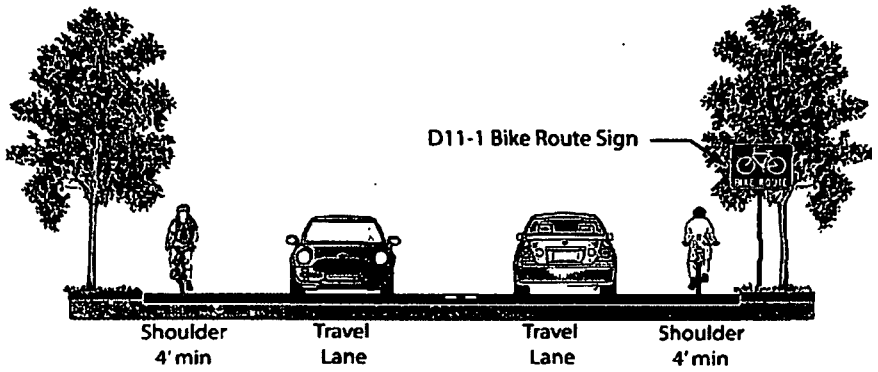


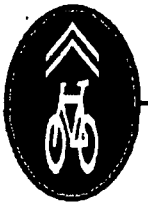
R3-17: Bike Lane sign
Placed at periodic intervals along bicycle lanes

Class III Bike Routes

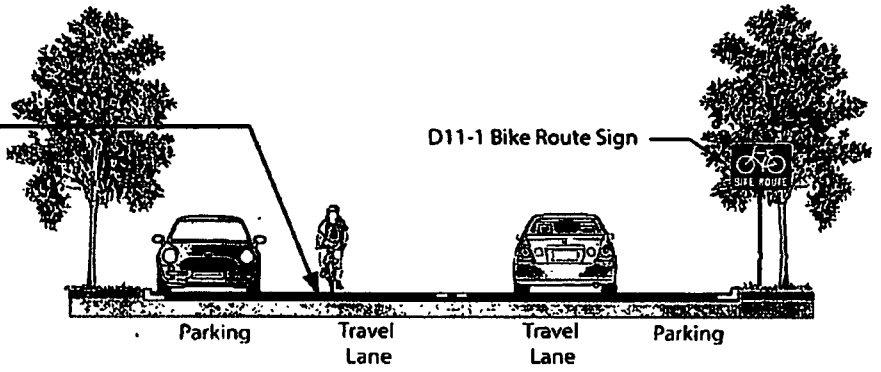
Provide for shared-use with motor vehicles, typically on lower volume roadways.

D11-1
Bike Route sign



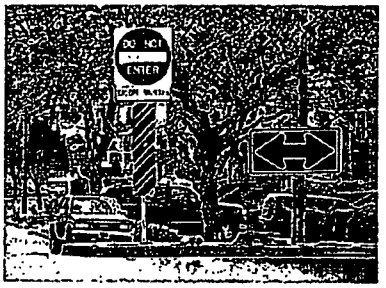


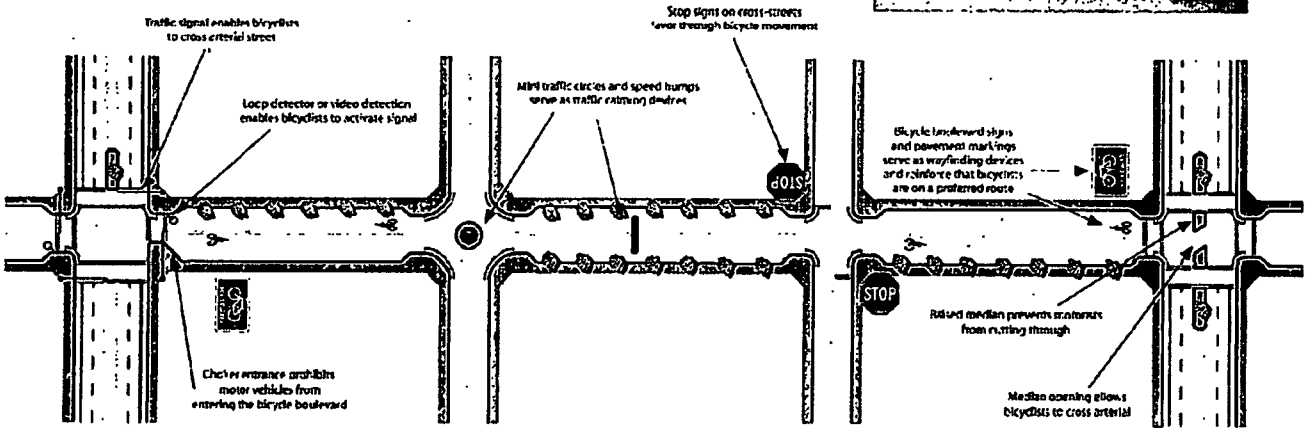
Recommended
Shared Lane Marking
11' (min) center to curb



Bike Friendly Streets

Local roads or residential streets that have been enhanced with traffic calming and other treatments to prioritize children, pedestrians, neighborhood traffic, and bicycles

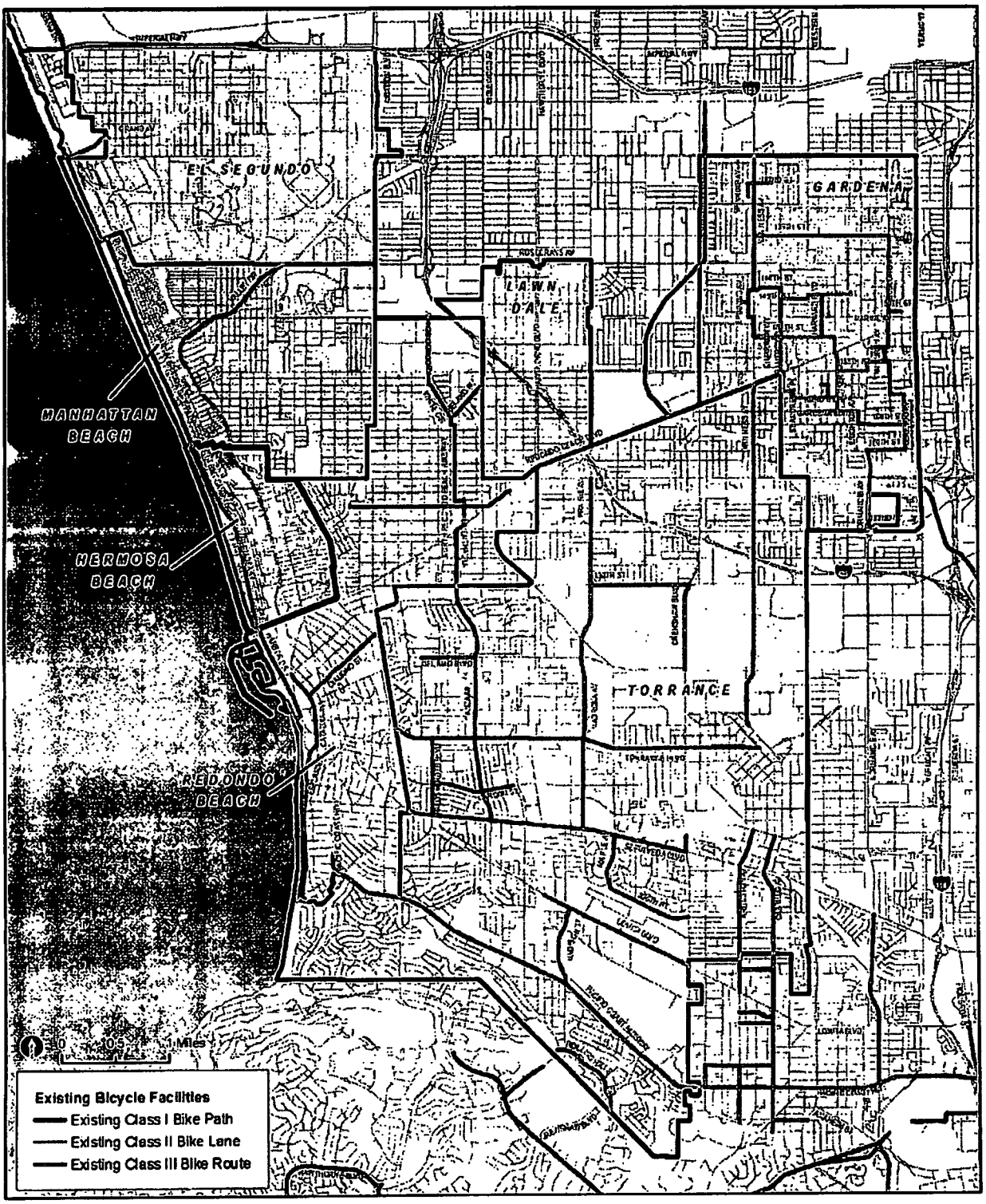




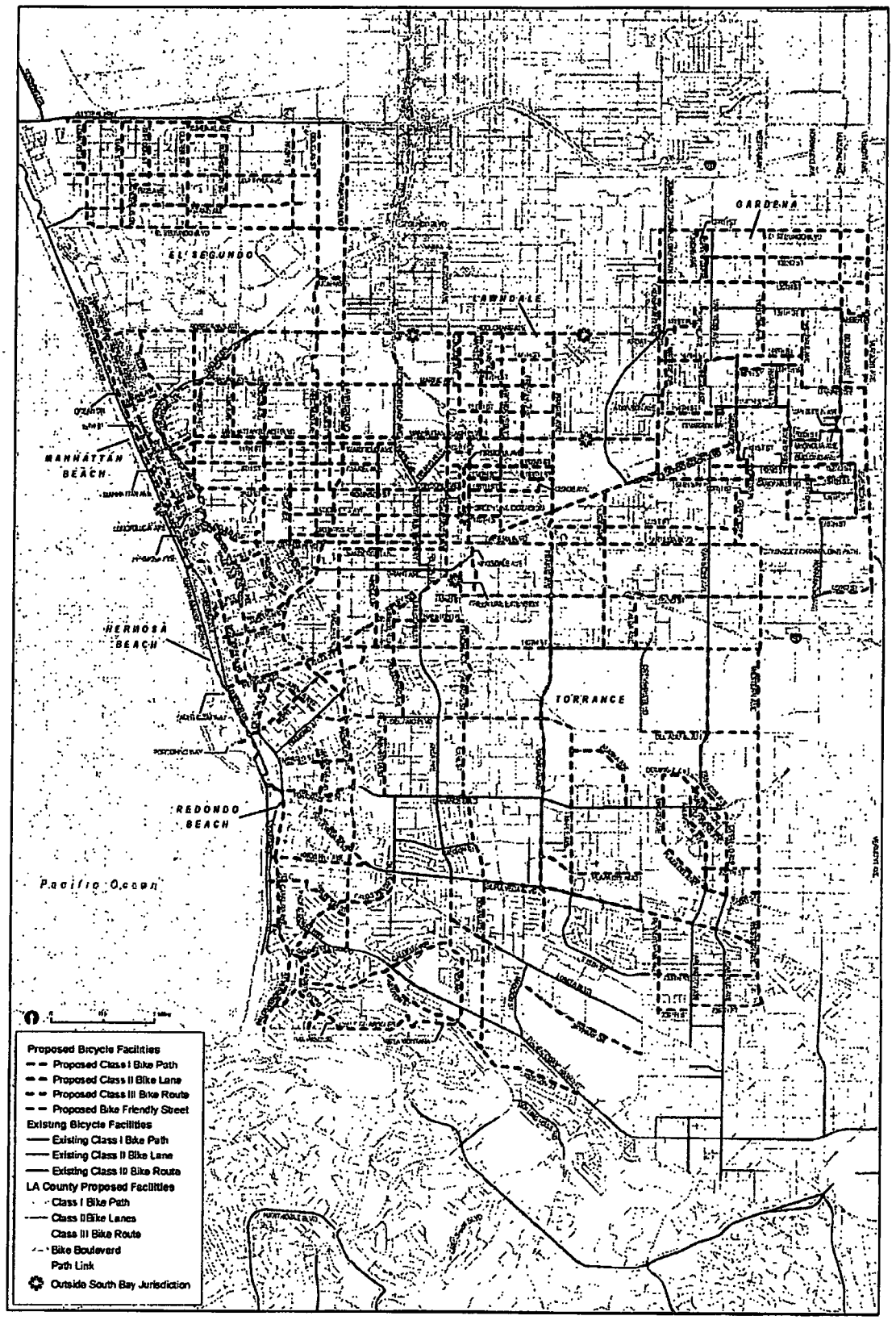
The table below displays the mileage of existing and proposed bicycle facilities in each city by facility type. There are 73.2 existing miles of bikeways in the South Bay region. This Plan proposed an additional 213.8 miles of bicycle facilities. Following the table are maps presenting the existing and proposed bikeways in the seven participating cities.

City	Existing Mileage	Proposed Mileage
El Segundo		
Class I Bike Path	1.0	1.2
Class II Bike Lane	2.8	8.7
Class III Bike Route	2.0	5.0
Bicycle Friendly Street	0.0	6.4
TOTAL	**5.8**	**21.3**
Gardena		
Class I Bike Path	1.1	0.2
Class II Bike Lane	1.9	10.4
Class III Bike Route	12.7	3.9
Bicycle Friendly Street	0.0	16.8
TOTAL	**15.7**	**31.3**
Hermosa Beach		
Class I Bike Path	1.8	0.0
Class II Bike Lane	0.5	0.9
Class III Bike Route	2.8	4.7
Bicycle Friendly Street	0.0	3.8
TOTAL	**5.1**	**9.4**
Lawndale		
Class I Bike Path	0.0	0.4
Class II Bike Lane	0.0	9.7
Class III Bike Route	0.0	0.4
Bicycle Friendly Street	0.0	9.2
TOTAL	**0.0**	**19.7**

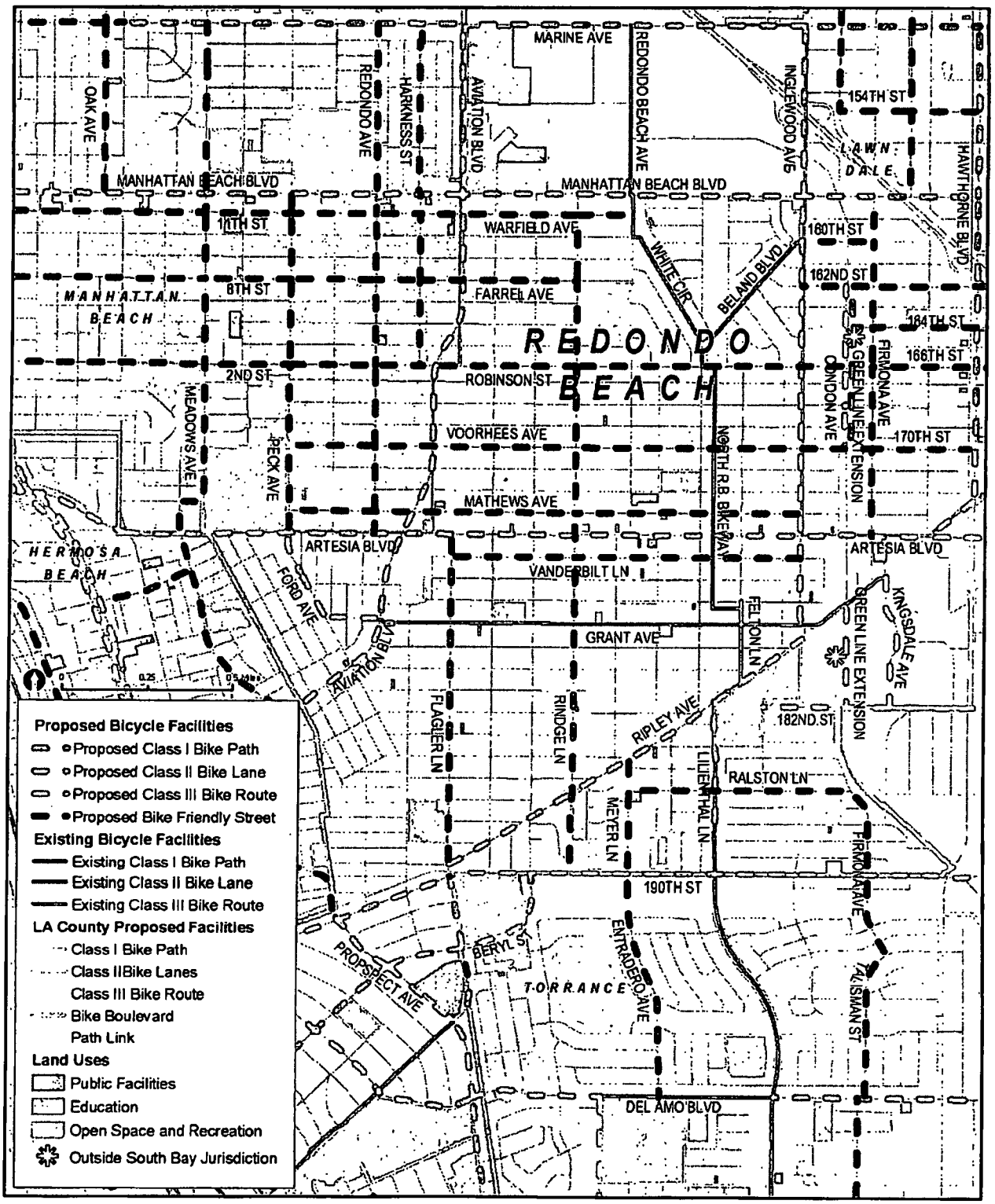
City	Existing Mileage	Proposed Mileage
Manhattan Beach		
Class I Bike Path	2.1	0.2
Class II Bike Lane	0.0	7.0
Class III Bike Route	1.1	7.1
Bicycle Friendly Street	0.0	16.7
TOTAL	**3.2**	**31.0**
Redondo Beach		
Class I Bike Path	3.5	0.8
Class II Bike Lane	5.9	18.9
Class III Bike Route	4.7	7.5
Bicycle Friendly Street	0.0	10.9
TOTAL	**14.1**	**38.1**
Torrance		
Class I Bike Path	0.0	0.5
Class II Bike Lane	14.3	28.0
Class III Bike Route	15.0	16.2
Bicycle Friendly Street	0.0	18.3
TOTAL	**29.3**	**63.0**
TOTAL	**73.2**	**213.8**



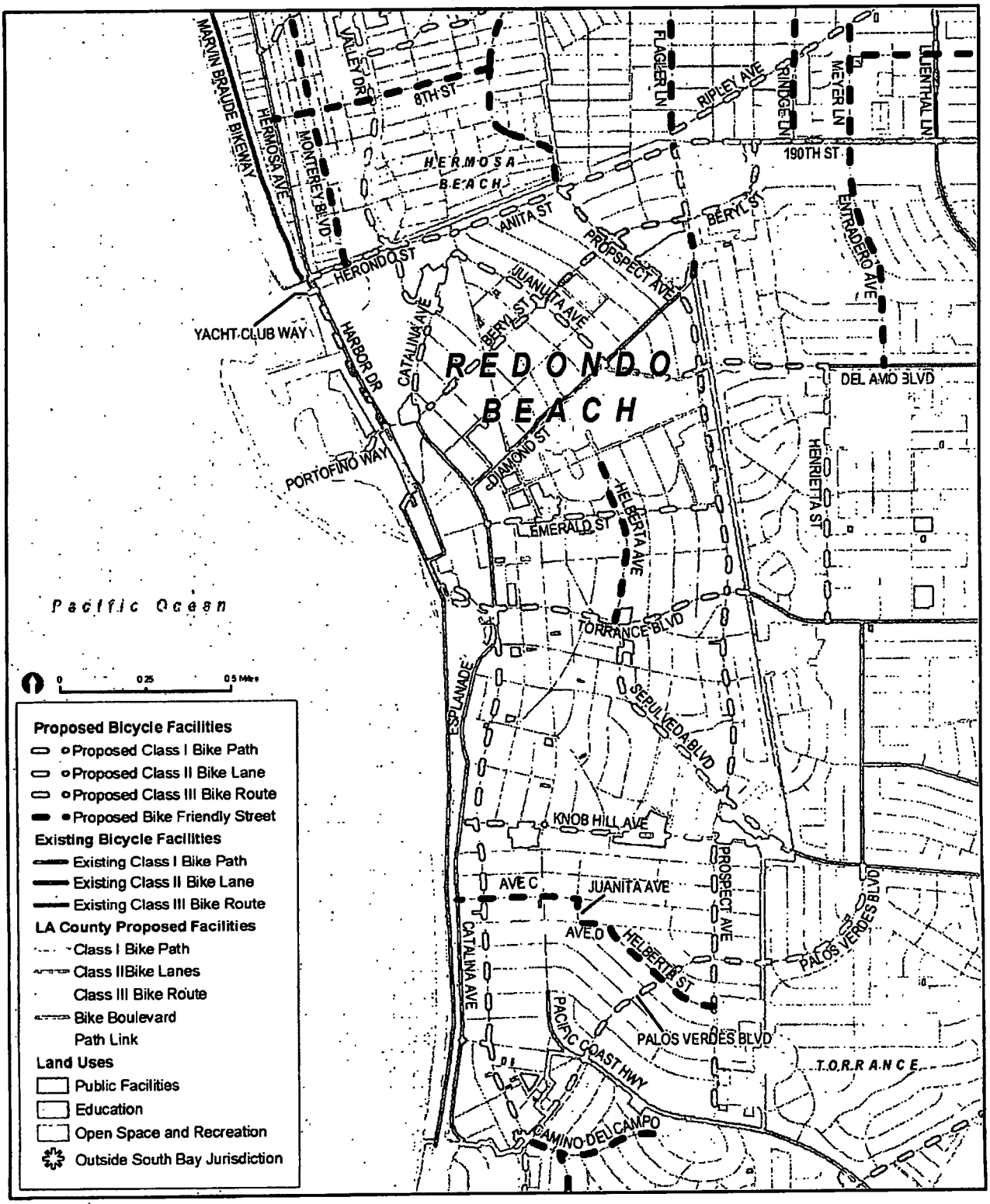
Existing Bicycle Facilities in the South Bay region



Proposed Bicycle Facilities in the South Bay region



Proposed Bicycle Facilities in North Redondo Beach



Proposed Bicycle Facilities in South Redondo Beach

This page intentionally left blank.

This page intentionally left blank

Chapter 1

Introduction

1 Introduction

The South Bay Bicycle Master Plan is intended to guide the development and maintenance of a comprehensive bicycle network and set of programs throughout the cities of El Segundo, Gardena, Hermosa Beach, Lawndale, Manhattan Beach, Redondo Beach, and Torrance for the next 20 years. This chapter introduces the seven participating South Bay cities and the South Bay region as a whole. It also presents the reasons for creating the South Bay Bicycle Master Plan, how the community has been involved in the planning process, and the framework for the ensuing chapters.

Bicyclists in the South Bay.

Photo Source: Kelly Morphy/WALC Institute for Vitality City

1.1 Setting

The South Bay region is located in southwest Los Angeles County and includes the cities along and inland of southern Santa Monica Bay. This bicycle master plan focuses specifically on seven cities within the South Bay region that have agreed to participate in this planning effort. Together, these cities comprise approximately 45 square miles of land area and have a combined population of over 350,000. The seven participating cities vary in size, population, socioeconomic factors, and climate, as well as in existing levels of bicycle infrastructure and bicycle usage. Figure 1-1 displays the South Bay master plan cities within the Los Angeles region, and Table 1-1 shows the population statistics for each city as compared to the project area as a whole.

Table 1-1: Population of the South Bay Bicycle Master Plan Cities

Location	Population	Percent Project Area Population
El Segundo	15,970	4.4%
Gardena	57,818	16.0%
Hermosa Beach	18,442	5.1%
Lawndale	31,729	8.8%
Manhattan Beach	34,039	9.5%
Redondo Beach	63,261	17.6%
Torrance	137,933	38.4%
TOTAL	**359,192**	**100%**

Source: U.S. Census 2000

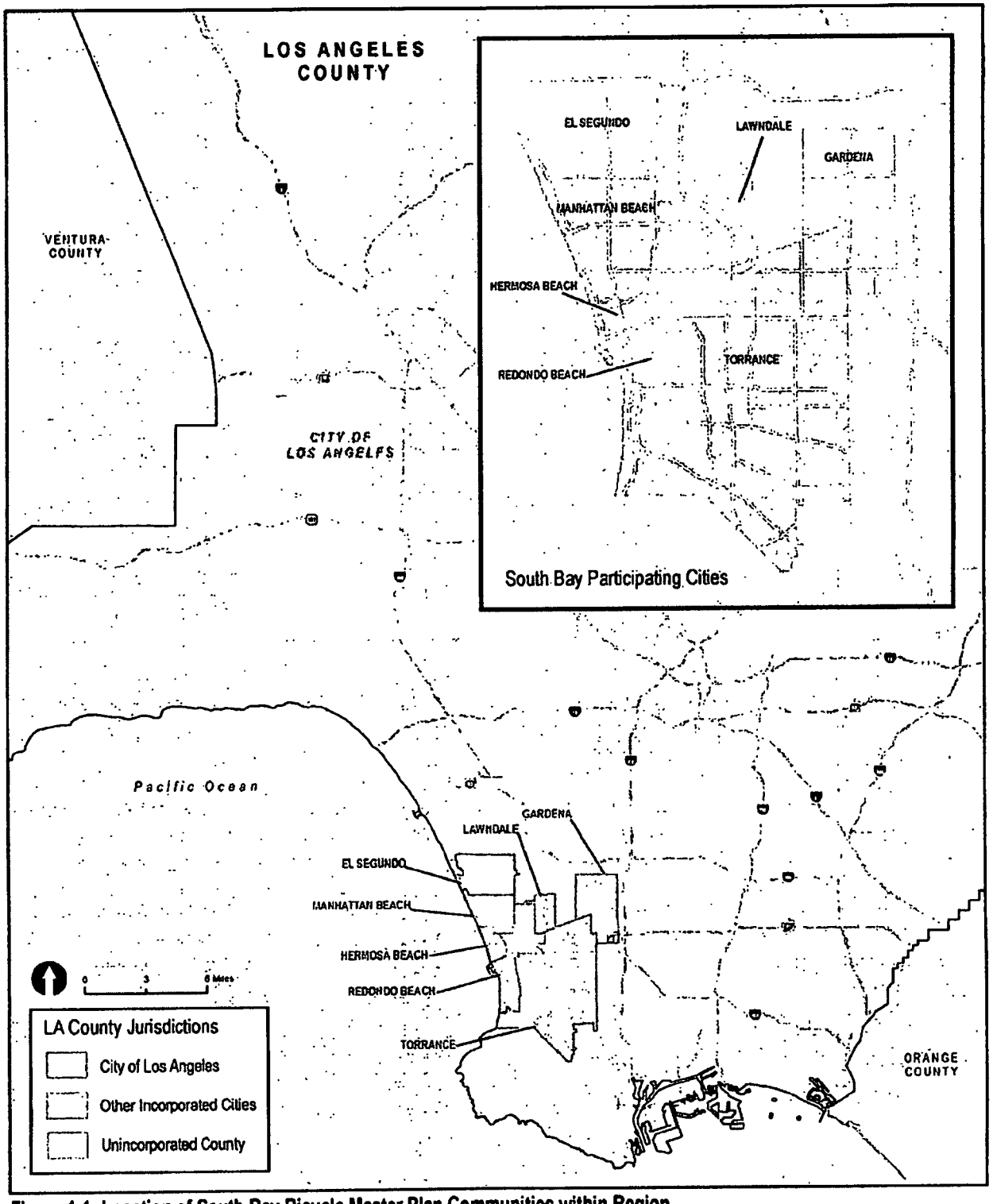


Figure 1-1: Location of South Bay Bicycle Master Plan Communities within Region

Los Angeles County Bicycle Master Plan

Source: Los Angeles County (2010)
Date: 11/2/2010

The South Bay currently faces several barriers to bicycling. This region is an area dominated by the automobile. Many streets carry high volumes of vehicles traveling at fast speeds (see Appendix A-1) creating challenging road conditions for bicyclists. Roads with fewer motorized vehicles are often residential streets that do not connect or end in cul-de-sacs, forcing bicyclists to travel far out of their way to reach their destinations. There is also a lack of regional bicycle connectivity between South Bay cities illustrated by bicycle facilities dropping at city boundaries, such as the bicycle lanes on Sepulveda Boulevard in Torrance stopping once the street enters Redondo Beach (see Appendix A-2).

1.2 Purpose of the Bicycle Master Plan

The South Bay Bicycle Master Plan provides a broad vision, as well as strategies and actions, to improve conditions for bicycling throughout the seven participating South Bay cities and address the barriers to bicycling discussed above. As a means of bettering the bicycling environment, this Plan provides direction for expanding the existing bikeway network, connecting gaps in and between the participating cities, and ensuring greater local and regional connectivity. The South Bay Bicycle Master Plan recommends a network in which bicyclists will be able to pass through the participating cities to reach their destinations without losing bicycle facilities at city boundaries, which will also allow residents of adjacent cities to benefit from the bicycle system. In addition to providing recommendations for bikeways and support facilities, the Plan offers recommendations for education, encouragement, enforcement, and evaluation programs.

In its recommendations, the South Bay Bicycle Master Plan includes facilities and programs that will encourage people of all ages and levels of ability to bike more frequently. Supported by data collected nationally since 2006, planners developed categories to address Americans' 'varying attitudes' towards bicycling, which are shown in Figure 1-2. As illustrated, less than one percent of Americans comprise a group of bicyclists who are 'Strong and Fearless'. These bicyclists typically ride anywhere on any roadway regardless of roadway conditions, weather, or the availability of bicycle facilities. The strong and fearless bicyclists can ride faster than other user types, prefer direct routes, and will typically choose roadway connections – even if shared with vehicles – over separate bicycle facilities such as bicycle paths. This category of bicyclists will be less affected by this Plan than the following groups.

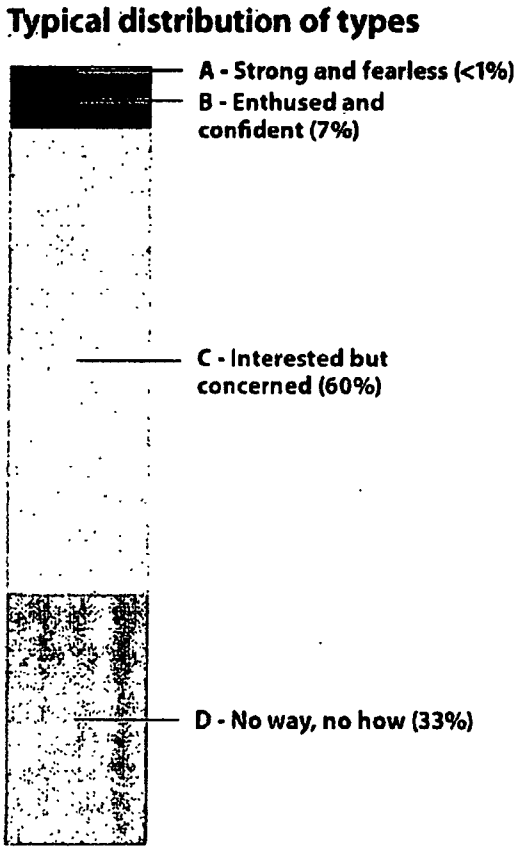


Figure 1-2: Typical Distribution of Bicyclists in the United States

Replacing vehicular trips with bicycle trips reduces human-generated greenhouse gases that are associated with climate change.

Approximately seven percent of Americans fall under the category of 'Enthused & Confident' bicyclists who are confident and mostly comfortable riding on all types of bicycle facilities, but will usually prefer low traffic streets or multi-use pathways when available. These bicyclists may deviate from a more direct route in favor of a preferred facility type. This group includes all kinds of bicyclists including commuters, recreationalists, racers, and utilitarian bicyclists. The South Bay Bicycle Master Plan will provide this group of bicyclists more bicycle facility options, which should create a more comfortable bicycling environment for them.

The remainder of the American population does not currently ride a bicycle regularly, in large part due to perceived safety risks from riding with traffic. This Plan will affect the following two groups the most as it will provide for the facilities and programs that should encourage them to ride or ride more often. Approximately 60 percent of the population can be categorized as 'Interested but Concerned' and represents bicyclists who typically only ride a bicycle on low traffic streets or bicycle paths under favorable conditions and weather. These bicyclists may ride more regularly with encouragement, education, experience, and the availability of bicycle infrastructure.

Approximately 33 percent of Americans are not bicyclists. They are referred to in the diagram as 'No Way, No How.' Some people in this group may eventually consider bicycling and may progress to one of the user types above. A significant portion of these people will never ride a bicycle under any circumstances.

According to results from the South Bay bicycling survey administered in December of 2010 (see Section 1.5) 53 percent of respondents indicated that they are confident bicyclists and ride regardless of the availability of bicycle facilities. However, it is important to note that survey respondents were a self-selected group and are not necessarily representative of the entire South Bay region.

This Plan aims to shift people into higher categories, especially those in the "Interested but concerned" category into the "Enthused and confident" category, by improving the bicycling conditions in the South Bay participating cities. In addition, the Plan targets improvements for recreational and sport bicyclists as there is a large and growing group of them in the South Bay.

The South Bay Bicycle Master Plan should increase the numbers of new bicyclists and bicycle trips in the region by providing a safer

bicycling environment. The availability of bicycle infrastructure has been found to reduce bicycle collision rates and the frequency of injury collisions. In a 2009 study published in *Environmental Health*, Reynolds et al investigated transportation infrastructure that reduced injuries and crashes of bicyclists. The study found that on-street bicycle facilities that separated vehicles and bicyclists, mainly bicycle lanes, reduced the number of collisions between bicyclists and motorists. Pavement markings, such as intersection crossing markings, and marked bicycle routes also minimized crashes as they alerted motorists to the presence of bicyclists. Certain roadway characteristics, including wide streets and lack of lighting, increased the severity of injury collisions.[1]

The City of New York recently added a significant amount of new bicycle infrastructure and has seen a steady increase in ridership, as well. Along with more bicycle facilities and bicyclists, annual casualties from bicycle collisions have also decreased. Appendix B presents the City's detailed data.

The City of New York recently added a significant amount of bicycle infrastructure and has seen a steady increase in ridership, as well.

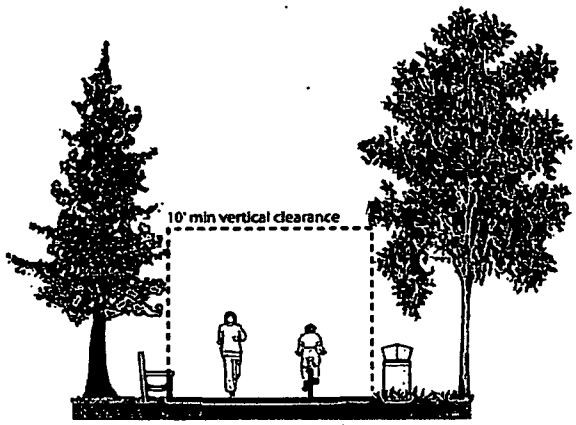
1.3 Bicycle Facility Types

The South Bay Bicycle Master Plan recommends four broad categories of bicycle facilities. The first three, Class I, II, and III, are defined by the State of California in the California Streets and Highways Code Section 890.4. The fourth category, bicycle-friendly streets, has emerged recently as a distinct facility type. Although bicycle-friendly streets are not yet codified by the State of California, they have been implemented with success in cities such as Berkeley, CA and Long Beach, CA. Figure 1-3 and Figure 1-4 illustrate recommended cross-sections for the four types of bicycle facilities, which are discussed in the following sections. Minimum standards are presented in Appendix C.

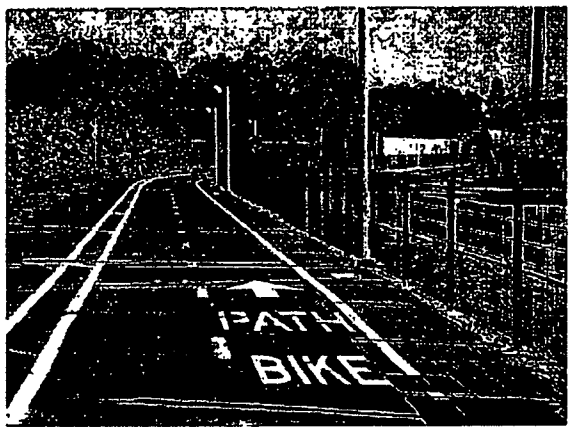
[1] Reynolds, C., Harris, M.A., Teschke, K., Cripton, P.A., Winters, M. (2009). The impact of transportation infrastructure on bicycling injuries and crashes: a review of the literature. *Environmental Health* 8, 47.

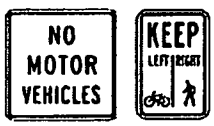
Class I Bike Paths

Provide completely separated right-of-way for exclusive use by bicycles and pedestrians with cross-flow minimized.



8'-10' typical width
2' graded shoulders recommended

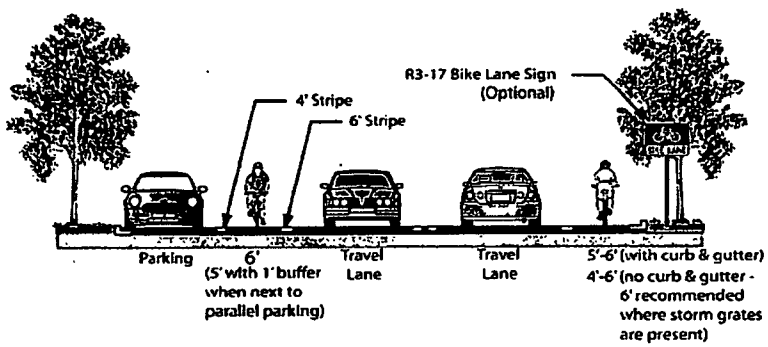




R5-3: No Motor Vehicles sign
R9-7: Shared-Use Path Restriction sign

Class II Bike Lanes

Provide striped lane for one-way bike travel on a street or *highway*



R3-17: Bike Lane sign
Placed at periodic intervals along bicycle lanes

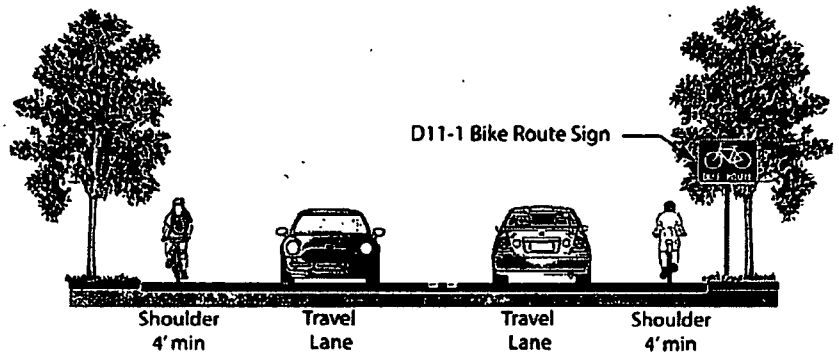
Figure 1-3: Bicycle Path and Bicycle Lane Recommended Standards

South Bay Bicycle Master Plan
El Segundo · Gardena · Hermosa Beach · Lawndale · Manhattan Beach · Torrance

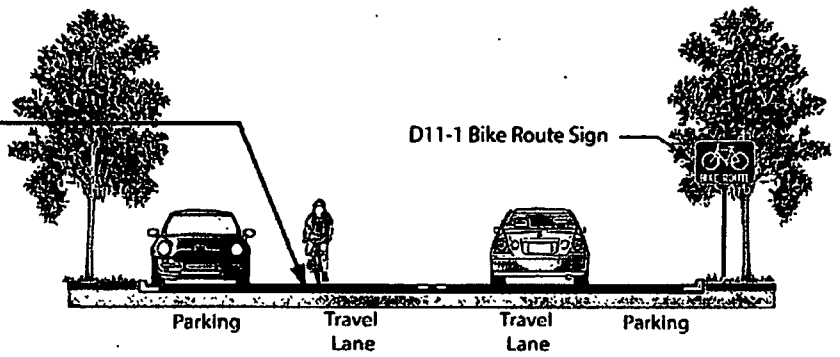
Class III Bike Routes

Provide for shared-use with motor vehicles, typically on lower volume roadways.

D11-1
Bike Route sign

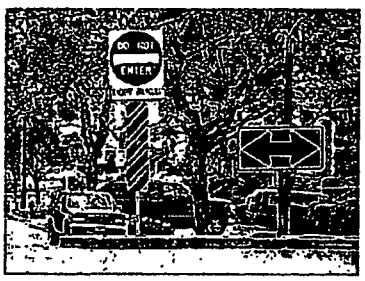


Recommended
Shared Lane Marking
11' (min) center to curb



Bike Friendly Streets

Local roads or residential streets that have been enhanced with traffic calming and other treatments to prioritize children, pedestrians, neighborhood traffic, and bicycles



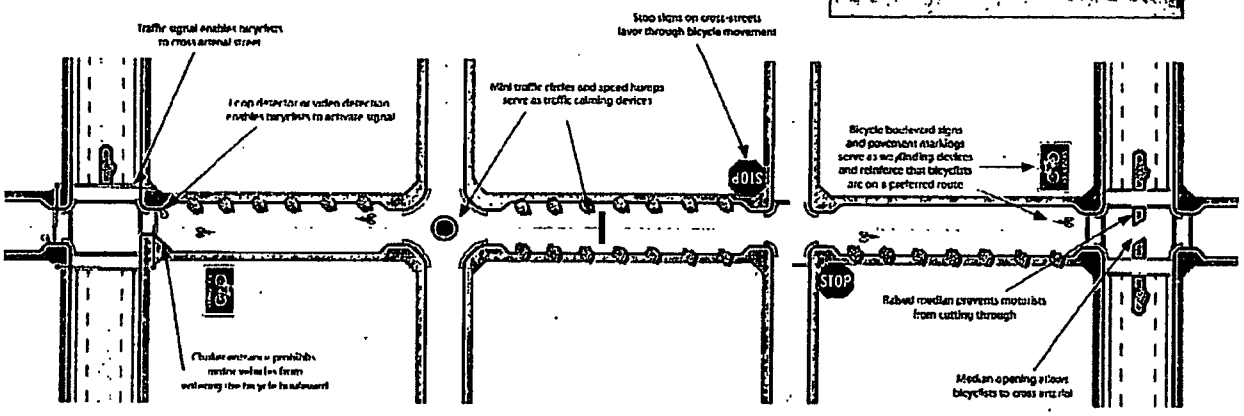


Figure 1-4: Bicycle Route and Bicycle Friendly Street Recommended Standards

Class I Bike Paths are paved rights-of-way for exclusive use by bicyclists, pedestrians, and those using non-motorized modes of transportation.

1.3.1 Class I Bike Paths

Class I Bike Paths are paved right-of-way for exclusive use by bicyclists, pedestrians, and those using non-motorized modes of transportation. Class I facilities can be constructed in roadway right-of-way or can have exclusive right-of-way off-street, such as in utility corridors. Bike Paths are beneficial to a bicycle network because they provide an alternative for bicyclists that do not feel comfortable riding with automobile traffic. When shared with pedestrians or other non-motorized modes, Class I bike paths are generally slower moving than other facility types. While they can be used by commuters to safely get to and from work, they are generally most popular with recreational cyclists, as illustrated by The Strand in the beach cities.

1.3.2 Class II Bike Lanes

Class II Bike Lanes are striped and signed on-street travel lanes exclusively for bicycles. Bike lanes provide physical separation from automobile traffic and appeal to bicyclists with moderate to high levels of experience. Because they often provide the most direct connections, these facilities tend to be most popular with experienced bicycle commuters.

1.3.3 Class III Bike Routes

Class III Bike Routes share the right-of-way between vehicles and bicyclists with signage and optional shared lane markings to indicate that the road is a shared use facility. Class III facilities are typically recommended for:

- Streets with relatively low traffic speeds (25 mph or less) and lower volumes (<3,000 ADT) such that less experienced bicyclists will feel comfortable bicycling with mixed traffic
- Streets with traffic speeds in excess of 25 mph and volumes greater than 3,000 ADT that normally warrant bike lanes but because of curb-to-curb or other ROW constraints, bicyclists must share traffic lanes with motorists; careful consideration must be given to designating these streets as shared roadways to ensure that roadway conditions are safe for bicyclists

1.3.4 Bike Friendly Streets

Bike friendly streets are local roads that have been enhanced with treatments that prioritize children, pedestrians, neighborhood traffic, and bicycles, and discourage cut-through traffic. Bike friendly streets include a wide range of treatment options, and thus the cost of implementation varies dramatically, as well. The list below includes example treatments of bike friendly streets:

- Wayfinding signage
- Pavement markings
- Traffic calming (bulb-outs, traffic diverters, chicanes, speed humps)
- High visibility pedestrian crosswalks
- Bicycle detectors at intersections
- Bicycle crossing signals

Bike friendky streets are local roads that have been enhanced with treatments that prioritize children, pedestrians, neighborhood traffic, and bicycles, and discourage cut-through traffic.

1.4 Benefits of Bicycling

Planning to create a more bicycle friendly region contributes to resolving several complex and interrelated issues, including traffic congestion, air quality, climate change, public health, and livability. By guiding the seven participating cities toward bicycle friendly development, this plan can affect all of these issue areas, which collectively can have a profound influence on the existing and future quality of life in the South Bay.

1.4.1 Environmental/Climate Change Benefits

Replacing vehicular trips with bicycle trips has a measurable impact on reducing human-generated greenhouse gases (GHGs) in the atmosphere that contribute to climate change.[2] Fewer vehicle trips and vehicle miles traveled (VMT) translates into reduced fuel consumption and subsequently fewer mobile source pollutants, such as carbon dioxide, nitrogen oxides, and hydrocarbons, being released into the air. Providing transportation options that reduce VMT is an important component of decreasing greenhouse gas emissions and improving air quality.

1.4.2 Public Health Benefits

Public health professionals have become increasingly aware that the impacts of automobiles on public health extend far beyond

[2] Gotschi, Thomas (2011). Costs and Benefits of Bicycling Investments in Portland, Oregon. *Journal of Physical Activity and Health* (8), S49-S58.

asthma and other respiratory conditions caused by air pollution. There is a much deeper understanding of the connection between the lack of physical activity resulting from auto-oriented community designs and various health-related problems. Although diet and genetic predisposition contribute to these conditions, physical inactivity is now widely understood to play a significant role in the most common chronic diseases in the United States, including heart disease, stroke, and diabetes, and approximately 280,000 adults in the US die prematurely due to obesity-related illnesses every year.[3] A study published in the *American Journal of Preventive Medicine* in 2004 by Frank et al reported that for each extra 60 minutes spent in a car there was a six percent increase in the chance of being obese[4]. A survey conducted by Vitality City administered from September 30, 2010 to November 27, 2010 reported that 60 percent of respondents from Hermosa Beach, Redondo Beach, and Manhattan Beach considered themselves overweight or obese; 25 percent have had high cholesterol; and 23 percent have had high blood pressure.[5] In Los Angeles County as a whole, more than 20 percent of children in 5th, 7th and 9th grades are obese; 58 percent of adults are overweight or obese; and obesity rates continue to rise among adults, school-age children and kids as young as three to four years of age.[6] 46 percent of the Beach Cities respondents of the Vitality City survey also reported feeling stressed for a significant portion of the day.

In Los Angeles County as a whole, more than 20 percent of children in 5th, 7th, and 9th grades are obese. Creating bicycle-friendly environments is one of several effective ways to encourage active lifestyles.

Creating bicycle-friendly communities is one of several effective ways to encourage active lifestyles, ideally resulting in a higher proportion of residents of the South Bay achieving increased activity levels and lower stress levels. Increased physical activity also has the potential to lower medical expenditures associated with obesity-related illnesses for South Bay residents. In a 2011 study published in the *Journal of Physical Activity and Health*, Thomas Gotschi assessed the reduction in medical costs that Portland will

---

[3] *Allison D.B., Fontaine K.R., Manson J.E., Stevens J., VanItallie T.B. Annual deaths attributable to obesity in the United States. JAMA 1999(282), 1530-1538.*

[4] Frank L.D., Andresen M.A., Schmid T.L. (2004). Obesity relationships with community design, physical activity, and time spent in cars. *American Journal of Preventive Medicine* 4(11), 11-13.

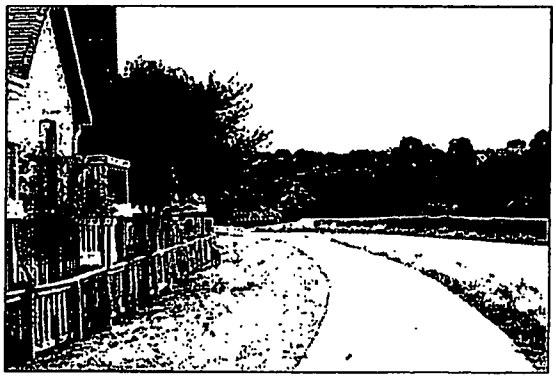
[5] http://hermosabeach.patch.com/articles/vitality-city-survey-residents-healthy-but-stressed

[6] RENEW-LAC http://www.choosehealthla.com/eat-healthy/

experience from its investments in bicycling. He estimated that a half hour of bicycling everyday will reduce medical costs by $544 per person per year.[7]

1.4.3 Economic Benefits

Bicycling is economically advantageous to individuals and communities. Replacing driving with bicycling reduces a person's expenses on vehicle maintenance, fuel costs, and insurance fees. These savings are accompanied by potential reductions in health care costs by participating in regular exercise and minimizing health complications associated with an inactive lifestyle. On a community scale, bicycle infrastructure projects are generally far less expensive than automobile-related infrastructure. Further, shifting a greater share of daily trips to bike trips reduces the impact on the region's transportation system, thus reducing the need for improvements and expansion projects. Bicycle-friendly neighborhoods have also been found to increase property values. Transit Oriented Developments (TODs), for example, are designed to encourage walking, bicycling, and use of public transit so that residents of these developments can be less dependent on motor vehicles. In a 2011 study published in *Urban Studies*, Michael Duncan reported that people were willing to pay more for condominiums in San Diego, CA located closer to transit stations,[8] while homes within a half mile of bikeway trail improvements experienced a $13,000 increase in property values.[9] Increased bicycling also has the potential to increase sales at local businesses. Bicyclists might have more disposable income from fewer vehicle-related expenditures and as seen in Toronto's Bloor Street, cyclists visit their local shops and spend more than their motorist counterparts.[10]



A 2004 study found that homes within a half mile of bikeway trail improvements experienced a $13,000 increase in property values.

[7] Gotschi, Thomas (2011). Costs and Benefits of Bicycling Investments in Portland, Oregon. *Journal of Physical Activity and Health* (8). S49-S58.

[8] Duncan, M. (2011). The impact of transit-oriented development on housing prices in San Diego, CA. *Urban Studies* 48, 101.

[9] Lindsey G, Man J, Payton S, et al. "Property Values, Recreation Values, and Urban Greenways." *Journal of Park and Recreation Administration*, 22(3): 69-90, 2004.

[10] Sztabinski, F. (2009). Bike Lanes, On-Street Parking and Business. *Clean Air Partnership* 18-20.

1.4.4 Community/Quality of Life Benefits

Fostering conditions where bicycling is accepted and encouraged increases a city's livability from a number of different perspectives that are often difficult to measure, but nevertheless important. The design, land use patterns, and transportation systems that comprise the built environment have a profound impact on quality of life issues. Studies have found that people living in communities with built environments that promote bicycling and walking tend to be more socially active, civically engaged, and are more likely to know their neighbors[11]; whereas urban sprawl has been correlated with social and mental health problems, including stress.[12] The aesthetic quality of a community improves when visual and noise pollution caused by automobiles is reduced and when green space is reserved for facilities that enable people of all ages to recreate and commute in pleasant settings.

The seven participating cities each held two public workshops to collect public input on the South Bay Bicycle Master Plan.

1.4.5 Safety Benefits

Conflicts between bicyclists and motorists result from poor riding and/or driving behavior, as well as insufficient or ineffective facility design. Encouraging development and redevelopment in which bicycle travel is fostered improves the overall safety of the roadway environment for all users. Well-designed bicycle facilities improve security for current bicyclists and also encourage more people to bike. This in turn can further improve bicycling safety. Studies have shown that the frequency of bicycle collisions has an inverse relationship to bicycling rates – more people on bicycles equates to fewer crashes.[13] Providing information and educational opportunities about safe and lawful interactions between bicyclists and other roadway users also improves safety.

1.5 Public Participation

Community outreach is a critical part of the planning process as it helps to identify the needs of bicyclists in the study area. The public participated in the creation of the South Bay Bicycle Master Plan through an online survey and two community workshops.

---

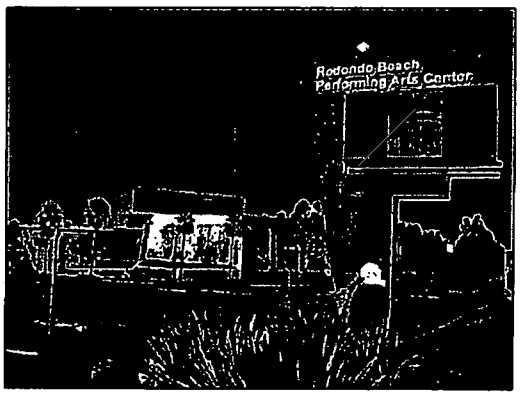
[11] Leyden, K. 2003. Social Capital and the Built Environment: The Importance of Walkable Neighborhoods. *American Journal of Public Health* 93: 1546-51.

[12] Frumkin, H. 2002. Urban Sprawl and Public Health. *Public Health Reports* 117: 201-17.

[13] Jacobsen, P. Safety in Numbers: More Walkers and Bicyclists, Safer Walking and Bicycling. *Injury Prevention*, 9: 205-209. 2003.

To reach a broad cross-section of the public, the South Bay Bicycle Coalition, the Los Angeles County Bicycle Coalition, and the participating cities employed a variety of media and tactics, including:

- Radio advertisements
- Advertisements in newspapers, both print and online
- Advertisements in fitness magazines
- Flyers posted throughout the participating cities, at schools, bike shops, and community centers
- Advertisements on the city cable stations
- An advertisement on the I-405 digital marquee
- Facebook
- Emails
- In-person presentations to a variety of community groups and volunteer organizations
- Press releases
- Door-to-door flyering
- Presentations at various commission meetings
- Website postings on each City's homepage and events calendar
- Communications with Vitality City, an initiative of the Beach Cities Health District



LACBC, SBBC, and the participating cities used a variety of media and tactics to reach a broad cross-section of the public.

1.5.1 Bicycling Survey

With input from seven participating cities, Alta Planning + Design, the South Bay Bicycle Coalition and Los Angeles County Bicycle Coalition staff developed an online survey to determine the participating South Bay cities' general needs and concerns surrounding bicycling. The survey was available online from December 15, 2010 to February 8, 2011. It was distributed to the staff liaisons in each of the participating cities and emailed to all members of the South Bay Bicycle Coalition. As an incentive to complete the survey, respondents were entered to win a $100 gift certificate to Hermosa Cyclery in Hermosa Beach. A total of 277 people completed the survey. The data collected from respondents describe the bicycling needs, preferences, and behaviors of the South Bay community. Feedback pertaining to desired bicycle and bicycle support facilities is discussed in each City's chapter and a detailed summary of the survey results is presented in Appendix D.

The first and second round of public workshops for the South Bay Bicycle Master Plan were well attended.

1.5.2 Public Workshops

The seven participating cities each held two public workshops throughout the planning process for the South Bay Bicycle Master Plan. The first round of workshops were conducted as "open house" style at which attendees had the opportunity to view maps displaying the existing bicycling conditions in the region and provide feedback on what they would like to see implemented in the future. The first round of workshops were very well attended and had a considerable impact on the selection of corridors for improvements and on the content of the proposed programs.

The second round of public workshops took place in June through July of 2011. These workshops were also very well attended and workshop attendees provided input on a draft of the South Bay Bicycle Master Plan as well as draft maps of proposed improvements.

1.6 Plan Organization

For the most part, the South Bay Bicycle Master Plan is organized by participating city. This makes it easier for local stakeholders – such as city staff, decision makers, and residents – to find the material that is relevant to them. There are a few region-wide topics that are not organized by city, such as the goals, objectives, and policy actions framework established in Chapter 2.

The plan is broken into the following chapters:

- Chapter 2: Goals, Objectives, and Policy Actions summarizes existing regional plans and policies that relate to the bicycle planning efforts in the South Bay, as well as region-wide goals, objectives, and policy actions for the seven participating cities
- Chapter 3: El Segundo presents the existing bicycling conditions that influenced recommendations in this Plan, as well as proposed policies and bicycle facilities in the City of El Segundo
- Chapter 4: Gardena presents the existing bicycling conditions that influenced recommendations in this Plan, as well as proposed policies and bicycle facilities in the City of Gardena
- Chapter 5: Hermosa Beach presents the existing bicycling conditions that influenced recommendations in this Plan, as well as proposed policies and bicycle facilities in the City of Hermosa Beach

- **Chapter 6: Lawndale** presents the existing bicycling conditions that influenced recommendations in this Plan, as well as proposed policies and bicycle facilities in the City of Lawndale
- **Chapter 7: Manhattan Beach** presents the existing bicycling conditions that influenced recommendations in this Plan, as well as proposed policies and bicycle facilities in the City of Manhattan Beach
- **Chapter 8: Redondo Beach** presents the existing bicycling conditions that influenced recommendations in this Plan, as well as proposed policies and bicycle facilities in the City of Redondo Beach
- **Chapter 9: Torrance** presents the existing bicycling conditions that influenced recommendations in this Plan, as well as proposed policies and bicycle facilities in the City of Torrance
- **Chapter 10: Recommended Programs** discusses proposed education, encouragement, and enforcement programs, as well as public awareness campaigns to increase bicycling in the participating cities; it also presents methods for monitoring and evaluating the success of the Plan
- **Chapter 11: Wayfinding and Signage Plan** presents the region-wide signage plan to make South Bay bikeways and key destinations easier to navigate to by bicycle
- **Chapter 12: Funding** discusses potential funding sources to help the participating cities to implement their proposed bicycle networks

Chapter 11: Wayfinding and Signage Plan presentsthe region-wide signage plan to make South Bay bikeways and key destinations easier to navigate to by bicycle.

This page intentionally left blank.

Chapter 2

Goals, Objectives, and Policy Actions

2 Goals, Objectives, and Policy Actions

The vision of the South Bay Bicycle Master Plan is to create a bicycle-oriented South Bay region in which bicycling is a safe, convenient, attractive, and viable transportation option for all levels of bicycling abilities. This chapter outlines the goals, objectives, and policies that support this vision and will serve as guidelines in the development of a bicycle-friendly South Bay. These policies provide the framework and accountability for plan implementation. This chapter also includes the goals, objectives, and policy actions' relationship with regional existing plans and policies as mandated by State law. The relationship to existing City-specific plans and policies is located in each City's chapter.

The vision of the South Bay Bicycle Master Plan is to create a bicycle-oriented South Bay region in which bicycling is a safe, convenient, attractive, and viable transportation option for all levels of bicycling abilities.

2.1 South Bay Goals, Objectives, and Policies

In order to ensure a thorough and successful planning process, it is important to establish a set of goals, objectives, and policies that will serve as the basis for the recommendations in this Plan. The goals, objectives, and policies in this Plan are derived from information gathered over the course of the planning process, including community input from public workshops, as well as a review of bicycle master plans from other cities.

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

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

Policies are rules and courses of action used to ensure plan implementation. Policies often accomplish a number of objectives. Policies are generally carried out by the City. In the case that a particular group or individual is identified, the City will ensure those groups or individuals are in place to carry forward their responsibility or will find other means to implement the relevant policies.

The following tables outline the goals, objectives, and policies of the South Bay Bicycle Master Plan. Each policy has an implementation time frame assigned to it ranging from immediate (2012), to the first 0-5 years (2012-2017), 5-10 years (2017-2022), or ongoing throughout the length of the 20-year plan starting in 2012 (2012-2032).

Goal 1.0: Create a Bicycle-Friendly South Bay	
Create a bicycle-friendly environment throughout the South Bay region for **all types** of bicycle riders and all trip purposes in accordance with the 6 Es (Equity, Education, Encouragement, Enforcement, Engineering, Evaluation) as a means of improving regional health, increased road safety, reduced carbon emissions and an overall increase in bike ridership.	
Objective 1.1	**Connectivity through an Expanded Bikeway Network** Expand the existing bicycle network to provide a comprehensive, regional network of Class I, Class II and Class III facilities that increases connectivity between homes, jobs, public transit, schools and recreational resources for a variety of road users in the South Bay.
Policy Actions	**1.1.1** Develop a 20-year implementation strategy for the South Bay Bicycle Master Plan that will begin to implement the policies and facilities herein. Schedule: 2012 **1.1.2** Develop an extensive bikeway network through the use of standard and appropriate innovative treatments as provided in the Manual on Uniform Traffic Control Devices or the National Association of City Transportation Officials and other such guidelines and standards, with available funding. Schedule: 2012-2032 **1.1.3** Establish Bicycle Friendly Streets to encourage bicycling on streets with low traffic volumes (existing ADT under 7,000 and 3,000 ADT after implementation) and slow speeds (25 mph or under). Appropriate streets will be determined by staff review. Schedule: 2012 - 2032 **1.1.4** Review and encourage implementation of policies and facilities proposed in the South Bay Bicycle Master Plan whenever planning new bicycle facilities or Capital Improvement Projects that may be related to bicycle improvements. Schedule: 2012-2032 **1.1.5** Incorporate the proposed policies, facilities and programs from the South Bay Bicycle Master Plan in whole or by reference into the City's Circulation Element upon future General Plan updates. Schedule: 0 – 5 years **1.1.6** Coordinate with adjoining jurisdictions on bicycle planning and implementation activities on east-west corridors to link inland cities to coastal resources and on north-south corridors to link the region to neighboring communities. Schedule: 2012-2032
Objective 1.2	**Consistent Design and Engineering for Bicycles** Promote safe and equitable bicycle access on all roadways by integrating bicycle travel considerations into all roadway planning, design, construction and maintenance, as well as incorporation of Complete Street standards into all Capital improvements, in accordance with AB 1358.

Policy Actions	**1.2.1** Evaluate and encourage reallocation of roadway rights-of-way where appropriate to accommodate bicycling and bicycle facilities. Schedule: 2012-2032 **1.2.2** Consider adopting Complete Streets policies that are incorporated into all Capital Improvements and generally align with the policy elements defined by the National Complete Streets Coalition (see Appendix N for policy language from the Complete Streets Act of 2008 and complete streets policies from the National Complete Streets Coalition). Schedule: **1.2.3** Prioritize opportunities that improve walkability and bikeability by utilizing Complete Streets standards for all Capital Improvement Projects. Schedule: 2012-2032 **1.2.4** Consider removal of on-street parking to accommodate striped bike lanes, to the extent feasible. Schedule: 2012-2032 **1.2.5** Ensure that existing on-street bicycle routes, bicycle lanes, and off-street bicycle paths are appropriately signed, marked, and/or traffic-calmed. Schedule: 0-5 years **1.2.6** Promote consistent signage that directs bicyclists to neighborhood destinations and increases the visibility of the regional bicycle network and is consistent with the signage plan herein. Schedule: 2012-2032 **1.2.7** Provide amenities and enhancements, such as traffic calming treatments, streetscape improvements, bicycle parking and wayfinding signage along City bikeways that increase their utility and convenience for all bicyclists. Schedule: 2012-2032 **1.2.8** Explore the use of the "sharrow" markings on all existing and proposed Class III facilities, as feasible and in accordance with the most current edition of the Manual on Uniform Traffic Control Devices. Schedule: 0-5 years **1.2.9** Coordinate bicycle facility improvements or upgrades with the City's resurfacing schedule. Schedule: 2012-2032 **1.2.10** Explore opportunities to include bicycle detection as part of all traffic signal improvements in conformance with the current edition of the California Manual on Uniform Traffic Control Devices, to the extent feasible.

	Schedule: 2012-2032 **1.2.11** Considering adopting an updated streets and highways manual that includes comprehensive Complete Streets standards. Schedule: 0-5 years **1.2.12** Begin to utilize new signage, markings and facility designs as new and innovative treatments become adopted standards at the State and Federal levels. Schedule: 2012-2032 **1.2.13** Consider instituting a pilot program that will test new facility types aimed at improving bicycle safety and convenience before they are adopted standards. Schedule: 2012-2032
Objective 1.3	**Increased Mobility through Bicycle-Transit Integration** Further improve access to major employment and activity centers and encourage multi-modal travel for longer trip distance by supporting bicycle-transit integration.
Policy Actions	**1.3.1** Support the development of bicycle facilities that provide access to regional and local public transit services. Schedule: 2012-2032 **1.3.2** Coordinate with transit providers to ensure bicycles can be accommodated on all forms of transit vehicles in the immediate future and that adequate space is devoted to their storage on board whenever possible. Schedule: 2012-2032 **1.3.3** Coordinate with transit agencies to install and maintain convenient and secure short-term and long-term bike parking facilities – racks, on-demand bike lockers, in-station bike storage, and staffed or automated bicycle parking facilities – at transit stops, stations, and terminals. Schedule: 5-10 years **1.3.4** Provide current and relevant information to bicyclists regarding bike parking opportunities and bicycle access located at transit stations through a variety of formats, such as on City websites and regional bike maps. Schedule: 0-5 years
Objective 1.4	**Provide Convenient and Consistent Bicycle Parking Facilities** Encourage the use of bicycles for everyday transportation by ensuring the provision of convenient and secure bicycle parking and support facilities region-wide and promote facilities to the public.
Policy Actions	**1.4.1** Establish bicycle parking standards for City-owned bicycle parking facilities that address the location, design and capacity that should be provided by all City bicycle parking facilities. Schedule: 0-5 years **1.4.2** Install and support high-quality, bicycle parking within the public right-of-way and on public property, especially in high demand locations, such as near commercial centers,

	employment centers, schools, colleges and parks. Schedule: 5-10 years **1.4.3** Consider providing bicycle parking (sheltered where feasible and appropriate) at all new and existing City-owned facilities, public parking lots and recreational facilities that will support an appropriate ratio of the estimated employees and daily visitors of that location. Schedule: 2012-2032 **1.4.4** Consider adopting bicycle parking ordinances or modifying existing sections of the municipal code to require bicycle-parking in new large commercial or multi-family developments. Cities with existing bike parking ordinances or Municipal Code sections exempted. Schedule: 0-5 years **1.4.5** To the extent feasible, consider conditions of approval or appropriate incentives for new commercial developments and employment to provide showers and clothing lockers along with secure bike parking in areas where employment density warrants. Schedule: 2012-2032 **1.4.6** Consider amending the Municipal Code to decrease the number of required automobile parking spaces in commercial buildings where bicycle parking is provided, as feasible and appropriate. Schedule: 0-5 years **1.4.7** Require secure bike parking at large or heavily attended events or destinations, by providing permanent bicycle parking facilities at event locations or requiring use of temporary portable facilities, such as bike valets. Schedule: 0-5 years **1.4.8** Work with Metro, local transit agencies and adjacent property owners to provide bicycle parking in proximity to bus stops and other transit facilities. Schedule: 2012-2032

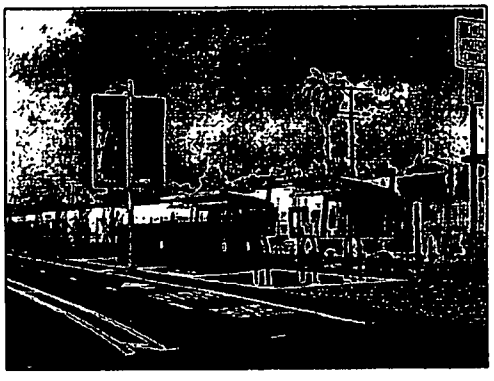
Goal 2.0: Create a Safer Bicycling Environment in the South Bay	
Create a safe bicycling environment in the South Bay through comprehensive education of all road users, enforcement efforts focused on cycling safety and reduced cycling conflicts, and consistent maintenance of a variety of bikeways.	
Objective 2.1	**Increase Bicycle Education and Awareness for All Road Users** Increase education of bicycle safety through programs and trainings of the general public and city employees.
Policy Actions	**2.1.1** Partner with local bike advocacy groups, bicycle related businesses, or other such organizations to provide bicycle-safety curricula to the general public and targeted populations, including diverse age, income, and ethnic groups. Schedule: 0-5 years **2.1.2** Provide multi-lingual bicycle safety information in languages that are widely used throughout the South Bay region. Schedule: 2012-2032 **2.1.3** Work with local bike advocacy groups and schools to develop and provide bicycle-safety curricula for use in elementary, middle, and high schools. Schedule: 2012-2032 **2.1.4** Support continuous bicycle education to City staff that are involved in the design or other such decisions that affect roadways; such as traffic engineers, planners, public works engineers, and parks and recreation staff. Schedule: 2012-2032 **2.1.5** Support programs and public service announcements that educate motorists, bicyclists, and the general public about bicycle operation, bicyclists' rights and responsibilities, and safe road-sharing behavior via city's website, local newspapers, and other such publications. Schedule: 2012-2032 **2.1.6** Provide increased bicycle safety education to law enforcement that focuses on safe cycling, relevant traffic laws, and safe sharing of the roadway. Schedule: 2012-2032
Objective 2.2	**Enforcement for Improved Cycling Safety** Increase enforcement activities that enhance safety of bicyclists on bike paths and roadways.
Policy Actions	**2.2.1** As appropriate and feasible, increase enforcement of unsafe bicyclist and motorist behaviors and laws that reduce bicycle/motor vehicle collisions and conflicts, and bike lane obstruction. Schedule: 2012-2032

	2.2.2 Explore opportunities to increase motorist awareness of possibility of the presence of bicyclists, specifically at locations with a high incidence of bicycle collisions. Schedule: 2012-2032 **2.2.3** To the extent feasible, consider utilizing bicycle-mounted patrol officers to promote bicycling awareness, prominence and law enforcement accessibility. Schedule: 2012-2032 **2.2.4** Develop or promote existing mechanisms for reporting behaviors that endanger cyclists. Schedule: 2012-2032
Objective 2.3	**Maintenance for Safe and Consistent Bikeability** Maintain bikeways that are clear of debris and provide safe riding conditions.
Policy Actions	**2.3.1** Coordinate with Public Works Department regarding existing routine maintenance schedules for bikeway sweeping, litter removal, landscaping, re-striping, signage, and signal actuation devices to provide increased priority to bike facilities. Schedule: 2012-2032 **2.3.2** Prioritize roadways with existing or proposed bike facilities in the City's street resurfacing plan, as necessary or appropriate. Schedule: 2012-2032 **2.3.3** Plan for bicyclist safety during construction and maintenance activities, including prominent signage and public announcements regarding construction and improvements that may affect bicycle travel. Schedule: 2012-2032 **2.3.4** Establish a maintenance reporting program to receive and respond to issues that impact bicyclist safety, such as potholes and street sweeping. Schedule: 2012-2032

Goal 3.0: Ensure an Enduring Bicycling Culture	
Develop infrastructure and a City-wide culture that respects and accommodates all users of the road, leading to a more balanced transportation system and measurable increases in bike ridership.	
Objective 3.1	**Partner with Local Bike Advocacy Groups** Foster community support for bicycling by raising public awareness about bicycling and supporting programs that encourage more people to bicycle.
Policy Actions	**3.1.1** Partner with local bike advocacy groups to publicize updated bike maps, safety tips, bike events, classes and commuting advice. Schedule: 0-5 years **3.1.2** Provide information to local bike groups, such as the South Bay Bicycle Coalition, to assist in promoting bicycling at public events, such as Bike to Work Day/Month and various City events. Schedule: 0-5 years **3.1.3** Upon meeting eligibility requirements, apply for designation of "Bicycle Friendly Community" through the League of American Bicyclists. Schedule: 0-5 years **3.1.4** Pending funding availability, expand bicycle promotion and incentive programs for City employees to serve as a model program for other South Bay employers. Schedule: 0-5 years
Objective 3.2	**Continuous Evaluation of Implementation and Performance** Establish accountability mechanisms that will ensure the plan's success through continuous monitoring of the implementation progress of Bicycle Master Plan policies, programs, and projects.
Policy Actions	**3.2.1** Designate a Mobility Coordinator within the City or assist the South Bay Cities Council of Governments (SBCCOG) in establishing a regional position to coordinate and oversee implementation of bike facilities, programs, grant applications and data collection, and provide regular updates to SBCCOG's Livable Communities Working Group and City Councils regarding plan implementation and progress. Schedule: 2012 **3.2.2** Mobility Coordinator or designated city staff will track city and/or region-wide benefits of plan implementation and trends in bicycle commuting through the use of Census data, travel surveys, and volunteer-led bicycle counts. Schedule: 2012-2032 **3.2.3** Mobility Coordinator or designated city staff will also regularly monitor bicycle safety and seek a continuous reduction in bicycle-related collisions on a per capita basis over the next twenty years.

	Schedule: 2012-2032 **3.2.4** Mobility Coordinator or designated City staff will ensure that Bicycle Master Plan programs and projects are implemented in an equitable manner, both geographically and socioeconomically. Schedule: 2012-2032 **3.2.5** Designate a council liaison to serve on a regional Bicycle Advisory Committee (BAC) comprised of community members and council members from each City that will meet regularly and will monitor the progress of bikeway implementation for each City. Schedule: 2012-2032 **3.2.6** To ensure continued eligibility for additional funding, update the City's section of the South Bay Bicycle Master Plan every five (5) years. Schedule: 2012-2032 **3.2.7** Amend the Municipal Code to require a public hearing with the appropriate Traffic, Public Works, Planning, or other such Commission for the removal of any existing bikeway. Cities with such existing policy are exempted. Schedule: 0-5 years **3.2.8** Coordinate with SBCCOG to integrate the electric local use vehicle program with proposed bike facilities and programs, as appropriate and as government code and guidelines allow. Schedule: 2012-2032
Objective 3.3	**Consistently Apply for Available Funding Sources** Ensure implementation of bikeways in the South Bay is prompt and continuous by consistently applying to the numerous local, state and federal funding sources available for which the City is eligible.
Policy Actions	**3.3.1** To the extent feasible, consistently pursue diverse sources of funding and support efforts to maintain or increase federal, state and local funding for the implementation of the South Bay Bicycle Master Plan programs and infrastructures. Funding sources that may be applied for annually or bi-annually as well as apportioned funds that may be partially dedicated to bicycle projects, include the following: A. Metro Call for Projects (bi-annual) B. State Safe Routes to School Funding (annual) C. Office of Traffic Safety Grants (annual) D. Caltrans Highway Safety Improvement Program (annual) E. Federal Safe Routes to School Funding (annual) F. Prop A Funds (annual) G. Coastal Conservancy Funds (annual) H. Federal Lanes Highway Funds (annual)

	I. Caltrans Bicycle Transportation Account (annual) J. Caltrans Community Based Transportation Planning Grant (annual) K. Prop C Transportation Demand Management Funds (annual) Schedule: 2012-2032 **3.3.2** Reference the prioritized project list provided in this plan when determining how to prioritize funding applications and City budget allocations for bikeways and support facilities. Schedule: 2012-2032 **3.3.3** Mobility Coordinator or designated City staff should coordinate bicycle improvement funding applications among all involved cities to increase probability of receiving grant funding. Schedule: 2012-2032 **3.3.4** Mobility Coordinator or designated City staff will develop a regular report to City Council that will include a summary of funds applied for, funding applications due in the short term, and an overview of implementation progress. Schedule: 2012-2032 **3.3.5** Consider a bicycle improvements line item in the City's Capital Improvements Program (CIP). Schedule: 2012-2032 **3.3.6** Consider allocating a proportional percentage of the City's local return Measure R funds specifically to active transportation infrastructure, such as bicycle and pedestrian facilities. Schedule: 0-5 years



The South Bay Bicycle Master Plan is an opportunity to coordinate with neighboring communities' efforts to plan and build bicycle infrastructure.

2.2 Relevant Regional Existing Plans and Policies

The South Bay Bicycle Master Plan is an opportunity to coordinate with neighboring communities' efforts to plan and build bicycle infrastructure. A number of different jurisdictions border the project area, including the City of Los Angeles, unincorporated areas of the County of Los Angeles, and other incorporated cities. This section discusses the relationship between the South Bay Bicycle Master Plan and existing plans in neighboring communities.

2.2.1 Local and Regional Plans

There are six incorporated cities that lie adjacent to at least one participating city in the South Bay Bicycle Master Plan. These cities include:

- City of Hawthorne
- City of Inglewood
- City of Lomita
- City of Los Angeles
- City of Palos Verdes Estates
- City of Rolling Hills Estates

The City of Los Angeles is the only adjacent community with a Bicycle Master Plan, which is discussed in the following section.

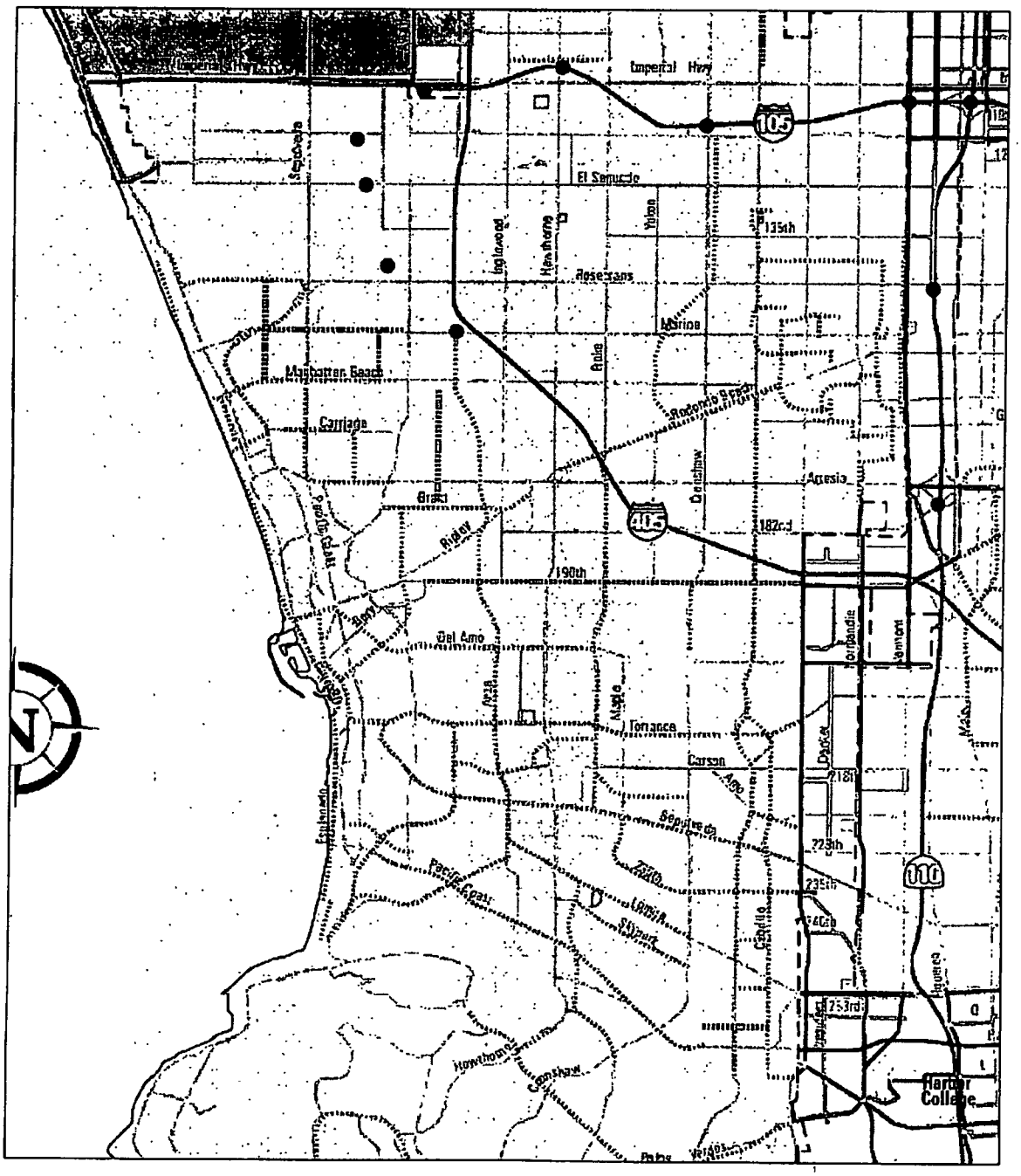
2.2.1.1 City of Los Angeles Bicycle Plan (2010)

The City of Los Angeles Bicycle Plan proposes 1,680 miles of bicycle facilities to promote bicycling as a viable transportation alternative. Of the proposed facilities, there are several that link to the participating cities of El Segundo, Gardena, and Torrance. The City of Los Angeles' proposed bikeways adjacent to the participating South Bay cities are shown in Figure 2-1.

2.2.1.2 Metro Bicycle Transportation Strategic Plan

As the Regional Transportation Planning Agency for Los Angeles County, the Los Angeles County Metropolitan Transportation Authority (Metro) is the primary local funding source for transportation projects, including bicycle and pedestrian projects. The Bicycle Transportation Strategic Plan (BTSP) developed by Metro provides an inventory of existing and planned facilities within Los Angeles County. This inventory assisted in identifying routes that may eventually provide trans-jurisdictional continuity

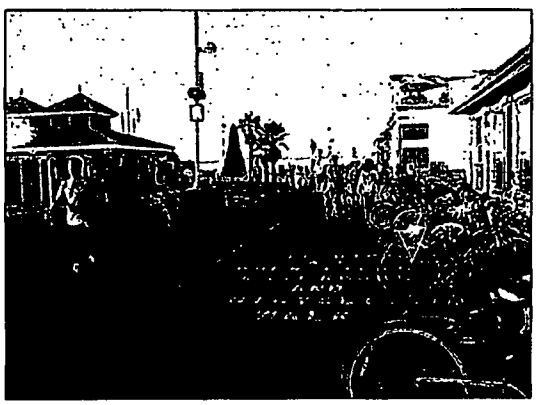
Figure 2-1: City of Los Angeles Proposed Bicycle Facilities



for bicyclists. Secondly, the BTSP outlines a strategy for prioritizing regional bikeway projects. The BTSP outlines a regional strategy to fund projects that improve bicycle access to transit or close gaps in the regional bikeway network. Upon adoption of the South Bay Bicycle Master Plan, the participating cities will have the opportunity to apply for funding through Metro to implement their proposed bikeways.

2.2.1.3 County of Los Angeles Bicycle Master Plan (BMP)

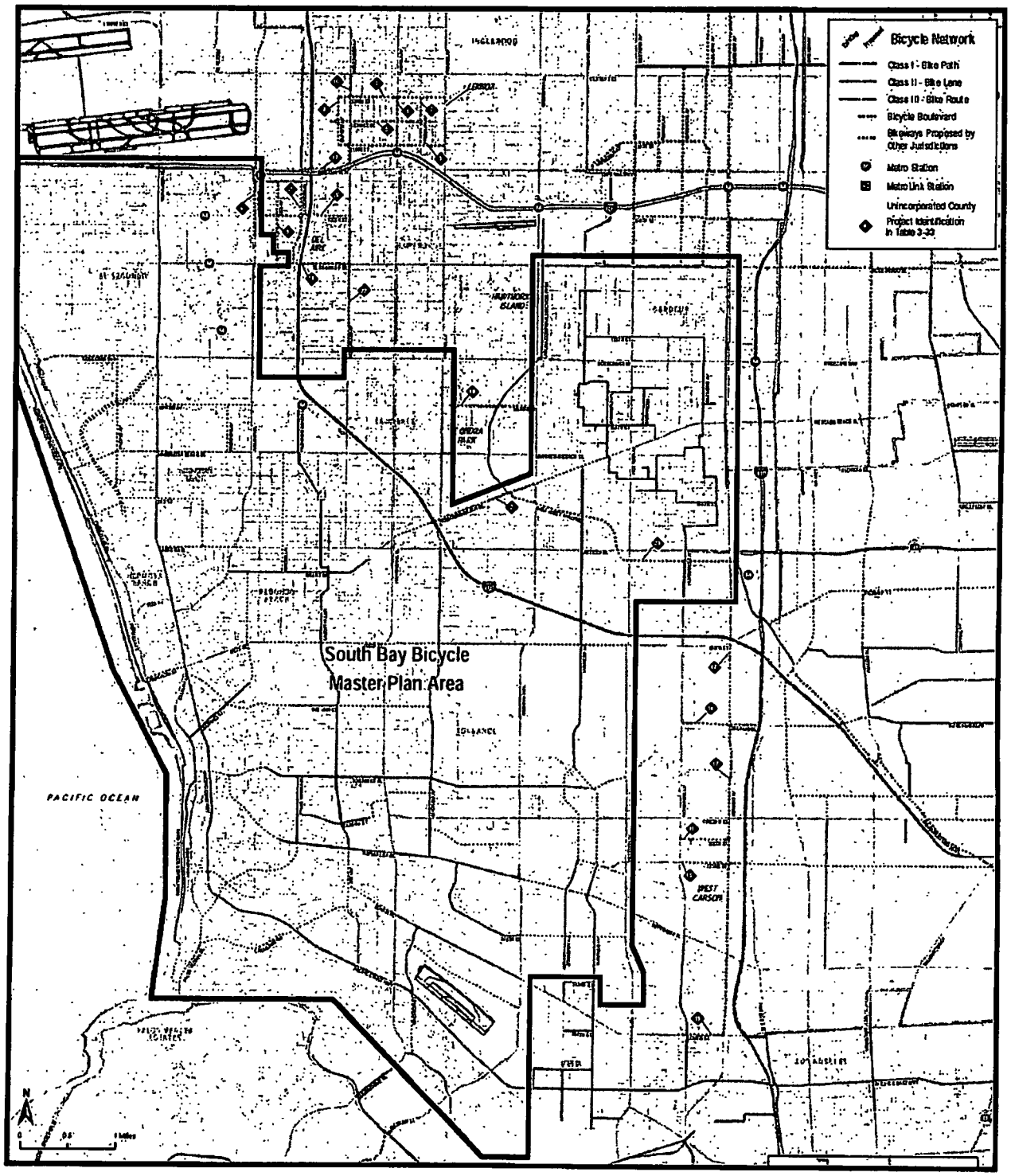
The County of Los Angeles Bicycle Master Plan guides the development and maintenance of a comprehensive bicycle network and programs within the unincorporated communities of the County of Los Angeles. The implementation of the Los Angeles County BMP will start in 2012 after California Environmental Quality Act (CEQA) review has been completed. Several proposed bikeways in the County provide potential connection opportunities to the participating South Bay cities of El Segundo, Lawndale, Gardena, and Torrance. These bikeways are shown in the yellow sections in **Figure 2-2**. The participating cities in the South Bay Bicycle Master Plan are outlined in black.

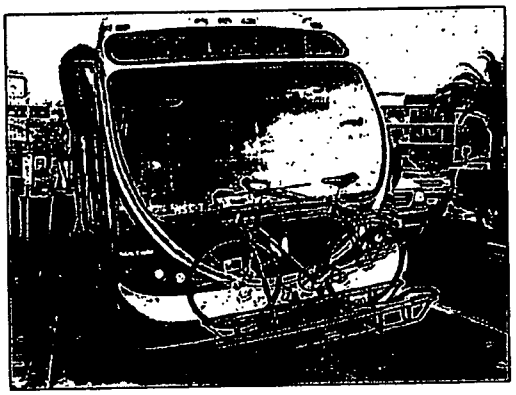


The Marvin Braude Bikeway is a prominent facility that is maintained by the County of Los Angeles and runs through five of the participating cities: El Segundo, Manhattan Beach, Hermosa Beach, Redondo Beach, and Torrance.

Appendix A-2 shows the existing bikeways in the County of Los Angeles that provide potential connection opportunities to the participating cities. The Marvin Braude Bikeway is a prominent facility that is maintained by the County of Los Angeles and runs through five of the participating cities: El Segundo, Manhattan Beach, Hermosa Beach, Redondo Beach, and Torrance. It extends for 21 miles parallel to the Pacific coastline, passing through the City of Santa Monica into the City of Los Angeles at its northernmost portion. Many bicyclists and pedestrians of all ages use the path, both for utilitarian and recreational purposes. As a consequence of its popularity, the path is often congested. Some areas have adopted measures to prevent conflicts between users; for example, when the path is crowded with pedestrians in Hermosa Beach, flashing lights and signs direct bicyclists to dismount and walk their bikes.

Figure 2-2: County of Los Angeles Proposed Bicycle Facilities





The SCAG RTP aims to integrate bicycling and other non-motorized transportation with transit to extend the commuting range of bicyclists in Southern California.

2.2.1.4 Southern California Association of Governments Regional Transportation Plan (2008)

This plan presents the transportation objectives through the year 2035 for the areas under the jurisdiction of the Southern California Association of Governments (SCAG), which includes the South Bay. The RTP aims to integrate bicycling and other non-motorized transportation with transit to extend the commuting range of bicyclists in Southern California, where the average commute length is approximately 19.2 miles.

Bicycle and pedestrian improvements are addressed as they relate to larger street maintenance and construction projects, and are recommended in general plan updates. SCAG's Compass Blueprint Program serves as a resource for local municipalities looking to enhance non-motorized transportation infrastructure under the principles of mobility, livability, prosperity and sustainability.

The RTP allocates over $1.8 billion for non-motorized transportation. Specific objectives regarding the future of bicycle transportation in the region and that apply to the South Bay Bicycle Plan include:

- Decrease bicyclist and pedestrian fatalities and injuries in the state to 25% below 2000 levels
- Increase accommodation and planning for bicyclists and pedestrians: The needs of non-motorized travel (including pedestrian, bicyclists and persons with disabilities) need to be fully considered for all transportation planning projects
- Increase bicycle and pedestrian use in the SCAG Region as an alternative to utilitarian vehicle trips: Create and maintain an atmosphere conducive to non-motorized transportation, including well-maintained bicycle and pedestrian facilities, easy access to transit facilities, and increasing safety and security. While pedestrian sidewalks are fairly well established in most areas, it is estimated that there are only 3,218 miles of dedicated bicycle facilities in the region, with an additional 3,170 miles planned
- Increase non-motorized transportation data: To make non-motorized modes an integral part of the region's intermodal transportation planning process and system, reliable data for planning are needed. Non-motorized transportation data needs include, but are not limited to, comprehensive user statistics; user demographics; bicycle

travel patterns/corridors; accident mapping; bikeway system characteristics; and sub-regional improvement projects and funding needs

- Bicyclists and pedestrians should always be included in general plan updates. SCAG also encourages the development of local Non-Motorized Plans. Also, Non-Motorized Plans that have been created or updated within the previous five years are eligible for bicycle transportation account (BTA) funds. SCAG can assist in the development of these plans through the Compass Blueprint Program
- Develop a Regional Non-Motorized Plan: SCAG will work with all counties and their cities to coordinate and integrate all Non-Motorized Plans from counties and jurisdictions in the SCAG Region in a collaborative process, including interested stakeholders

2.2.2 State of California

The State of California has recently passed several policies that affect bicycle planning in the South Bay, which are discussed in the following section.

2.2.2.1 AB 1358 - Complete Streets Act of 2008

California Assembly Bill (AB) 1358, also known as the Complete Streets Act of 2008, amended the California Government Code §65302 to require that all major revisions to a city or county's Circulation Element include provisions for the accommodation of all roadway users including bicyclists and pedestrians. Accommodations include bikeways, sidewalks, crosswalks, and curb extensions. The Government Code §65302 reads:

> (2)(A)Commencing January 1, 2011, upon any substantive revision of the circulation element, the legislative body shall modify the circulation element to plan for a balanced, multimodal transportation network that meets the needs of all users of streets, roads, and highways for safe and convenient travel in a manner that is suitable to the rural, suburban, or urban context of the general plan.
>
> (B)For purposes of this paragraph, "users of streets, roads, and highways" means bicyclists, children, persons with disabilities, motorists, movers of commercial goods, pedestrians, users of public transportation, and seniors.

The Complete Streets Act of 2008 amended the California Government Code to require that all major revisions to a city or county's Circulation Element include provisions for the accommodation of all roadway users including bicyclists and pedestrians.

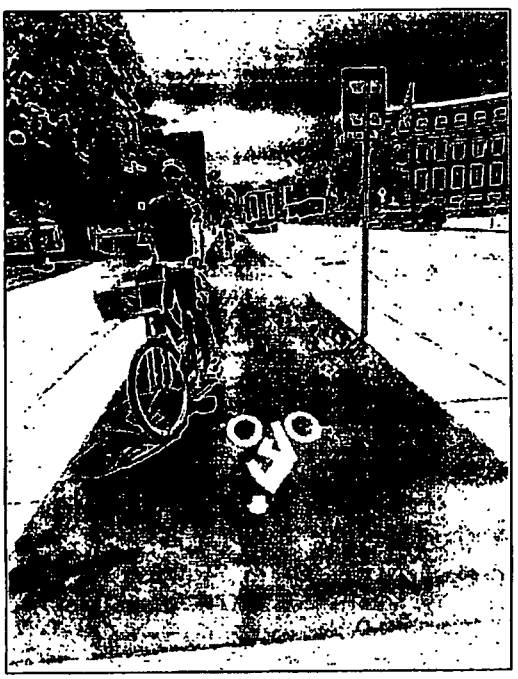
2.2.2.2 Deputy Directive 64

The California Department of Transportation (Caltrans) adopted two policies in recent years relevant to bicycle planning initiatives such as this Bicycle Master Plan, namely, Deputy Directive 64 (DD-64-R1) and Traffic Operations Policy Directive 09-06.

Similar to AB 1358, Deputy Directive 64 (DD-64-R1) sets forth that Caltrans addresses the "safety and mobility needs of bicyclists, pedestrians, and transit users in all projects, regardless of funding."

2.2.2.3 Traffic Operations Policy Directive 09-06

In a more specific application of complete streets goals, Traffic Operations Policy Directive 09-06 presents bicycle detection requirements. For example, 09-06 requires that new and modified signal detectors provide bicyclist detection if they are to remain in operation. Further, the Policy Directive states that new and modified bicycle path approaches to signalized intersections must provide bicycle detection or a bicyclist pushbutton if detection is required.



One way to help meet the greenhouse gas emissions targets is to increase the bicycle mode share by substituting bicycle trips for automobile trips.

2.2.2.4 SB 375 – Sustainable Communities

Senate Bill (SB) 375 serves to complement Assembly Bill (AB) 32: The Global Warming Solutions Act of 2006 and encourages local governments to reduce emissions through improved planning. Under SB 375, the California Air Resources Board (CARB) must establish targets for 2020 and 2035 for each region covered by one of the State's 18 metropolitan planning organizations (MPOs). Each of California's MPOs must prepare a "Sustainable Communities Strategy (SCS)" that demonstrates how the region will meet its greenhouse gas (GHG) reduction target through integrated land use, housing and transportation planning. The Southern California Association of Governments (SCAG) is preparing the SCS for the County of Los Angeles.

One way to help meet the greenhouse gas emissions targets is to increase the bicycle mode share by substituting bicycle trips for automobile trips. When trips made by bicycle replace vehicle trips they reduce greenhouse gas emissions resulting from motorized transportation. The South Bay's efforts to encourage bicycling will contribute to the regional attainment of these targets.

Chapter 8

Redondo Beach

8 Redondo Beach

This chapter presents Redondo Beach's portion of the South Bay Bicycle Master Plan. It begins with a discussion of how Redondo Beach complies with Bicycle Transportation Account requirements. The chapter is then organized into the following sections:

- Existing conditions
- City-specific goals, policies, and implementation actions
- Needs analysis
- Proposed bicycle network
- Project prioritization
- Project costs

8.1 Bicycle Transportion Account (BTA) Compliance

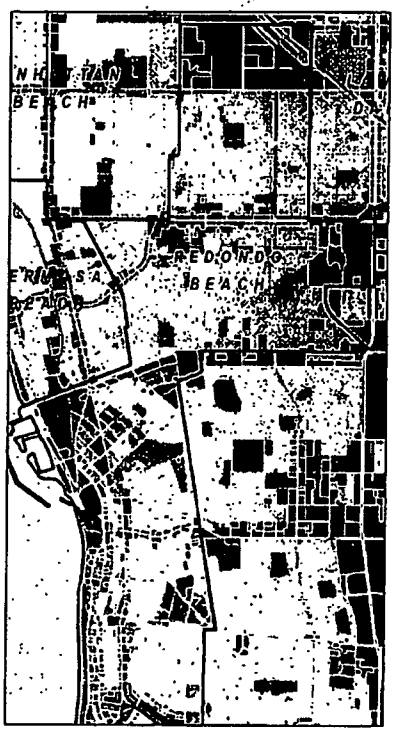
The Bicycle Transportation Account (BTA) is an annual statewide discretionary program that funds bicycle projects through the Caltrans Bicycle Facility Unit. Available as grants to local jurisdictions, the program emphasizes projects that benefit bicycling for commuting purposes. In order for Redondo Beach to qualify for BTA funds, the South Bay Bicycle Master Plan must contain specific elements. Appendix E displays the requisite BTA components and their location within this plan in tabular form. The table includes "Approved" and "Notes/Comments" columns for the convenience of the Metro official responsible for reviewing compliance.

8.2 Existing Conditions

Redondo Beach is located in the western portion of the South Bay region. It is bordered by the City of Hawthorne to the north, the City of Manhattan Beach and the City of Hermosa Beach to the west, the City of Lawndale and the City of Torrance to the east, and the City of Torrance again to the south. According to the 2000 Census, Redondo Beach has a population of 63,261. The city was incorporated in 1892.

8.2.1 Land Use

Appendix A-3 displays a map of the existing land uses in the South Bay Region. Land use in Redondo Beach is shown at right. Over 60 percent of the City's land area is devoted to residential uses, though the type of housing is varied. The City consists of 33 percent single



Existing Land Uses in Redondo Beach
(See Appendix A-3 for larger map)

- City Boundary
- Single Family Residential
- Multi-Family Residential
- Other Residential
- General Office
- Commercial and Services
- Public Facilities
- Education
- Military Installations
- Industrial
- Transportation, Communications, and Utilities
- Mixed Commercial and Industrial
- Mixed Urban
- Open Space and Recreation
- Agriculture
- Vacant
- Water
- Under Construction
- Undevelopable
- Unknown

family, approximately 10 percent multi-family, and about 18 percent other residential.

The City of Redondo Beach does not have any proposed changes to its land uses.

8.2.2 Bicycle Trip Generators

High density housing has the potential to generate bicycle activity, as it is generally located in environments with a variety of land uses where trips between uses can be shorter.

Photo Source: Kelly Morphy/WALC Institute for Vitality City

Bicycle trip generators refer to population characteristics that are correlated with higher bicycling activity levels, such as high population or employment densities or high concentrations of certain sub-populations, such as transit commuters or zero-vehicle households.

Appendix A-4 shows population density in Redondo Beach. Many of the areas of highest population density are located along the beach, which is where much of the multi-family housing is located. This has the potential to generate bicycle trips as housing is nearby many key community services. There are also areas of high population density in North Redondo Beach. Population density, measured as the number of persons per acre, is a strong indicator of potential bicycle activity, because more people living in an area implies more trips to and from that area. The high population densities of urbanized environments also tend to support bicycle travel through mixed land uses, interconnected street networks, and shorter trip lengths.

Appendix A-5 displays employment density in Redondo Beach. The highest employment densities are in South Redondo Beach near the beach, in North Redondo Beach along Marine Avenue, and in the eastern portion of the City along Hawthorne Boulevard. The high employment density near the beach is from general office land uses. Marine Avenue is concentrated with industrial uses and Hawthorne Boulevard has primarily commercial and service uses. These sites have the potential to generate bicycle activity, as they are located in environments with a variety of land uses where trips between uses can be shorter.

Appendix A-6, Appendix A-7, and Appendix A-8 display the percent of zero-vehicle households, median annual income, and percent transit commuters by census tract. Redondo Beach has relatively high percentages of households without vehicles. The highest concentrations of these households are along the beach and in North Redondo Beach. Median annual household income is consistently between $55,001 and $75,000 (in 1999 dollars) throughout South Redondo Beach, while North Redondo Beach has

pockets where median annual household income is between $75,001 and $95,000. These are in the west on the border of Hermosa Beach and in the north nearer to the border.

The highest percentages of transit commuters are located in South Redondo Beach and the central portion of North Redondo Beach. These parts of the city have greater potential for increased bicycling activity because residents who do not have vehicles must use alternative modes and are likely to combine bicycle and transit trips.

In addition to the reasons discussed above, Redondo Beach has the potential for increased bicycle activity from bicyclists passing through on their way to destinations outside of the city. A bicycle network that is connected within Redondo Beach, as well as linked to bicycle facilities in adjacent communities, further generates bicycle traffic as it provides a viable transportation option to driving a motorized vehicle.

8.2.3 Relevant Plans and Policies

Table 8-1 outlines information regarding bicycles from the City of Redondo Beach's Circulation Element, Bicycle Transportation Plan Implementation, and Municipal Code.

Table 8-1: Redondo Beach Bicycle-Related Plans and Policies

Document	Description
General Plan Circulation Element (2009)	The Circulation Element contains the extensive network of existing and proposed bikeways shown in **Appendix F-5 and Appendix F-6** There are four proposed Class I bikeways, two proposed Class II bikeways, and 17 proposed Class III bikeways. These are meant to fill gaps in the system and improve connections. The element mentions a Redondo Beach Sustainability Plan, which has a goal to create bicycle lanes, paths, and storage. Other Circulation Element goals and policies include: • Promote alternative modes for residents and visitors • Provide bicycle parking and support facilities as a TDM strategy • Connect North and South Redondo Beach with bicycle facilities • Focus on bicycle access at transit stations, the waterfront, South Bay Galleria, Artesia Boulevard, Riviera Village, Pacific Coast Highway retail zones, and school zones • Reduce vehicle lanes to 10 feet on residential streets to accommodate bicycle lanes • Bike lanes: minimum five feet; Truck routes/bus routes: minimum 12 feet for vehicle travel lanes; Two-way left-turn lane: minimum 14 feet edge to edge; Combination parking lane/bike lane: minimum 13 feet • Increase the provision of bike lockers, bike racks, and lighting for bike facilities • Ensure that residents will be able to bike to key destinations, such as the beach • Conduct bike ability audits and periodic bicycle counts • Apply for Safe Routes to School grants
Bicycle Transportation Plan (2005)	This project implements Metro's 2006 Bicycle Transportation Strategic Plan Objective I, which is to improve access and mobility by encouraging bicycle accommodation in roadway improvements, and was submitted to Metro's 2009 Call for Projects for funding. It outlines the implementation of bicycle improvements in the City's Circulation Element. The project includes the design and construction of the following elements city-wide: • 2.1 miles of Class II bike lanes • 15.8 miles of Class III bike routes • 105 video-detection cameras • 101 pedestrian-push buttons • 295 bicycle-facility signs • 328 bike-lane symbols or sharrows • The widening of Lilienthal Lane for bicycle improvements • The narrowing of medians on Catalina Ave. from PCH to Beryl St. to provide bike lanes • The installation of a bicycle signal at westbound N. Juanita Avenue to N. Catalina at PCH where the intersection will be reconstructed to provide a bicycle-friendly cut-through at a cul-de-sac
Harbor and Pier Area Guiding Principles (2006)	These principles guide the development and activities in the area surrounding King Harbor and the Pier. Relevant principles include: • Ensure gateways to the Harbor and Pier area are attractive and active • Provide and enhance boating, water, recreation, entertainment, and sports related activity • Require development to be designed to encourage pedestrian activity and accommodate safe bike and pedestrian paths
Municipal Code	Bicycle parking requirements in the Municipal Code vary by the size of the development and type of land use as part of the City's transportation demand and trip reduction measures. Minimum parking requirements are based

Document	Description
	on square footage of the development. Developments of certain sizes are also required to provide information, such as bicycle maps. Detailed bicycle parking information is presented in Appendix G. The City prohibits riding bicycles on the sidewalk wherever it is determined by the Council that it creates a hazard to the public. It also prohibits riding bicycles on the Pier, on the west side of Esplanade between Knob Hill Ave and Pearl St., and in areas of high pedestrian traffic.

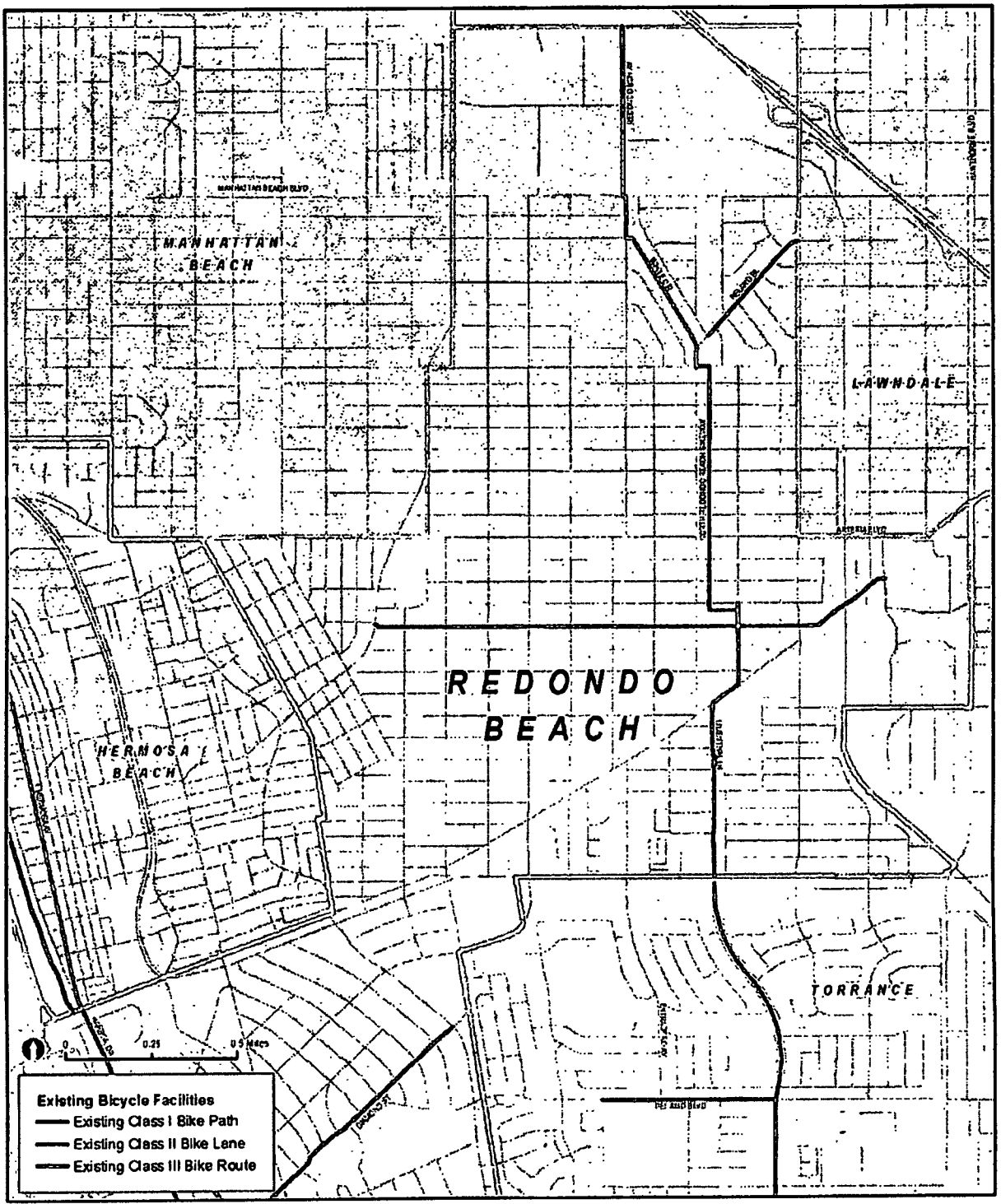


Figure 8-1: Existing Bicycle Facilities in North Redondo Beach

South Bay Bicycle Master Plan

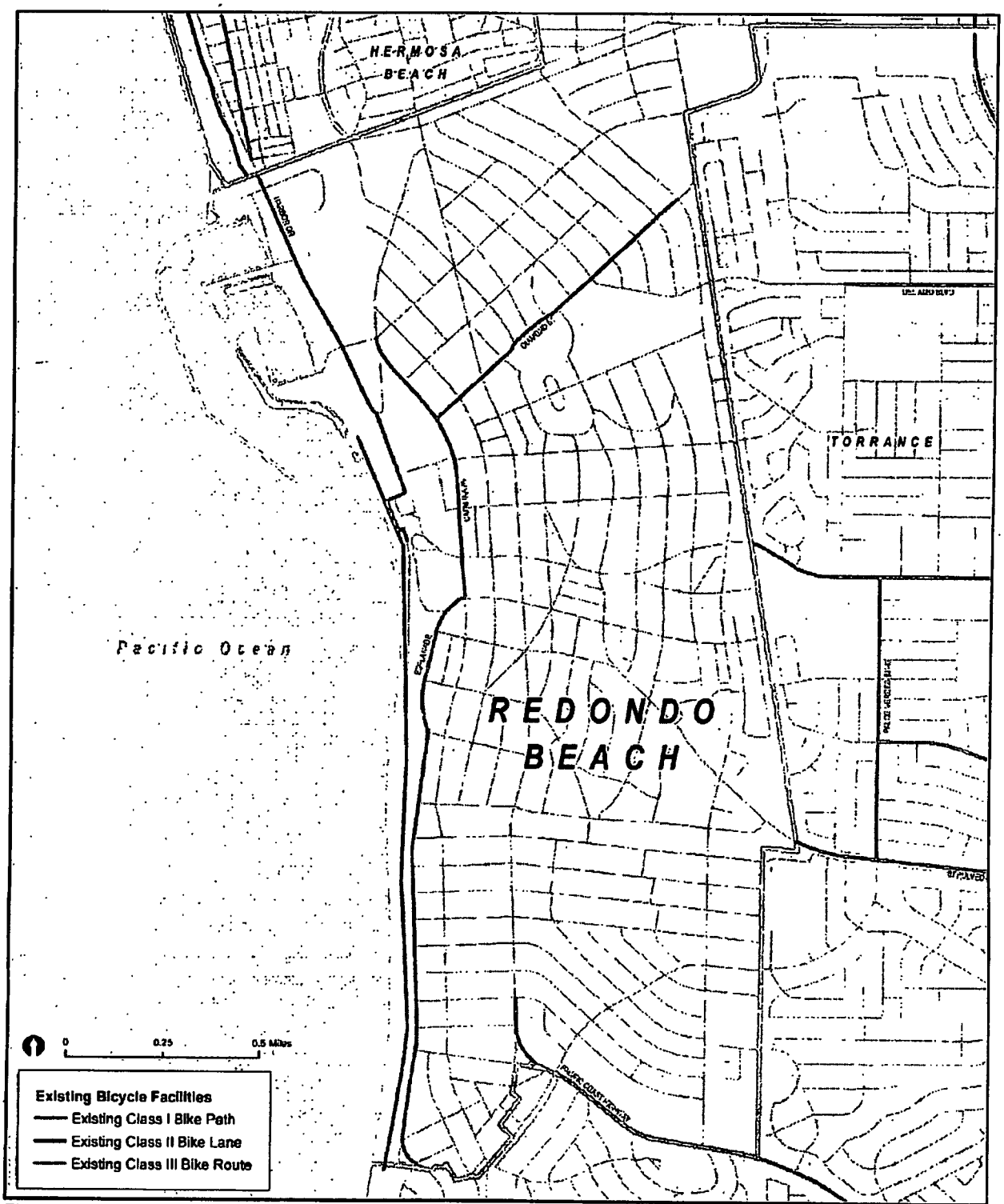


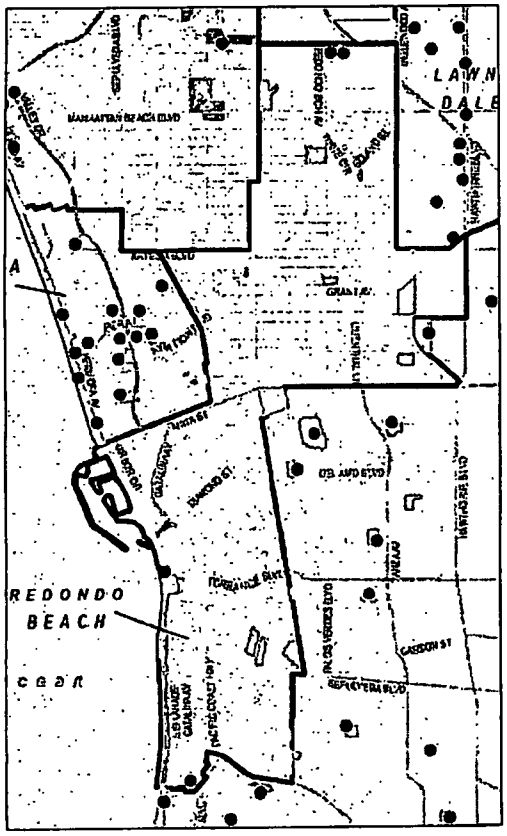
Figure 6-2: Existing Bicycle Facilities in South Redondo Beach

8.2.4 Existing Bicycle Network

Figure 8-1 and Figure 8-2 show the existing bicycle facilities in Redondo Beach. Appendix A-2 displays a map of the existing bicycle facilities in the South Bay Region. Bicycle facility types are discussed in Section 1.3. Redondo Beach has a 14 mile bicycle network that includes Class I, Class II, and Class III bikeways. Its Class I bike paths are a 0.9 mile segment of the North Redondo Beach Bikeway and the Los Angeles County-maintained Marvin Braude Bikeway. Table 8-2 summarizes the classification and mileage of the existing network.

Table 8-2: Redondo Beach Bicycle Network

Facility Type	Mileage
Class I (Bike Path)	3.5
Class II (Bike Lanes)	5.9
Class III (Bike Route)	4.7
Total Mileage	**14.1**



Existing End-of-trip Facilities in Redondo Beach

(See Appendix A-9 for larger map)

- Existing Bike Racks
- Existing Bike Lockers

8.2.5 Existing End-of-Trip Parking Facilities

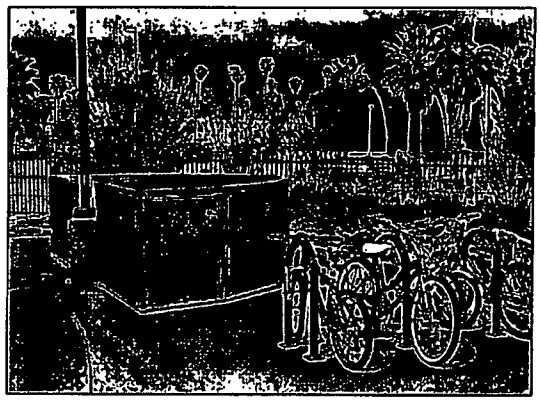
The BTA requires that this plan inventory publicly-accessible short-term and long-term end-of-trip bicycle facilities for the members of the bicycling public to park their bicycles, as well as change and store clothes and equipment. Short-term facilities consist of bicycle racks. Long-term facilities include, but are not limited to, locker, restroom, and shower facilities near bicycle parking facilities. Existing end-of-trip bicycle facilities in the South Bay are shown in Appendix A-9. Existing bicycle parking in Redondo Beach is shown at left. These locations include the Pier and the Riviera Village. Bicycle parking at transit stations is discussed in Section 8.2.7. Redondo Beach does not currently have any existing publicly-accessible long-term end-of-trip bicycle facilities.

8.2.6 Multi-Modal Connections

Transit is often best for longer trips, while bicycling is better for shorter trips. Combining transit use and bicycling can offer a high level of mobility that is comparable to travel by automobile. Appendix A-10 shows the existing Los Angeles Metropolitan Transit Authority (Metro) transit routes that serve the City of Redondo Beach. Metro operates bus lines with east-west routes in North Redondo Beach and north-south routes in South Redondo

Beach. Buses are equipped with bicycle racks, which are available on a first-come, first-served basis. Metro also operates the Green Line Light Rail, which has one station in North Redondo Beach on Marine Avenue. Passengers are allowed to bring bicycles on the Metro Rail.

LADOT operates the Commuter Express bus service. Line 438 connects the cities of El Segundo, Manhattan Beach, Hermosa Beach, Redondo Beach, and Torrance to Downtown Los Angeles. Most Commuter Express buses are equipped with bicycle racks, which are available on a first-come, first-served basis. The Commuter Express Line 438 route map is shown in Appendix A-11.



Metro operates the Green Line Light Rail, which has one station in North Redondo Beach on Marine Avenue.

The City of Redondo Beach operates Beach Cities Transit (BCT). It has three lines that connect Redondo Beach to El Segundo, Hermosa Beach, Manhattan Beach, and Torrance. Appendix A-13 shows the BCT System Map. BCT buses are equipped with bike racks, which are available on a first-come, first-served basis.

Torrance Transit Lines 3 and 8, operated by the City of Torrance, also serve the City of Redondo Beach. Appendix A-14 shows the Torrance Transit System Map. Buses are equipped with bike racks, which are available on a first-come, first-served basis.

The BTA requires that this plan inventory existing bicycle transport and parking facilities for connecting to public transit services. These facilities include, but are not limited to, bicycle parking at transit stops, rail and transit terminals, and park and ride lots; and provisions for transporting bicycles on public transit vehicles. The Marine Avenue Metro Green Line station provides both bicycle racks and lockers, which are shown on the previous page and in Appendix A-9. Bicycle locker rentals are $24 for a six month rental plus a $50 refundable security key deposit.

8.2.7 Education and Enforcement Strategies

Bicycle education programs and enforcement of bicycle-related policies help to make riding safer for all bicyclists. To promote safe bicycling, Redondo Beach regularly conducts child bicycle helmet safety awareness campaigns as part of the police department's annual work plan by:

- Conducting media outreach via cable television and the internet
- Working with the school district and crossing guards to distribute helmet safety info to kids
- Partnering with local businesses

- Distributing free coupons to kids who obey the law

Redondo Beach police officers use their discretion to conduct enforcement of bicycle rules. Typically, complaints about bicyclists who violate the law increase during summer months and the City focuses enforcement based upon these complaints. In response, the police department has conducted outreach prior to conducting enforcement operations. The outreach has included the following:

- Placement of message signboards at strategic locations to warn bicyclists of enforcement
- Providing targeted enforcement literature to local bike shops
- Posting information on bicycle blogs to inform bicyclists of pending enforcement details

Redondo Beach also conducted a bicycle rodeo in 2011 to promote safe bicycling to children.

Redondo Beach spent over $1.4 million between 2000 and 2010 to install bicycle facilities and bicycle support facilities.

Photo Source: Dan Burden/WALC Institute for Vitality City

8.2.8 Past Bicycle-Related Expenditures

The City of Redondo Beach has incurred the following bicycle expenditures between 2000 and 2010. The expenditures total to $1,457,365.

- $12,000 for a Class II facility on Catalina Ave (Esplanade to Beryl St) and a Class III facility on Esplanade (Knob Hill Ave to Catalina Ave) in 2008
- $1,422,465 for Class I, II, and III facilities for the North Redondo Beach Bikeway in 2008
- $7,000 for type D loops on Inglewood Ave (Artesia Blvd to Manhattan Beach Blvd) in 2009
- $7,500 for type D loops on Prospect Ave (Palos Verdes Blvd to Pearl St) in 2010
- $3,000 for type D loops as part of a residential rehabilitation project in 2010
- $3,000 for type D loops on Palos Verdes Blvd (Avenue F to East City Limits) in 2010
- $2,400 for bicycle racks at the Pier and Riviera Village between 2008 and 2010

8.3 Needs Analysis

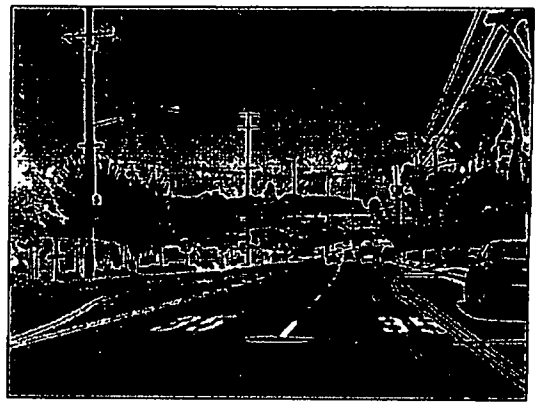
This section describes the needs of bicyclists in Redondo Beach. It first summarizes feedback collected from the online survey and public workshops. The section also provides estimates and forecasts of bicycle commuting to determine the estimated bicycling demand in the city. It finally analyzes bicycle collision data between 2007 and 2009 to identify areas that would benefit from bicycle facility improvements.

8.3.1 Public Outreach

As mentioned in Chapter 1, the public had the opportunity to provide input in the planning process through an online survey and the first round of public workshops. This section summarizes locations in Redondo Beach that the community identified as desirable for bikeways.

The locations that the public identified the most frequently as needed bicycle facilities in Redondo Beach include the following:

- Aviation Boulevard
- Pacific Coast Highway
- King Harbor
- Prospect Avenue
- Torrance Boulevard



The locations that the public identified the most frequently as needed bicycle facilities in Redondo Beach included Prospect Avenue.

8.3.2 Bicycle Commuter Estimates and Forecasts

United States Census "Commuting to Work" data provides an indication of current bicycle system usage. Appendix A-15 shows the percent bicycle commuters in Redondo Beach by census tract. The highest percentage of bicycle commuters is located in the southeastern portion of the City on the border with Torrance.

Table 8-3 presents commute to work data estimates reported by the 2000 US Census for Redondo Beach. For comparative purposes, the table includes commute to work data for the United States, California, and County of Los Angeles. According to the estimates, 0.8 percent of residents in Redondo Beach commute predominantly by bicycle. This is comparable with the percentage of bicycle commuters in California, and it is higher than Los Angeles County and the United States as a whole. It is important to note that this figure likely underestimates the true amount of bicycling that occurs in Redondo Beach for several reasons. Data reflects respondents' dominant commute mode and therefore does not capture trips to school, for errands, or other bike trips that would

supplant vehicular trips. Also, US Census data collection methods only enable a respondent to select one mode of travel, thus excluding bicycle trips if they constitute part of a longer multimodal trip. The percentage of commuters in Redondo Beach that commute by transit is much lower than that of those that drive alone. Redondo Beach also has a low percentage of carpooling and walking.

In addition to bicycle commuters in Redondo Beach, bicyclists from neighboring communities use the city's bicycle network to reach their destinations and are not reflected in this data. This Plan addresses the need for regional connectivity to accommodate bicyclists passing through Redondo Beach's bicycle network in Section 8.4.

Table 8-3: Means of Transportation to Work

Mode	United States	California	Los Angeles County	Redondo Beach
Bicycle	0.38%	0.83%	0.62%	0.81%
Drove Alone – car, truck, or van	75.70%	71.82%	70.36%	83.35%
Carpool – car, truck, or van	12.19%	14.55%	15.08%	7.43%
Transit	4.73%	5.07%	6.58%	1.47%
Walked	2.93%	2.85%	2.93%	1.41%
Other Means	0.70%	0.79%	0.76%	0.66%
Worked at Home	3.26%	3.83%	3.49%	4.27%

Source: US Census 2000

Table 8-4 presents an estimate of current bicycling within Redondo Beach using US Census data along with several adjustments for likely bicycle commuter underestimations, as discussed above. Table 8-5 presents the associated air quality benefits from bicycling.

Table 8-4: Existing Bicycling Demand

Variable	Figure	Source
Existing study area population	63,261	2000 US Census, P1
Existing employed population	37,661	2000 US Census, P30
Existing bike-to-work mode share	0.8%	2000 US Census, P30
Existing number of bike-to-work commuters	305	Employed persons multiplied by bike-to-work mode share
Existing work-at-home mode share	4.3%	2000 US Census, P30
Existing number of work-at-home bike commuters	161	Assumes 10% of population working at home makes at least one daily bicycle trip
Existing transit-to-work mode share	1.5%	2000 US Census, P30
Existing transit bicycle commuters	138	Employed persons multiplied by transit mode share. Assumes 25% of transit riders access transit by bicycle
Existing school children, ages 6-14 (grades K-8)	5,650	2000 US Census, P8
Existing school children bicycling mode share	2.0%	National Safe Routes to School surveys, 2003
Existing school children bike commuters	113	School children population multiplied by school children bike mode share
Existing number of college students in study area	5,136	2000 US Census, PCT24
Existing estimated college bicycling mode share	5.0%	Review of bicycle commute share in seven university communities (source: National Bicycling & Walking Study, FHWA, Case Study No. 1, 1995), review of bicycle commute mode share at the University of California, Los Angeles
Existing college bike commuters	257	College student population multiplied by college student bicycling mode share
Existing total number of bike commuters	974	Total bike-to-work, school, college and utilitarian bike trips. Does not include recreation.
Total daily bicycling trips	1,948	Total bicycle commuters x 2 (for round trips)

Table 8-5: Existing Bicycling Air Quality Impact

Variable	Figure	Source
Current Estimated VMT Reductions		
Reduced Vehicle Trips per Weekday	587	Assumes 73% of bicycle trips replace vehicle trips for adults/college students and 53% for school children
Reduced Vehicle Trips per Year	153,321	Reduced weekday vehicle trips x 261 (weekdays / year)
Reduced Vehicle Miles per Weekday	4,280	Assumes average round trip travel length of 5 miles for adults/college students and 1 mile for schoolchildren
Reduced Vehicle Miles per Year	1,117,149	Reduced weekday vehicle miles x 261 (weekdays / year)
Current Air Quality Benefits		
Reduced Hydrocarbons (lbs/wkday)	13	Daily mileage reduction x 1.36 grams / mi
Reduced PM10 (lbs/wkday)	0	Daily mileage reduction x 0.0052 grams / mi
Reduced PM2.5 (lbs/wkday)	0	Daily mileage reduction x 0.0049 grams / mi
Reduced NOX (lbs/wkday)	9	Daily mileage reduction x 0.95 grams / mi
Reduced CO (lbs/wkday)	117	Daily mileage reduction x 12.4 grams / mi
Reduced C02 (lbs/wkday)	3,482	Daily mileage reduction x 369 grams / mi
Reduced Hydrocarbons (lbs/yr)	3,350	Yearly mileage reduction x 1.36 grams / mi
Reduced PM10 (lbs/yr)	13	Yearly mileage reduction x 0.0052 grams / mi
Reduced PM2.5 (lbs/yr)	12	Yearly mileage reduction x 0.0049 grams / mi
Reduced NOX (lbs/yr)	2,340	Yearly mileage reduction x 0.95 grams / mi
Reduced CO (lbs/yr)	30,540	Yearly mileage reduction x 12.4 grams / mi
Reduced CO_2 (lbs/yr)	908,807	Yearly mileage reduction x 369 grams / mi

Source:

Emissions rates from **EPA report 420-F-05-022** *Emission Facts: Average Annual Emissions and Fuel Consumption for Gasoline-Fueled Passenger Cars and Light Trucks.* 2005.

Table 8-6 presents projected year 2030 bicycling activity within Redondo Beach using California Department of Finance population and school enrollment projections. The projection contains the assumption that bicycle mode share will double by 2030, due in part to bicycle network implementation. Actual bicycle mode share in 2030 will depend on many factors, including the extent of network implementation. Table 8-7 presents the associated year

2030 air quality benefit forecasts. The calculations follow in a straightforward manner from the Projected Year 2030 Bicycling Demand.

Table 8-6: Projected Year 2030 Bicycling Demand

Variable	Figure	Source
Future study area population	78,724	Calculated based on CA Dept. of Finance, *Population Projections for California and Its Counties 2000-2050.*
Future employed population	46,866	Calculated based on CA Dept. of Finance, *Population Projections for California and Its Counties 2000-2050.*
Future bike-to-work mode share	1.6%	Double the rate from 2000 US Census, P30
Future number of bike-to-work commuters	759	Employed persons multiplied by bike-to-work mode share
Future work-at-home mode share	8.0%	Calculated based on change in mode share from 1990 US Census, P49, to 2000 US Census, P30
Future number of work-at-home bike commuters	376	Assumes 1.0% of population working at home makes at least one daily bicycle trip
Future transit-to-work mode share	2.9%	Double the rate from 2000 US Census, P30
Future transit bicycle commuters	344	Employed persons multiplied by transit mode share. Assumes 25% of transit riders access transit by bicycle
Future school children, ages 6-14 (grades K-8)	4,490	Calculated from CA Dept. of Finance, *California Public K–12 Graded Enrollment and High School Graduate Projections by County, 2010 Series.*
Future school children bicycling mode share	4.0%	Double the rate of national school commute trends. National Safe Routes to School surveys, 2003.
Future school children bike commuters	180	School children population multiplied by school children bicycling mode share
Future number of college students in study area	6,391	Calculated based on CA Dept. of Finance, Population Projections for California and Its Counties 2000-2050, Sacramento, California, July 2007.
Future estimated college bicycling mode share	7.0%	A slight increase over the existing college bicycle mode share assumption, commensurate with projected increases in bicycling for other populations
Future college bike commuters	447	College student population x college student bicycling mode share
Future total number of bike commuters	2,107	Total bike-to-work, school, college and utilitarian biking trips. Does not include recreation.
Total daily bicycling trips	4,214	Total bike commuters x 2 (for round trips)

Table 8-7: Projected Year 2030 Bicycling Air Quality Impact

Variable	Figure	Source
Forecasted VMT Reductions		
Reduced Vehicle Trips per Weekday	1,251	Assumes 73% of biking trips replace vehicle trips for adults/college students and 53% for school children
Reduced Vehicle Trips per Year	326,430	Reduced number of weekday vehicle trips x 261 (weekdays / year)
Reduced Vehicle Miles per Weekday	9,339	Assumes average round trip travel length of 8 miles for adults / college students and 1 mile for schoolchildren
Reduced Vehicle Miles per Year	2,437,547	Reduced number of weekday vehicle miles x 261 (weekdays / year)
Forecasted Air Quality Benefits		
Reduced Hydrocarbons (lbs/wkday)	28	Daily mileage reduction x by 1.36 grams / mi
Reduced PM10 (lbs/wkday)	0	Daily mileage reduction x by 0.0052 grams / mi
Reduced PM2.5 (lbs/wkday)	0	Daily mileage reduction x by 0.0049 grams / mi
Reduced NOX (lbs/wkday)	20	Daily mileage reduction x by 0.95 grams / mi
Reduced CO (lbs/wkday)	255	Daily mileage reduction x by 12.4 grams / mi
Reduced CO_2 (lbs/wkday)	7,598	Daily mileage reduction x by 369 grams / mi
Reduced Hydrocarbons (lbs/yr)	7,308	Yearly mileage reduction x by 1.36 grams / mi
Reduced PM10 (lbs/yr)	28	Yearly mileage reduction x by 0.0052 grams / mi
Reduced PM2.5 (lbs/yr)	26	Yearly mileage reduction x by 0.0049 grams / mi
Reduced NOX (lbs/yr)	5,105	Yearly mileage reduction x by 0.95 grams / mi
Reduced CO (lbs/yr)	66,636	Yearly mileage reduction x by 12.4 grams / mi
Reduced CO_2 (lbs/yr)	1,982,959	Yearly mileage reduction x by 369 grams / mi

Source:

Emissions rates from **EPA report 420-F-05-022** *Emission Facts: Average Annual Emissions and Fuel Consumption for Gasoline-Fueled Passenger Cars and Light Trucks.* 2005.

This model uses the latest state projections for population growth and reasonable assumptions about future bicycle ridership. The benefits model predicts that the total number of bicycle commute trips could increase from the current daily estimate of about 2,000 to approximately 4,200, resulting in a substantial reduction of both

Vehicle Miles Traveled (VMT) and associated emissions. This includes a yearly emissions reduction by 2030 of approximately 5,100 pounds of smog forming NOX and roughly 2 million pounds of CO_2, the principal gas associated with global climate change. Providing bicycle facilities will encourage new bicyclists to begin to ride, thus positively impacting air quality by reducing harmful pollutants from driving motorized vehicles. Because this plan recommends local connections throughout and regional links between the participating cities, it has the potential to have even greater air quality benefits. Bicyclists may not need to rely as heavily on vehicles for transportation because bicycling will be a viable transportation alternative upon implementation of this Plan.

8.3.3 Bicycle Counts

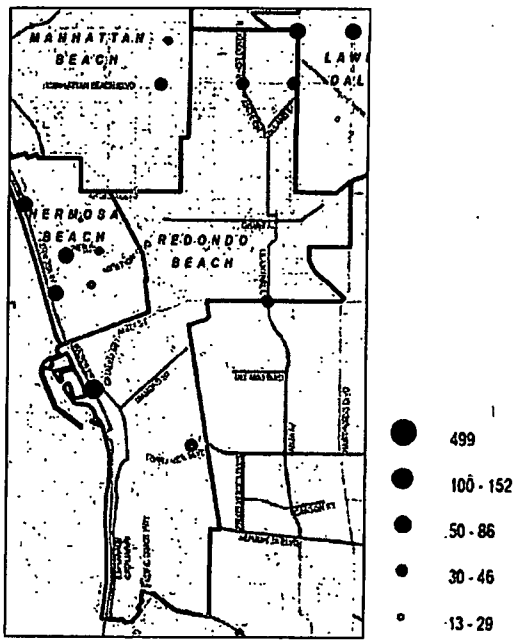
To assess bicycling levels at different sites throughout Redondo Beach, volunteers conducted bicycle counts, in which they manually recorded the number of bicyclists that rode by.

8.3.3.1 Methodology

The methodology for the bicycle counts derives from the National Bicycle and Pedestrian Documentation Project (NBPD), a collaborative effort of Alta Planning + Design and the Institute of Transportation Engineers. The NBPD methodology aims to capture both utilitarian bicycling and recreational bicycling. The NBPD also provides guidance on how to select count locations.

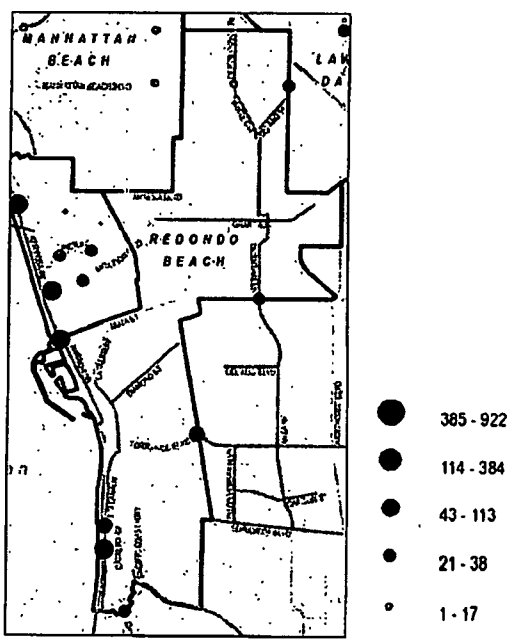
Volunteers conducted bicycle counts in each of the seven participating cities in the South Bay on Thursday, November 4, 2010 from 3:00 p.m. to 6:00 p.m. and Saturday, November 6, 2010 from 10:30 a.m. to 1:30 p.m. These dates are meant to capture volumes of bicyclists on a typical weekday and weekend day. Fall is an appropriate time to conduct bicycle counts in California because school is back in session and vacations are typically over. In Redondo Beach, volunteers were stationed at three stations on Thursday and five stations on Saturday. There were 36 total locations in the South Bay region on each day.

The count locations were selected in partnership by city staff, Alta Planning + Design, Los Angeles County Bicycle Coalition staff, and South Bay Bicycle Coalition board members. This snapshot of locations is meant to capture a diverse bicycling population using the roads and streets that span the spectrum of bike-friendliness.



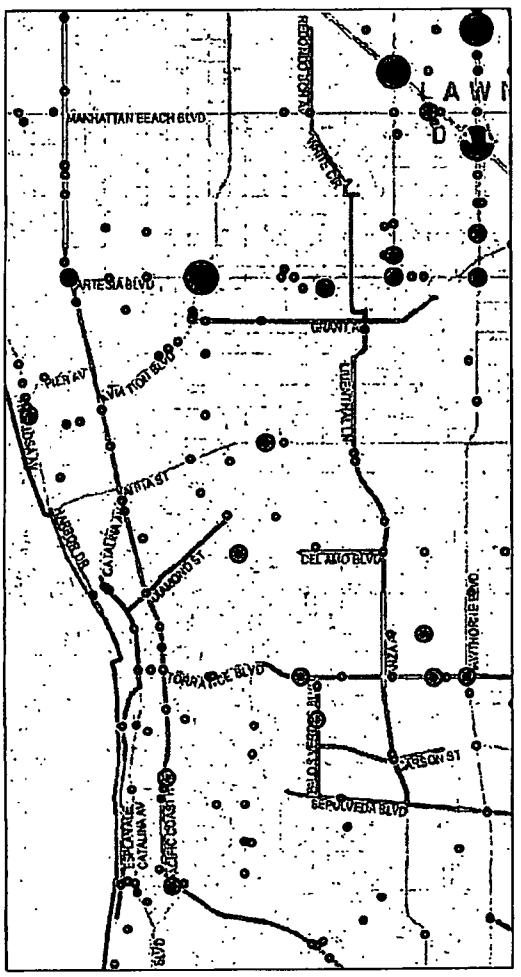
Weekday Bicycle Count Results in Redondo Beach

(See Appendix A-16 for a larger map and Appendix H for a list of count locations.)



Weekend Bicycle Count Results in Redondo Beach

(See Appendix A-17 for a larger map and Appendix H for a list of count locations.)



Bicycle Collisions in Redondo Beach 2007-2009

(See Appendix A-18 for larger map)

4
3
2
1

8.3.3.2 Results

The count results for the South Bay are displayed in Appendix A-16 and Appendix A-17. Count results for Redondo Beach are shown at right. Detailed count data, including a list of count locations, is presented in Appendix H. On Thursday, the Redondo Beach station that experienced the highest volume was Harbor Drive and Beryl Street with 499 bicyclists during the three hour count period. The other two stations had fewer than 100 bicyclists each. The station with the most bicyclists on Saturday was Herondo Street and the Strand with 732 bicyclists during the three hour count period.

On both days, the locations with the highest numbers of bicyclists in the South Bay region as a whole were those along the Strand on the County-maintained Marvin Braude Bikeway. Apart from the Strand stations, the inland count locations in Lawndale and Gardena experienced the most riders during the week. On the weekend, there were overall fewer riders in the inland count stations and more riders along the coast. This suggests that more bicyclists ride a bicycle for commuting during the week and for recreation on the weekend.

In the region as a whole, about 83 percent of bicyclists were male. Approximately 70 percent of those observed did not wear helmets and 41 percent rode on the sidewalks[9]. On Thursday, there were 18 locations at which over half of the observed bicyclists rode on the sidewalk and on Saturday there were nine. Riding on the sidewalk can be an indicator of a lack of bicycle facilities, as bicyclists that are uncomfortable riding with traffic may choose to ride on the sidewalk instead.

8.3.4 Bicycle Collision Analysis

Safety is a major concern for both existing and potential bicyclists. Concern about safety is the most common reason given for not riding a bicycle (or riding more often), according to national surveys. Identifying bicycle collision sites can draw attention to areas that warrant improvement, particularly if multiple collisions occur at the same location. This analysis employs the most reliable data source available, the California Highway Patrol's Statewide Integrated Traffic Records System. The data set only includes reported collisions, and so represents a subset of all the bicycle collisions in Redondo Beach. This data does not include any assessment of conditions present at the time of the collision. There are numerous factors that may contribute to a given incident

including but not limited to time of day, visibility, distractions, obstacles or traffic law obedience. This data simply reflects reported incidents, resulting injuries and the party at fault. This data does not infer faulty infrastructure, but rather provides a baseline of collisions that often decreases in correlation with bike plan implementation and the improvements to facilities and road user behavior and awareness that accompanies it. Fault as determined by law enforcement is discussed below.

Table 8-8 presents the number of reported collisions involving bicyclists, number of bicyclists involved, and severity of the bicycle collisions for three consecutive years: 2007, 2008, and 2009. Appendix A-18 shows locations of bicycle collisions in the South Bay region in the same time period. Bicycle collisions in Redondo Beach are shown on the preceding page. There were 80 total reported collisions involving bicyclists from 2007-2009 in the City of Redondo Beach. There were four collisions at the intersection of Artesia Boulevard and Aviation Boulevard, on the border of Manhattan Beach and Redondo Beach. There were also 12 collisions on Artesia Boulevard and 14 collisions on Pacific Coast Highway.

Table 8-8: Bicycle Collision Data 2007-2009

Total Crashes Involving Bicyclists	Number of Bicyclists Involved	Persons Injured	Persons Severely Injured	Persons Killed
80	84	80	3	0

Source: California Highway Patrol, Statewide Integrated Traffic Records System (SWITRS)

As reported by police officers in traffic reports, bicyclists were at fault in 48 percent of collisions involving bicycles (38 crashes) in this time period.

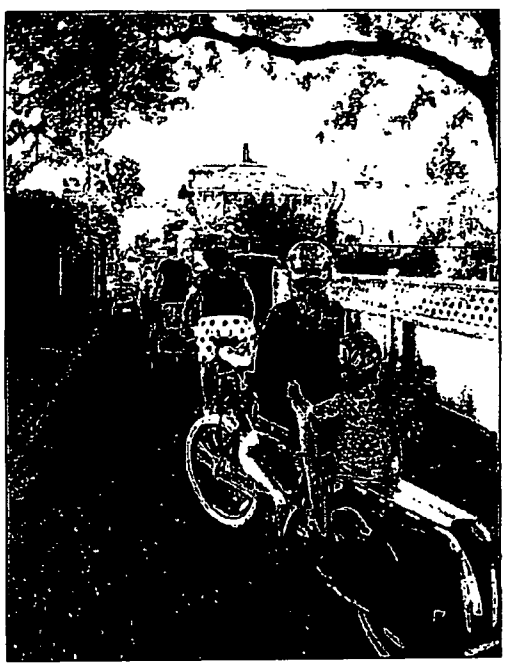
Providing bicycle facilities encourages more people to ride. When motorists begin to look for and expect to see bicyclists, collisions between vehicles and bicyclists are reduced. The City of New York, for example, reported that as ridership increased between 1998 and 2008, the number of annual casualties from bicycle collisions decreased (see Appendix B).

Appendix A-1 displays estimated weekday traffic volumes in Redondo Beach. The streets with the highest volumes of vehicles are Aviation Boulevard, Inglewood Avenue, Pacific Coast Highway, Manhattan Beach Boulevard, Artesia Boulevard, and 190th Street. Artesia Boulevard, Aviation Boulevard, and Pacific Coast Highway all had a high number of collisions involving bicycles. Pacific Coast

Highway is the only high volume street with a bicycle facility; it has a Class III bike route. Bicyclists must share lanes with vehicular traffic, creating the potential for conflicts between the two modes. Installing bicycle facilities, especially on major arterials, could reduce the number and severity of collisions involving bicyclists.

8.4 Proposed Bicycle Network

This section presents the proposed bicycle network for the City of Redondo Beach, which includes bicycle parking facilities. Upon implementation of the proposed network, the City should coordinate and collaborate with adjacent participating South Bay cities to emphasize a regional bicycle network. Bicycle facilities discussed in this Plan are described in Section 1.3 and shown in Figure 1-3 and Figure 1-4. Appendix C outlines the recommended standards for each facility classification as compared to minimum standards. In addition to creating a comprehensive network of bikeways in Redondo Beach, the recommended system ties into the proposed bicycle facilities for the other South Bay participating cities to create a connected regional network. This will give bicyclists from adjacent communities the opportunity to pass through Redondo Beach to reach their destinations without losing bicycle facilities at city boundaries. Bikeway recommendations are also based on the existing City bicycle plans, public input, topography, traffic volumes, and traffic speeds.



The proposed bikeway network in the City of Redondo Beach consists of Class I Bike Paths, Class II Bike Lanes, Class III Bike Routes, and Bike Friendly Streets.

8.4.1 Proposed Bikeway Facilities

The proposed bikeway network in the City of Redondo Beach consists of Class I Bike Paths, Class II Bike Lanes, Class III Bike Routes, and Bike Friendly Streets, and is shown in Figure 8-3 and Figure 8-4. The proposed bicycle network in Redondo Beach connects with the recommended networks in Manhattan Beach, Hermosa Beach, Lawndale, and Torrance. Figure 8-3 shows blue asterisks on the proposed path along the Metro Green Line Extension as it is outside the jurisdiction of this Plan, but is a supported improvement. The proposed bicycle network for the South Bay region as a whole is presented in Appendix A-19.

Four tables identify the streets on which facilities are proposed, the extents of each proposed facility, and the length in miles of each proposed facility. Table 8-9 lists the proposed bicycle paths, Table 8-10 lists the proposed bicycle lanes, Table 8-11 lists the proposed bicycle routes, and Table 8-12 lists the proposed bicycle-friendly streets.

Table 8-9: Proposed Class I Bicycle Paths in Redondo Beach

Street	From	To	Miles
Harbor Dr	Herondo St	Existing Bike Path	0.8
Flagler Ln	Towers St	Diamond St	0.1
Total Bicycle Path Mileage			**0.8**

Table 8-10: Proposed Class II Bicycle Lanes in Redondo Beach

Street	From	To	Miles
Prospect Ave	North City Limits	Pacific Coast Highway	3.0
Knob Hill Ave	Esplanade	Pacific Coast Highway	0.4
Torrance Blvd	West End	East City Limits	0.9
Inglewood Ave	Marine Ave	Ripley Ave	1.8
Artesia Blvd	West City Limits	Hawthorne Blvd	2.3
Catalina Ave	Torrance Blvd	Palos Verdes Blvd	1.6
Juanita Ave - Del Amo Blvd	Diamond St	East City Limits	0.3
Marine Ave	Aviation Blvd	Inglewood Ave	1.0
Ripley Ave	Lilienthal Ln	Inglewood Ave	0.3
Beryl St	Harbor Dr	190th St	1.5
Catalina Ave	Pacific Coast Highway	Beryl St	0.5
Sepulveda Blvd	Prospect Ave	West City Limits	0.3
Avenue I	Esplanade	Catalina Ave	0.1
Manhattan Beach Blvd	Aviation Blvd	Inglewood Ave	1.0
Herondo St	Harbor Dr	Pacific Coast Highway	0.4
Lilienthal Ln	Ripley Ave	Fisk Ln	0.4
Aviation Blvd	Marine Ave	Harper Ave (City Limit)	1.7
190th St	Blossom Ln	East City Limits	1.3
Redondo Beach Blvd	Artesia Blvd	Hawthorne Blvd	0.2
Total Bicycle Lane Mileage			**18.9**

Table 8-11: Proposed Class III Bicycle Routes in Redondo Beach

Street	From	To	Miles
Ripley Ave	Flagler Ln	Lilienthal Ln	0.9
Emerald St	Catalina Ave	Prospect Ave	0.7
Yacht Club Way	West end	Harbor Dr	0.1
Portofina Way	West end	Harbor Dr	0.2
Ford Ave - Herrin St - Ormond Ln	Artesia Blvd	Aviation Blvd	0.5
Sepulveda Blvd	Torrance Blvd	Prospect Ave	0.7
182nd St	Felton Ave	Hawthorne Blvd	0.6

Street	From	To	Miles
Kingsdale Ave	Artesia Blvd	182nd St	0.5
Anita St	Pacific Coast Highway	Blossom Ln	0.9
Francisca Ave	Herondo St	Catalina Ave	0.9
Palos Verdes Blvd	South City Limits	East City Limits	0.9
Knob Hill Ave	Pacific Coast Highway	Sepulveda Blvd	0.5
Juanita Ave	Pacific Coast Highway	Diamon	0.5
Flagler Ln	Anita St	Beryl St	0.2
Beland Bl - Phelan Ln	Barkley Ln	White Circle	0.1
Total Bicycle Route Mileage			7.5

Table 8-12: Proposed Bicycle Friendly Streets in Redondo Beach

Street	From	To	Miles
Flagler Ln - Diamond St	Beryl St	Prospect Ave	0.1
Flagler Ln	Artesia Blvd	Anita St	1.0
Ave C - Juanita Ave - Ave D - Helberta Ave	Esplanade	Prospect Ave	0.9
Warfield Ave	Aviation Blvd	Redondo Beach Ave	0.5
Vanderbilt Ln	Flagler Ln	Inglewood Ave	1.0
Rindge Ln	Warfield Ave	190th St	1.9
Ralston Ln - Firmona Ave	Meyer Ln	190th St	0.9
Mathews Av	Aviation Way	Inglewood Ave	1.1
Voorhees Ave	Aviation Blvd	Inglewood Ave	1.1
Robinson St	Aviation Blvd	Inglewood Ave	1.1
Meyer Ln	Ripley Ave	190th St	0.3
Helberta Ave - El Redondo	Vincent St	Torrance Blvd	0.5
Farrell Ave	Aviation Blvd	Rindge Ln	0.3
Total Bicycle-Friendly Street Mileage			10.9

There are several opportunities and constraints to recommending new bicycle facilities in Redondo Beach. These are shown on the following page and are referenced by the numbers in Appendix I. Appendix I also presents opportunities and constraints in the South Bay region as a whole.

Opportunities include a proposed Class I bikeway on Harbor Drive, a proposed Class II bikeway on Catalina Avenue, and a proposed Class III bikeway on Prospect Avenue: See Vitality City's Livability Plan for further detail.

One constraint is "The Wall" on the Strand at the border of Hermosa Beach and Redondo Beach. This wall severs the Marvin Braude Bikeway at the Hermosa Beach-Redondo Beach border. South-bound bicyclists are forced to make a sharp 90-degree turn and are led out to the bike lanes on Harbor Drive. This plan recommends the removal of the wall and that parking lot 13 in Redondo Beach be partially utilized to accommodate a short extension of the Class I facility that will lead to Harbor Drive in a safer and more navigable way.

A second constraint is a proposed Class II bikeway on Artesia Boulevard. Artesia Boulevard between Aviation Boulevard and the city's eastern boundary has undergone an extensive streetscape improvement in recent history. These improvements included an extensively landscaped center median and bulb-outs. As such, this facility is one that can be considered in any future streetscape improvements that might be implemented along Artesia Boulevard in the years to come.

A third constraint is a proposed Class II bikeway along Redondo Beach Boulevard from Hawthorne Boulevard to Artesia Boulevard in Lawndale/Redondo Beach. This segment experiences high vehicular traffic volumes due to the South Bay Galleria, which creates a challenging environment for bicyclists. Upon plan implementation, Lawndale and Redondo Beach should work together to design a facility that provides safety for bicyclists.

Opportunities and Constraints in Redondo Beach

(See Appendix I for larger map)

Opportunity

Constraint

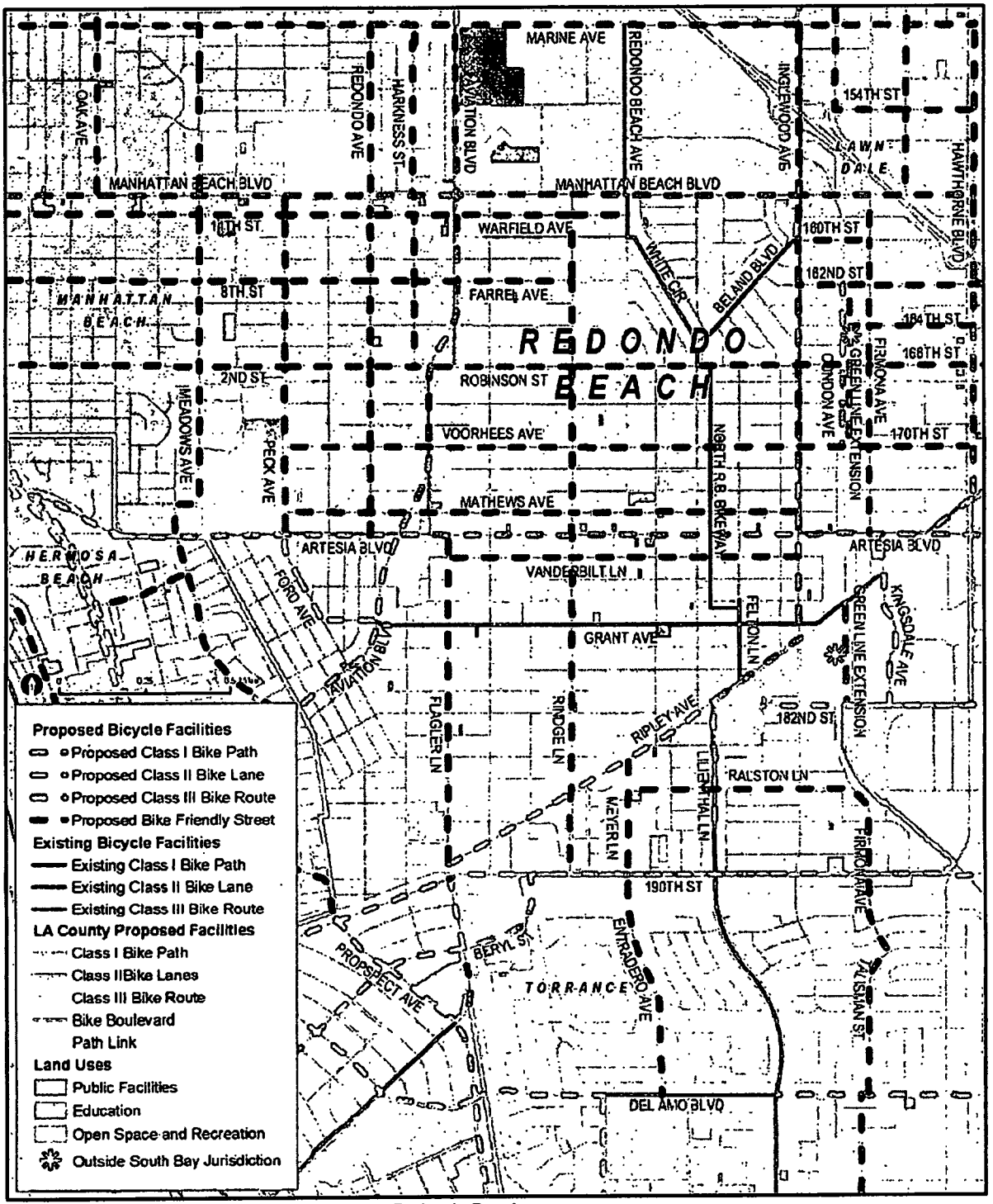


Figure 8-3: Proposed Bicycle Facilities in North Redondo Beach

South Bay Bicycle Master Plan

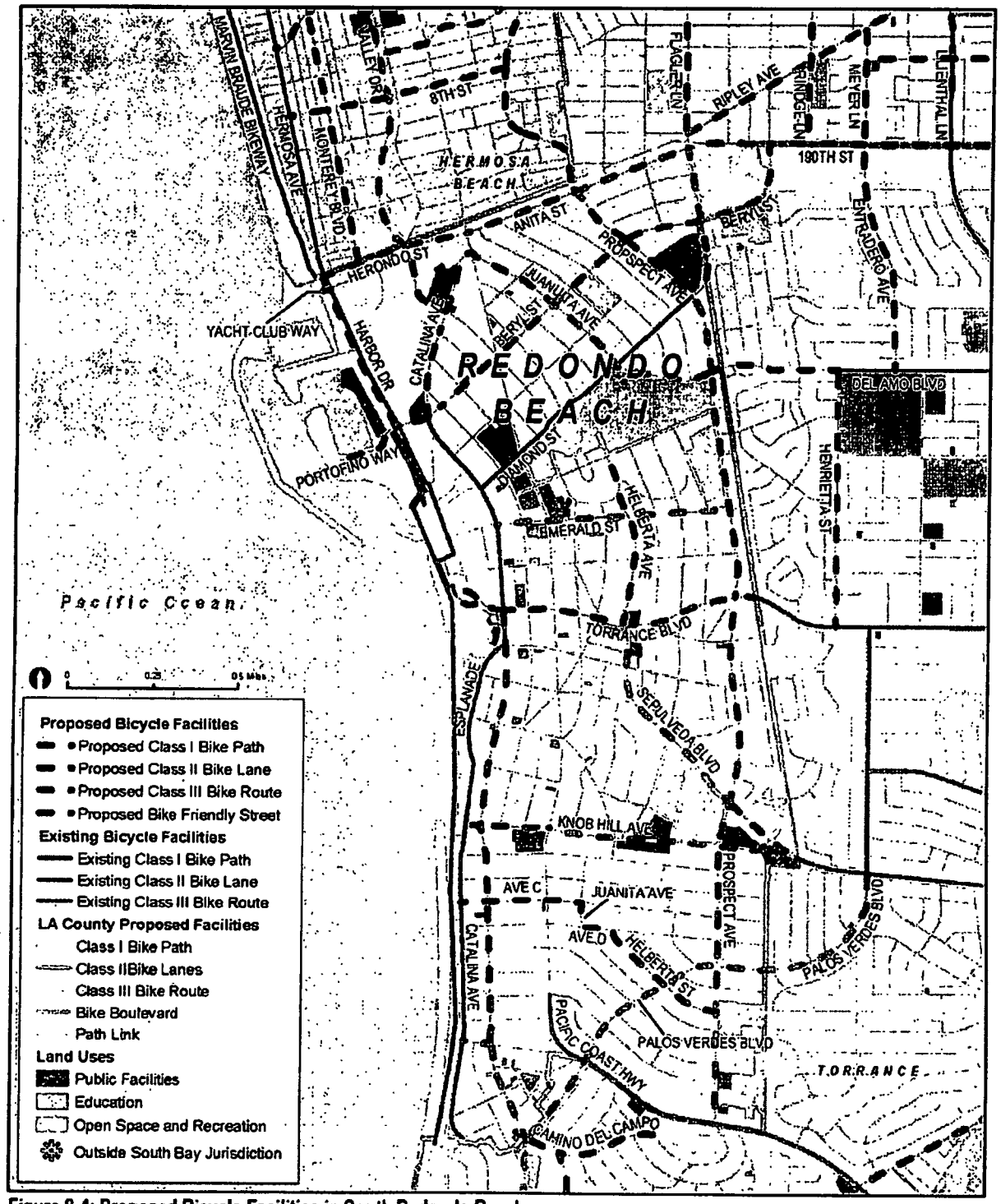
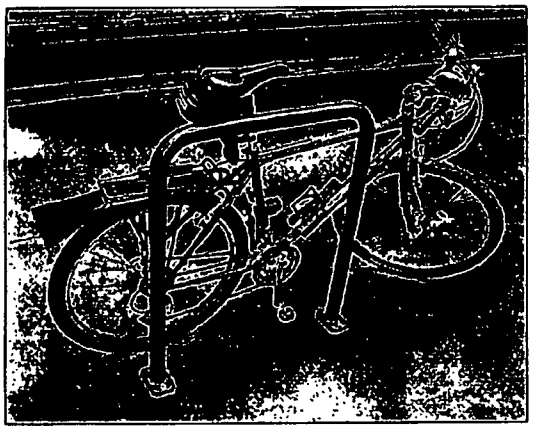


Figure 8-4: Proposed Bicycle Facilities in South Redondo Beach

8.4.2 Proposed End-of-Trip Bicycle Facilities

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



Redondo Beach should amend its Municipal Code to include requirements on types of both short- and long-term bicycle parking facility designs.

The Redondo Beach Municipal Code currently provides bicycle parking requirements for non-residential developments. The City should amend its Municipal Code to include bicycle parking requirements at new and retrofitted multi-family residential, commercial, office, and mixed-use developments of all sizes. The Municipal Code should also require bicycle parking quantities based on square footage of developments or by number of employees/residents to adequately address the bicycle demand at each development.

Redondo Beach should also amend its Municipal Code to include requirements on types of both short- and long-term bicycle parking facility designs, which are shown in Appendix J. Bicycle rack designs should include racks that provide two points of contact with the bicycle so that it can be locked from both the front wheel/frame and the rear wheel. This will provide a high degree of security and support for the bicycle. Long-term bicycle parking should be in the form of:

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

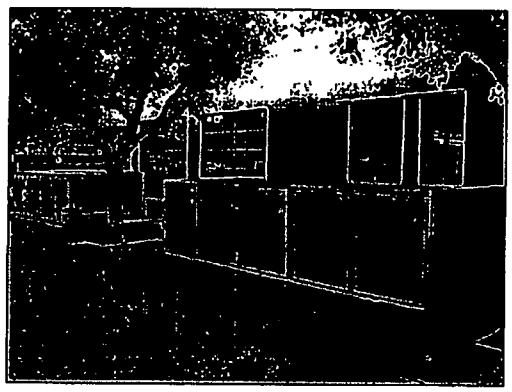
When people commute by bicycle they often sweat or become dirty from weather or road conditions. Providing changing and storing facilities encourages commuters to travel by bicycle because they have a place to clean up before work or school. Redondo Beach's Municipal Code should require all new mid-to-large employers, offices, and businesses to supply changing and storing facilities, such as by providing showers and clothes lockers within the

buildings or arranging agreements with nearby recreation centers to allow commuters to use their facilities.

Proposed end-of-trip bicycle facilities in Redondo Beach are shown in Figure 8-5 and Figure 8-6. The City should continue to provide short-term bicycle parking in the form of bicycle racks at all major trip attractors, including commercial and civic activity centers and transit hubs, and ensure that an adequate supply is available. The City should prioritize the installation of bicycle parking throughout the city, with particular attention directed at the following locations:

- Parks
- Schools
- Commercial/office areas
- Civic/government buildings
- Public transit stations

High-activity locations such as transit stations, offices, and major commercial districts should provide more secure, long-term bicycle parking options, such as bicycle lockers. Any future transit hubs and intermodal facilities should include secure bicycle parking areas as part of their design. Secure bicycle parking areas that provide services, such as bicycle rentals and repair, should be considered at major transit stations and commuter destinations.



High-activity locations such as transit stations, offices, and major commercial districts should provide more secure, long-term bicycle parking options, such as bicycle lockers.

8.5 Project Costs

This section presents the cost to implement the proposed bicycle network in Redondo Beach.

8.5.1 Cost Estimates

Table 8-13 displays the planning-level capital cost assumptions for each facility type proposed in this plan and Table 8-14 displays the cost to implement the proposed network in the City of Redondo Beach from the cost assumptions.[24] Cost assumptions are based on LA County averages and may vary depending on environmental conditions of a given facility, unforeseen construction cost variations, and similar considerations. Cost assumptions exclude specific treatments that may vary by location and must be determined by field review, such as traffic calming measures, restriping of existing travel lanes, and sign removal.

[24] Table 8-14 assumes the cost of implementing Class III Bicycle Routes with Sharrows based on the policies presented in Chapter 2

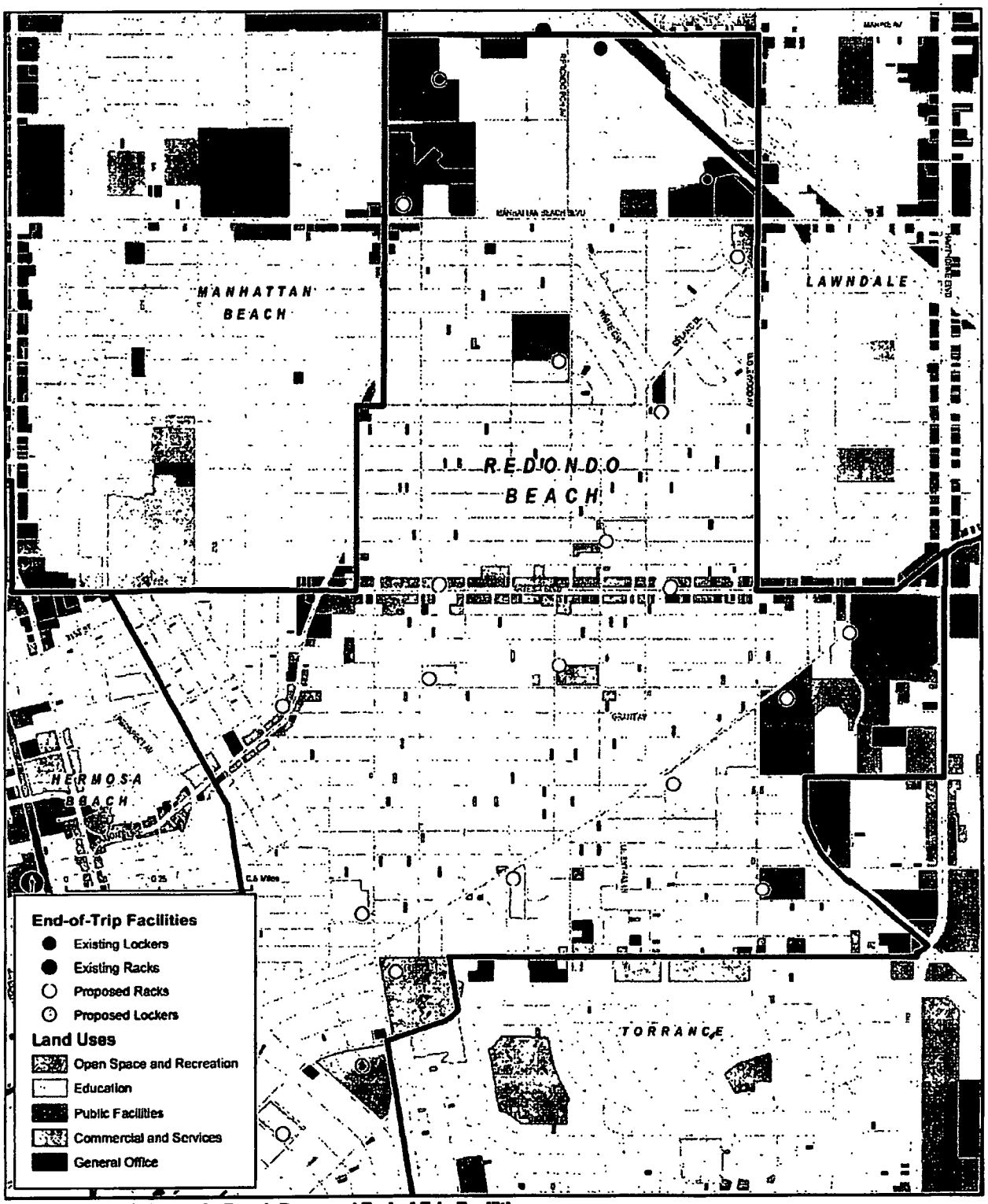


Figure 8-5: North Redondo Beach Proposed End-of-Trip Facilities

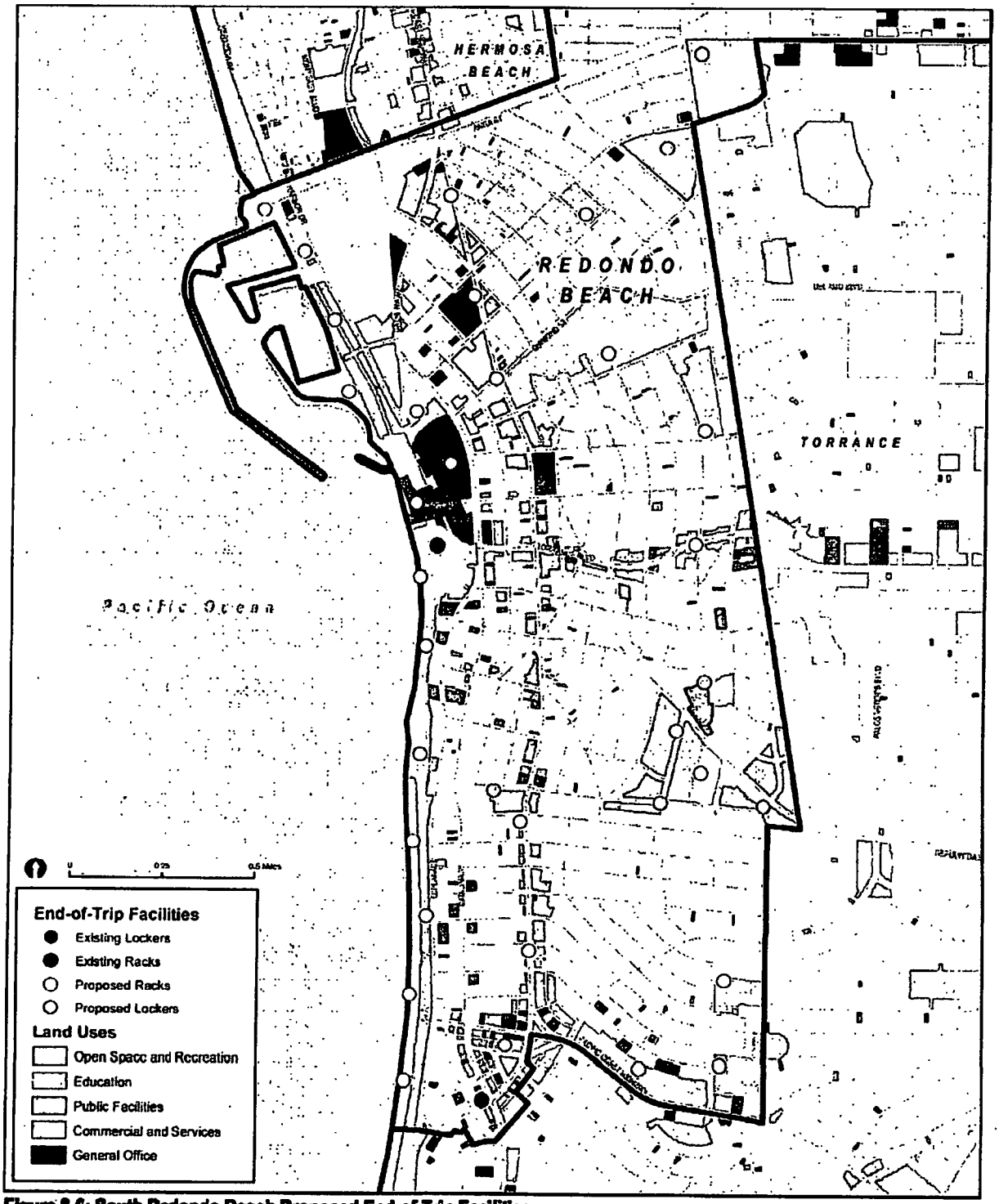


Figure 8-6: South Redondo Beach Proposed End-of-Trip Facilities

Cost assumptions do not include traffic signal improvements, such as changes to phasing, recalibration of loop detectors, or installation of push buttons. For detailed cost estimations, refer to the project sheets presented in Section 8.7.

Table 8-13: Unit Cost Estimates for Proposed Bicycle Facility Types

Facility Type	Description	Estimated Cost
Class I Bicycle Path	Paving, striping and signage	$800,000 / mile
Class II Bicycle Lanes (two sides)	Striping, signage, and travel lane restriping	$40,000 / mile
Class III Bicycle Routes (two sides)	Signage	$15,000 / mile
Class III Bicycle Routes (two sides) with sharrows	Pavement markings and signage	$25,000 / mile
Bicycle Friendly Street	Pavement markings, signage, and limited traffic calming	$30,000 / mile

Table 8-14: Estimated Cost of Proposed Bicycle Network

Facility Type	Unit Cost per mile	Length of Proposed Network (miles)	Cost
Bicycle Path	$800,000	0.8	$ 672,000
Bicycle Lane	$40,000	15.9	$ 636,000
Bicycle Route with sharrows	$25,000	10.4	$ 259,000
Bicycle-Friendly Street	$30,000	10.9	$ 328,000
Total		**38.0**	**$ 1,895,000**

8.6 Project Prioritization

A prioritized list of bicycle projects will help guide the City of Redondo Beach in implementing the proposed bicycle facilities presented in this Plan. Each proposed facility discussed in Section 8.4.1 is grouped into projects based on feasibility of implementation. Table 8-15 presents the prioritized projects based on the prioritization methodology displayed in Appendix K. Each criterion contains information about a facility and its ability to address an existing or future need in Redondo Beach. The projects ranked the highest should be implemented first.

Table 8-15: Redondo Beach Prioritized Bicycle Projects

Facility Type*	Facility Name	From	To	Gap Closure	Connectivity: Existing	Connectivity: Regional	Connectivity: Activity Centers	Connectivity: Multi-Modal	Safety	Public Input	Underserved Communities	Project Cost	Parking Displacement	Total
BL	Prospect Ave	Marine Ave	East City Limits	6	6	0	4	0	2	2	2	1	2	25
BP	Harbor Dr	Herondo St	Existing Bike Path	6	6	0	4	0	1	2	2	0	2	23
BL	Inglewood Ave	Marine Ave	Ripley Ave	0	6	0	4	2	2	2	2	0	2	20
BL	Artesia Blvd	West City Limits	Hawthorne Blvd	0	6	0	4	4	2	2	1	0	0	19
BL	Catalina Ave	Torrance Blvd	Palos Verdes Blvd	3	6	0	2	0	2	2	2	1	1	19
BL	Juanita Ave - Del Amo Blvd	Diamond St	East City Limits	3	6	0	2	0	1	2	1	2	2	19
BR	Ripley Ave	Flagler Ln	Lilienthal Ln	3	6	0	4	0	0	0	1	2	2	18
BL - BR	Knob Hill Ave	Esplanade	Sepulveda Blvd.	3	6	0	4	0	2	1	1	1	0	18
BL	Marine Ave	Aviation Blvd	Inglewood Ave	0	6	0	0	4	1	2	2	1	2	18
BL	Ripley Ave	Lilienthal Ln	Inglewood Ave	3	6	0	4	0	0	0	1	2	2	18
BL	Beryl St	Harbor Dr	190th St	3	6	0	4	0	1	1	1	1	1	18
BL	Prospect Ave	North City Limits	Pacific Coast Highway	3	6	0	0	0	2	2	1	1	2	17
BL	Catalina Ave	Pacific Coast Highway	Beryl St	3	6	0	0	0	0	2	2	2	2	17
BL	Sepulveda Blvd	Prospect Ave	West City Limits.	3	6	0	2	0	1	2	1	2	0	17
BL	Avenue I	Esplanade	Catalina Ave	3	6	0	2	0	1	0	1	2	2	17
BL	Lilienthal Ln	Ripley Ave	Fisk Ln	6	6	0	0	0	0	0	1	2	2	17
BFS	Warfield Ave	Aviation Blvd	Redondo Beach Ave	6	6	0	0	0	0	0	1	2	2	17
BR	Beland Bl - Phelan Ln	Barkley Ln	White Cir	6	6	0	0	2	0	0	1	2	0	17
BL	Manhattan Beach Blvd	Aviation Blvd	Inglewood Ave	0	6	0	0	2	2	2	1	1	2	16

Facility Type*	Facility Name	From	To	Gap Closure	Connectivity: Existing	Connectivity: Regional	Connectivity: Activity Centers	Connectivity: Multi-Modal	Safety	Public Input	Underserved Communities	Project Cost	Parking Displacement	Total
BR - BFS - BP - BFS	Flagler Ln - Diamond St	Anita St	Prospect Ave	3	6	0	4	0	2	1	0	0	0	**16**
BR	Emerald St	Catalina Ave	Prospect Ave	3	3	0	0	0	1	0	2	2	2	**13**
BR	182nd St	Felton Ave	Hawthorne Blvd	0	0	0	4	2	1	0	2	2	2	**13**
BR	Juanita Ave	Pacific Coast Highway	Diamond Street	3	6	0	0	0	1	0	1	2	0	**13**
BL	Aviation Blvd	Marine Ave	Harper Ave (City Limit)	0	6	0	0	2	0	2	1	1	1	**13**
BFS	Ave C - Juanita Ave - Ave D - Helberta Ave	Esplanade	Prospect Ave	3	6	0	0	0	0	0	1	1	2	**13**
BFS	Vanderbilt Ln	Flagler Ln	Inglewood Ave	0	6	0	0	0	2	1	1	1	2	**13**
BFS	Rindge Ln	Warfield Ave	190th St	0	6	0	2	0	1	0	1	1	2	**13**
BR	Kingsdale Ave	Artesia Blvd	182nd St	0	0	0	4	4	0	0	0	2	2	**12**
BL	190th St	Blossom Ln	East City Limits	0	6	0	2	0	2	0	1	1	0	**12**
BL	Redondo Beach Blvd	Artesia Blvd	Hawthorne Blvd	0	0	0	4	2	0	2	1	2	1	**12**
BR	Sepulveda Blvd	Torrance Blvd	Prospect Ave	0	3	0	0	0	1	2	1	2	2	**11**
BFS	Ralston Ln - Firmona Ave	Meyer Ln	190th St	0	6	0	0	0	0	1	1	1	2	**11**
BFS	Mathews Av	Aviation Way	Inglewood Ave	0	6	0	0	0	0	1	1	1	2	**11**
BR	Anita St	Pacific Coast Highway	Blossom Ln	0	3	0	0	0	2	0	1	2	2	**10**
BFS	Voorhees Ave	Aviation Blvd	Inglewood Ave	0	6	0	0	0	0	0	1	1	2	**10**
BFS	Robinson St	Aviation Blvd	Inglewood Ave	0	6	0	0	0	0	0	1	1	2	**10**
BR	Yacht Club	West end	Harbor Dr	0	3	0	0	0	0	0	2	2	2	**9**

Facility Type*	Facility Name	From	To	Gap Closure	Connectivity: Existing	Connectivity: Regional	Connectivity: Activity Centers	Connectivity: Multi-Modal	Safety	Public Input	Underserved Communities	Project Cost	Parking Displacement	Total
	Way													
BR	Portofina Way	West end	Harbor Dr	0	3	0	0	0	0	0	2	2	2	9
BR	Ford Ave - Herrin St - Ormond Ln	Artesia Blvd	Aviation Blvd	0	3	0	0	0	1	0	1	2	2	9
BL	Herondo St	Harbor Dr	Pacific Coast Highway	3	0	0	0	0	0	0	2	2	2	9
BFS	Meyer Ln	Ripley Ave	190th St	0	3	0	0	0	0	0	1	2	2	8
BFS	Helberta Ave - El Redondo	Vincent St	Torrance Blvd	0	3	0	0	0	0	0	1	2	2	8
BR	Francisca Ave	Herondo St	Catalina Ave	0	3	0	0	0	0	0	0	2	2	7
BR	Palos Verdes Blvd	South City Limits	East City Limits	0	0	0	0	0	2	0	1	2	2	7
BFS	Farrell Ave	Aviation Blvd	Rindge Ln	0	0	0	0	0	0	0	1	2	2	5

*BP=Bike Path, BL=Bike Lane, BR=Bike Route, BFS=Bike Friendly Street

8.7 Project Sheets

The City of Redondo Beach selected two of its top priority projects from the previous table for more detailed concept designs. Project sheets are shown on the following pages and include:

- A review of the existing site conditions
- Site challenges
- Recommended improvements
- Estimated cost
- Photos
- Aerial images
- Concept graphics

Redondo Beach Project #1: Catalina Avenue (Torrance Boulevard to Palos Verdes Boulevard

Project Site

Catalina Avenue is a north-south corridor located in the western portion of the City of Redondo Beach. It connects to existing bike lanes on Catalina Avenue to the north and proposed facilities in the City of Torrance to the south. Catalina Avenue provides access to Veterans Park, a variety of residential and commercial uses, and Downtown Redondo Beach. There is existing on-street parking along most of Catalina Avenue that is highly utilized.

Catalina Avenue has a posted speed limit of 35 mph. From Torrance Boulevard to Avenue I, Catalina Avenue has two travel lanes in each direction and on-street parallel parking. Between Torrance Boulevard and Pearl Street, Catalina Avenue decreases from a roadway width of approximately 86 feet to 60 feet, including a center median, to accommodate turn pockets at Torrance Boulevard. From Pearl Street to Knob Hill Avenue, the roadway width drops to approximately 55 feet. Between Avenue H and Avenue I, the roadway width increases to approximately 78 feet. Catalina Avenue has one travel lane in each direction south of Avenue I and there is a mix of on-street parallel and angled parking. The roadway width is approximately 78 feet.

Project Challenges

This segment of Catalina Avenue has no existing bicycle facilities, thus bicyclists must share the road with vehicular traffic. On-street parking where the roadway narrows reduces the available space for bicycle facilities. Angled parking creates potential conflicts between bicyclists and motorists because it is difficult for drivers to see bicyclists when backing out of parking spaces.

Proposed Improvements

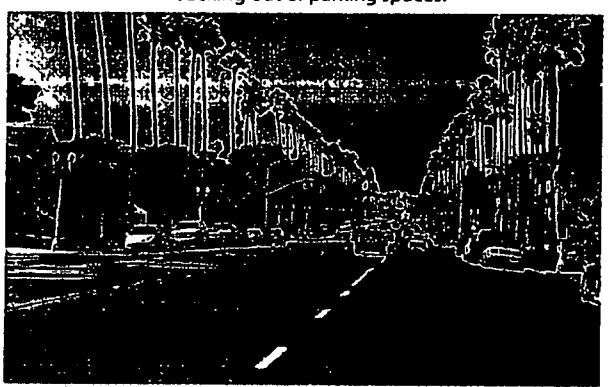
- Stripe 1.6 miles of Class II Bike Lanes and signs
- Add bicycle loop detectors and pavement markings at all signalized intersections
- Conduct a road diet to convert cross-section to one travel lane in each direction and a center turn lane between Torrance Boulevard and Knob Hill Avenue (0.7 miles)
- Convert angled parking to head out angled parking south of Avenue I

Estimated Cost

$200,000

Photos

Angled parking creates potential conflicts between bicyclists and motorists because it is difficult for drivers to see bicyclists when backing out of parking spaces.

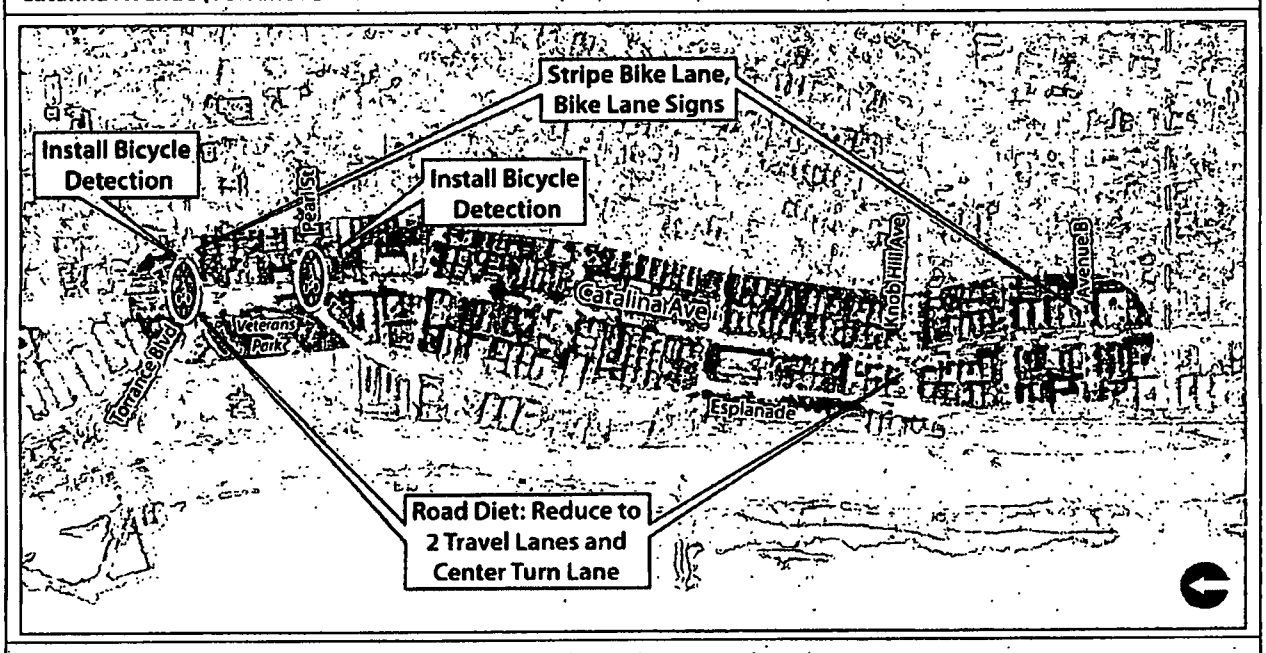


Removing a travel lane north of Knob Hill Avenue will allow for bicycle lanes without removing highly utilized parking.

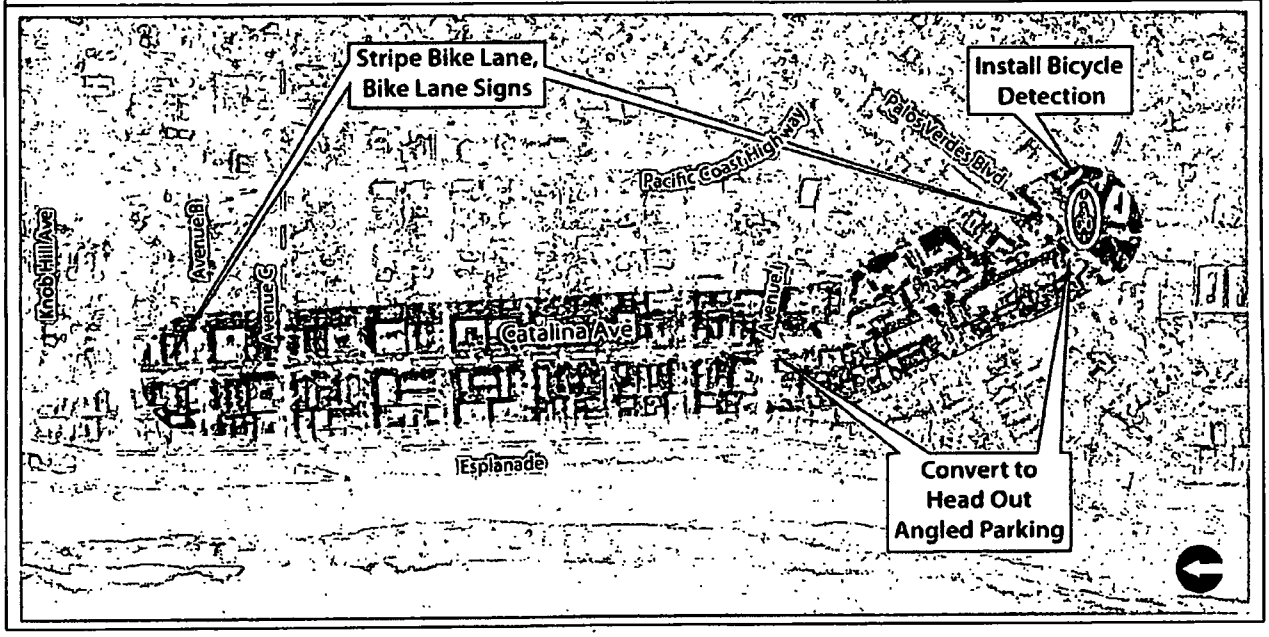
Proposed bike lanes on Catalina Avenue will connect with existing bike lanes on Catalina Avenue north of Torrance Blvd.

Aerial Map and Concept Graphics: Catalina Avenue

Catalina Avenue (Torrance Boulevard to Avenue B)

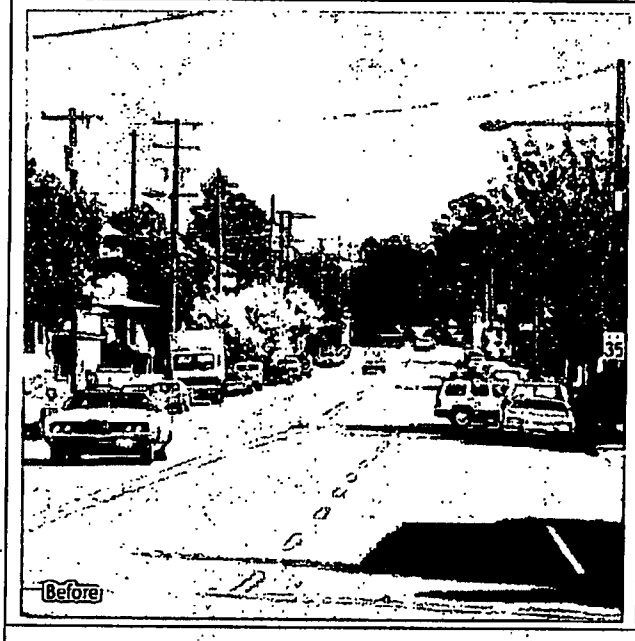


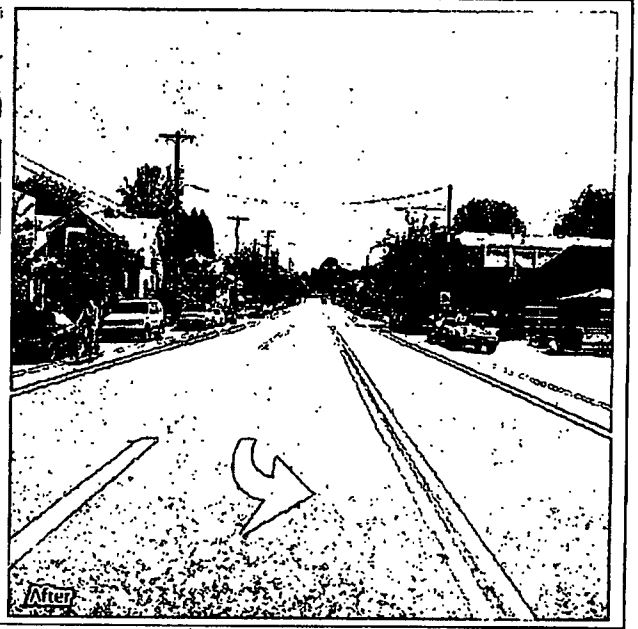
Catalina Avenue (Avenue B to Palos Verdes Boulevard)



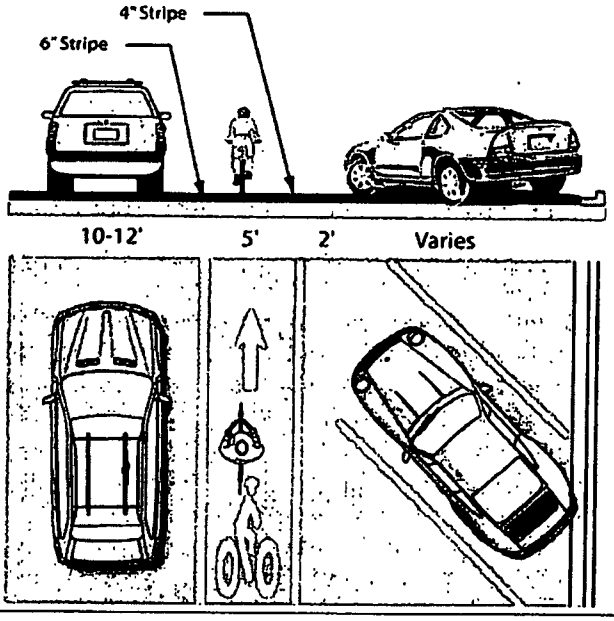
Aerial Map and Concept Graphics: Catalina Avenue

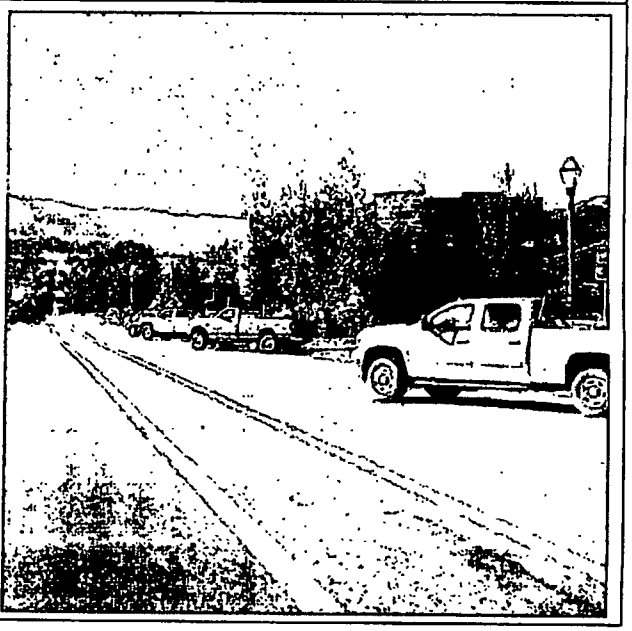
Road Diet (4 to 3 Lanes)





Head Out Angled Parking





Redondo Beach Project #2: Prospect Avenue (Anita Street to Pacific Coast Highway)

Project Site

Prospect Avenue is a north-south road located in the south-eastern portion of the City of Redondo Beach. It connects to a proposed bike friendly street on Prospect Avenue in Hermosa Beach to the north and to an existing Class III Bike Route in Torrance to the south. Prospect Avenue provides access to Redondo Shores High School, Parras Middle School, and Tulita School. There is existing on-street parking along much of Prospect Avenue on one or both sides of the street that is moderately utilized. The posted speed limit is 35 mph.

Between Anita Street and Torrance Boulevard, Prospect Avenue has two lanes in each direction and a center turn lane. The roadway width ranges from approximately 61 to 65 feet. North of Del Amo Street, there is only on-street parking on the west side of Prospect Avenue. Between Beryl Street and Diamond Street, there is a center median. From Torrance Boulevard to Pacific Coast Highway, there are two travel lanes in each direction, and between Camino Real and Knob Hill Avenue, there is also a center turn lane. From Torrance Boulevard to Palos Verdes Boulevard, the roadway width of Prospect Avenue is approximately 62 to 64 feet. South of Palos Verdes Boulevard to Avenue E, the roadway width drops to approximately 46 feet and has no on-street parking. From Avenue E to Pacific Coast Highway, the roadway widens to approximately 55 feet and has parking on both sides of the street.

Project Challenges

Prospect Avenue has no existing bicycle facilities, which creates potential conflicts between bicyclists and motorists. There are few existing treatments to create a safe bicycling environment for children riding to school. The existing cross-section configuration limits the space available to install bicycle facilities.

Proposed Improvements

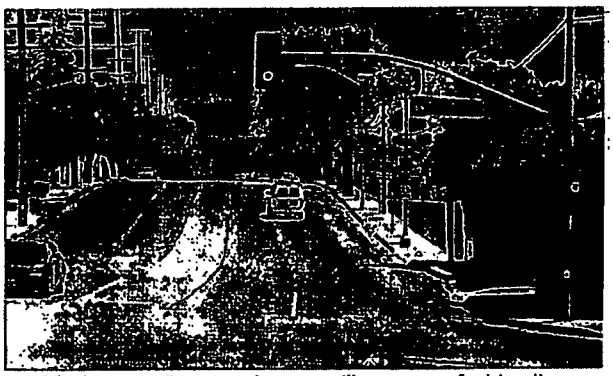
- Stripe 3 miles of Class II Bike Lanes and signs
- Add bicycle loop detectors and pavement markings at all signalized intersections
- Conduct a road diet to convert cross-section to one travel lane in each direction and a center turn lane (3 miles)
- Add an additional parking lane where space permits

Estimated Cost

$625,000

Photos

Looking south on Prospect Avenue. Removing a travel lane in each direction will provide adequate space for bike lanes.

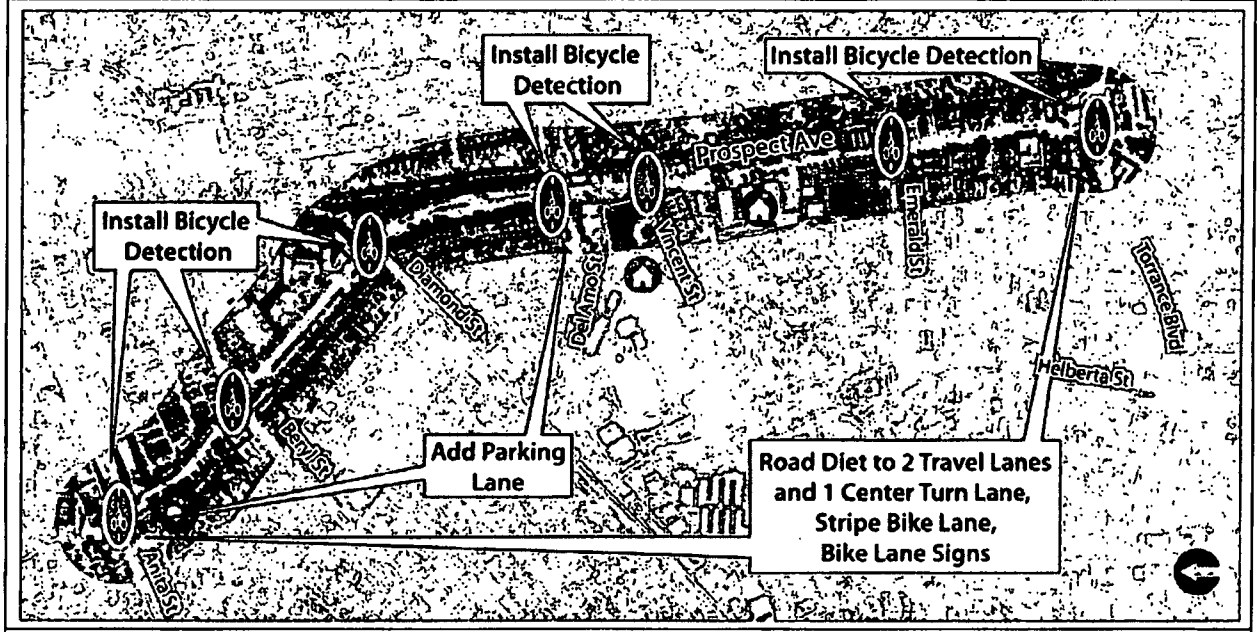


Bike lanes on Prospect Avenue will create a safer bicycling environment for children riding to school.

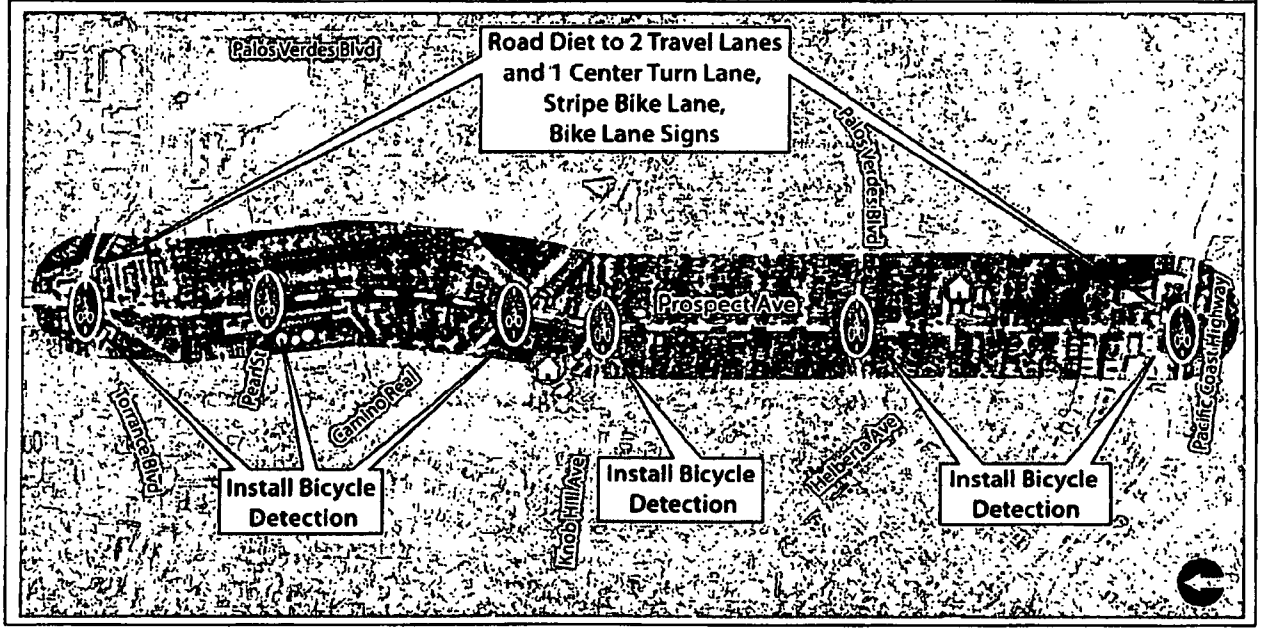
Bicycle loop detectors at signalized intersections will allow bicyclists to trigger the signal when no vehicles are present.

Aerial Map and Concept Graphics: Prospect Avenue

Prospect Avenue (Anita Street to Torrance Boulevard)



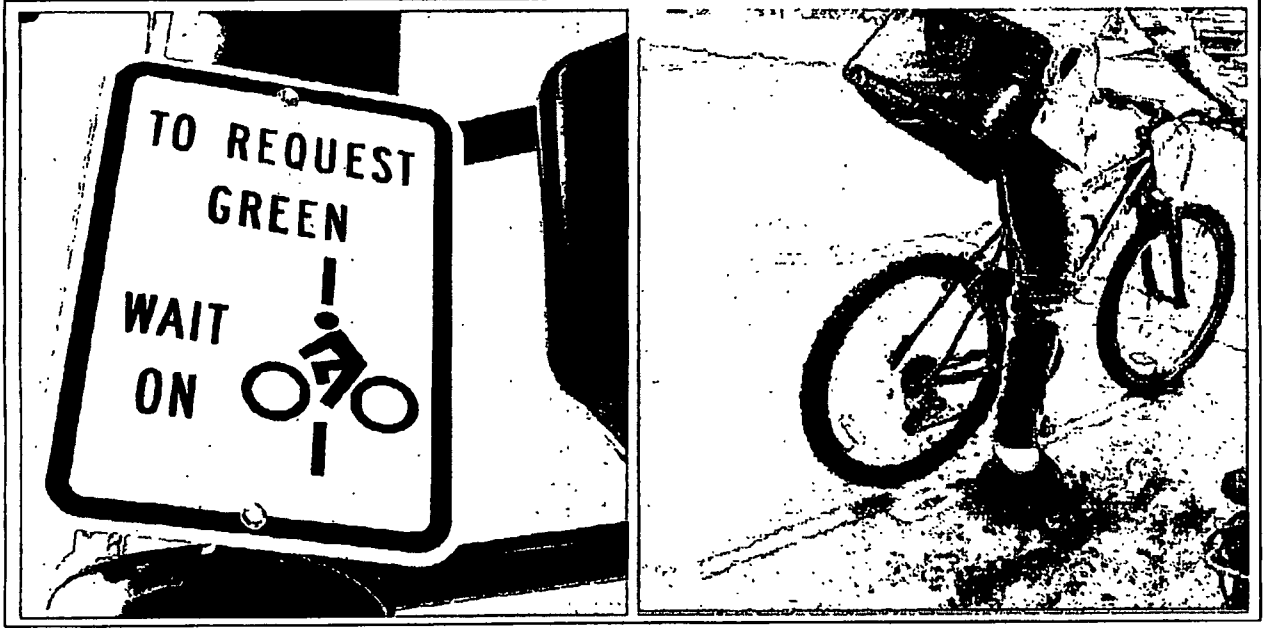
Prospect Avenue (Torrance Boulevard to Pacific Coast Highway)



Aerial Map and Concept Graphics: Prospect Avenue

Bike Lane Adjacent to On-street Parking and Buffered Bike Lane

Bicycle Loop Detectors



Chapter 10

Recommended Programs

10 Recommended Programs

Creating a region that supports and encourages its residents to bicycle involves more than just infrastructure improvements. Each of the seven participating cities in the South Bay should consider more than bicycle facility improvements and develop or participate in programs that educate bicyclists and motorists, raise awareness about opportunities to bike, and enforce the laws that keep bicyclists safe. The participating cities can encourage increased bike ridership by supporting programs that incentivize bicyclists through encouragement and improved convenience, safety, and education

This chapter recommends programs for the seven South Bay participating cities that will educate people about bicyclists' rights and responsibilities, and safe bicycle operation, as well as encourage residents to bicycle more frequently. This chapter should be used as a toolbox: each city should draw upon its unique resources to choose the programs that best suit it. For example, partnership with active community groups can make group bike rides successful, while strong relationships with local businesses enable bike-friendly business programs to work. The cities could also work together to make regional efforts at promoting bicycling in the South Bay, such as through combined efforts in managing bicycle awareness campaigns.

Bicycle skills courses can improve cyclist confidence and safety by teaching effective bicycling techniques.

Photo Source: Dan Burden/WALC Institute for Vitality City

10.1 Education Programs

Education programs enable bicyclists, pedestrians, and motorists to understand how to travel safely in the roadway environment according to the law. Education programs are available in an array of mediums, from long-term courses with detailed instruction to single sessions focusing on a specific topic. Curriculums should be appropriate to the target audience and to the format of instruction.

10.1.1 Bicycle Skills Courses

Target Audience: General public

Most bicyclists do not receive comprehensive instruction on safe and effective bicycling techniques, laws, or bicycle maintenance. Bike skills training courses are an excellent way to improve both bicyclist confidence and safety. The League of American Bicyclists (LAB) developed a comprehensive bicycle skills curriculum which is considered the national standard for adults seeking to improve

their on-bike skills. The classes available include bicycle safety checks and basic maintenance, basic and advanced on-road skills, commuting, and driver education.[27]

LACBC currently offers adult LAB courses taught by League Certified Instructors. The South Bay participating cities could partner with the LACBC or other non-profit organizations to expand course offerings to target all ages, and incorporate them into recreation center programs or other city programs. Bicycle skills courses that target children should to the extent feasible be fully integrated into school curriculum through PE classes, general assembly, and other means of instruction. The cities could also look for other possible groups to partner with for educational purposes.

10.1.2 Drivers Education Training

Target Audience: General public

Interacting with bicyclists on the road is often not included in training for new drivers. Teaching motorists how to share the road from the start can help reduce potential conflicts between drivers and bicyclists. The League of American Bicyclists (LAB) offers a three-hour motorist education classroom session that teaches participants topics including roadway positioning of bicyclists, traffic and hand signals, principles of right-of-way, and left and right turn problems.[28] The South Bay participating cities could encourage instructors of driver education courses to add this class to their curriculum. The cities could also work with the Department of Motor Vehicles and Superior Court to explore opportunities to offer this class as a diversion course for motorists who receive citations for reckless driving or as a training session for local professional drivers.

Bicycle Rodeos set up stop signs, traffic cones, and other props to simulate the roadway environment and teach students basic bicycling techniques.

10.1.3 Bicycle Rodeos

Target Audience: Children

Bicycle Rodeos are individual events that help students develop basic bicycling techniques and safety skills through the use of a bicycle safety course. Rodeos use playgrounds or parking lots set-up with stop signs, traffic cones, and other props to simulate the roadway environment. Students receive instruction on how to

[27] Additional program information is available online at www.bikeleague.org/programs/education/courses.php.

[28] http://www.bikeleague.org/programs/education/courses.php#motorist

maneuver, observe stop signs, and look for on-coming traffic before proceeding through intersections. Bicycle Rodeos also provide an opportunity for instructors to ensure children's helmets and bicycles are appropriately sized. Events can include free or low-cost helmet distribution and bike safety checks.

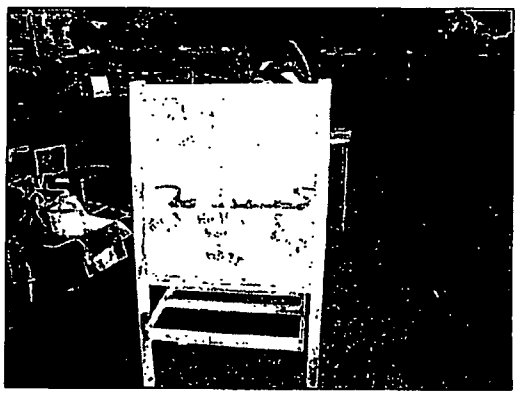
Trained adult volunteers, local police, and the fire department can administer Rodeos. Bicycle Rodeos can be stand-alone events or can be incorporated into health fairs, back-to-school events, and Walk and Bike to School days.

The Cities of El Segundo, Manhattan Beach, and Redondo Beach currently conduct Bicycle Rodeos, though these could be expanded to occur at all elementary and middle schools at least twice per year. Bicycle Rodeos also occurred in the City of Torrance in 2011. Each City could begin organizing Bicycle Rodeos biannually at all elementary and middle schools. Bicycle Rodeos should also be held at community events, such as Earth Day celebrations.

10.1.4 Share the Path Campaign

Target Audience: Bike path users

Conflicts between path users can occur on popular, well-used path systems. "Share the Path" campaigns promote safe and courteous behavior among all users. These campaigns typically involve distribution of bicycle bells and other bicycle paraphernalia, and brochures with safety tips, and maps at bicycle rides and other public events.



"Share the Path" campaigns promote safe and courteous behavior among all users.

Effective "Share the Path" campaigns generally involve the following:

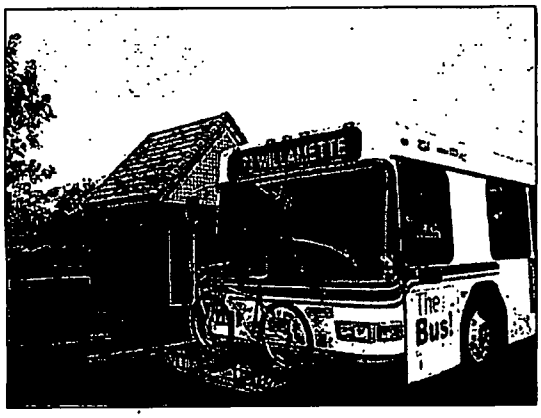
- Developing a simple, clear Share the Path brochure for distribution through local bike shops and wherever bike maps are distributed.
- Hosting a bicycle bell giveaway event on a popular shared-use path. Volunteers and agency staff can distribute bells to bicyclists and "Share the Path" brochures to other path users, and answer users' questions. Other volunteers may walk along the path and thank bicyclists who use their bells when passing.
- Conducting media outreach before a bell giveaways event. The event organizers should publicize positive stories about bicycling and use the event as an opportunity for marketing the path system. Media outreach can include

public service announcements promoting courtesy and respect among all path users, and encouraging users to share the path safely.

Though not all seven of the participating cities currently have a bicycle path within their jurisdictions, hosting a "Share the Path" campaign can educate residents to ride safely so that they will be prepared when a path is constructed in the future.

10.1.5 Bicycles on Transit Campaign

Target Audience: Commuters



South Bay participating cities that operate transit services could begin a campaign so that bicyclists will feel comfortable combining their trips with transit.

A common statement from bicyclists is that they do not know how to combine their bicycle trips with transit, whether it is because they are not familiar with how to use bicycle racks on buses or they do not know which transit vehicles accommodate bicycles. The Los Angeles County Metropolitan Transportation Authority (LA Metro) posts information on its website that includes how to load and unload bicycles onto buses, when bicycles are allowed on trains, and which stations have bicycle parking.[29] South Bay participating cities that operate transit services could begin similar educational campaigns so that bicyclists will feel comfortable combining their trips with transit.

As part of the campaign, cities could distribute informational pamphlets, such as bicycle rack instructions and transit maps, at community events. They could also have sample bike racks and bicycles that members of the community can practice with.

10.2 Public Awareness Campaigns and Marketing

Campaigns that make the public aware of bicycling and market it as a viable form of transportation help to increase the numbers of riders. In turn, bicycling becomes a safer form of transportation because people expect to see bicyclists on the road.

10.2.1 Bikeway Maps

One of the most effective ways of making people aware of bicycling as a transportation alternative is to distribute maps and guides to show that bicycle infrastructure exists. A map can also demonstrate the ease in accessing different parts of the community by bike, and highlight unique areas, shopping districts, or recreational areas. The

[29] http://www.metro.net/around/bikes/bikes-metro/

South Bay participating cities could partner to develop a region-wide map to show connectivity between the South Bay cities, which could be available on paper and/or online.

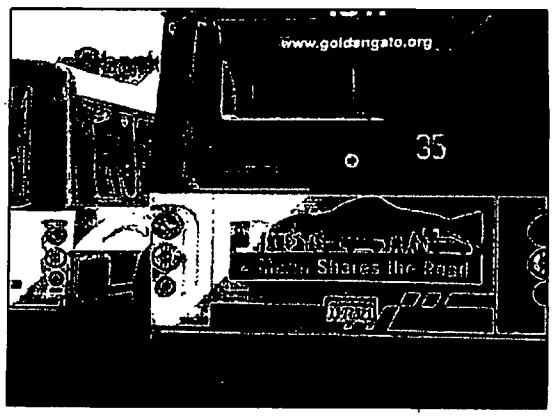
Schools may create specialized biking and walking maps to direct students to walk and bicycle along the safest routes to school, such as those used in Manhattan Beach. These specialized maps may include arrows to indicate the routes and show stop signs, signals, crosswalks, sidewalks, trails, overcrossings, and crossing guard locations surrounding the school. The maps could focus on the attendance boundary of a particular school. Routes should take advantage of low volume residential streets and off-street facilities such as bike paths, sidewalks, and pedestrian bridges.

10.2.2 Community Bikeway Adoption

Community Bikeway Adoption programs resemble the widely instituted Adopt-a-Highway programs throughout the country. These programs identify local individuals, organizations, or businesses interested in "adopting" a bikeway, walkway, or shared-use path. "Adopting" a facility means that a person or group is responsible for the facility's maintenance, either through direct action or funding the City's maintenance of that facility. For example, members of a local recreation group may volunteer every other weekend to sweep a bikeway and identify larger maintenance needs. Alternatively, a local bike shop may adopt a bikeway by providing funding for the maintenance costs. Some adopted bikeways post sponsors' names on bikeway signs to display their commitment to bicycling.

10.2.3 Share the Road Education Campaign

A Share the Road campaign educates motorists, bicyclists and pedestrians about their legal rights and responsibilities on the road, and the need for increased courtesy and cooperation among all users. Share the Road campaigns often hold periodic traffic checkpoints along roadways with concentrated bicycle and pedestrian activity. Motorists, bicyclists and pedestrians stop at these checkpoints to receive a Share the Road flyer from police officers and can give feedback to officers regarding the campaign. Checkpoints can also occur along local bikeways and paths. Public service announcements on radio and television can help promote



Share the Road campaigns educate motorists, bicyclists and pedestrians about their legal rights and responsibilities on the road.

the Share the Road campaign. The Marin County Bicycle Coalition offers an example of a successful Share the Road campaign.[30]

10.3 Enforcement Programs

Motorists, pedestrians and bicyclists alike are sometimes unaware of each other's rights as they travel city streets. Enforcement programs target unsafe bicyclist and motorist behaviors and enforce laws that reduce bicycle/motor vehicle collisions and conflicts. Enforcement fosters mutual respect between roadway users and improves safety. These programs generally require coordination between law enforcement, transportation agencies, and bicycling organizations. Educating the public through enforcement policies will supplement the physical improvements made in the South Bay region.

10.3.1 Directed Enforcement

Target Audience: Bicyclists and motorists

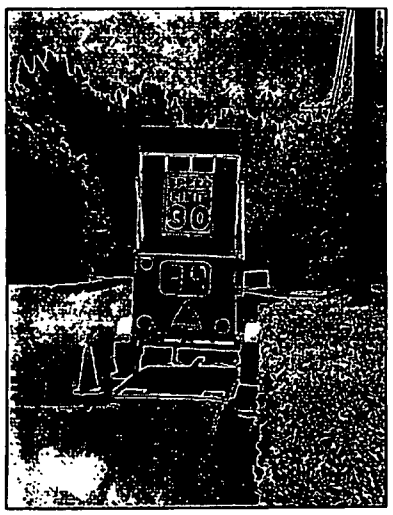
Traffic enforcement agencies enforce laws pertaining to bicycles as part of the responsible normal operations. Directed enforcement is one way to publicize bicycle laws in a highly visible and public manner. Examples of directed enforcement actions include: intersection patrols, handing out informational sheets to motorists, bicyclists and pedestrians; and enforcing speed limits and right-of-way. This can help with issues prevalent in the South Bay, such as motorists parking in the bicycle lanes, and bicyclists running red lights and stop signs.

10.3.2 Speed Radar Trailer/Speed Feedback Signs

Target Audience: Motorists

Speed radar trailers can help reduce traffic speeds and enforce speed limits in areas with speeding problems. Police set up an unmanned trailer that displays the speed of approaching motorists along with a speed limit sign. Speed trailers may be effective on busier arterial roads without bikeway facilities or near schools with reported speeding. The speed trailer's roadway placement should not obstruct bicycle traffic.

Speed trailers work as both an educational and enforcement tool. By itself, the unmanned trailer educates motorists about their current speed in relation to the speed limit.



Speed radar trailers can help reduce speeds.

[30] www.marinbike.org/Campaigns/ShareTheRoad/Index.shtml.

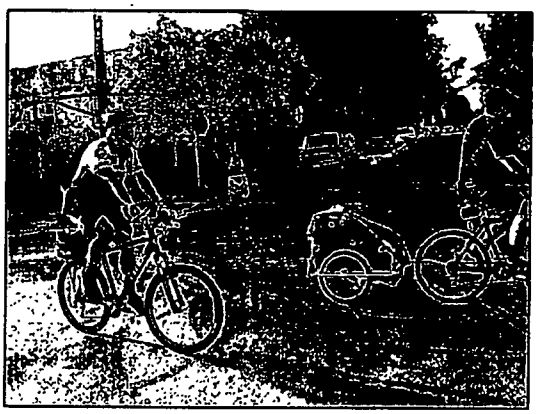
Speed trailers can transport easily to streets where local residents complain about speeding problems. The cities' police departments could station officers near the trailer to issue speeding citations when speeding continues to occur.

City staff could provide the management role for this program, working with the public to determine which locations are in most need. This program can be administered randomly, cyclically, or as demand necessitates because of the speed trailers' portability.

10.3.3 Bicycle Patrol Units

Target Audience: Bicyclists and motorists

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



On-bike officers can offer increased enforcement of laws pertaining to bicycling.

10.4 Encouragement Programs

Encouragement programs focus on encouraging people to bicycle more frequently by providing incentives, recognition, or services that make bicycling a more convenient and viable transportation mode.

10.4.1 Bike to Work Day/Week

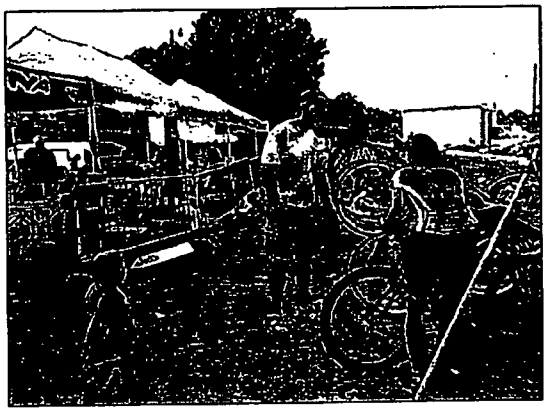
Bike to Work Day/Week is celebrated nationwide as part of "Bike Month" every May. Jurisdictions throughout the United States hold events to encourage new people to ride bicycles and existing riders to continue to commute by bicycle. Throughout the day or week, agencies hold events to encourage people to participate in the program, such as free breakfast to bicyclists at several stations throughout their jurisdictions. Some of the South Bay cities participate in Bike to Work Day/Week, though all of the cities could join their efforts and support a region-wide program with stations throughout the cities. Torrance, for example, hosts a Bike to Work Day pit-stop in front of City Hall that is open to the public. The Los Angeles County Bicycle Coalition and the South Bay Bicycle Coalition could also partner with the cities to enhance these events.

10.4.2 Bicycle Commuter Campaigns

A Bicycle Commuter Campaign encourages people to commute by bicycle and to make the general public aware that bicycling is a practical mode of transportation. San Luis Obispo (SLO) Regional Rideshare, for example, organizes the "Commute for Cash Challenge" every October as part of "Rideshare Month" in which commuters log the miles that they commute using alternative transportation for a chance to win prizes.[31] The City of Torrance currently has an organized employee rideshare program, that provides incentives to employees who use vanpools, carpools, transit, walk, and ride a bicycle as their transportation to work. This program could serve as a starting point for the other participating cities. The South Bay participating cities could also implement a campaign to highlight bicycling as a commute mode and encourage new riders to try it.

10.4.3 Organized Bike Rides

Organized group bicycle rides can encourage new riders to try riding a bicycle as they are designed to make all participants feel safe and confident. Formalized rides are led by an experienced rider who ensures that participants follow all bicycle regulations and safety measures, and usually one of the ride organizers will remain in the back of the group to guarantee that no riders are left behind. The participating cities could work with local bicycle advocacy groups to organize regional group rides so that residents can feel more comfortable riding in the South Bay. These rides could be promoted by way of an online events calendar or other means. Local cycling and advocacy groups, such as the South Bay Bicycle Coalition, Los Angeles County Bicycle Coalition and Beach Cities Cycling Club organize several group bicycle rides on a regular basis. The "Sunday Funday" ride, for example, is a monthly group ride for LACBC members of all ages and abilities. Each month LACBC leads bicyclists on an exploration of a different portion of the County. A similar ride would be an opportunity for the South Bay to highlight its new bikeways once constructed. Cities are encouraged to work with local groups to promote and connect the community to cycling activities.



The participating cities should work with the Los Angeles County and South Bay Bicycle Coalitions to provide secure bicycle parking at regularly occurring events.

[31] http://www.rideshare.org/CommuteforCashChallenge2010.aspx

10.4.4 Event Bicycle Parking

Providing safe and secure bicycle parking helps encourage individuals to bicycle. San Francisco passed a city ordinance that requires all major city events to provide bike parking and pioneered an innovative tool for stacking hundreds of bicycles without racks.[32] The South Bay participating cities may consider temporary bicycle parking for events with expected large attendance and at regularly occurring events like a farmers market. LACBC, SBBC, and the Beach Cities Cycling Club all offer secure, professional, and attended bike valet services. The participating cities could work with these groups to provide this service at their events.

10.4.5 Bicycle Maintenance Stations

An effective way to encourage riding is by providing free maintenance stations at popular destinations. The City of Cambridge, for example, has free bicycle maintenance stations in several trip-generating locations. These stations include items such as tire gauges, pumps, and tools for small bicycle repairs. Bicycle maintenance stations are an inexpensive alternative to providing stand-alone bicycle repair shops. The South Bay participating cities could install them at activity centers, including schools and the Strand.

10.4.6 Bicycle Friendly Business Program

Local businesses have the potential to encourage bicycling by providing their patrons that commute by bicycle with discounts and other amenities. The participating South Bay cities may consider starting a regional "Bicycle Friendly Business" program that honors South Bay businesses that support bicycling. The program could assign a gold, silver, or bronze designation to businesses that apply for the program based on the level of benefits they provide bicyclists. The League of American Bicyclists has a Bicycle Friendly Business program as part of its Bicycle Friendly Communities designation, which would act as a good model for the South Bay participating cities to follow.[33]

Ciclovias can highlight the South Bay's new bikeways once constructed.

10.4.7 Ciclovias/ "Sunday Streets"

First implemented in Bogota, Colombia, the Ciclovia is a community event based around a street closure. Ciclovias provide

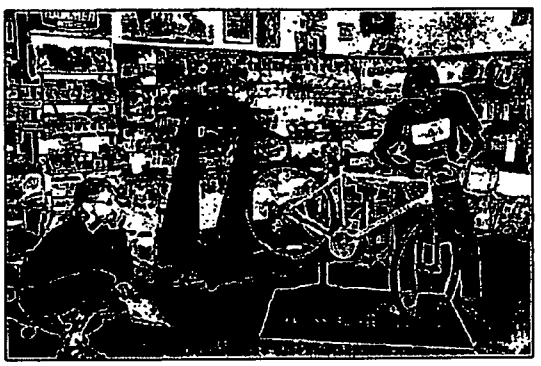
[32] www.sfbike.org/?valet

[33] http://www.bikeleague.org/programs/bicyclefriendlyamerica/bicyclefriendlybusiness/about.php

local recreational and business opportunities for the community and are increasingly popular citywide events. Ciclovias can combine with other popular community events to promote walking and bicycling as a form of viable transportation. Ideally, Ciclovias should provide access to civic, cultural, or commercial destinations.

The City of Los Angeles has hosted two ciclovias, called "CicLAvia," since October 2010. At both CicLAvia events, routes went through downtown Los Angeles. The participating cities could work with the event organizers to create a route through the South Bay. This would be an opportunity to highlight some of the South Bay's new bikeways once constructed.[34]

10.4.8 Bike Wrangler



The bike wrangler partners with bicycle shops or bicycle repair cooperatives to store and repair the bicycles.

A bike wrangler program gathers used and abandoned bicycles and distributes them to people who cannot afford bicycles. The bike wrangler can collect from many sources of used bicycles, including local police department auctions, universities, and individuals. The bike wrangler partners with bicycle shops or bicycle repair cooperatives to store and repair the bicycles.

The Los Angeles County Department of Public Health recently funded a Bike Wrangler program. The Los Angeles County Cycling Collaborative (CCC), which is a partnership of the Los Angeles County Bicycle Coalition and the County's five bicycle repair cooperatives, will be administering the program from a space near downtown Los Angeles. The participating cities could work with this existing program by connecting their local institutions to the CCC Bike Wrangler. They can work with the Bike Wrangler to bring bicycle workshops and refurbished bicycles to the South Bay.

10.5 Monitoring and Evaluation

In order to track the progress of the South Bay Bicycle Master Plan, it is critical that the participating cities monitor and evaluate changes in bicycling.

10.5.1 Annual Bicycle Counts and Surveys

As a mechanism for tracking bicycling trends over time and for evaluating the impact of bicycle projects, policies, and programs from the South Bay Bicycle Master Plan, the participating cities

[34] More information is available at www.healthystreets.org/pages/sunday_parkways.htm and http://www.ciclavia.org

may consider partnering with local advocacy groups and volunteers to conduct annual bicycle counts. Count locations should at minimum include the locations that were part of the 2010 count effort. Ongoing count data will enable the cities to analyze changes in bicycling levels and to track the impact of new bicycle infrastructure. As a means of engaging the South Bay community in bicycle counts, the cities of El Segundo, Manhattan Beach, Hermosa Beach, and Redondo Beach could partner to install an automated bicycle counter on the Strand that publicly displays the cumulative number of bicyclists counted.

The participating cities should conduct annual bicycle counts and surveys to track bicycling trends over time.

Annual surveys should also be conducted to measure "attitudes" about bicycling. These surveys could be either online surveys or intercept surveys. Surveys should determine if bicyclists are reacting positively or negatively to bicycle facilities and programs implemented. Results of the counts and surveys can inform future bicycling planning efforts and be presented to the Bicycle Advisory Committee at regular meetings.

10.5.2 Mobility Coordinator Position

A number of cities around the country staff a part- or full-time Mobility Coordinator position. Cities with such a position usually experience relative success in bike plan implementation. To take full advantage of current bicycle planning and safety efforts and to assist with implementation of bicycling programs, the South Bay Cities Council of Governments (SBCCOG) should consider creating and staffing an ongoing mobility coordinator position to assist the participating cities in multi-jurisdictional implementation and grant funding efforts. This position would be contingent on available funding. Should SBCCOG not obtain funding, each city should arrange for existing or new staff to dedicate time towards implementation of the bike plan and applying for relevant grants funds.

In addition to supporting existing programs, such as bicycling parking provision and educational activities, potential job duties for this staff position are listed below. See policy section 3.2 in Chapter 2 for details on tasks of the Mobility Coordinator.

- Monitoring facility planning, design, and construction that may impact bicycling
- Staffing bicycle advisory committee meetings
- Coordinating the implementation of the recommended projects and programs listed in this Plan

- Identifying new projects and programs that would improve the city's bicycling environment and improve safety for bicyclists, pedestrians, and motorists
- Coordinating evaluation of projects and programs, such as bicycle counts
- Pursuing funding sources for project and program implementation

Chapter 11

Wayfinding and Signage Plan

11 Wayfinding and Signage Plan

This chapter presents a regional bicycle wayfinding and signage plan for the South Bay participating cities that will support the proposed bikeway network, while simultaneously creating an identity for the South Bay participating cities' bikeways. Such prominent and unique identification will be important to wayfinding for bicyclists using the first multi-jurisdictional interconnected bikeway system. The signage plan presented here is meant to assure bicyclists that they are using a network that is continuous and easily navigated. The regional bicycle wayfinding system will direct bicyclists to major destinations in the South Bay, such as downtown areas, commercial centers, and transit hubs. Recommended signage presented in this plan should be placed on all existing and proposed routes. This chapter is organized by proposed signage design, signage location, kiosks, and collaborative efforts.

11.1 Signage Design

Bicycle wayfinding signage provides destination, direction, and distance information to bicyclists navigating through the South Bay bicycle network. The proposed design guidelines use standard signs from the federal Manual on Uniform Traffic Control Devices (MUTCD), as well as the California MUTCD. MUTCD signs used in this signage plan include:

- D11-1: Bicycle Route Guide Sign
- D1-1b: Destination Supplemental Sign
- M7-1 through M7-7: Directional Arrow Supplemental Sign

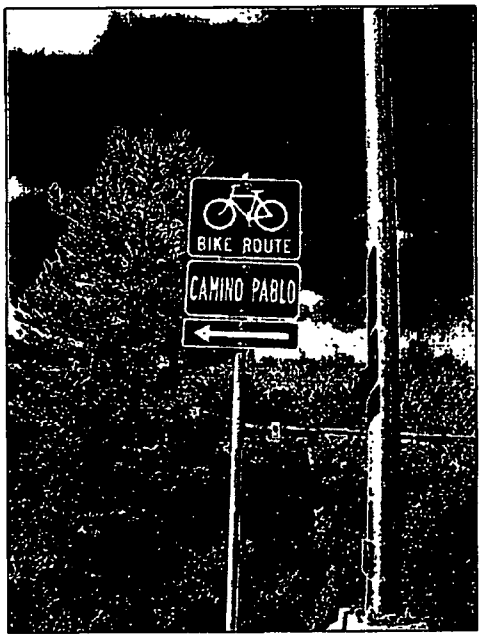
Using signage standards outlined in the MUTCD allows for signage that is consistent throughout jurisdictions. However, the proposed signs include revised modifications to brand the South Bay bicycle network, as well as bicycle facilities in each participating city. Table 11-2 further explains these modifications.

D11-1: Bicycle Route Guide Sign

11.1.1 Design Guidelines

The South Bay bicycle wayfinding signage system recommends the following three sign types:

- Standard signs: Confirm a bicyclist is riding on a designated bikeway
- Turn signs: Specify where a bikeway turns to prepare bicyclists in advance



Example Hybrid Confirmation and Decision Sign.

- **Hybrid Confirmation and Decision signs:** Confirm a bicyclist is riding on a designated bikeway; include mileage to key destinations that can be accessed by the bikeways; and provide directional arrows to key destinations. In some instances, they also identify the junction of two or more bikeways

Table 11-1 displays design and placement standards for the three recommended sign types presented in this chapter. Figures 11-1, 11-2, 11-3, 11-4 and 11-5 illustrate the signage design guidelines.

Table 11-1: Design Standards for Recommended Sign Types

Type	Sign Type	Design Standards	Placement
Standard Signs	• Bicycle Route Guide Sign D11-1 size: 24" wide x18" tall	N/A	• One sign per ¼ directional mile (mid-block) and at the far side of key intersections

Turn Signs	• Bicycle Route Guide Sign D11-1 size: 24" wide x 18" tall
	• Directional Arrow Supplemental Signs M7-1 through M7-7 size: 12" wide x 9" tall
		N/A	• Signs should be placed the at the following distances before an intersection depending on the number of lanes a bicyclist must travel across in order to initiate a legal left turn:
			  • 25 feet before a zero lane merge
			  • 100 feet before a one lane merge
			  • 200 feet before a two lane merge

Hybrid Confirmation and Decision Signs	• Bicycle Route Guide Sign D11-1 size: 24" wide x18" tall
	• Destination Supplemental Signs D1-1b size: 24" wide
		• Maximum of one destination per plaque
		• A maximum of three destinations shall be listed
		• Destinations shall use upper case and lower case letters
		• For destination names that do not fit on one line abbreviations or two-line entry may be used
		• Destinations shall be listed by closest proximity to the sign placement
		• Signs shall include the bikeway's endpoint along the length of the route
		• Where a bikeway ends at a location with no obvious destination, use the closest major destination on an intersecting bikeway or the intersecting street if there is no obvious destination
		• Common symbols are to be used to convey destination information in a space-efficient manner (see **Figure 11-5 and Figure 11-6**)
		• Directional arrows shall be placed to the left of a destination
		• Straight arrows shall be centered over the left and right arrow
			• Two signs per directional mile
			• Signs should be placed at the following distances before an intersection depending on the number of lanes a bicyclist must travel across in order to initiate a legal left turn:
			  • 25 feet before a zero lane merge
			  • 100 feet before a one lane merge
			  • 200 feet before a two lane merge

Figure 11.1: Sign Types

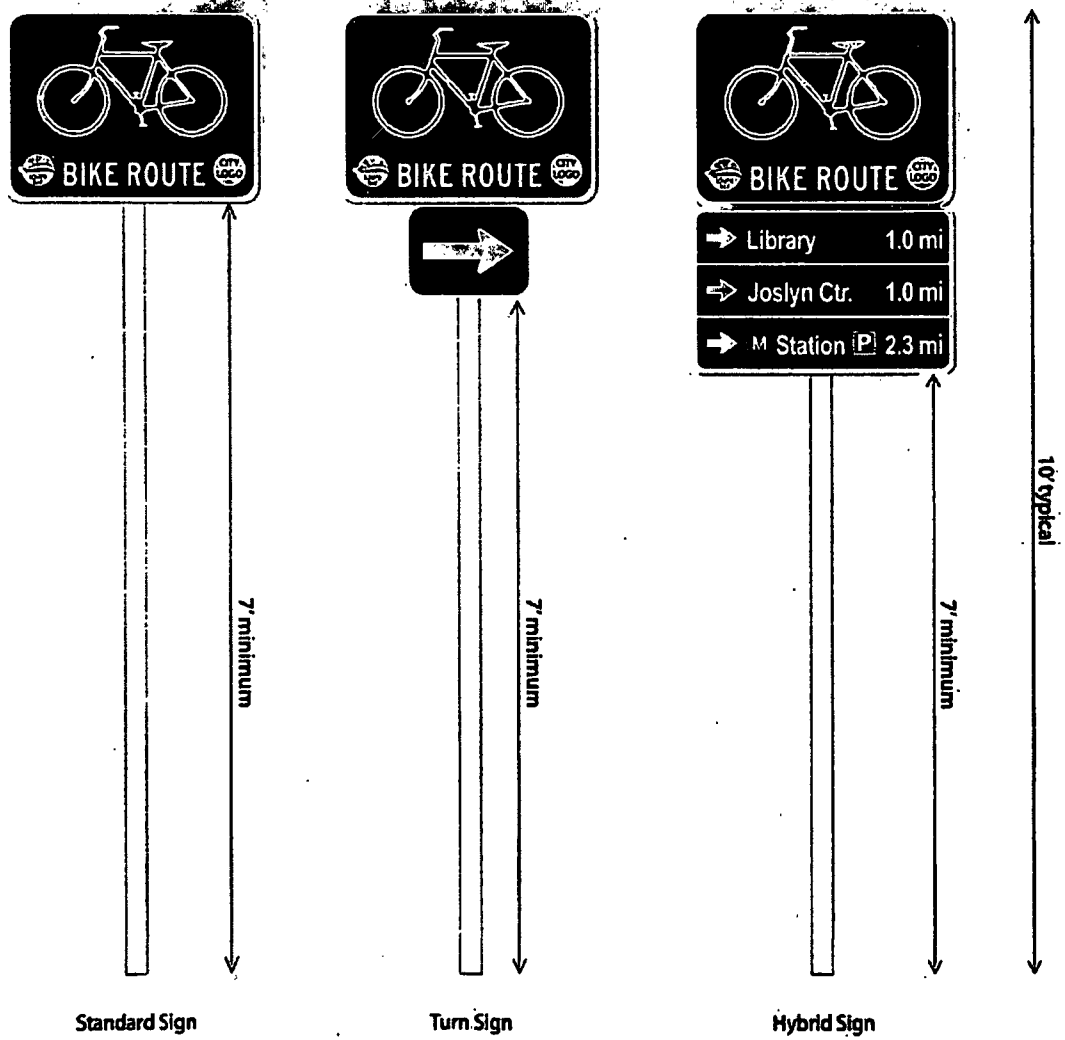
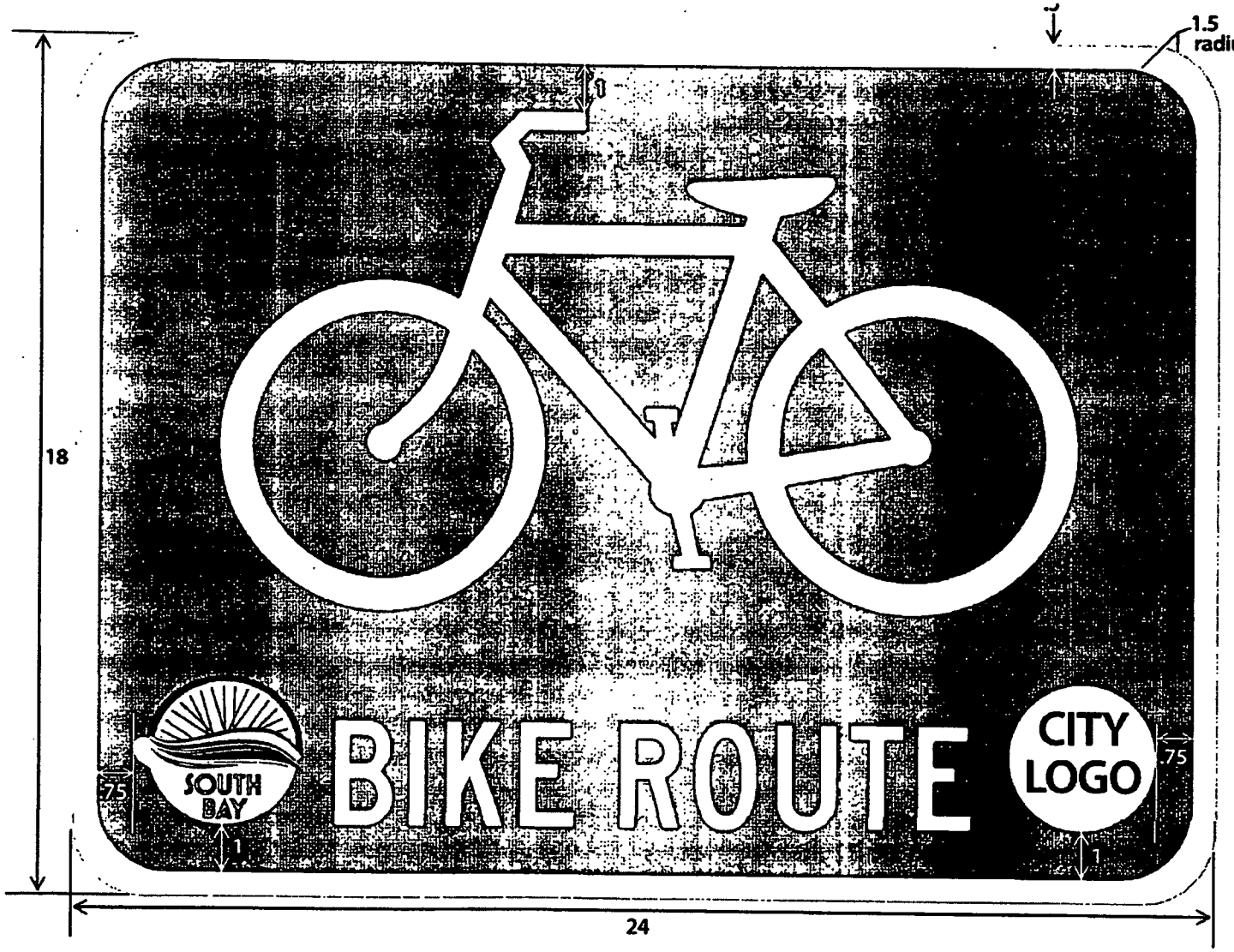
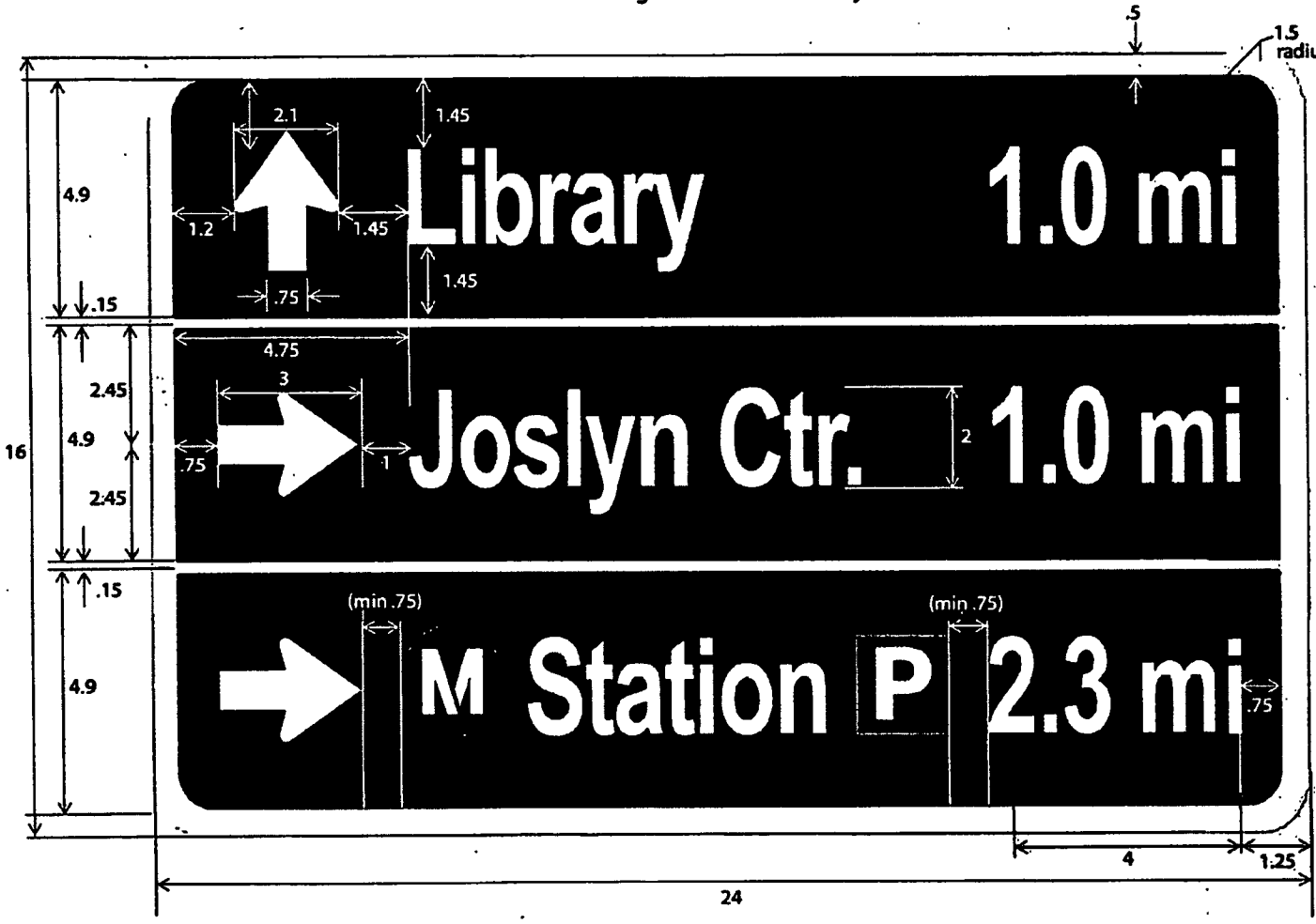


Figure 11-2: South Bay D11-1 Layout Details



NOTES
- All units in inches
- FHWA C Series Font, capital letters height 2.125", all CAPS
- City Logo Dimensions 2" x 2"
- South Bay Logo 2.25" x 2"
- Bike Logo 18.42" x 10.5" (per MUTCD for 24" D11-1 sign)

Figure 11-3: D1-1b Layout Details



NOTES

- All units in inches
- FHWA C Series Font, capital letter height 2", capitalize only first letter of each word
- MUTCD Standard Arrow (3" x 2.1")
- Forward and left destinations aligned left with arrow; right destinations aligned with right with arrow
- Head and left arrows centered
- Mileage font to follow destination name and may not exceed set margins
- Primary logo precedes destination name and may not exceed set margins
- Secondary logo follows destination name and may not exceed set margins
- Logo dimensions vary (see Figure 11-4)

Figure 11-4: South Bay and Participating City Logos used on signs

NOTES

-Used with modified MUTCD D11

- South Bay Logo dimensions (2.25"x 2")

- City logo dimensions (2"x 2")

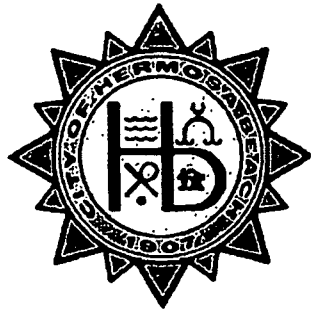


Figure 11-5: Los Angeles Metro and Bicycle Parking symbols used on signs

NOTES

-Dimensions vary but must not exceed the provided margins

As noted earlier in this chapter, recommended signs deviate slightly from MUTCD standard signs. Table 11-2 presents differences between the MUTCD and South Bay recommended sign standards.

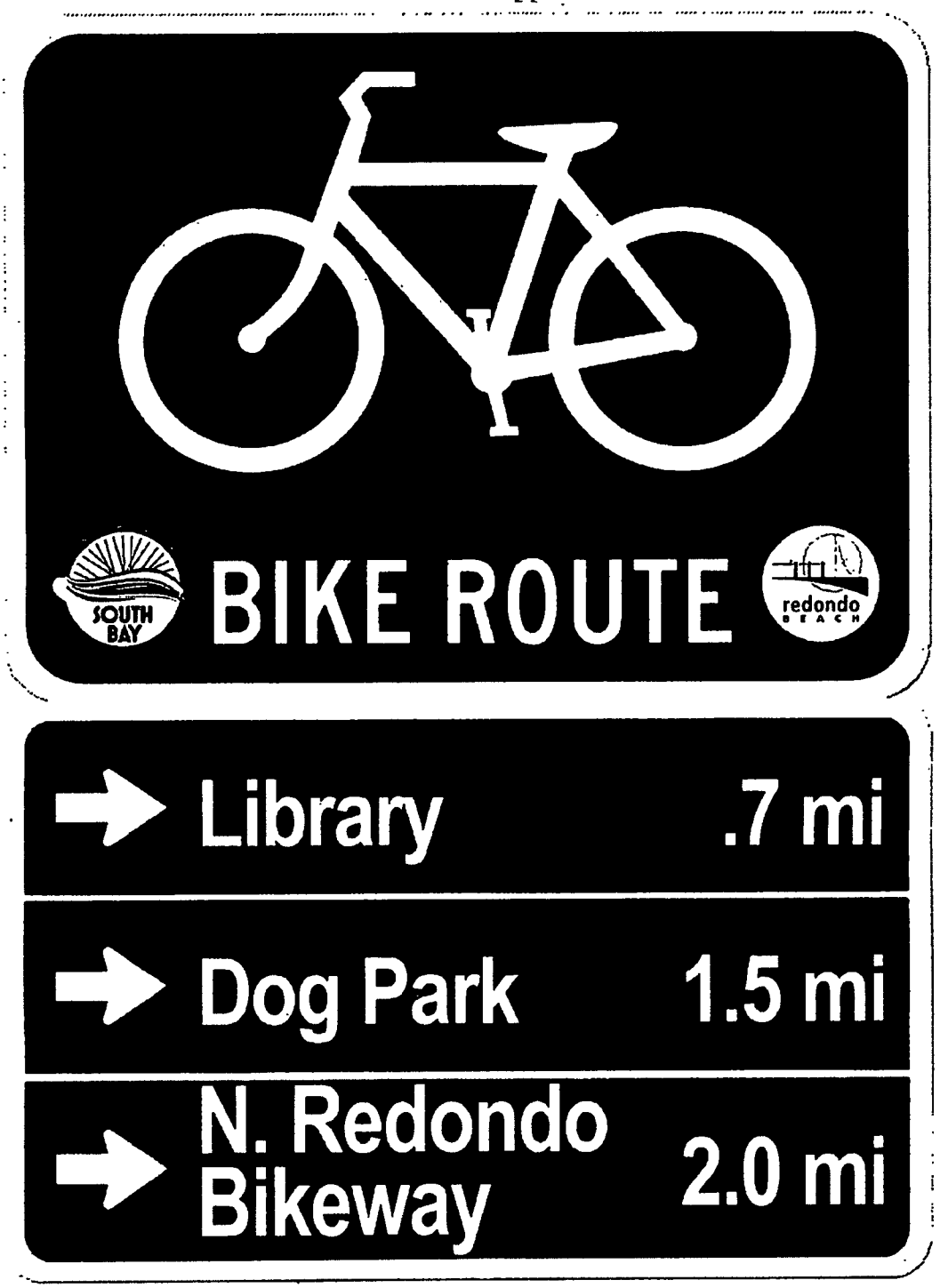
Table 11-2: Modifications to MUTCD Design Sign Layout Specifications

Modification	Explanation
Developing a Hybrid sign from the standard MUTCD confirmation and decision sign (D1-1b), which incorporates direction, destination name and distance	Provides bicyclists with maximum wayfinding information for improved usage and support of the overall network
Reduces horizontal perimeter from 1.5" to 0.75"	Increases ability to accommodate lengthy destination names
Incorporating symbols with destination names	Increases ability to accommodate lengthy destination names in addition to improving communication for users
Maintains 24" wide supplemental sign (D1-1b)	Consistency across the network increases user familiarly as well as allows for the addition of destinations as the bikeway network is implemented
Uses FHWA 2000 (Highway Gothic) C series *condensed* font series (rather than D series)	Increases ability to accommodate lengthy destination names; maintains 2" cap height; consistent with the cities of Chicago and Seattle
Inclusion of South Bay and City Logos on D11-1 sign, by reducing cap height of "BIKE ROUTE" to 2" (from 3")	Providing the Logos allows for improved identification and branding of the South Bay bicycle network, as well as the participating cities

11.1.2 Sample Signage

Figure 11-6 through Figure 11-12 present sample signage for each of the participating South Bay cities. Signs will include the logo of the city it is located in, as well as the South Bay bikeway logo. Since color signs may result in high costs, the logos could also be printed in black and white.

Figure 11-11: Sample Wayfinding sign for Redondo Beach



11.1.3 Specifications

In order to have consistency in the wayfinding system, it is important to follow a set of specifications for sign placement and installation. Table 11-3 displays specifications for the recommended South Bay wayfinding signage. Some cities may already have sign placement and installation standards, in which case they could choose to continue using those for guidance.

Table 11-3: Specifications for Implementation of signage

Specifications
• The standard pole for bikeway guide signs is a 2" square perforated unistrut pole
• The pole should be placed 18" to 24" in the ground, depending upon the overall weight of the signs and the soil/pavement conditions.
• Heavy sign installations may require poles up to 36" into the ground.
• Poles of 12' in length are generally adequate to accommodate a D11-1 with a supplementary D1-1b sign. Longer poles are needed if additional signs will share the same pole.
• The D11-1 should be installed at 10' in height as measured from the top edge of the sign. This height will allow for the installation of supplementary signs while maintaining a minimum 7' clearance to the bottom edge of the bottom sign.
• When a D11-1 is mounted on a pole with an existing parking restriction sign, the D11-1 and any supplementary sign should be located above the parking restriction sign.
• Signs shall not be mounted to utility poles or traffic signal mast arms
• Existing poles should be used wherever practical.

11.2 Signage Locations

Table 11-4 presents a list of suggested key destinations for each participating South Bay city. The cities may modify this list in the future as needed. Appendix L provides maps illustrating the approximate location of key destinations in each city, as well as proposed signage routes based upon estimated frequency of use and proximity to areas of interest.

Table 11-4: Key Destinations by Participating City

Destination
El Segundo
Beach (end of Grand Ave)
Chevron refinery
El Segundo City Hall/Downtown
Josyln Community Center
El Segundo Public Library
The Urho Saari Swim Stadium
Imperial and Main Street
El Segundo and Nash Greenline Metro Station
Mattel Corporation
Mariposa and Nash Greenline Metro Station
Campus El Segundo Athletic Fields
Boeing Corporation
Los Angeles Air Force Base
Aviation/LAX Greenline Metro Station
Plaza El Segundo
Gardena
Crenshaw Greenline Metro Station
Dominguez Channel Bikeway at El Segundo Blvd and Crenshaw Blvd
Dominguez Channel Bikeway at Rosecrans Ave and Crenshaw Blvd
El Camino College
Gardena Civic Center/Nakaoka Community Center
Gardena Mayme Dear Library
Hermosa Beach
Hermosa Beach Pier Plaza
Hermosa Beach City Hall/Upper Pier
Hermosa Beach Library/Upper Pier
Valley Park
Lawndale
Lawndale Civic Center/Library
Jane Adams Park
Rogers-Anderson Park
Proposed Lawndale Metro Station at Rosecrans Ave and Manhattan Beach Blvd
Manhattan Beach
Manhattan Beach Pier/Roundhouse Marine Studies Lab and Aquarium
Live Oak Park and Josyln Community Center
Manhattan Beach City Hall and Library

Manhattan Beach Library
North Manhattan Beach/El Porto
Manhattan Village Mall
Polliwog Park and the Creative Arts Center
AdventurePlex (Marine Ave Park and Marine Ave Sports Complex)
Downtown Manhattan Beach
Metlox
Redondo Beach
Redondo Beach
Riviera Village
Esplanade
Dominguez Park / Dog Park
North Redondo Beach Bikeway at Marine Ave and Redondo Beach Ave
North Redondo Beach Bikeway at Artesia Blvd and Inglewood Ave
North Redondo Beach Bikeway at Lilienthal Ln and 190th street (Lilienthal Park)
Torrance
Torrance Beach
Torrance Airport / Zamperini Field
Madrona Marsh Nature Center
Wilson Park
Downtown Torrance
El Prado Park and Torrance History Museum
Torrance City Hall and Library

11.3 Kiosks

In addition to an effective signage system, the South Bay Signage plan also proposes the installation of informational kiosks to support the proposed bikeway network and signage. Proposed kiosk locations should be located at key destinations and include bicycle facility information for the participating cities and the South Bay region as a whole.

11.3.1 Design Guidelines

Potential locations for kiosks include key destinations in each City are provided in Appendix L. Figure 11-13 and Figure 11-14 present sample kiosk prototypes as potential designs for the cities' use. These are simply conceptual in design and can be modified to conform with each cities' existing signage plans. Figure 11-15 displays a potential placement of the sample kiosk.

The design guidelines for kiosks will vary per each city's design preferences and existing standards. However, it is recommended that the participating cities use similar guidelines to create consistency across jurisdictions and brand the South Bay bicycle network. Kiosks should provide the following information:

- A map of key destinations in each city
- A map of the bicycle network in the city
- A map of the entire South Bay Bicycle Network
- The South Bay Bicycle Network Logo

Recommended supplemental resources for the kiosks include:

- Bicycle parking information
- Fold-up bicycle maps of the South Bay Bicycle Network
- Information regarding bicycle related activities in the area
- Bike safety information and other bicycle resources

Figure 11-13: Sample Kiosk Prototype

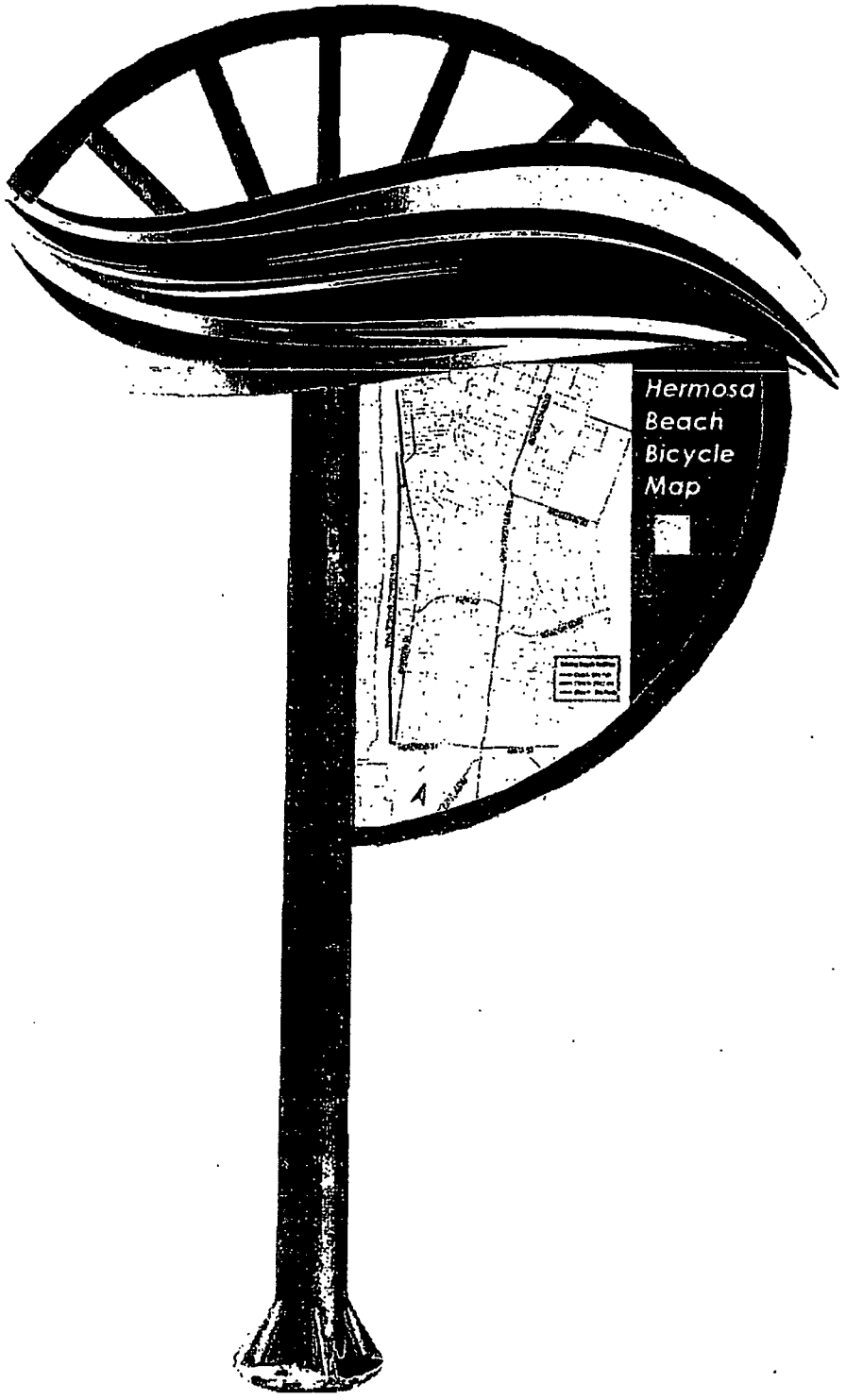


Figure 11-14: Sample Kiosk Prototype

Figure 11-15: Potential Placement of Sample Kiosk

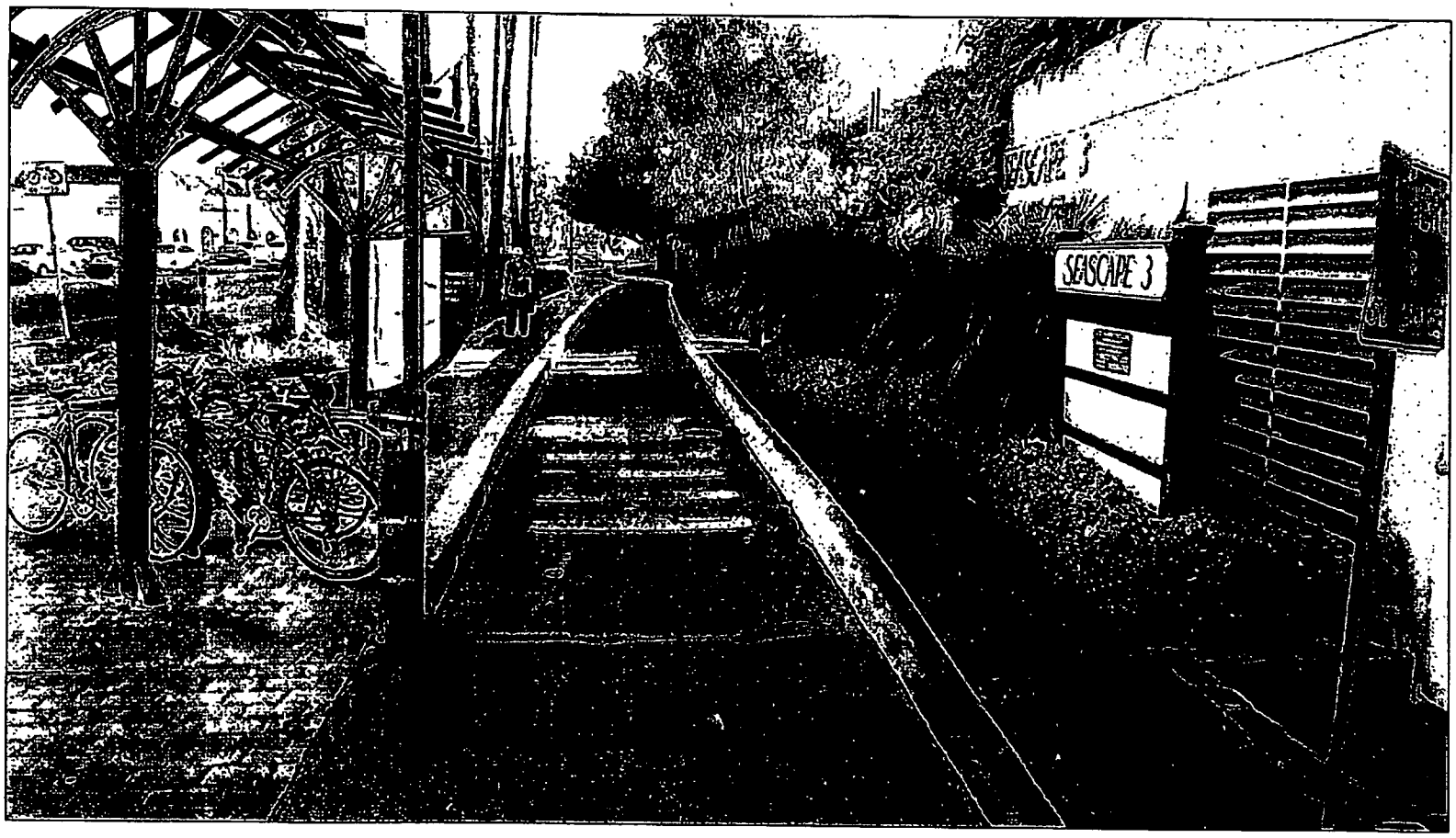


Photo Source: Dan Burden/WALC Institute for Vitality City

11.4 Collaborative Efforts

The South Bay participating cities should consider working with other nearby agencies to provide consistent bicycle wayfinding signage throughout the South Bay and the County of Los Angeles. This will allow bicyclists to easily navigate to and from bikeways in adjacent communities and create an overall seamless network. The South Bay participating cities should coordinate efforts with the following adjacent jurisdictions:

- City of Hawthorne
- City of Inglewood
- City of Lomita
- City of Los Angeles
- City of Palos Verdes Estates
- City of Rolling Hills Estates
- County of Los Angeles

The participating cities should also consider partnering with the following agencies to install wayfinding signage that will help bicyclists navigate to the South Bay bikeways:

- Los Angeles County Metropolitan Transportation Authority (Metro)
- Amtrak
- Metrolink

The participating cities should consider partnering with non-profit organizations, schools, and bicycle advocacy groups like the South Bay and Los Angeles County Bicycle Coalitions in a pursuit for funding opportunities and grants for wayfinding signage. Potential funds would help with capital and maintenance expenses associated with wayfinding signage. Partnerships often strengthen grant applications making them more likely to be selected.

Chapter 12

Funding

12 Funding

All levels of government contain programs that can potentially fund bicycle projects, programs, and plans. This section covers federal, state, and regional sources of bicycle funding. Many funding sources are highly competitive. Therefore, it is not possible to determine exactly which projects will receive funding from specific funding sources. Table 12-1 serves as a general guide to funding sources. Staff should refer to current guidelines provided by the granting agency when pursuing any funding opportunity.

Table 12-1: Funding Sources

Funding Source	Due Date*	Administering Agency	Annual Total	Matching Requirement	Eligible Applicants	Planning	Con-struction	Other	Notes
Federally-Administered Funding									
Transportation, Community and System Preservation Program**	Varies, generally January or February.	Federal Transit Administration	$204 million nationally in 2009	20%	States, MPOs, local governments and tribal agencies	X	X	X	Implementation grants provide financial resources to enact activities that address transportation efficiency, while meeting community preservation and environmental goals. Policy and program examples include spending policies that direct funds to high-growth regions; urban growth boundaries to guide metropolitan expansion; and "green corridor" programs that provide access to highway corridors in areas targeted for efficient and compact development. Program officials are not currently accepting applications past 2011. In most years, Congress has identified projects to be selected for funding through the TCSP program. The South Bay cities should track the program over the long term and apply if the program is extended.

Funding Source	Due Date*	Administering Agency	Annual Total	Matching Requirement	Eligible Applicants	Planning	Con-struction	Other	Notes
Federal Lands Highway Programs**	Not available	Federal Highway Administration	$1,019 million nationally in 2009		States	X	X		Grant funds are allocated for highways, roads, and parkways (which can include bicycle and pedestrian facilities) and transit facilities that provide access to or within public lands, national parks, and Indian reservations.
Rivers, Trails and Conservation Assistance Program	Aug 1 for the following fiscal year	National Parks Service	Program staff time is awarded.	Not applicable	Public agencies			X	RTCA staff provides technical assistance to communities to conserve rivers, preserve open space, and develop trails and greenways. The program provides only for planning assistance – there are no implementation monies available.
Paul S. Sarbanes Transit in Parks and Public Lands Program	Varies, Generally October.	Federal Transit Administration	$27 million nationally in 2009	Not available	Federal, State, local and tribal agencies that manage federal lands	X	X		Grant funds transportation modes that reduce congestion in parks and public lands.

Funding Source	Due Date*	Administering Agency	Annual Total	Matching Requirement	Eligible Applicants	Planning	Con-struction	Other	Notes
Partnership for Sustainable Communities	Not applicable	Environmental Protection Agency (EPA), the U.S. Department of Housing and Urban Development (HUD), and the U.S. Department of Transportation (USDOT)	Varies	Not applicable	Varies by grant	X	X	X	Though not a formal agency, the Partnership for Sustainable Communities is a joint project of the EPA, the HUD, and the USDOT. One goal of the project is to expand transportation options that improve air quality and public health, which has already resulted in several new grant opportunities (including TIGER I and TIGER II grants). The participating cities should track Partnership communications and be prepared to respond proactively to announcements of new grant programs.
New Freedom Initiative**	Not available	U.S. Department of Health and Human Services (HHS)	Not available	Not applicable	Public agencies		X	X	Grant funds provide capital and operating costs to provide transportation services and facility improvements that exceed those required by the Americans with Disabilities Act. Pedestrian improvements include installing Accessible Pedestrian Signals (APS), enhancing transit stops to improve accessibility, and establishing a mobility coordinator position.

Funding Source	Due Date*	Administering Agency	Annual Total	Matching Requirement	Eligible Applicants	Planning	Con-struction	Other	Notes
Surface Transportation Program**	Not available	Federal Highway Administration	$6,577 million nationally in 2009	Not applicable	States and local governments	X	X	X	Grants fund projects on any federal-aid highway. Bicycle and pedestrian improvements include on-street facilities, off-street paths, sidewalks, crosswalks, bicycle and pedestrian signals, parking, and other ancillary facilities. Non-construction projects, such as maps, bicycle/pedestrian coordinator positions, and encouragement programs are eligible. The modification of sidewalks to comply with the requirements of the Americans with Disabilities Act (ADA) is also an eligible activity.
Congestion Mitigation and Air Quality (CMAQ)**	Not available	Federal Highway Administration and Federal Transit Administration	$1,777 million nationally in 2009	Not applicable	States and Metropolitan Planning Organizations in air quality non-attainment and maintenance areas	X	X	X	Funds are allocated for transportation projects that aim to reduce transportation related emissions. Funds can be used for construction of bicycle transportation facilities and pedestrian walkways or for non-construction projects related to safe bicycling and walking (i.e. maps and brochures).

Funding Source	Due Date*	Administering Agency	Annual Total	Matching Requirement	Eligible Applicants	Planning	Con-struction	Other	Notes
Transportation Enhancements***	Not available	Federal Highway Administration	10 percent of State Transportation Program funds	Not applicable	States	X	X	X	Funds are a set-aside of Surface Transportation Program (STP) monies designated for Transportation Enhancement (TE) activities, which include the pedestrians and bicycles facilities, safety and educational activities for pedestrians and bicyclists, and the preservation of abandoned railway corridors (including the conversion and use thereof for pedestrian and bicycle trails).
Highway Safety Improvement Program**	October	Federal Highway Administration	$1,296 million nationally in 2009	Varies between 0% and 10%	City, county or federal land manager	X	X	X	Funds projects on publicly-owned roadways or bicycle/pedestrian pathways or trails that address a safety issue and may include education and enforcement programs. This program includes the Railroad-Highway Crossings and High Risk Rural Roads programs.
Community Development Block Grants	Varies between grants	U.S. Dept. of Housing and Urban Development (HUD)	$42.8 m	Varies between grants	City, county	X	X	X	Funds local community development activities such as affordable housing, anti-poverty programs, and infrastructure development. Can be used to build sidewalks and recreational facilities.
Recreational Trails Program**	October	CA Dept. of Parks and Recreation	$1.3 m in 2010	12%	Agencies and organizations that manage public lands	X	X	X	Provides funds to states for acquisition of easements for trails from willing sellers, maintenance and restoration of existing trails, construction of new paved or unpaved trails, and operation of educational programs to promote safety and environmental protection related to trails.

Funding Source	Due Date*	Administering Agency	Annual Total	Matching Requirement	Eligible Applicants	Planning	Con-struction	Other	Notes
Federal Safe Routes to School**	Mid-July	Federal Highway Administration	Max. funding cap for infrastructure project: $1 million. Max funding cap for non-infrastructure project: 500,000	none	State, city, county, MPOs, RTPAs and other organizations that partner with one of the above.	X	X	X	Grant funds for infrastructure and non-infrastructure projects. Infrastructure projects are engineering projects or capital improvements that will substantially improve safety and the ability of students to walk and bicycle to school. Non-infrastructure projects are education/encouragement/enforcement activities that are intended to change community behavior, attitudes, and social norms to make it safer for children in grades K-8 to walk and bicycle to school.
Petroleum Violation Escrow Account	Not applicable	Department of Energy	Varies annually	None	Local and regional agencies		X	X	PVEA funds come from fines paid by oil companies in the 70s for violating oil price caps set by the federal government. Funds are used for projects that save energy, such as public transportation, computerized bus routing and ride sharing, home weatherization, energy assistance and building energy audits, highway and bridge maintenance, and reducing airport user fees.

Funding Source	Due Date*	Administering Agency	Annual Total	Matching Requirement	Eligible Applicants	Planning	Con-struction	Other	Notes
Community Transformation Grant	July	Centers for Disease Control and Prevention	$50,000-10,000,000 per applicant	Not applicable	State and local governmental agencies, tribes and territories, and national and community-based organizations	X		X	Funding is available to support evidence and practice-based community and clinical prevention and wellness strategies that will lead to specific, measurable health outcomes to reduce chronic disease rates. Bicycle and pedestrian improvements are applicable as they encourage physical activity, which has been proven to reduce the risks of diseases associated with inactivity.
State-Administered Funding									
Bicycle Transportation Account	March	Caltrans	$7.2 million	Minimum 10% local match on construction	Public agencies	X	X	X	Funds bicycle projects that improve safety and convenience of bicycle commuters. In addition to construction and planning, funds may be used for right of way acquisition.
California Safe Routes to School	Varies	Caltrans	$24.5 million	10%	Cities and counties		X	X	SR2S is primarily a construction program to enhance safety of pedestrian and bicycle facilities near schools.
State Transportation Improvement Program (STIP)	December	Caltrans	Varies	None	Cities	X	X	X	The STIP is a multi-year capital improvement program of transportation projects on and off the State Highway System, funded with revenues from the Transportation Investment Fund and other funding sources. Oxnard should work with the Ventura County Transportation Commission to submit projects for the STIP.

Funding Source	Due Date*	Administering Agency	Annual Total	Matching Requirement	Eligible Applicants	Planning	Con-struction	Other	Notes
State Coastal Conservancy	Rolling	State Coastal Conservancy	Varies	None	Public agencies, non-profit organizations	X	X	X	Projects must be in accordance with Division 21 and meet the goals and objectives of the Conservancy's strategic plan. More information can be found at http://scc.ca.gov/applying-for-grants-and-assistance/forms.
California Conservation Corps	On-going	California Conservation Corps	CCC donates labor hours	None	Federal and state agencies, city, county, school district, NPO, private industry		X	X	Funds projects that improve public access to and along the coast, natural resource protection and restoration in the coastal zone or affecting coastal areas, restoration of coastal urban waterfronts, protection of coastal agricultural land, and resolution of land use conflicts. CCC provides labor assistance on construction projects and annual maintenance.
Community Based Transportation Planning	March	Caltrans	$3 million	20%	MPO, RPTA, city, county		X		Eligible projects that exemplify livable community concepts including enhancing bicycle and pedestrian access.

Funding Source	Due Date*	Administering Agency	Annual Total	Matching Requirement	Eligible Applicants	Planning	Con-struction	Other	Notes
Land and Water Conservation Fund	March	NPS, CA Dept. of Parks and Recreation	$2.3 million in CA in 2009	50% + 2-6% administration surcharge	Cities, counties and districts authorized to operate, acquire, develop and maintain park and recreation facilities	X		X	Fund provides matching grants to state and local governments for the acquisition and development of land for outdoor recreation areas. Lands acquired through program must be retained in perpetuity for public recreational use. Individual project awards are not available. The Department of Parks and Recreation levies a surcharge for administering the funds. The LCWF could fund the development of river-adjacent bicycle facilities.
Environmental Enhancement and Mitigation Program	October	California Natural Resources Agency	$10 million	None	Federal, State, local agencies and NPO		X	X	Support projects that offset environmental impacts of modified or new public transportation facilities. These projects can include highway landscaping and urban forestry projects, roadside recreation projects, and projects to acquire or enhance resource lands. EEMP funds projects in California, at an annual project average of $250,000. Funds may be used for land acquisition.
State Highway Operations and Protection Program (SHOPP)	Not Available	Caltrans	$1.69 million statewide annually through FY 2013/14	Not Available	Local and regional agencies		X	X	Capital improvements and maintenance projects that relate to maintenance, safety and rehabilitation of state highways and bridges.

Funding Source	Due Date*	Administering Agency	Annual Total	Matching Requirement	Eligible Applicants	Planning	Con-struction	Other	Notes
Office of Traffic Safety (OTS) Grants	January	Caltrans	Varies annually - $82 million statewide in FY 2009/2010	None	Government agencies, state colleges, state universities, city, county, school district, fire department, public emergency service provider			X	Funds are used to establish new traffic safety programs, expand ongoing programs, or address deficiencies in current programs. Bicycle safety is included in the list of traffic safety priority areas. Grant funding cannot replace existing program expenditures, nor can traffic safety funds be used for program maintenance, research, rehabilitation, or construction. Evaluation criteria to assess needs include potential traffic safety impact, collision statistics and rankings, seriousness of problems, and performance on previous OTS grants.
Transportation Development Act (TDA) Article 3 (SB 821)	Not applicable	State of California and Ventura County Transportation Commission	Varies	Not applicable	Cities and counties		X	X	Funds are a percentage of the state sales tax given annually to local jurisdictions for bicycle and pedestrian projects. Funds may be used for engineering expenses leading to construction, right-of-way acquisition, construction and reconstruction, retrofitting existing facilities, route improvements, and bicycle support facilities.
Habitat Conservation Fund	October	CA Department of Parks and Recreation	$2 million	Requires a dollar-for-dollar match of grant funds	Cities, counties, and districts		X	X	Funds provide grants to protect fish, wildlife, and native plant resources, to acquire or develop wildlife corridors and trails, and to provide for nature interpretation programs and other programs which bring urban residents into park and wildlife areas.

Funding Source	Due Date*	Administering Agency	Annual Total	Matching Requirement	Eligible Applicants	Planning	Con-struction	Other	Notes
Tire-Derived Product Grant Program	Varies	CA Department of Resources Recycling and Recovery (CalRecycle)	Varies	Not applicable	Public agencies and qualifying tribes			X	Promotes markets for recycled-content products derived from waste tires generated in California and decrease the adverse environmental impacts created by unlawful disposal and stockpiling of waste tires. Funds can be used to purchase materials for bicycle and pedestrian projects, including sidewalks/pathways, accessibility ramps, and traffic safety products.
Regional- and Local-Administered Funding									
Metro Call for Projects (CFP)	January	LA Metro	Varies annually	None	Public agencies that provide transportation facilities or services within Los Angeles County	X	X	X	Co-funds new regionally significant capital projects that improve all modes of surface transportation. Relevant categories include Bikeway Improvements; Regional Surface Transportation Improvements; Transportation Enhancement Activities; Transportation Demand Management; and Pedestrian Improvements.
Proposition A	N/A	LA County	Varies	None	Cities and unincorporated communities in LA County				A half-cent sales tax dedicated to transportation funding. One-fourth of the funds go to Local Return Programs. The monies help these entities develop and improve local public transit, paratransit, and related transportation infrastructure

Funding Source	Due Date*	Administering Agency	Annual Total	Matching Requirement	Eligible Applicants	Planning	Con-struction	Other	Notes
Proposition C	N/A	LA County	Varies	None	Cities and unincorporated communities in LA County				Revenues are allocated into categories including Rail & Bus Security; Commuter Rail, Transit Centers and Park and Ride Lots; Local Return; and, Transit Related Improvements to Streets and Highways. Supports projects and programs developed with Prop A funds.
Measure R	N/A	LA County	Varies	none	Cities and unincorporated communities in LA County	X	X	X	A half-cent sales tax to finance new transportation projects and programs, and accelerate many of those already in process.
Adopt-A-Trail Programs	Not applicable	Local trail commission or non-profit	Varies	Not applicable	Local governments		X	X	These programs used to fund new construction, renovation, trail brochures, informational kiosks and other amenities. These programs can also be extended to include sponsorship of trail segments for maintenance needs.
Design Arts Program	Varies by grant	National Endowment for the Arts	Varies	A nonfederal match of at least 1 to 1	Counties, local governments, public entities, or nonprofits	X		X	Provides grants to states and local agencies, individuals and nonprofit organizations for projects that incorporate urban design, historic preservation, planning, architecture, landscape architecture and other community improvement activities, including greenway development. Grants to organizations and agencies must be matched by a 50% local contribution. Agencies can receive up to $50,000.

Funding Source	Due Date*	Administering Agency	Annual Total	Matching Requirement	Eligible Applicants	Planning	Con-struction	Other	Notes
Other Funding Sources									
Community Action for a Renewed Environment	March	US EPA	Varies	Not Available	Applicant must fall within the statutory terms of EPA's research and demonstration grant authorities	X		X	Grant program to help community organize and take action to reduce toxic pollution in its local environment
Bikes Belong Grant	Multiple dates throughout year.	Bikes Belong	Not Available	50% minimum	Organizations and agencies		X	X	Bikes Belong provides grants for up to $10,000 with a 50% match that recipients may use towards paths, bridges and parks.
Volunteer and Public-Private Partnerships	Not Applicable	City, county, joint powers authority	Varies	Not Applicable	Public agency, private industry, schools, community groups		X	X	Requires community-based initiative to implement improvements.

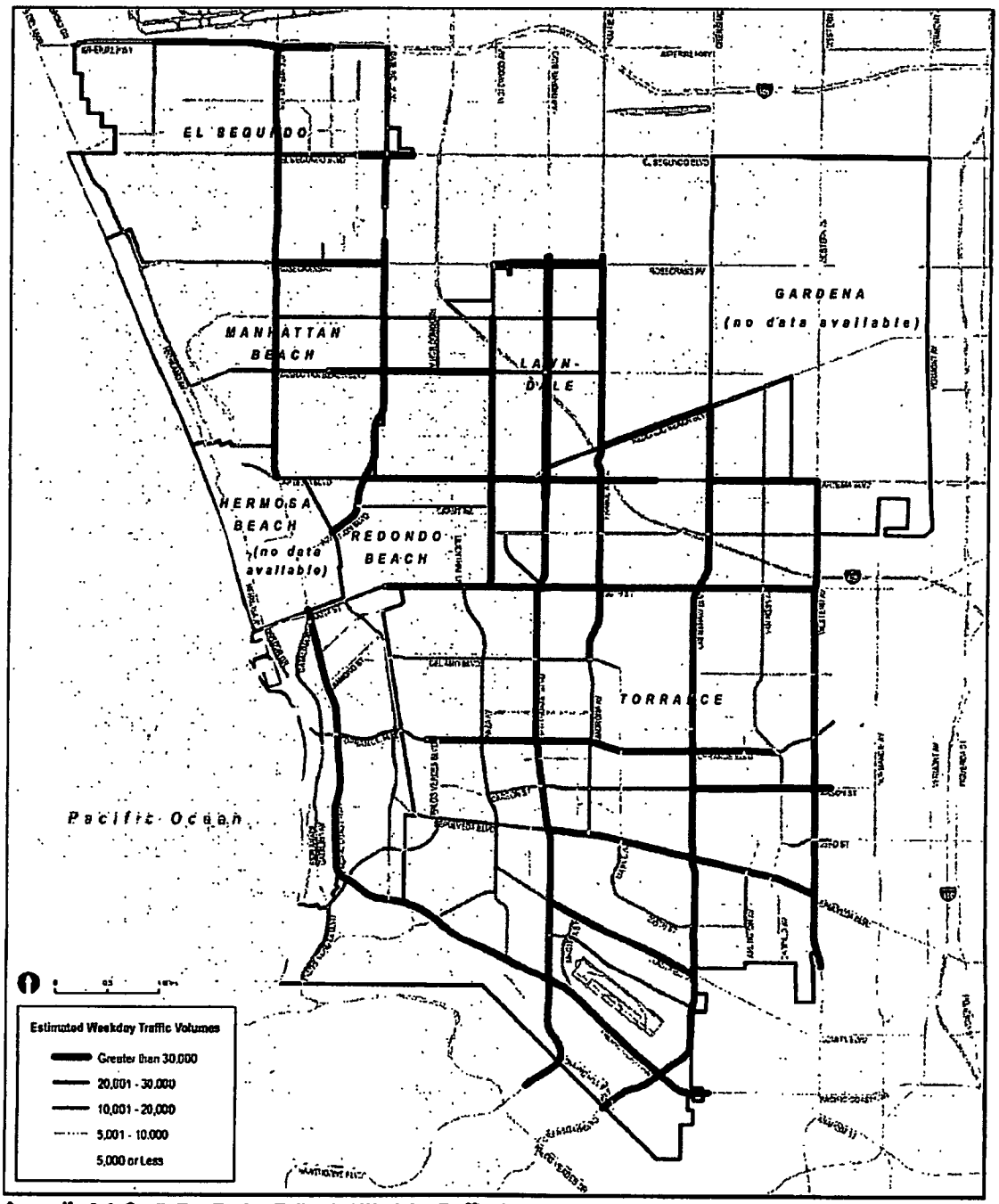
** Due dates are subject to change due to pending authorization of a new federal transportation bill.*

*** Program is one of many programs authorized under SAFETEA-LU and current funding has only been extended through September 30, 2011.*

This page intentionally left blank.

Appendices

Appendix A: Large Scale Maps

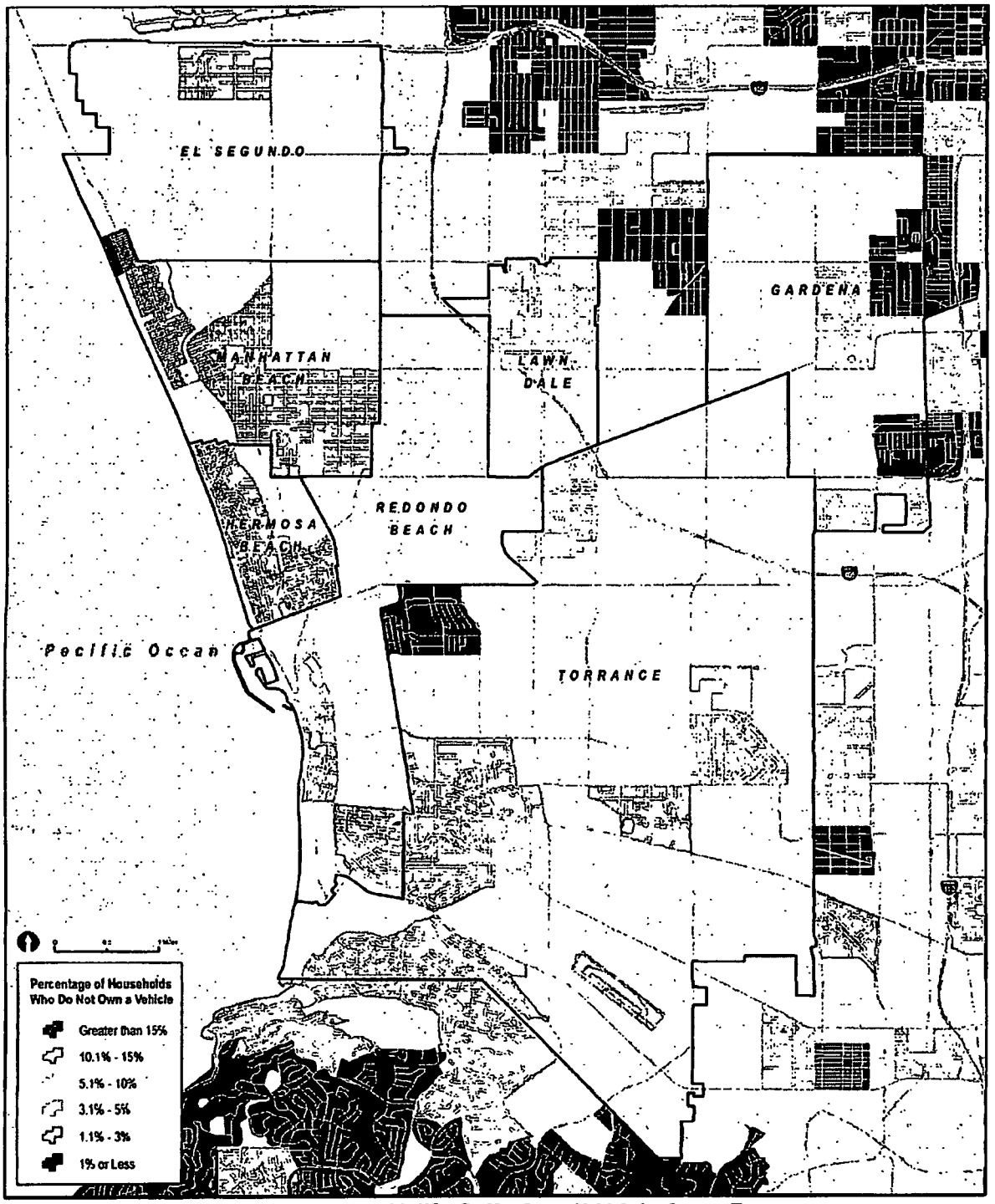


Appendix A-1: South Bay Region Estimated Weekday Traffic Volumes

South Bay Bicycle Master Plan

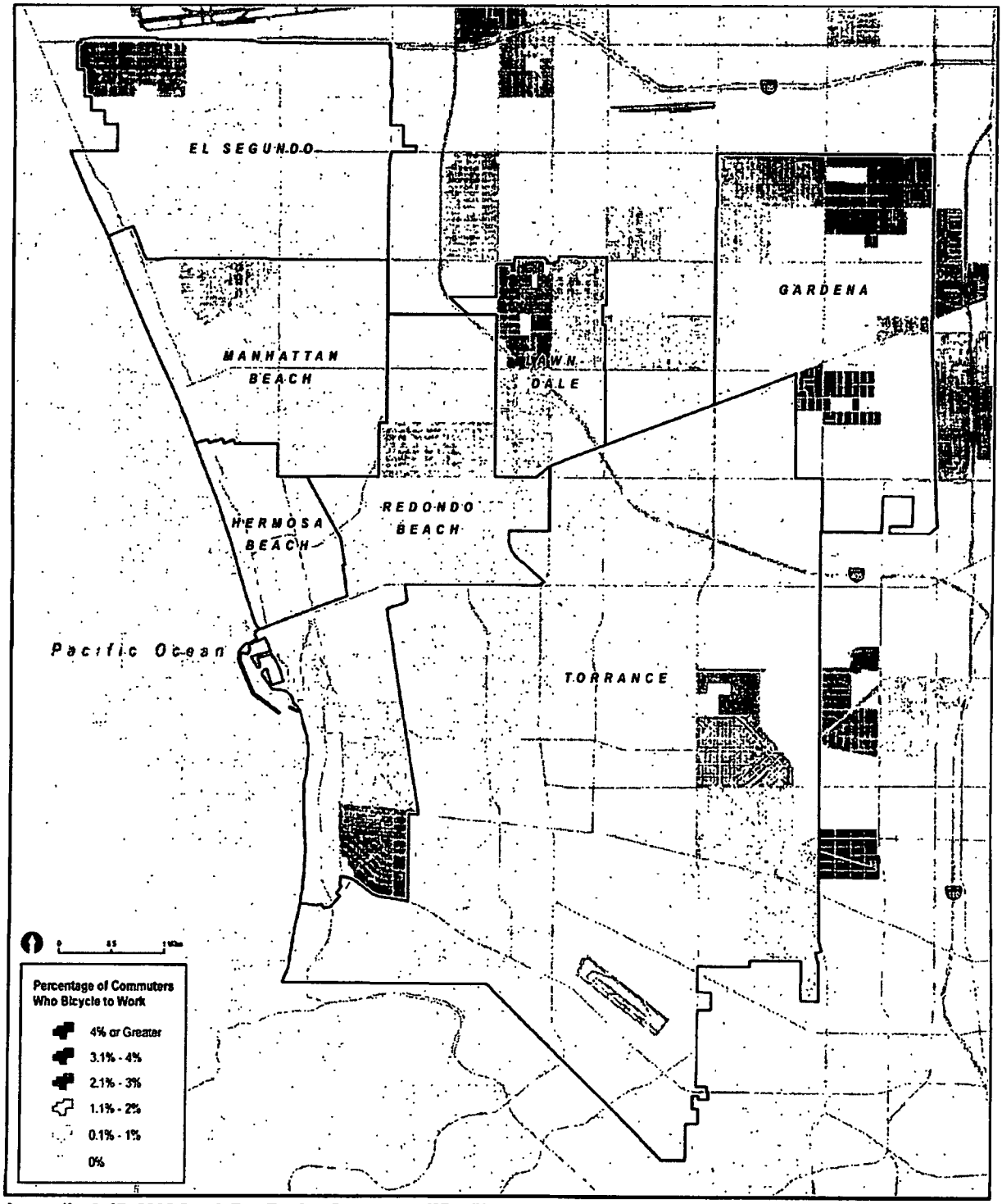
El Segundo - Gardena - Hermosa Beach - Lawndale - Manhattan Beach - Redondo Beach - Torrance

Source: General Plan Circulation Elements for the Cities of El Segundo, Lawndale, Manhattan Beach, Redondo Beach and Torrance; Date: 7/2007



Appendix A-6: 2000 South Bay Region Households Who Do Not Own a Vehicle by Census Tract

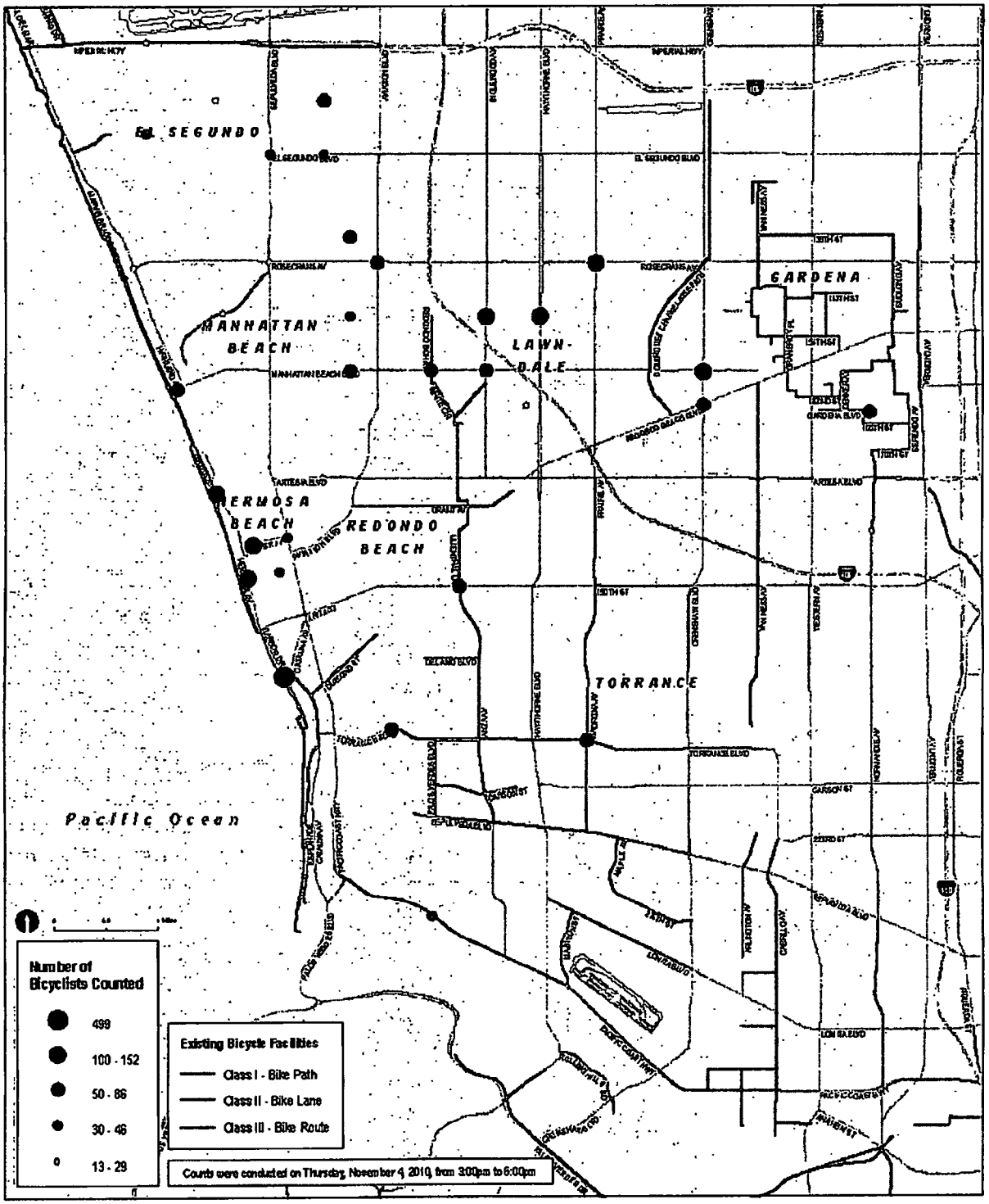
South Bay Bicycle Master Plan



Appendix A-15: 2008 South Bay Region Commuters Who Bicycle to Work by Census Tract

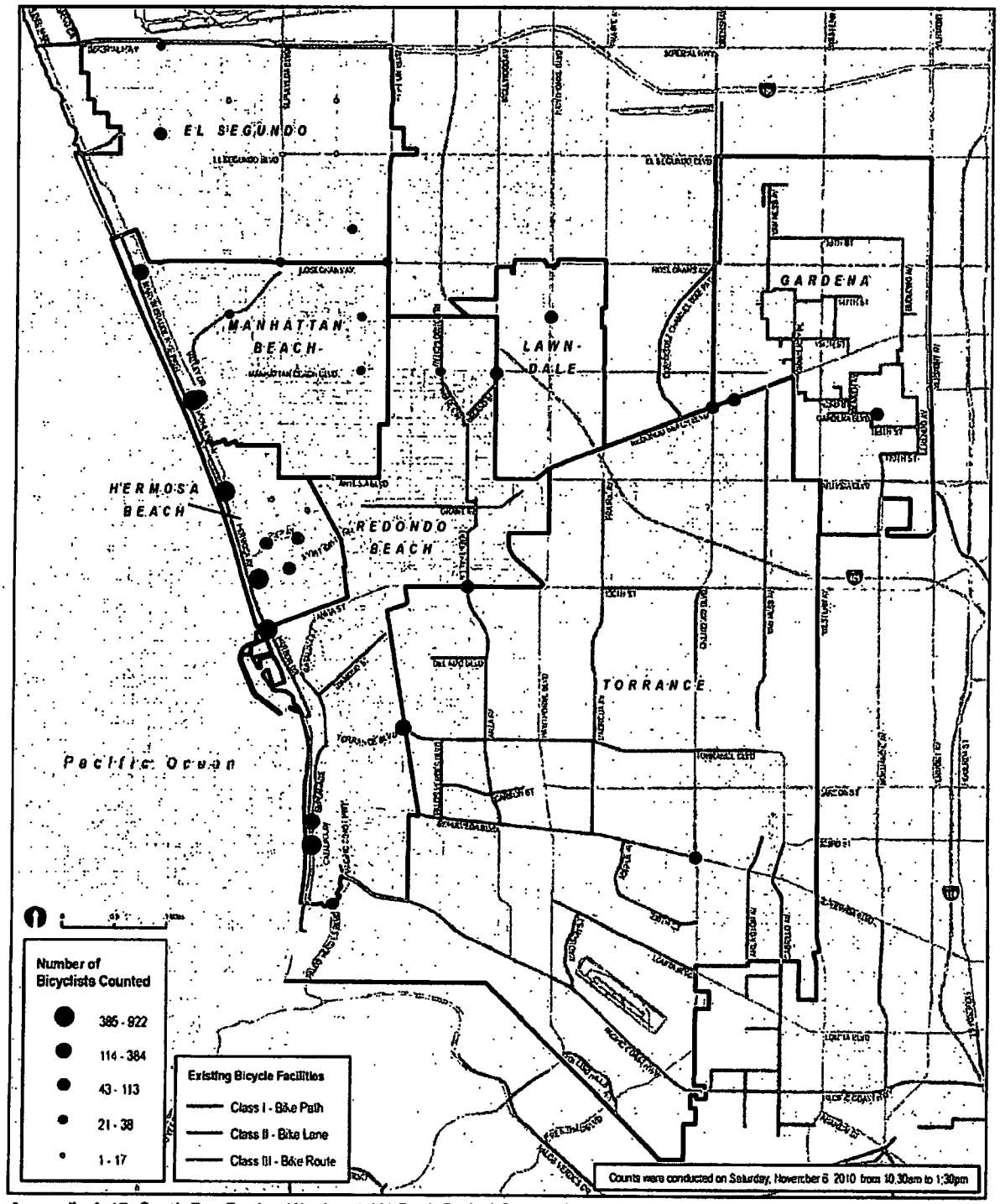
South Bay Bicycle Master Plan

El Segundo - Gardena - Hermosa Beach - Lawndale - Manhattan Beach - Redondo Beach - Torrance
Source: US Census (2008); Date: 1/4/2011



Appendix A-16: South Bay Region Weekday PM Peak Period Count of Bicyclists

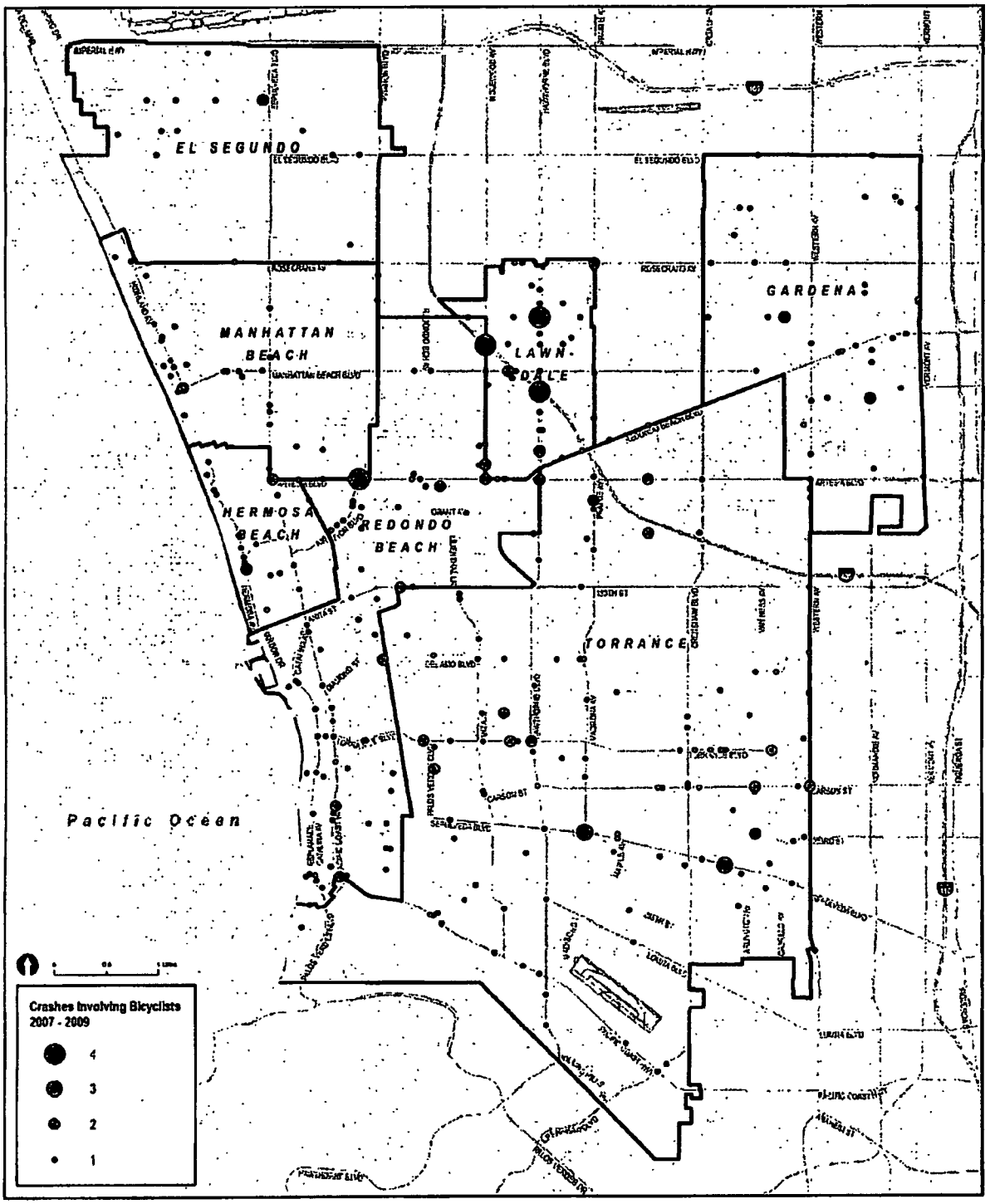
South Bay Bicycle Master Plan
El Segundo · Gardena · Hermosa Beach · Lawndale · Manhattan Beach · Redondo Beach · Torrance
Date: 1/1/2011



Appendix A-17: South Bay Region Weekend AM Peak Period Count of Bicyclists

South Bay Bicycle Master Plan

Source: Metro (2010) Date: 6/1/2011



Appendix A-18: South Bay Region Bicycle Crashes (2007-2009)

South Bay Bicycle Master Plan