

# FINAL DRAFT BICYCLE TRANSPORTATION PLAN City of Pasadena



Prepared by Ryan Snyder Associates, LLC  
In Association with

RBF Consulting  
Iteris, Inc.

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# City of Pasadena Final Draft Bicycle Transportation Plan Update

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# CALTRANS STREETS AND HIGHWAYS

## CODE 891.2

Approved	Streets and Highways Code 891.2 Bicycle Transportation Account Requirement	Page(s)
	Existing and future bicycle commuters	6.34
	Description of existing and proposed land use patterns	3.1-3.2
	Land use planning map	3.3
	Maps of existing and proposed bikeways	5.9, 6.21, 6.23
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	Description of proposed bikeways	6.1-6.27
	Maps of existing and proposed bicycle parking facilities	5.13, 6.29
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# CHAPTER 1.0

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## INTRODUCTION

The City of Pasadena and its residents are prepared to progress to an advanced stage of integrating bicycles as an important component of the transportation system. For years, Pasadena has encouraged bicycling with a network of bikeways, bicycle parking, links to transit, and other accommodations. The Century of Bikes Bicycle Master Plan, completed in 1999, has been almost completely implemented. As one of the most bicycle-friendly communities in Los Angeles County, cyclists regularly traverse Pasadena's neighborhoods and have become an everyday part of our streets. Pasadena has passed the infancy phase of bicycle planning and is poised to join notable cities, such as Santa Barbara, Davis, Palo Alto, Portland, and Seattle, into more mature stages of bicycle planning. With sufficient bicycle facilities and programs, the City can reach the "tipping point" with enough bicyclists to create significant cultural change and make cycling a way of life here.

Pasadena recognizes the value of becoming more bicycle friendly. The City wishes to offer opportunities for healthier lifestyles, reduce dependence on autos to reduce global warming gases and air pollution, reduce energy consumption, and create more desirable neighborhoods. Elevating the status of bicycling is entirely consistent with Pasadena's other efforts to respond to these issues. The City has taken a leadership role in sustainable transportation. This document updates the City's Century of Bikes Bicycle Master Plan adopted in November 2000 to launch Pasadena to the next stages of accommodating and encouraging bicycle travel for both utilitarian and recreational trips. It will help to usher Pasadena well into the ranks of bicycle-friendly cities and into the age of environmental sustainability.

The City conducted an aggressive public outreach effort to learn the needs of local cyclists, to collect information from a broad variety of bicyclists, and to assess the community's priorities. At this draft stage, the City has held three public workshops. The first public workshop introduced the effort. The second workshop solicited feedback on a draft set of action items to realize goals and objectives. Draft recommendations were presented at the third workshop, and attendees were asked to describe their priorities within the draft plan. A fourth workshop solicited comments on the Draft Plan. A survey questionnaire has circulated through bicycle shops, community events, local cyclists, and on the City's website. To complement this effort, an ad hoc Bicycle Transportation Plan Advisory Committee made up of diverse local representatives helped to steer the planning effort. Finally, the consultant team collected miscellaneous suggestions from a significant number of people who sent in comments.

This Bicycle Transportation Plan will serve as the guiding document for the City to follow in improving its bicycle infrastructure and programs. It complements the Mobility Element of the General Plan with details to carry out the bicycle component of the Mobility Element. This Plan prioritizes projects and enables the City to apply for outside funding in a systematic manner.



Chapter 2 describes the public outreach effort along with the results. Chapter 3 sets the planning context for this Plan. Chapter 4 contains the Goals, Objectives, and Action items. Chapter 5 assesses existing conditions. Chapter 6 shows the newly planned projects, and is the core of this Plan. Chapter 7 provides a funding and implementation plan. Chapter 8 illustrates design guidelines for the City to follow.

In order to be eligible for Bicycle Transportation Account funds, this Bicycle Transportation Plan must contain the following as specified by the California Streets and Highways Code 891.2:

- a) Estimated number of existing bike commuters and estimated increase
- b) Map and description of existing and proposed land use
- c) Map and description of existing and proposed bicycle routes
- d) Map and description of existing and proposed bicycle parking
- e) Map and description of existing and proposed links to other transportation modes
- f) Map and description of existing and proposed facilities for changing and storing clothes and equipment
- g) Description of safety education programs, efforts by law enforcement, and effect on accident rates
- h) Description of public input
- i) Description of coordination with other local and regional transportation, air quality, and energy conservation plans
- j) Description of projects and their priorities
- k) Description of past expenditures and future financial needs

These are all covered throughout this Plan. The Caltrans Table of Contents on page I identifies the pages where each of these can be found.



# CHAPTER 2.0

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## PUBLIC OUTREACH

Public input was an essential part of preparing the Bicycle Transportation Plan. A comprehensive public outreach program was implemented in order to learn about the local cycling environment, to understand cyclists' needs and ensure they are met, and to set priorities. The outreach program included the following elements:

- Bicycle Transportation Plan Advisory Committee
- Community Opinion Survey
- Public Workshops
- Public Comments via e-mail

### **2.1 BICYCLE TRANSPORTATION PLAN ADVISORY COMMITTEE**

The Bicycle Transportation Plan Advisory Committee was comprised of representatives from the City, including the Transportation Planning and GIS departments; residents; local business owners; and members of Cyclists Inciting Change thru Live Exchange (C.I.C.L.E.). The Advisory Committee was assembled to advise the project team of current cyclists' concerns, and to provide guidance and input on the development of the Bicycle Transportation Plan. The Committee held a total of four meetings, and also facilitated break-out discussion groups during a public workshop.

### **2.2 COMMUNITY OPINION SURVEY**

A bicycle survey was made available to the public on the internet via a link on the Department of Transportation website. Hard copies were distributed by the City at public workshops, local bicycle shops, and a bicycling event at the Rose Bowl. The local *In Focus* newsletter advertised the Bicycle Transportation Plan process, workshops, and survey, and the City of Pasadena website homepage provided a link to the on-line Survey. The Survey was made available in both English and Spanish.

A total of 1,138 responses were received and analyzed, including 1,136 in English and two in Spanish. This amounts to nearly 1 percent of Pasadena's population. The questions included the following:

1. What is your age?
2. What is your gender?



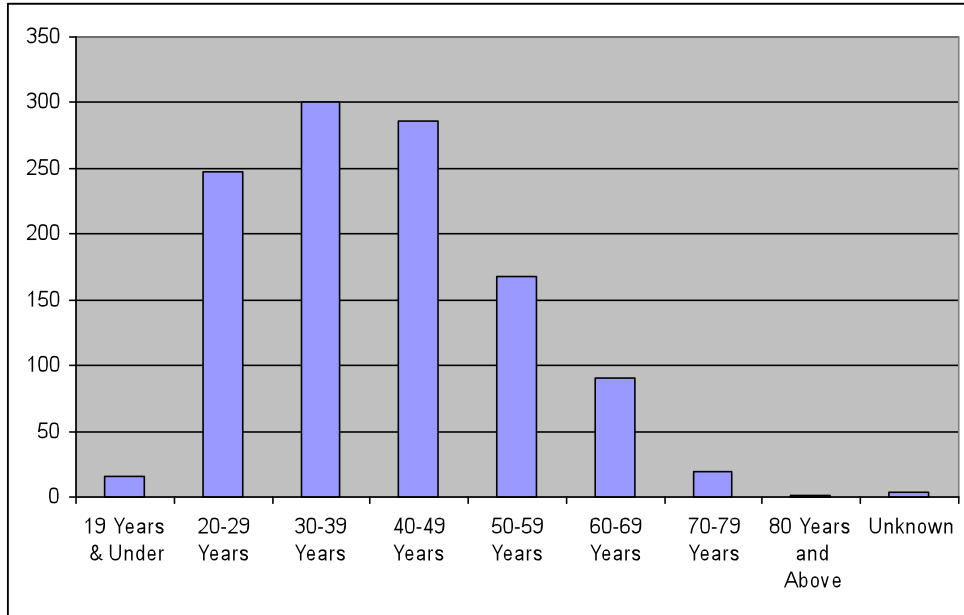
3. How much do you currently bicycle?
  - a. At least once a day
  - b. 1-6 times per week
  - c. 1-4 times per month
  - d. A few times per year
  - e. Never
  
4. What is the purpose of the trips that you make on a bicycle? (Please check all that apply)
  - a. Commute to work
  - b. Commute to school
  - c. Recreation/fitness
  - d. Shopping/errands
  - e. To visit friends or relatives
  - f. Other (Please specify)
  
5. Why do you choose to use a bicycle? (Please check all that apply)
  - a. Avoid cost / availability of vehicle parking
  - b. Save money on gas
  - c. Avoid traffic congestion
  - d. Better for the environment
  - e. Other (Please specify)
  
6. What prevents you from bicycling more in Pasadena? (Please check all that apply)
  - a. Lack of safe streets to ride on
  - b. Lack of bicycle parking
  - c. Lack of showers and clothing lockers at work
  - d. Destinations are too far
  - e. Need access to a car
  - f. Other (Please specify)
  
7. Where would you most like to see new or improved bicycle routes in Pasadena? (Please list up to three streets or corridors)
  
8. Where would you most like to see new bicycle parking in Pasadena? (Please list up to three locations)



The charts below summarize the responses to the questions posed above.

As shown in Chart 2-1, nearly three-quarters (74 percent) of the respondents were between the ages of 20 and 49. The largest group was between 30 and 39 years old.

**CHART 2-1: AGE OF RESPONDENTS**



Survey respondents were also primarily male, with almost two-thirds (66 percent) male and one-third (34 percent) female.



As shown in Chart 2-2, about two-thirds of respondents ride a bicycle one to six times per week. This is significant in that our survey captured nearly 1 percent of residents.

**CHART 2-2: HOW MUCH DO YOU CURRENTLY BICYCLE?**

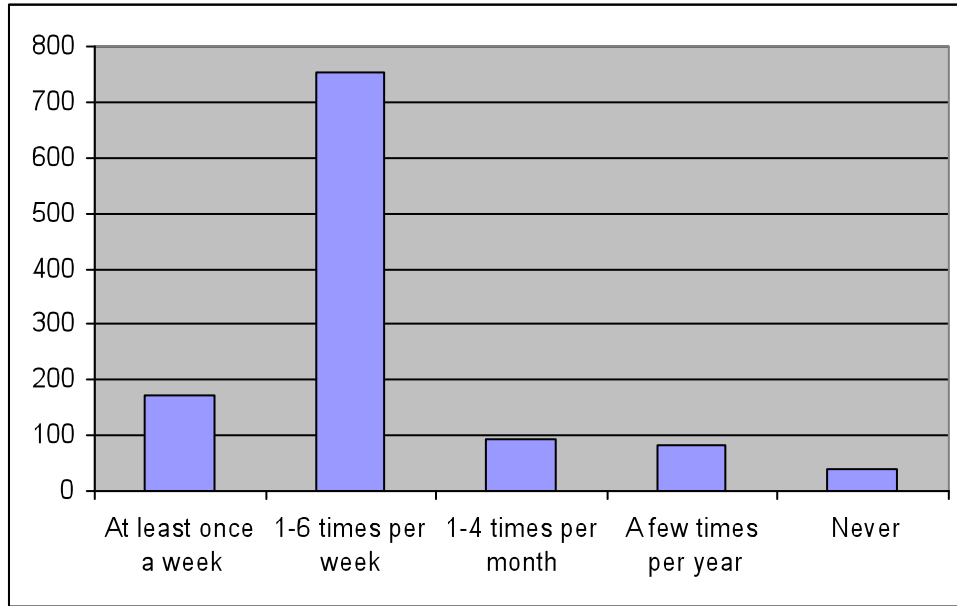


Chart 2-3 shows that the most common reasons for making a bicycle trip were for recreation and fitness, followed by shopping and errands, then commuting to work. The most frequent reasons specified for the “Other” response to this question included the following: health and fitness, travel to entertainment and/or events, bicycle as primary or only mode of transportation, and travel to church.

**CHART 2-3: PURPOSE OF BICYCLE TRIPS**

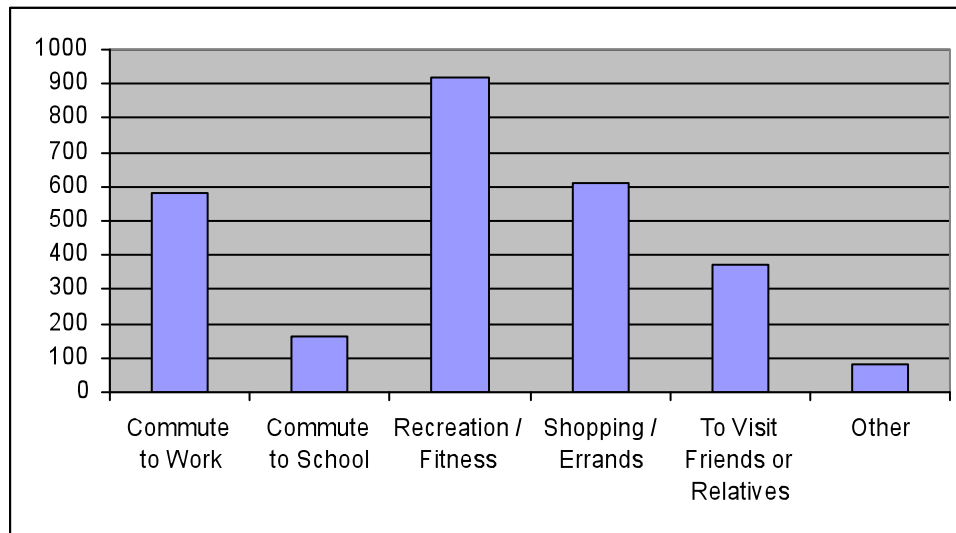


Chart 2-4 shows that the most common reason for choosing a bicycle for travel is because it is better for the environment. Quite a few respondents also valued saving money on gas, avoiding cost and the lack of availability of vehicle parking, and avoiding traffic congestion. The most frequent reasons specified for the “Other” response for this question included leisure and pure enjoyment, and connecting with the community.

**CHART 2-4: WHY DO YOU CHOOSE A BICYCLE?**

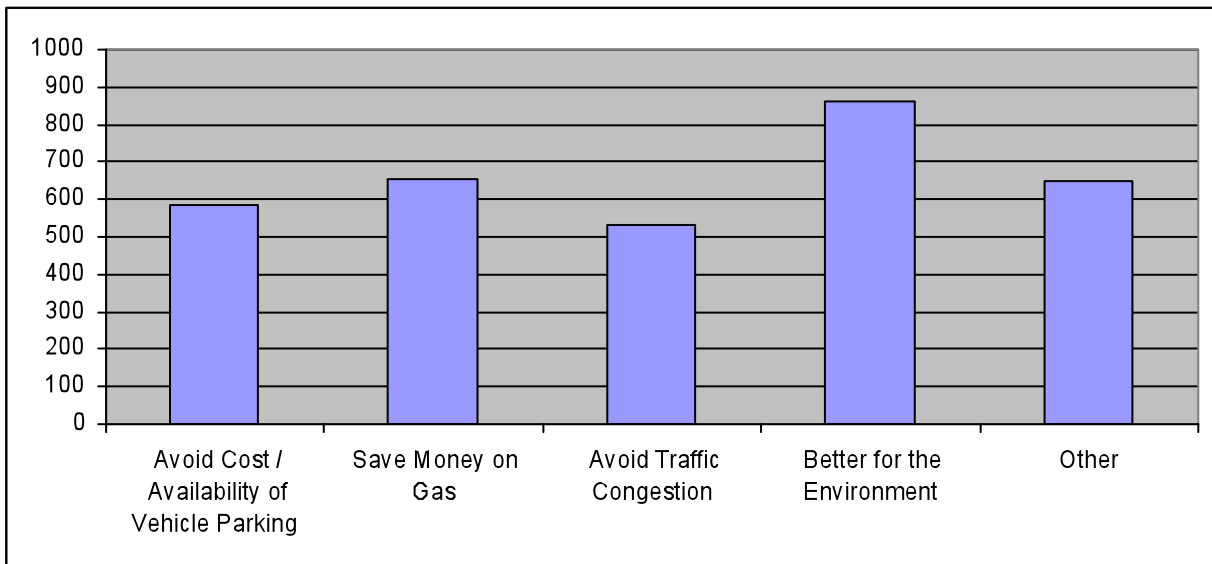
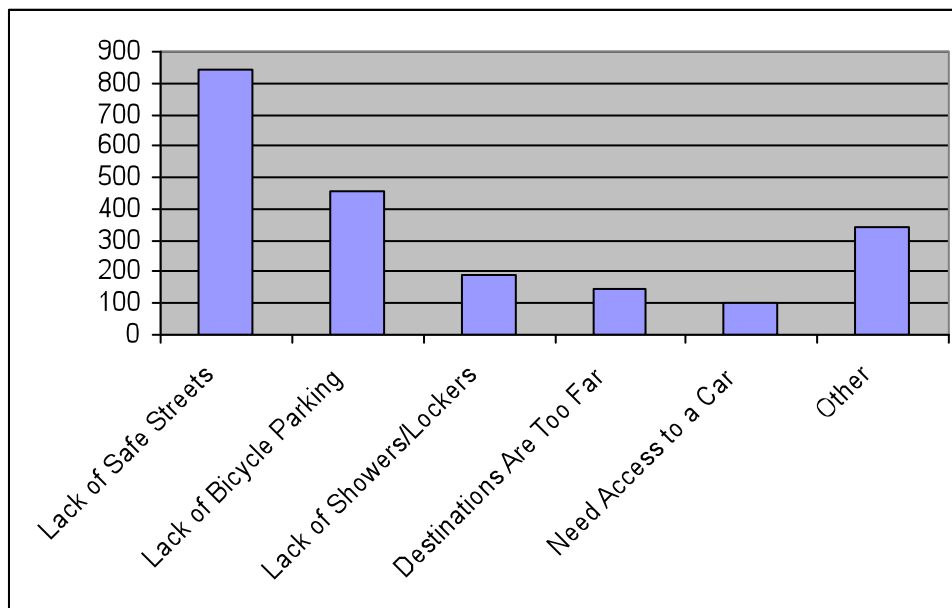




Chart 2-5 shows that the most common factor preventing respondents from bicycling more in Pasadena is the lack of safe streets, followed by a lack of bicycle parking, then lack of showers and lockers. The most frequent reasons specified for the “Other” response for this question included the following: vehicle traffic and unsafe drivers, lack of secure bicycle parking, poor road conditions, and lack of traffic light sensors for bicycles. Respondents cited lack of driver awareness of cyclists, as well as incomplete bicycle routes and cars parked in bicycle lanes, as major deterrents to a sense of safety while cycling.

**CHART 2-5: WHAT PREVENTS YOU FROM BICYCLING MORE?**



The five most common streets where respondents wanted to see bicycle improvements were Colorado Boulevard, Lake Avenue, California Boulevard, Del Mar Boulevard, and Orange Grove Boulevard (refer to Figure 6). Of these top five, all are east-west streets with the exception of Lake Avenue. Many streets of the next most popular group are also east-west, with the exceptions of Fair Oaks Avenue and Los Robles Avenue.

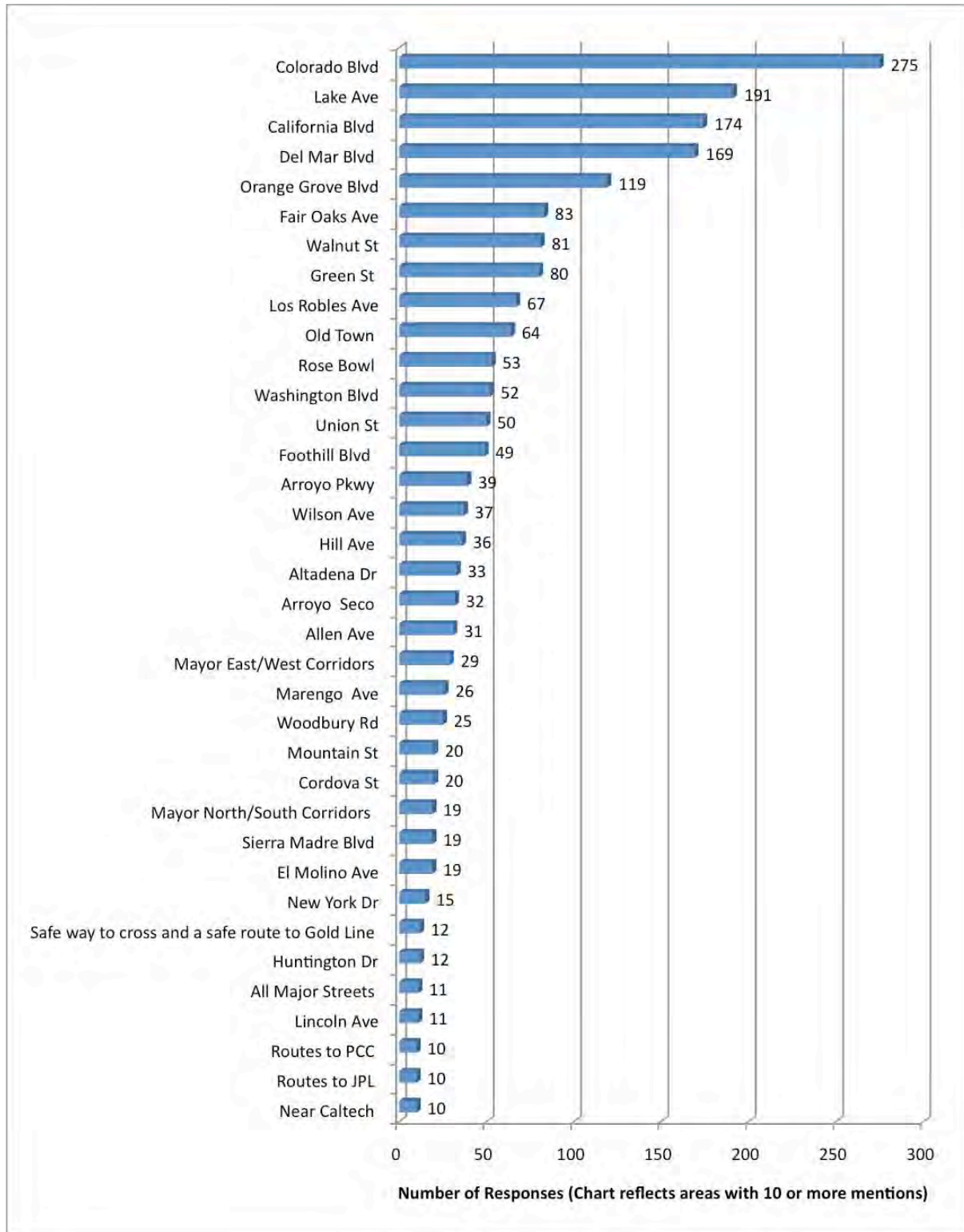
The three most common areas where respondents wanted to see bicycle parking improvements were in Old Pasadena, at the Paseo Colorado, and along Colorado Boulevard (refer to Chart 2-7). Other frequently cited areas included shopping centers and supermarkets, Metro Gold Line stations, and along Lake Avenue. Many respondents cited a need for more secure parking, including parking facilities in active, visible areas, to deter theft.



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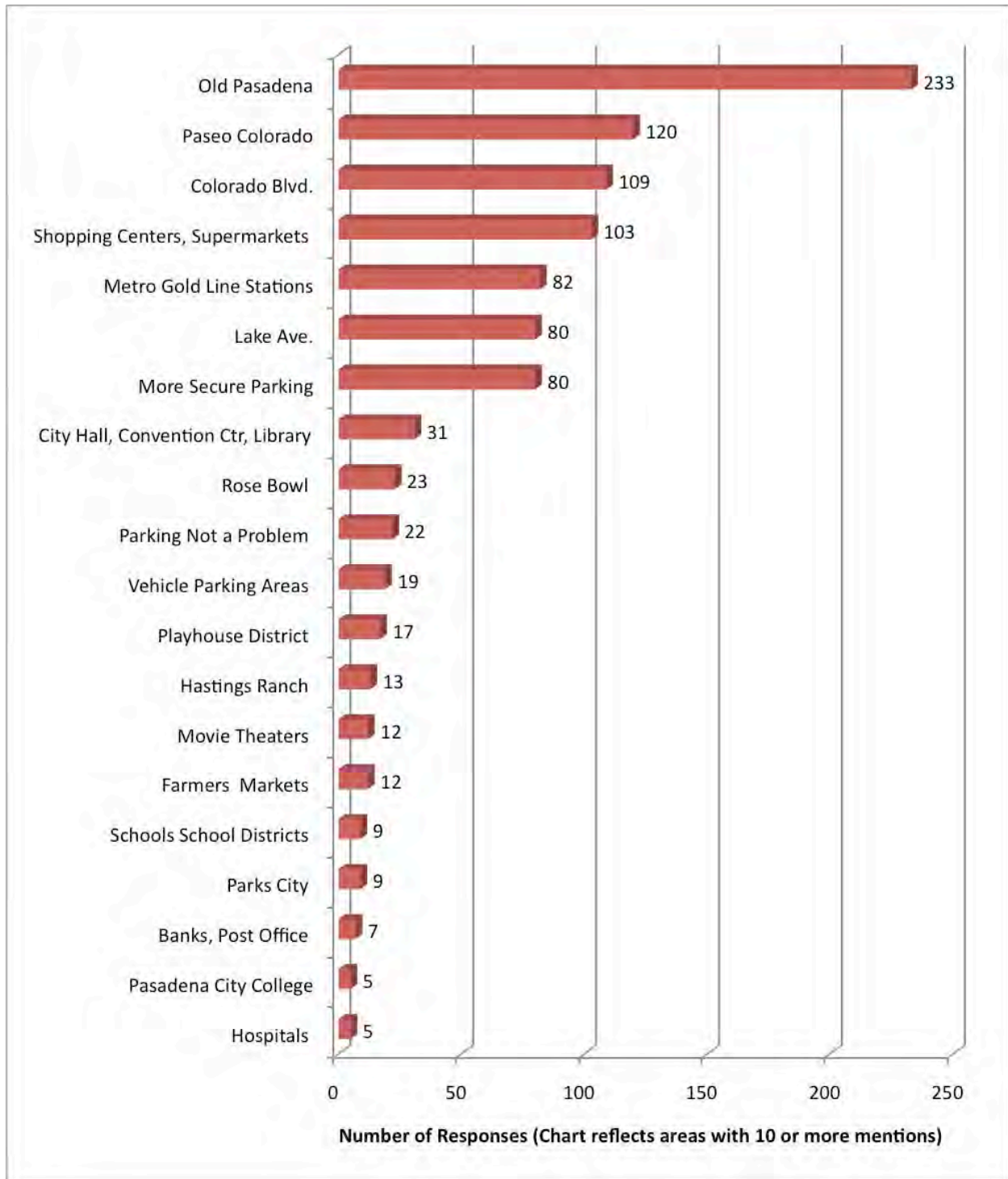
CHART 2-6: RESPONDENT RECOMMENDATIONS FOR NEW OR IMPROVED BICYCLE FACILITIES



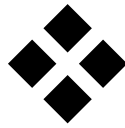
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**CHART 2-7. RESPONDENT RECOMMENDATIONS FOR NEW OR IMPROVED BICYCLE PARKING FACILITIES**



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## 2.3 PUBLIC WORKSHOPS

A total of four public workshops were held during the development phase of the Bicycle Transportation Plan. The public was notified about the meetings through the Pasadena Star News, the bi-monthly Pasadena *In Focus* newsletter, the homepage and Department of Transportation page of the City's website, distributed flyers, direct e-mails, and blogs.



The first meeting was held on February 17, 2009, and was attended by approximately 60 people (see Figure 2-1). At this workshop, attendees were asked to identify issues of concern relative to bicycling in Pasadena that should be analyzed in the Bicycle Transportation Plan. The most prominent issues were:

Figure 2-1: Public Workshop

- Motorist and cyclist safety education
- Improved road sharing, including “road diets,” contra-flow lanes for bicycles on one-way streets, “enhanced” roads and why they do not work, and roundabouts/traffic circles
- Road maintenance, specifically for potholes and debris in bicycle lanes. A pothole hotline is needed.
- Rose Bowl safety concerns, specifically multi-directional users, particularly during peloton; fair use of available space
- Traffic signal timing and bicycle sensors. Look at timing signals so actuation occurs before the signal so the light is green when cyclists arrive.
- Potential for bikeways on one-way streets
- The City has tried “enhanced” bike routes with “Share the Road” signs; many think that these signs are insufficient.
- Sharrows will help
- Motorists block bike lanes at schools; parked cars in bicycle lanes
- Multi-use trail

The participants identified numerous streets that were in need of new bicycle facilities, or improvements to existing facilities. Following is a partial list of the recommended streets:

- Colorado Boulevard
- Walnut Street near Old Pasadena / City Hall
- Los Robles Avenue
- El Molino Avenue
- Fair Oaks Avenue
- Lake Avenue
- Villa Street
- Northern Pasadena routes
- Orange Grove Boulevard

The participants also cited bicycle theft and lack of parking as a major areas of concern, and identified the following areas that are in need of more, and more secure (i.e., visible, well-frequented locations, with tamper-proof racks) bicycle parking facilities:

- Rose Bowl
- Old Pasadena
- Colorado Boulevard
- Metro Gold Line stations
- Libraries
- Memorial Park
- Central Park
- Civic Center
- Paseo Colorado

The second public workshop was held on May 19, 2009, and was attended by approximately 40 people. During this workshop, the established Goals and Objectives of the Plan were reviewed, and the attendees were asked to provide input and recommendations on the specific Actions under each Objective. A discussion group was facilitated for each Objective by members of the Bicycle Transportation Plan Advisory Committee. Most of the comments supported the recommended actions, and also provided suggestions for expanded actions. A sample of notable discussion points follows:

- Bicycle improvements should be focused on streets with fewer cars (e.g. Mountain Street, Union Street, Los Robles Avenue, Green Street, and Del Mar Avenue).
- New businesses and multi-family construction should be required to provide secure bicycle facilities.
- City-provided incentives for encouraging bicycle commuting could be created for Existing businesses, as could facility design standards for increasing bicycle parking at those businesses.
- Mountain Street would be a good candidate for road diets or restricted vehicular access.





- Bicycle facilities should include vehicle traffic calming measures.
- Bicycle facilities should include ample, effective, and secure bicycle racks and lockers in visible locations.
- Education, awareness, media promotions, and promotional events are an essential part of the Plan.
- Bicycle counts should be undertaken at various locations.
- An increased police awareness and response to bicycle incidents is needed.
- The city needs to actively work with the school district for curriculum on bicycle safety.
- Design elements and specific criteria for acceptable bicycle parking should be incorporated to integrate facilities into the urban character.
- Signage should include points-of-interest and mileage indicators for cyclists, pedestrians, and motorists, and should also identify alternative routes.
- Connections need to be made to neighboring communities.
- Partnerships with area gyms, hotels, or similar facilities for cyclist use of showers and changing rooms are needed.
- Permanent historic Pasadena bicycle routes similar to historic walking routes should be established.
- The Plan should include a set of incentives for cycling to school or work, as well as penalties, including no school drop off lanes, less car parking, and fines, for harassing cyclists.

The third public workshop was held on October 1. A map of the draft Plan routes was presented. Attendees were asked to respond to the planned routes, and to prioritize them with dots. Participants placed red dots next to the bikeways that they wanted highest priority for, blue dots for second priority bikeways, and no dots for third priority bikeways. In scoring these, two points are given for each red dot, and two for each blue dot. Table 2-1 on pages 2-16, 2-17 and 2-18 displays the results.



TABLE 2-1: PUBLIC MEETING BIKEWAY PRIORITIES

Priority Points	Bikeway Improvements	From	To
33	Marengo Ave. bike lanes, bike route and emphasized bikeway	Howard St.	Glenarm St.
30	El Molino Ave. emphasized bikeway	Howard St.	Fillmore St.
30	Wilson Ave. bike lanes and emphasized bikeway	Washington Blvd.	Arden Road
27	California Blvd. bike route	Arroyo Blvd.	Allen Ave.
26	Union St. bike lanes	Hill Ave.	St. John's Ave.
26	Rose Bowl Loop bike lanes and bike route	Rosemont Ave. / W. Washington Blvd.	West Drive / Seco St.
25	Washington Blvd. bike lanes	Rosemont Ave	Eastern City Limit
25	Washington Blvd. bike lanes	City limit east of Altadena Dr.	Sierra Madre Blvd.
25	Mountain St./Paloma St. emphasized bikeway/bike route	Lincoln Ave.	Sierra Madre Villa Ave
25	Colorado Blvd. bike lanes and bike route	Western city limit	Orange Grove Blvd.
25	Cordova St. bike lanes	Arroyo Parkway	Hill Ave.
24	Walnut St. bike lanes	Orange Grove Blvd.	Pasadena Ave.
22	Arroyo Seco Bike Path	Hahamonga Watershed Park	I-210
20	Orange Grove Blvd. bike route and bike lanes	Columbia St.	Walnut St.
20	Del Mar Blvd. bike route	Orange Grove Blvd.	Madre St.
20	Los Robles Ave. bike route	Northern city limit	Southern city limit
20	Sierra Madre Blvd. bike lanes	Eastern city limit	Del Mar Blvd.
19	Villa St. bike route and bike lanes	Lincoln Ave.	Sierra Madre Blvd.
19	Allen Ave. bike lanes and bike route	Northern city limit	California Blvd.
19	Eaton Wash Bike Path	Eaton Canyon Reservoir	Foothill Blvd.
18	Glenarm St. bike route	Pasadena Ave.	El Molino Ave.
17	Green St. bike route	Pasadena Ave.	Hill Ave.
17	Arroyo Blvd. bike lanes	I-210 freeway	Rosemont Ave.



TABLE 2-1: PUBLIC MEETING BIKEWAY PRIORITIES CONTINUED

Priority Points	Bikeway Improvements	From	To
15	Craig St. emphasized bikeway	Mountain St.	Southern city limit
15	Altadena Dr. bike route	Northern city limit	Del Mar Blvd.
15	New York Drive bike lanes	Western city limit	Sierra Madre Blvd.
14	Raymond Ave. bike lanes and bike route	Montana St.	Maple St.
12	Howard St./ Holliston Ave./ Elizabeth St. bike route	West Washington Blvd.	Eastern city limit
12	Sierra Bonita Ave. emphasized bikeway	Washington Blvd.	Southern city limit
11	Oak Grove Dr. bike lanes	Berkshire Ave.	Unincorporated County Line
11	Lake Ave. bike route	I-210 freeway	Arden Road
11	Rosemead Blvd. bike route	Sierra Madre Blvd.	Foothill Blvd.
10	Foothill Blvd. bike route	Altadena Drive	Rosemead Blvd.
10	Hill Ave. bike lanes and bike route	Northern city limit	California Blvd.
9	St. John Ave./ Maple St. bike lane	Sierra Madre Blvd.	Del Mar Blvd.
9	Holliston St. / San Pasqual St. bike route	Lake Ave.	Eastern city limit
9	Linda Vista Ave./Colorado Blvd. connection bike lanes	Linda Vista Ave.	Colorado Blvd. @ San Rafael Ave.
9	Arroyo Blvd./California Blvd./Grand Ave. bike route	Rosemont Ave.	Columbia St.
9	Sierra Madre Villa Ave. bike route	Sierra Madre Blvd.	I-210
8	Pasadena Ave. / Corson St. bike lane	Southern city limit .	Sierra Madre Blvd.
7	Linda Vista Ave. bike route	Northern city limit	CA-134 Freeway
6	Lida St. bike route and bike lanes	Western city limit/ Art Center College of Design	Linda Vista Ave
6	La Loma Rd. bike route	Avenue 64	Arroyo Blvd.
6	Melrose Ave./ Ave. 64 bike route	Colorado Blvd.	Southern city limit
6	Casitas Ave./Howard St./Forest Ave./Lincoln Ave. bike route	Northern city limit	Maple St.
6	Kinneloa Ave. bike lanes	Foothill Blvd.	Del Mar Blvd.
6	Hastings Ranch Dr. bike route	Sierra Madre Blvd.	Rosemead Blvd.
4	Fillmore St./Arden Rd. bike route	Fillmore Gold Line Station	Wilson Ave.



TABLE 2-1: PUBLIC MEETING BIKEWAY PRIORITIES CONTINUED

Priority Points	Bikeway Improvements	From	To
2	Halstead St. bike lanes	Rosemead Blvd.	End of St. South of Foothill Blvd.
0	Greenhill Rd. bike route	Rosemead Blvd.	Eastern city limit
0	Hampton Rd. bike route	Hastings Ranch Road	East city limit
0	Madeline Dr./Arlington Dr. bike route	Arroyo Blvd.	Pasadena Ave.

The fourth public workshop presented the Final Draft Bicycle Transportation Plan, and solicited comments on the Plan.

## 2.4 PUBLIC COMMENTS VIA E-MAIL

The City received a number of comments from residents via e-mail. Major concerns and suggestions from these comments included the need for the following:

- An extensive and comprehensive awareness and education campaign to encourage more cyclists and educate motorists. Campaign should include school administrations, among others.
- Bicycle counts for baseline and goal setting
- More secure bicycle racks and more efficient bike racks
- Details about consistent funding options available
- A focus on reducing car speed and usage on streets through road engineering

Residents also recommended that:

- The Plan should target roads not heavily used by motorists; i.e., roads adjacent to main arterials
- Bicycle signage should read “Bikes Have Full Use of Lane” instead of “Share the Road”
- Traffic light sensors should be sensitized to cyclists

All public comments and input were taken into consideration with the development of this Plan. Many of the improvements suggested at meetings and in the survey have been incorporated into the Bicycle Transportation Plan.



# CHAPTER 3.0

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## PLANNING CONTEXT

### 3.1 CITY PLANNING

#### *General Plan Update*

The City is currently updating its General Plan to coordinate smart land use and transportation planning to the fullest to conserve natural resources and minimize greenhouse gas emissions. The main goal is to cultivate and maintain a vibrant and resilient community with the best possible quality of life for future generations.

The seven guiding principles of the 2004 General Plan are:

- Growth will be targeted to serve community needs and enhance the quality of life.
- Change will be harmonized to preserve Pasadena’s historic character and environment.
- Economic vitality will be promoted to provide jobs, services, revenues, and opportunities.
- Pasadena will be promoted as a healthy family community.
- Pasadena will be a city where people can circulate without cars.
- Pasadena will be promoted as a cultural, scientific, corporate, entertainment, and educational center for the region.
- Community participation will be a permanent part of achieving a greater city.

#### *Land Use*

The Land Use Element of the General Plan will determine where the City will direct growth. The City aims to concentrate new development around Colorado Boulevard, Lake Avenue, Fair Oaks Avenue, and Foothill Boulevard. The largest new developments will be directed to walkable mixed-use developments, transportation-oriented-developments, higher density multi-family apartments and condominiums, school expansions, university office and laboratory expansions, and medical buildings. Moreover, the City intends to concentrate new growth around Gold Line train stations to reduce vehicle trips by increasing transit use, walking, and bicycling. Map 3.1 illustrates the present zoning.

#### *Mobility Element*

The Mobility Element of the General Plan is being updated simultaneously with this Bicycle Transportation Plan. As of September 2009, the City is in the process of engaging the public through outreach. The Mobility Element will incorporate recommendations from this Bicycle Transportation Plan Update. It will look at the street as a whole, promote neighborhood protection, and encourage non-auto travel. The Mobility Element will break new ground with new performance measures to replace the common measure, “level of service” (LOS), which assesses vehicle delay.



*Green City*

Pasadena has committed to becoming a sustainable and green community. The City addresses urban growth issues impacting energy, waste reduction, and transportation among other topics. In 2006, the City passed a proclamation in support of the United Nations Green Cities Declaration and Urban Environmental Accords. This Declaration contains 21 action items that address environmental change and how the urban environment contributes. By encouraging bicycle riding as an alternative mode of transportation, the City continues to support sustainable practices.

*Green Space, Recreation and Parks Element*

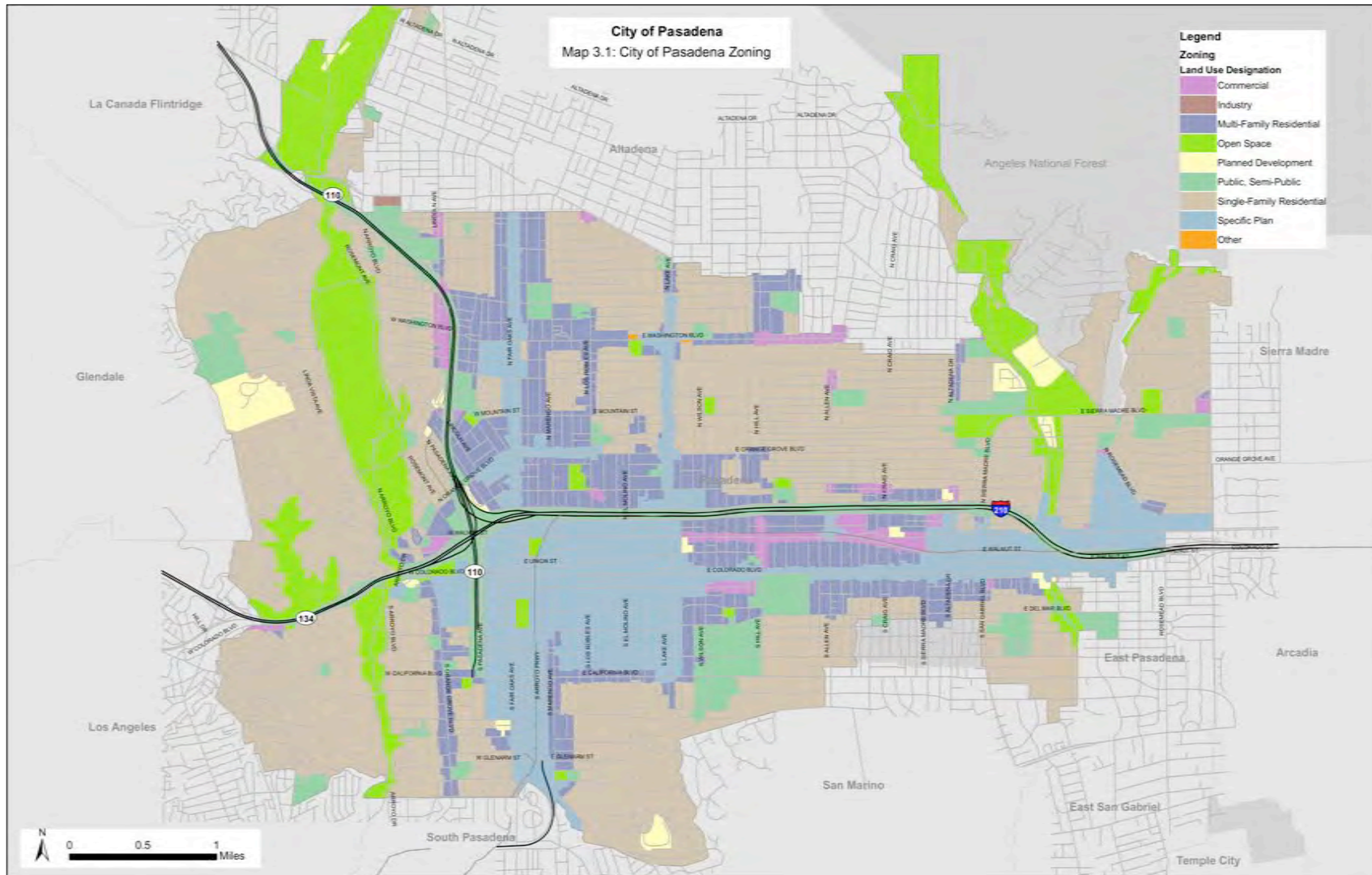
The City updated its Green Space, Recreation and Parks Element in 2007. The element specifically acknowledges the need for trails and open space connectivity through trails for bicyclists and pedestrians in Open Space zoned areas and city rights-of-way. By adopting this Plan, the City can continue to provide new opportunities for recreation and connectivity.

*Quality of Life Index*

In 2002, the Pasadena Public Health Department and the Healthy Cities Steering Committee published the *Pasadena/Altadena Quality of Life Index*. The index began in 1992, and continues to track quality of life indicators over time. The index specifically calls out for the promotion of health alternatives to driving, including bicycling due to traffic concerns, pollution, and physical activity



MAP 3.1: EXISTING ZONING



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### *Previous Bicycle Plan*

In November 2000, the City adopted its most recent Bicycle Master Plan, called “Century of Bikes.” This Plan calls for a comprehensive network of bike lanes and routes, proposes bicycle parking and bicycle programs, identifies funding sources, and lists project priorities. The City has implemented a majority of this Bicycle Plan.

## **3.2 BIKEWAY PLANS OF NEIGHBORING CITIES**

Some of Pasadena’s neighboring cities have bicycle plans that link with its bikeways.

The **City of La Cañada Flintridge** has a proposed bike lane on Foothill Boulevard and a proposed bicycle route on Berkshire Avenue, both of which will link directly to an existing bike lane on Oak Grove Drive in Pasadena. The City also has plans for a bike lane on Highland Drive that will connect to Pasadena’s enhanced bike route on Linda Vista Avenue.

The **City of Glendale** Bikeway Master Plan has no connections to Pasadena. The City will update its Bicycle Master Plan soon.

The **City of Los Angeles** has an existing bicycle route on Colorado Boulevard, which links to a proposed bikeway on the street of the same name in Pasadena. The City also has an existing bicycle route on San Pascual Avenue, which connects to South Grand Avenue, an existing bicycle route in Pasadena. The City is currently updating its Bicycle Master Plan.

The **City of South Pasadena** adopted a bicycle plan in 2005. Currently, the City is looking to update its existing plan. The plan proposes class II bikeways that would link to the City of Pasadena along Fair Oaks Avenue, Meridian Avenue, and Orange Grove Avenue. The bikeways on Meridian Avenue and Orange Grove Avenue will connect to Pasadena’s bikeway on Orange Grove Boulevard.

The **City of San Marino** has an existing Class III bicycle route on San Pasqual Street that links with the existing bicycle route on San Pasqual Street in Pasadena. The City does not have plans to create a bike plan or any bike routes.

The **City of Arcadia** has existing bicycle routes on Fallen Leaf Road and Singing Wood Drive that could tie to Pasadena along a bicycle route on Hampton Road. These bicycle routes link with the Arcadia network of bikeways. The bikeways shown on the Los Angeles County Metropolitan Transportation Authority Plan bike maps are the most official in Arcadia. All bike plans for Arcadia are unofficial, yet the desire to create plans exists.

The **City of Sierra Madre** does not have a bicycle plan or any designated routes, nor are there plans to create either in the near future.



The **County of Los Angeles** has existing bikeways on Altadena Drive and New York Drive, both of which provide linkages to an existing bike lane on Altadena Drive and New York Drive in Pasadena. The County also has an existing bike lane on Allen Avenue, which provides access to the existing bike route on Allen Avenue in Pasadena, and an existing lane on Washington Boulevard, which connects to existing bicycle routes on Washington Boulevard and Altadena Drive. The County is in the process of updating its Bicycle Master Plan.

### **3.3 CONSISTENCY WITH REGIONAL PLANS**

The Los Angeles County Metropolitan Transit Authority “Metro Bicycle Transportation Account Compliance Document” of 2006 shows a proposed bicycle lane on Rosemead Boulevard south of Pasadena. All other bikeway connections in this document are consistent with those described above for each city.

This Bicycle Transportation Plan supports regional transportation goals, including those of the Los Angeles County Metropolitan Transportation Authority (LACMTA) and the Regional Transportation Plan (RTP) put forth by the Southern California Association of Governments (SCAG). The Southern California Air Quality Management District (SCAQMD) delegates its transportation planning to SCAG through its RTP document, which identifies goals and objectives that promote bicycling and reduce air emissions. An emphasis on utilitarian bicycling, including supporting amenities and infrastructure, is an important aspect of meeting these goals. The SCAG Regional Mobility Plan incorporates the LACMTA Countywide Bicycle Plan. This plan includes local bicycle routes in Pasadena that will link with those in the LACMTA Plan.

The Los Angeles County Congestion Management Program (CMP) awards credits and debits toward funding eligibility for various transportation improvements. For example, implementation of bicycle facilities would give the City credits in the CMP. These credits can be used to offset debits for other transportation improvements elsewhere in the City.

In encouraging bicycling, the Bicycle Plan will also meet the goal of reduced energy consumption.



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## GOALS, OBJECTIVES AND ACTIONS

Goals set the context for planning objectives and actions to carry out the Bicycle Transportation Plan. They provide long-term vision and serve as the foundation of the plan. Goals are broad statements of purpose. Objectives are more specific statements of purpose, and actions describe actions the City can take to meet the goals and objectives.

### 4.1 GOALS

1. Create an environment where people can circulate without a car
2. Increase the number of bicyclists in Pasadena by encouraging people to use their bicycles instead of driving
3. Increase the safety of bicycling in Pasadena
4. Promote the health of Pasadena residents by providing opportunities to bicycle for commuting, recreating, shopping, and visiting
5. Facilitate the economic viability of Pasadena by making Pasadena an attractive place to live, shop, and operate a business

### 4.2 OBJECTIVES AND ACTIONS

#### 1. Objective: Increase proportion of commute trips in Pasadena to 5 percent

##### Actions

- Implement planned citywide network of bikeways
- Recognize that bicyclists ride on all streets and that all streets need to accommodate bicyclists
- Improve technology to ensure that bicyclists can activate traffic signals at vehicle-activated intersections
- Require bicycle parking, showers, and clothing lockers in new commercial developments for commuters
- Encourage existing employers and commercial landowners to provide bicycle parking, showers, and clothing lockers for commuters
- Maintain bikeway and roadway system
- Conduct periodic bicycle counts at various locations and upgrade the bikeway network
- Assist employers with promotional campaigns to encourage bicycle commuting
- Coordinate with the Pasadena Transportation Demand Management ordinance enforcement and monitoring to ensure that employers and land owners of commercial property carry out bicycle commuter incentive programs
- Initiate a program for employers to contribute to valet bicycle parking, attendant bicycle parking, or automated bicycle parking



## 2. Objective: Increase the proportion of utilitarian trips to schools, stores, parks and other destinations to 5 percent of the total

### Actions

- Implement planned citywide network of bikeways. Ensure that these bikeways serve children, intermediate cyclists, experienced cyclists, and various recreational cyclists
- Maintain bikeway and roadway system
- Maintain other bicycle infrastructure including bicycle racks, lockers, racks on buses, etc.
- Create uniform design standards for bicycle parking
- Add safe, convenient, standardized bicycle parking to parks, schools, libraries, and other civic buildings where needed
- Work with existing stores and offices to provide convenient bicycle parking for visitors
- Conduct periodic bicycle counts at various locations and upgrade the bikeway network
- Carry out promotional efforts to encourage bicycle use
- Work with the schools to implement Safe Routes to Schools programs
- Maintain bike racks on ARTS buses. Replace racks with new 3-bicycle racks if needed. Conduct targeted promotional efforts to educate cyclists on how to use the bus bike racks.



## 3. Objective: Reduce by 30 percent the bicycle-involved crash rate (fewer crashes per mile ridden)

### Actions

- Implement planned citywide network of bikeways
- Calm motor vehicle traffic on Pasadena streets
- Provide bicycle safety education in schools, at worksites, and at public venues for local cyclists. These programs should include comprehensive safety training.
- Provide safety education for motorists to learn to interact with bicyclists
- Publish safe bicycle-riding tips
- Provide information on the City website regarding safe bicycle riding

- Work with the Police Department to ensure that traffic laws are enforced and that people are educated as to traffic laws related to bicycling
- Educate the Police Department on safe riding procedures and crash report procedures that help to better understand crash causes
- Work with the schools to implement Safe Routes to Schools programs
- Work with outside organizations and agencies to provide free helmets and lights to students and low-income cyclists
- Keep streets free of debris and potholes

#### **4. Objective: Make bicycle parking available, secure, and convenient throughout Pasadena**

##### Actions

- Create uniform design standards for bicycle parking regarding the devices, spacing, etc.
- Add safe, convenient, standardized bicycle parking to parks, schools, libraries, and other civic buildings where needed
- Require bicycle parking in new commercial and residential development
- Assist commercial property owners willing to install bike racks and/or bike lockers on their property to obtain them
- Provide bicycle parking at local bus stops
- Work with Metro to provide bicycle lockers, racks, and other parking options at Gold Line stations.
- Conduct periodic surveys to determine where bicycle parking is needed

#### **5. Objective: Create a network of bikeways so that every neighborhood is within ¼ mile of an effective bicycling route in the north-south and east-west directions**

##### Actions


- Recognize that bicyclists ride on all streets and that all streets need to accommodate bicyclists
- Maintain bikeway and roadway system
- Implement a complete network of bike paths, bike lanes, enhanced sign bike routes, and emphasized bikeways using the bikeway type appropriate for each street or corridor
- Add destination and way finding signage to bikeways
- Implement traffic calming techniques to create suitable bikeways
- Restripe appropriate multi-lane streets with road diets to create space for bicycle lanes
- Install roundabouts, mini-roundabouts, mini-traffic circles, and other treatments to reduce the need for bicycles to stop
- Link Pasadena's bikeway network with bikeways in surrounding jurisdictions



- Study and where feasible implement a bike path along the Arroyo Seco to link with downtown Los Angeles

## 6. Objective: Implement measures throughout Pasadena to improve recreational opportunities

### Actions

- Implement planned improvements to the Rose Bowl area to create better coordination among various user types
  - Implement a complete network of bike lanes, enhanced sign bike routes, and emphasized bikeways using the bikeway type appropriate for each street or corridor
- 
- Install bike paths along waterways, utility corridors, and other available rights-of-way
  - Install quality bicycle racks at parks in Pasadena
  - Promote recreational bicycling with events such as rides and races
  - Establish historic bicycle routes throughout Pasadena
  - Seek open space to establish a dedicated BMX track
  - Coordinate with organizations that volunteer to create public bicycle repair stations

## 7. Objective: Complete this Bicycle Transportation Plan within 10 Years

### Actions

- Create a tiered priority project list based on immediate needs and available funds
- Aggressively pursue all federal, state, and local funding options; leverage funds to maximize matching opportunities
- Seek opportunities to piggyback bikeway projects onto new development, road resurfacing, restriping, etc.
- Update the Bicycle Transportation Plan every five years

# CHAPTER 5.0

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## EXISTING CONDITIONS

Pasadena has one of the most extensive bikeway networks in Los Angeles County. It also has perhaps the most public bicycle parking. In addition to existing bikeways, parking, and bike parking at transit stations, the City also sponsors bicycle safety education at public schools, prints bicycle maps, and supports bicycle events. Pasadena has developed basic bicycle facilities and is poised to move to the next level to become one of the most bicycle-friendly cities in California. The following describes in detail existing conditions for bicyclists in Pasadena.

### 5.1 Bikeways

Caltrans designates three types of bikeways:

*Class I:* Referred to as a bike path, shared-use path, or multi-purpose trail. Provides for bicycle travel on a paved right-of-way completely separated from any street or highway. Other users may also be found on this type of facility.

*Class II:* Referred to as a bike lane (see Figure 5-1). Provides a striped lane for one-way bicycle travel on a street or highway.



Figure 5-1: Bike Lane

*Class III:* Referred to as a bike route. Provides for shared use with pedestrian or motor vehicle traffic.

The City has added two new categories – “enhanced bike route” and “emphasized bikeway.”

*Enhanced bike routes* are Class III bike routes with “Share the Road” signs. Many of these enhanced bicycle routes also include a parking stripe at nine feet out to narrow the travel lane.

*Emphasized bikeways* are streets that serve as through streets for bicycles, but not for motor vehicles. Motorists can use them for some distance, but one or several diverters prevent motorists from going long distances in order to keep the streets quiet and pleasant to ride on.

Chapter 8 contains design standards and guidelines for these different types of bikeways.

The following tables show existing bikeways in Pasadena.

**TABLE 5-1: EXISTING BIKEWAYS OF EAST-WEST STREETS**

Street	From	To	Facility Type (class I, II, III)
Howard St/ Elizabeth St	West Washington Blvd	Eastern City Limit	<ul style="list-style-type: none"> <li>Class III bike route from Arroyo Blvd to eastern City limit</li> </ul>
Lida Street	Western City Limit/ Art Center College of Design	Linda Vista Ave	<ul style="list-style-type: none"> <li>Class II bike lanes from Art Center College of Design to Lancashire St.</li> <li>Class III bike route from Lancashire St to Linda Vista Ave</li> </ul>
Washington Boulevard	Rosemont Avenue	Eastern City Limit	<ul style="list-style-type: none"> <li>Class III bike route from Arroyo Boulevard to Lincoln Avenue</li> <li>Class III enhanced bike route from Lincoln Avenue to eastern City limit</li> </ul>
Mountain Street	Lincoln Avenue	Altadena Drive	<ul style="list-style-type: none"> <li>Class III enhanced bike route from Lincoln Avenue to Altadena Drive</li> </ul>
Orange Grove Boulevard	Columbia Street	Sierra Madre Villa Avenue	<ul style="list-style-type: none"> <li>Class III enhanced bike route from Walnut Street to Sierra Madre Villa Avenue</li> </ul>
Villa Street	Lincoln Avenue	Sierra Madre Boulevard	<ul style="list-style-type: none"> <li>Class III enhanced bike route from Los Robles Avenue to Hill Avenue</li> <li>Class II bike lanes from Hamilton Avenue to Altadena Drive</li> </ul>
St. John Avenue/ Maple Street	Sierra Madre Boulevard	Del Mar Boulevard	<ul style="list-style-type: none"> <li>5'-6' wide Class II bike lanes between Sierra Madre Boulevard and just south of Green Street</li> <li>Gaps on Class II bike lanes between Raymond Avenue and Fair Oaks Avenue, between Marengo Avenue and Pearl Place, and between Lake Avenue and Mentor Avenue</li> </ul>





TABLE 5-1: EXISTING BIKEWAYS OF EAST-WEST STREETS CONTINUED

Street	From	To	Facility Type (class I, II, III)
Pasadena Avenue / Corson Street	Glenarm Street	Sierra Madre Boulevard	<ul style="list-style-type: none"> <li>• 5'-6' wide Class II bike lanes between Del Mar Boulevard and Carmelo Avenue</li> <li>• Gaps on Class II bike lanes between Lake Avenue and Mentor Avenue, between just north of Walnut Street and Fair Oaks Avenue, between Hudson Avenue and Mentor Avenue</li> </ul>
Foothill Boulevard	Altadena Drive	Rosemead Boulevard	<ul style="list-style-type: none"> <li>• Class III enhanced bike route</li> </ul>
Cordova Street	Arroyo Parkway	Hill Avenue	<ul style="list-style-type: none"> <li>• Class III enhanced bike route</li> </ul>
Del Mar Boulevard	Orange Grove Boulevard	Madre Street	<ul style="list-style-type: none"> <li>• Class III bike route from St. John Avenue to Wilson Avenue</li> <li>• Class III enhanced bike route from Wilson Avenue to Madre Street</li> </ul>
Holliston Street / San Pasqual Street	Lake Avenue	Eastern City Limit	<ul style="list-style-type: none"> <li>• Class III bike route on Holliston Street between Del Mar Boulevard and San Pasqual Street, and on San Pasqual Street between Holliston Street and the eastern City limit</li> </ul>
California Boulevard	Arroyo Boulevard	Allen Avenue	<ul style="list-style-type: none"> <li>• Class III bike route between Arroyo Boulevard and Grand Avenue, and between Marengo Avenue and Lake Avenue</li> <li>• Class III enhanced bike route between Lake Avenue and Allen Avenue</li> </ul>
Fillmore Street/Arden Road	Fillmore Gold Line Station	Wilson Avenue	<ul style="list-style-type: none"> <li>• Class III enhanced bike route from Fillmore Gold Line Station to Marengo Avenue</li> </ul>
Glenarm Street	Pasadena Avenue	El Molino Avenue	<ul style="list-style-type: none"> <li>• Class III bike route between Pasadena Avenue and Marengo Avenue, and between Los Robles Avenue and El Molino Avenue</li> <li>• Class II bike lanes between Marengo Avenue and Los Robles Avenue</li> </ul>



TABLE 5-2: EXISTING BIKEWAYS OF NORTH-SOUTH STREETS

Street	From	To	Facility Type (class I, II, III)
Linda Vista Avenue	Northern City Limits	CA-134 Freeway	<ul style="list-style-type: none"> <li>Class III enhanced bike route along the whole length</li> </ul>
Rose Bowl Loop	Rosemont Avenue / W. Washington Boulevard	West Drive / Seco Street	<ul style="list-style-type: none"> <li>Class II bike lanes on West Drive and Seco Street</li> <li>Class III bike route on W. Washington Boulevard and Rosemont Avenue</li> <li>Class III bike route on Seco Street between Linda Vista Drive and West Drive, and between Rosemont Avenue and Lincoln Avenue</li> <li>Class III bike route on Rose Bowl Drive between Rosemont Avenue and Seco Street</li> </ul>
Oak Grove Drive	Berkshire Avenue	Unincorporated County Line	<ul style="list-style-type: none"> <li>5' wide Class II bike lane</li> </ul>
Arroyo Boulevard	I-210 freeway	Rosemont Avenue	<ul style="list-style-type: none"> <li>Class III bike route between I-210 and Stanton Street</li> <li>Vehicle parking on east side only</li> <li>Class II bike lanes between Stanton Street and Rosemont Avenue</li> </ul>
Arroyo Boulevard/California Boulevard/Grand Avenue	Rosemont Avenue	Columbia Street	<ul style="list-style-type: none"> <li>Class III bike route from Seco Street to Columbia Street, and from Rose Bowl Drive to Rosemont Avenue (not well signed)</li> </ul>
Casitas Avenue/Howard Street/Forest Avenue/Lincoln Avenue	Northern City Limit	Maple Street	<ul style="list-style-type: none"> <li>Class III bike route the Northern City limit to Orange Grove Boulevard</li> </ul>



**TABLE 5-2: EXISTING BIKEWAYS OF NORTH-SOUTH STREETS CONTINUED**

Street	From	To	Facility Type (class I, II, III)
Raymond Avenue	Montana Street	Maple Street	<ul style="list-style-type: none"> <li>• 5'-wide Class II bike lanes between Montana Street and Washington Boulevard</li> <li>• 6'-wide Class II bike lanes between Washington Boulevard and Orange Grove Boulevard</li> <li>• Class III bike route between Orange Grove Boulevard and Maple Street</li> </ul>
Marengo Avenue	Howard Street	Glenarm Street	<ul style="list-style-type: none"> <li>• Class III bike route between Corson Street and Del Mar Boulevard</li> <li>• 5'-wide Class II bike lanes between Del Mar Boulevard and Glenarm Street</li> </ul>
Los Robles Avenue	Northern City limit	Southern City limit	<ul style="list-style-type: none"> <li>• Class III enhanced bike route between northern City limit and southern City limit</li> </ul>
El Molino Avenue/Madison Avenue	Howard Street	Fillmore Street	<ul style="list-style-type: none"> <li>• Class III bike route on El Molino Avenue south of Fillmore Street and over Alpine Street and Madison Avenue to Glenarm Street</li> </ul>
Lake Avenue	Northern City limit	Arden Road	<ul style="list-style-type: none"> <li>• Sharrows between Colorado Boulevard and California Boulevard</li> </ul>
Wilson Avenue	Washington Boulevard	Arden Road	<ul style="list-style-type: none"> <li>• Class III enhanced bike route between Colorado Boulevard and California Boulevard</li> <li>• Class III bike route between Orange Grove Boulevard and Colorado Boulevard</li> </ul>
Hill Avenue	Northern City limit	California Boulevard	<ul style="list-style-type: none"> <li>• Class III enhanced bike route between northern City limit and California Boulevard (needs more signs)</li> </ul>
Sierra Bonita Avenue	Washington Boulevard	Southern City limit	<ul style="list-style-type: none"> <li>• Class III bike route (needs more signs)</li> </ul>
Allen Avenue	Northern City Limit	California Boulevard	<ul style="list-style-type: none"> <li>• Class III enhanced bike route (needs more bike route signs on west side)</li> </ul>



TABLE 5-2: EXISTING BIKEWAYS OF NORTH-SOUTH STREETS CONTINUED

Street	From	To	Facility Type (class I, II, III)
Craig Street	Mountain Street	Southern City Limit	<ul style="list-style-type: none"> <li>Class III bike route between Mountain Street and southern City limit (needs more signs)</li> </ul>
Altadena Drive	Northern City Limit	Del Mar Boulevard	<ul style="list-style-type: none"> <li>Class III enhanced bike route on Altadena Drive between northern City limit and Foothill Boulevard</li> </ul>
Sierra Madre Boulevard	Eastern City Limit	Del Mar Boulevard	<ul style="list-style-type: none"> <li>Class II 5' to 6'-wide bike lane on north/west side from Eastern City limit to Washington Boulevard (needs more signs and stencils on northwest end)</li> <li>Class II 5'-wide bike lane on south/east side from Eastern City limit to Orange Grove Boulevard</li> </ul>
New York Drive	Western City Limit	Sierra Madre Boulevard	<ul style="list-style-type: none"> <li>Class II 7'-wide bike lane on the west/south side between western City limit and Sierra Madre Boulevard</li> <li>Class II 7'-wide bike lane on the east between western City limit and about 700' north of Sierra Madre Boulevard</li> </ul>
Sierra Madre Villa Avenue	Sierra Madre Boulevard	I-210	<ul style="list-style-type: none"> <li>Class III enhanced bike route between Sierra Madre Boulevard and I-210</li> </ul>
Halstead Street	Rosemead Boulevard	End of street South of Foothill Boulevard	<ul style="list-style-type: none"> <li>Class III enhanced bike route from Rosemead Boulevard to Foothill Boulevard</li> <li>Class III bike route from Foothill Boulevard to the end of the street</li> </ul>
Rosemead Boulevard	Sierra Madre Boulevard	Foothill Boulevard	<ul style="list-style-type: none"> <li>Class III enhanced bike route between Sierra Madre Boulevard and Hastings Ranch Drive</li> </ul>
Hastings Ranch Drive	Sierra Madre Boulevard	Rosemead Boulevard	<ul style="list-style-type: none"> <li>Class III bike route between Sierra Madre Boulevard and Rosemead Boulevard</li> </ul>



Currently, Pasadena has 18.6 miles of Class II bike lanes, 25.1 miles of Class III bike routes, and 37.7 miles of enhanced Class III bike routes. While Pasadena has an extensive network of bikeways, a finer network and a higher-design level will accommodate and encourage more bicycling.

Most of Pasadena's streets are well maintained and the pavement relatively smooth. The bikeways are generally well striped. Some of Pasadena's bike lanes have a double stripe to delineate the bike lane from the travel lanes as well as the parking lane. Most of the bikeways are well signed. The following bikeways lack sufficient signs:

- Hill Avenue
- Sierra Bonita Avenue
- Allen Avenue
- Craig Street
- Sierra Madre Boulevard (needs signs and stencils)

#### *Bicycle Detection at Signalized Intersections*

The City has been actively improving detection of bicycles at signalized intersections by adjusting the sensitivity of vehicle detection equipment. Where possible, the City is installing video detection in lieu of loops to detect bicyclists in bike lanes. To further this effort, the City applied for and has been preliminarily awarded MTA Call for Projects money for a project to install bicycle detection (either loops or video detection) at traffic signals along four corridors within Pasadena. Pending final approval of the Call for Projects, this project will begin in 2012.



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## 5.2 BICYCLE PARKING

Bicycle parking can be provided in two general types: racks and high-security bicycle parking. Racks are best for short-term needs like quick shopping trips, stops to the library, etc. Racks should be placed at dispersed locations to take advantage of the point-to-point flexibility of the bicycle. Commuters and those who park for longer times need higher security parking. High-security parking may consist of lockers, attendant parking, or automated parking.

The City has carried out an ambitious public bicycle parking effort. At last count, the City had added 300 bicycle parking racks and lockers at 235 locations. These parking devices have the capacity for 611 bicycles, and are located at train stations, along city streets, in parks, at libraries, at civic buildings, and other locations as needed. The City regularly adds bicycle racks upon request. The City also looks to see where people commonly park, and adds racks there. The City is replacing old racks with new and better ones.

More bicycle parking facilities have been added by property owners at stores and shopping centers. The City's bicycle parking ordinance has also resulted in bicycle parking at retail, office, and residential buildings.

The City uses a standard inverted-U rack (see Figure 5-2), which supports bicycles well, is easy to lock to using a variety of locks, and works well for bicyclists. The City has used other racks in the past and is now replacing these with the inverted-U racks.

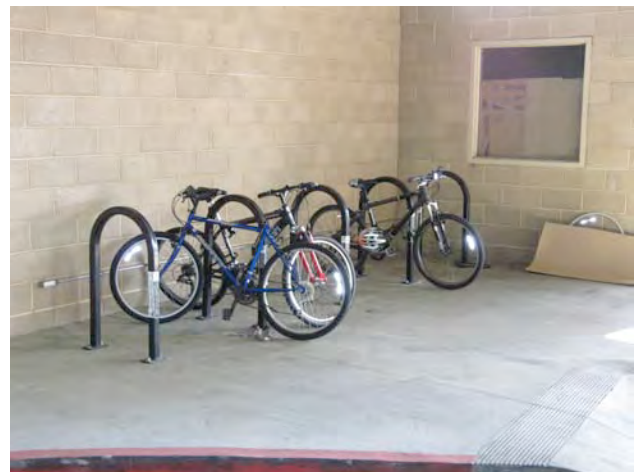


Figure 5-2: Inverted-U Rack

According to the City's survey (see Chapter 2), additional bicycle parking is most needed in Old Pasadena, along Colorado Boulevard, and along Lake Avenue. Bicyclists also cited a need for more parking at shopping centers.

## 5.3 BICYCLE AMENITIES

There are no public showers and clothing lockers for commuters to use. Pasadena City College and Caltech have showers, clothing lockers, and a place to change clothes for their personnel.

Some private office buildings have such amenities. However, many people who bicycle to work have no place to shower and change. Facilities are most needed in downtown Pasadena.

## 5.4 LINKS TO OTHER TRANSPORTATION MODES

Metro buses, ARTS buses, and LADOT buses have bicycle racks on the front of each bus, which hold two bicycles each. However, they sometimes fill up, leaving cyclists to wait for the next bus.

Bicyclists may bring bicycles onto Metro Gold Line trains. Riders should check with Metro policies for restrictions.

Pasadena has six Gold Line stations. The Sierra Madre Villa Station also has park-and-ride facilities for people to join carpools and vanpools or to board a bus. The following describes the bicycle parking facilities at these stations:

### Fillmore Station

- Three inverted-U bike racks on each side of the station to accommodate 12 bicycles

### Del Mar Station

- One inverted-U bike rack on the Arroyo Parkway side
- A locked room with key access to registered bicycle commuters with racks for 26 bicycles



Figure 5-3: “Bike” Bike Racks

### Memorial Park Station

- Bicycle lockers for 14 bicycles

### Lake Station

- Eight BikeBike racks (see Figure 5-3) on Lake Avenue for 16 bicycles

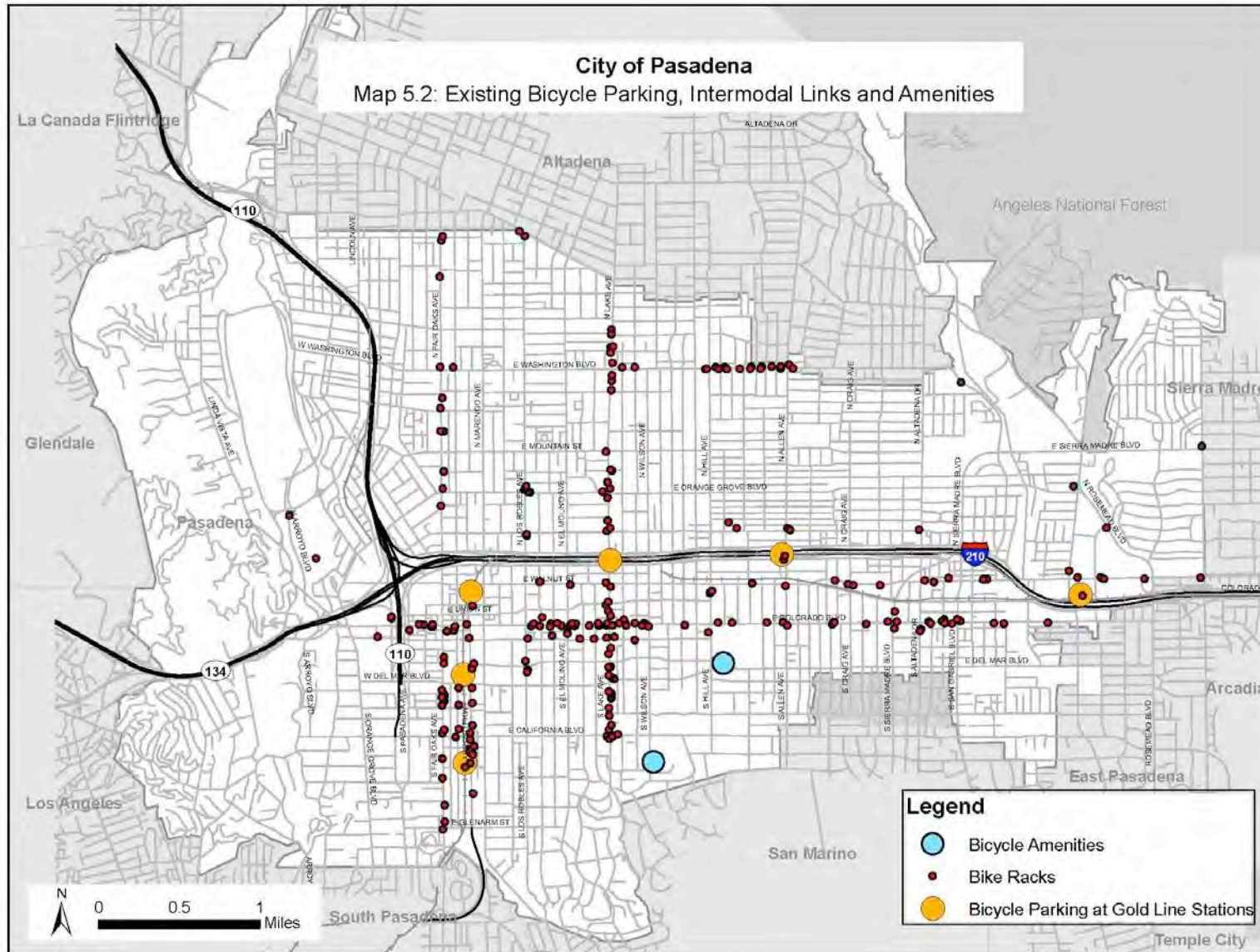
### Allen Avenue

- Nine inverted-U bike racks for 18 bicycles near Allen Avenue
- Two inverted-U bike racks for four bicycles in the station

### Sierra Madre Villa Station

- Five inverted-U bike racks for 10 bicycles

Secure bicycle parking is most needed at the Lake Station. High-security bicycle parking is needed at the Fillmore Station, the Allen Avenue Station, and at the Sierra Madre Villa Station.



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## 5.5 EDUCATION PROGRAMS AND PROMOTIONAL CAMPAIGNS

### Crash Analysis

The following table compares bicycle-involved crashes resulting in injury or death in Pasadena with the statewide average.

**TABLE 5-3: CRASH ANALYSIS**

Number of Bicycle Involved Crashes 2005 (City records)		Number of Bicycle Involved Crashes 2006 (City records)		Number of Bicycle Involved Crashes 2007 (City records)		Total # of Bicycle Crashes for 3 Years	Average # of Bicycle Crashes per Year	2005-2007 Population (American Fact Finder)	Crashes per 1000 people/yr.	Index (relative to state avg. of 0.29/1000) (SWITRS 2005, 2006, 2007)
Fatality	Injury	Fatality	Injury	Fatality	Injury					
0	70	2	70	0	63	205	68	130,843	0.52	1.79

No discernible trend stands out from this California Highway Patrol SWITRS data. Pasadena has about 79 percent more crashes per capita than the state average. But according to US Census data, Pasadena also has about 88 percent more cyclists commuting to work, so this is roughly proportional to the number of cyclists. Pasadena has experienced roughly the same number of bicycle-involved crashes every year. There is not enough data to determine if the City's safety programs and the efforts of the Police Department are making a significant difference; however, it is the City's belief that Pasadena has had an increase in bicycling and may have fewer crashes per bicycle mile. The City will start counts in 2010 and conduct bicycle counts regularly afterwards to determine if efforts are making progress in a few years.

Map 5-3 (*Bicycle-Involved Crash Map*, following page) illustrates where crashes have taken place.

Pasadena's bicycle-involved crashes cluster around Old Pasadena, along Colorado Boulevard, Orange Grove Boulevard, Lake Avenue, Mountain Street, and Allen Avenue. Significant numbers of crashes also occur on Washington Boulevard, Villa Street, and around the Rose Bowl Loop.

A closer look at the City's bicycle crash data shows that 58 percent occurred in intersections, and many more with turning movements. Broadside crashes made up the highest crash type at 68 percent.



## Programs

### *Safe Routes to School Safety Education*

The City has received a \$250,000 Safe Routes to School grant from Caltrans to deliver safety education to third graders in all of Pasadena's elementary schools. The program will begin in 2010, last for three years, and reach 18 schools.

### *Safe Strides and Rides*

Through grants from the California Office of Traffic Safety, the City implemented a two phase Safe Strides and Rides program. The first phase included the development of a pedestrian safety video distributed to all of the middle schools and high schools in Pasadena (the video can be found on the City's website), the installation of in-roadway warning lights at two crosswalk locations, three bicycle safety rodeos, and the distribution of over 500 bicycle helmets to children at the rodeos. This was done in 2006 and 2007.

The second phase of the program included a targeted pedestrian and bicyclist safety campaign for the Rose Bowl recreational loop; eight bicycle/pedestrian safety rodeo events at schools or as part of larger community events; the distribution of over 600 bicycle helmets to children; 10 special enforcement activities conducted by the Pasadena Police Department for aggressive driving and red light running; and equipment for engineering treatments to enhance pedestrian safety, such as speed feedback signs and an upgrade to the collision database software. The second phase was conducted in 2007 and 2008.

### *Rules of the Road Brochure*

A "Rules of the Road" brochure was developed in both Spanish and English that discusses bike safety. In addition, a pedestrian safety brochure with safety information was also developed. Both can be found on the City's website.

### *Bicycle Maps*

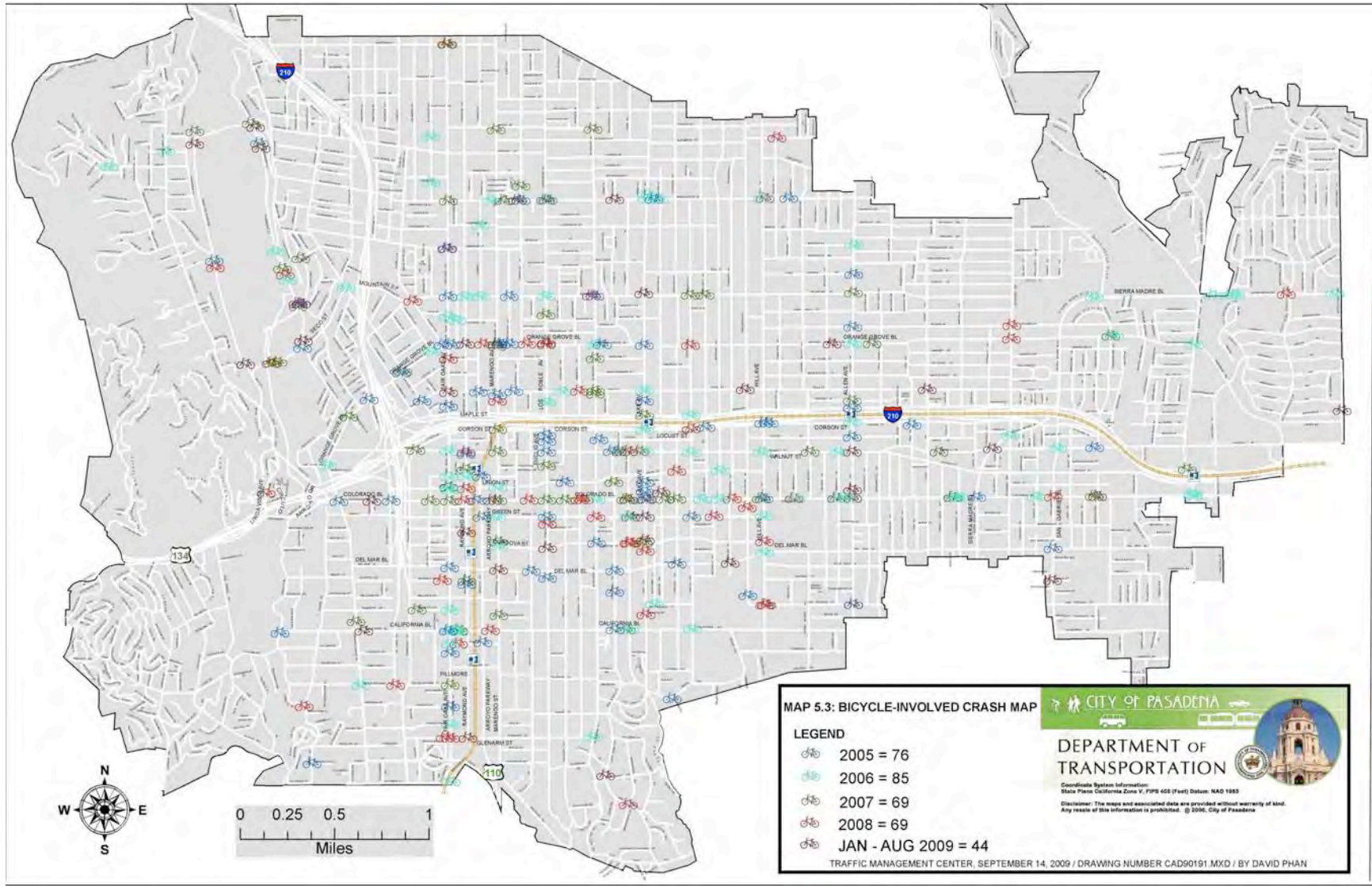
The City publishes bicycle user maps that show bikeways along with their type. The map also shows bicycle parking at transit stations and the location of bicycle shops. The back of the maps contains information on how to ride a bicycle safely, bicycle parking, Metro Rail bike hours, bicycle shops, bikeway types, and how to use the bike racks on buses.

### *Police*

The Pasadena Police Department stops bicyclists who are riding improperly to inform and educate them on how to ride properly and safely. The Pasadena Police Department is integral in the enforcement of bicycle riding laws.







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# CHAPTER 6.0

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## PLANNED PROJECTS

To better accommodate and encourage bicycling in Pasadena, the City plans the following improvements.

### 6.1 BIKEWAYS

The following bikeways are planned. In addition to the bikeway types described in Chapter 5 (Class I bike paths, Class II bike lanes, Class III bike routes, enhanced Class III bike routes), a new bikeway type is planned – emphasized bikeways. Emphasized bikeways function as through streets for bicyclists, but not for motorists. Various techniques are used on emphasized bikeways to discourage and prevent motorists from using these as through streets.

The type of treatment recommended depends on the street or right-of-way, width, etc. Where exclusive right-of-way exists, bike paths are planned. Bike lanes are planned on streets that have enough width to accommodate them. Road diets are planned to create space for bike lanes on multi-lane streets that traffic volumes show could be handled with fewer lanes. Improvements to bike lanes are planned where enough space exists to widen bike lanes, or to stripe buffers. Bike routes are planned on streets where network connectivity is needed, but insufficient space exists for bike lanes, or where traffic volumes do not call for bike lanes. Emphasized bikeways are planned on residential streets that can be used by cyclists to travel significant distance, and where parallel streets can accommodate through motor vehicle traffic. Some streets have no bikeways planned because traffic volumes are so low they are not needed, because there is insufficient space for bike lanes, or because they are not needed in the network. Some arterial streets were not selected for bikeways because they are truck routes.

#### IN ALPHABETICAL ORDER:

##### **Allen Avenue**

(Between northern City limit and California Boulevard)

##### *Existing*

- Enhanced bike route (needs more bike route signs on west side)

##### *Proposed*

- Add bike lanes between Colorado Boulevard and Villa Street
- Add sharrows between northern City limit and Villa Street, and between Colorado Boulevard and California Boulevard
- Add more bike route signs



**Altadena Drive**

(Between northern City limit and Del Mar Boulevard)

*Existing*

- Enhanced bike route on Altadena Drive between northern City limit and Foothill Boulevard
- No bikeway designation between Foothill Boulevard and Del Mar Boulevard

*Proposed*

- Add enhanced bike route on Altadena Drive between Foothill Boulevard and Del Mar Boulevard
- Add sharrows between northern City limit and Del Mar Boulevard

**Arlington Drive / Madeline Drive / Arroyo Boulevard***Existing*

- No bikeway designation

*Proposed*

- Add bike route with sharrows

**Arroyo Boulevard**

(Between I-210 freeway and Rosemont Avenue)

*Existing*

- Bike route between I-210 and Stanton Street
- Vehicle parking on east side only
- Bike lane between Stanton Street and Rosemont Avenue

*Proposed*

- Add bike lanes between I-210 freeway and Stanton Street
- Widen existing bike lanes to 7 feet
- Add double striping to bike lane
- Add green bicycle lane at right turn onto eastbound Westgate Street



**Arroyo Boulevard / California Boulevard / Grand Avenue**

(Rosemont Avenue to Columbia Street)

*Existing*

- Bike route from Seco Street to Columbia Street, and from Rose Bowl Drive to Rosemont Avenue (not well signed)

*Proposed*

- Add red curb on Arroyo Boulevard next to Rose Bowl parking lot from Rose Bowl Drive to Seco Street
- Add bike lanes from Rose Bowl Drive to Westbridge Place, except on steep downhill segment of Arroyo Boulevard (only on the downhill side)
- Add sharrows on steep downhill segment of Arroyo Boulevard (only on the downhill side)
- Add sharrows from Westbridge Place to Columbia Street
- Add more signs from Rosemont Avenue to Rose Bowl Drive, and from Westbridge Place to Columbia Street

**California Boulevard**

(Between Arroyo Boulevard and Allen Avenue)

*Existing*

- Bike route between Arroyo Boulevard and Grand Avenue, and between Marengo Avenue and Lake Avenue
- Enhanced bike route between Lake Avenue and Allen Avenue

*Proposed*

- Add bike route between Grand Avenue and Marengo Avenue
- Add sharrows for the entire length

**Casitas Avenue / Howard Street / Forest Avenue / Lincoln Avenue**

(Northern City limit to Maple Street)

*Existing*

- Bike route from northern City limit to Orange Grove Boulevard

*Proposed*

- Extend bike route to Maple Street
- Add sharrows the entire length



**Colorado Boulevard**

(Between western City limit and eastern City limit)

*Existing*

- No bicycle facilities exist
- Four lanes 61' – 70' wide with on-street parking and a dual left-turn lane between Arroyo Parkway and Altadena Drive

*Proposed*

- Add bike lanes from Melrose Avenue to Orange Grove Boulevard
- Add bike route with sharrows from western City limit to Melrose Avenue
- Consider a shared bus/bike lane if the City adds a bus lane

**Cordova Street**

(Between Arroyo Parkway and Hill Avenue)

*Existing*

- Enhanced bike route

*Proposed*

- Add road diet with bike lanes for the entire length

**Craig Street**

(Between Mountain Street and southern City limit)

*Existing*

- Bike route between Mountain Street and southern City limit (needs more signs)

*Proposed*

- Create a emphasized bikeway with sharrows between Mountain Street and southern City limit
- Add green bike lanes to transitions to wider segment over the I-210 freeway
- Add bike lanes to bridge under I-210 freeway

**Del Mar Boulevard**

(Between Orange Grove Boulevard to Madre Street)

*Existing*

- Bike route from St. John Avenue to Wilson Avenue
- Enhanced bike route from Wilson Avenue to Madre Street



*Proposed*

- Add bike route between Orange Grove Boulevard and St. John Avenue
- Add bike lanes between St. John Avenue and Pasadena Avenue
- Add sharrows between Orange Grove Boulevard and Madre Street, except between St. John Avenue and Pasadena Avenue

**El Molino Avenue / Madison Avenue**

(Between Howard Street and Fillmore Street)

*Existing*

- No bikeway designation on El Molino Avenue north of Fillmore Street
- Bike route on El Molino Avenue south of Fillmore Street and over Alpine Street and Madison Avenue to Glenarm Street
- Traffic diverter south of Washington Boulevard preventing southbound travel from the intersection

*Proposed*

- Create emphasized bikeway between Howard Street and Fillmore Street with sharrows
- Add green bike lanes to transitions to wider segment over the I-210 freeway
- Add bike lanes to bridge over I-210 freeway
- Create gap in existing diverter for bicycles

**Fair Oaks Avenue**

(Between Washington Boulevard and southern City limit)

*Existing*

- Four lanes 60' – 62' wide with on-street parking, 50' wide on segments without on-street parking
- No designated bikeway

*Proposed*

- Restripe to widen curb lane the entire length (without bikeway designation)

**Fillmore Street / Arden Road**

(Between Fillmore Gold Line Station and Wilson Avenue)

*Existing*

- Enhanced bike route from Fillmore Gold Line Station to Marengo Avenue



*Proposed*

- Add left turn lanes in both directions with signs at jog at the intersection of Marengo
- Add bike route from Marengo Avenue to Wilson Avenue
- Add sharrows from Marengo Avenue to Wilson Avenue
- Add directional signage/markings the entire length

**Foothill Boulevard**

(Between Altadena Drive and Rosemead Boulevard)

*Existing*

- Enhanced bike route

*Proposed*

- Add sharrows for the entire length

**Garfield Avenue**

(Between Walnut Street and Colorado Boulevard)

*Existing*

No bikeway designation

*Proposed*

- Add 6'-7'-wide bike lanes from Walnut Street to Union Street
- Add bike route from Union Street to Colorado Boulevard

**Glenarm Street**

(Between Pasadena Avenue and El Molino Avenue)

*Existing*

- Bike route between Pasadena Avenue and Marengo Avenue, and between Los Robles Avenue and El Molino Avenue
- Bike lane between Marengo Avenue and Los Robles Avenue

*Proposed*

- Add bike route between Los Robles Avenue and El Molino Avenue
- Add sharrows between Pasadena Avenue and Marengo Avenue, and between Los Robles Avenue and El Molino Avenue
- Widen bike lanes to 6' between Marengo Avenue and Los Robles Avenue



**Green Street**

(Between Pasadena Avenue and Hill Avenue)

*Existing*

- One-way eastbound with three lanes and parking on both sides of the street
- No existing bicycle facilities

*Proposed*

- Add bike route with sharrows for the entire length

**Greenhill Road**

(Between Rosemead Boulevard and eastern City limit)

*Existing*

- No bikeway designation

*Proposed*

- Add bike route with sharrows

**Halstead Street**

(Between Rosemead Boulevard and end of street south of Foothill Boulevard)

*Existing*

- Enhanced bike route from Rosemead Boulevard to Foothill Boulevard
- Bike route from Foothill Boulevard to the end of the street

*Proposed*

- Add bike lanes between Rosemead Boulevard and Foothill Boulevard

**Hampton Road**

(Between Hastings Ranch Road and eastern City limit)

*Existing*

- No bikeway designation

*Proposed*

- Add bike route with sharrows



**Hastings Ranch Drive**

(Between Sierra Madre Boulevard and Rosemead Boulevard)

*Existing*

- Bike route between Sierra Madre Boulevard and Rosemead Boulevard

*Proposed*

- Add sharrows between Sierra Madre Boulevard and Rosemead Boulevard

**Hill Avenue**

(Between northern City limit and California Boulevard)

*Existing*

- Enhanced bike route between northern City limit and California Boulevard (needs more signs)

*Proposed*

- Add more signs
- Add sharrows between northern City limit and Del Mar Boulevard
- Add bike lanes between Del Mar Boulevard and California Boulevard

**Holliston Street / San Pasqual Street (Caltech Campus)**

(Between Lake Avenue and eastern City limit)

*Existing*

- Bike route on Holliston Street between Del Mar Boulevard and San Pasqual Street, and on San Pasqual Street between Holliston Street and the eastern City limit
- Unincorporated Los Angeles County separates portions of San Pasqual Street between Greenwood Street and San Gabriel Boulevard

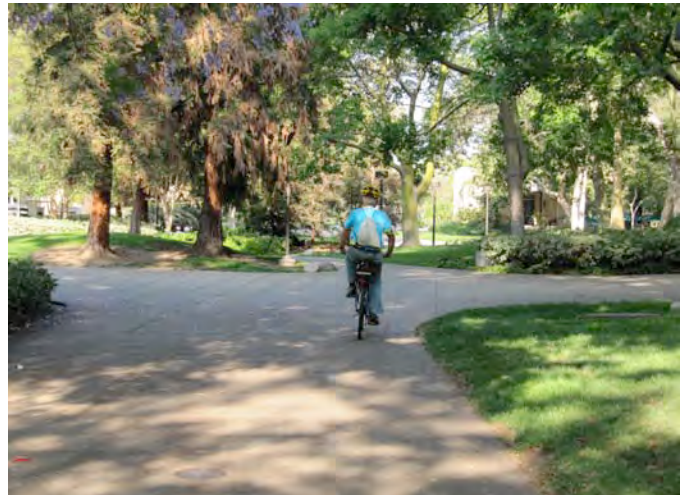


Figure 6-1: Caltech Sidewalk



*Proposed*

- Create emphasized bikeway from Lake Avenue and Wilson Avenue with sharrows
- Work with Caltech to designate existing wide sidewalk through campus as a multi-purpose path (see Figure 6-3)
- Add sharrows on Holliston Street between Del Mar Boulevard and San Pasqual Street, and on San Pasqual Street between Holliston Street and Greenwood Street
- Add 6'-7' bike lanes between San Gabriel Boulevard and eastern City limit

**Howard Street / Elizabeth Street**

(Between West Washington Boulevard and eastern City limit)

*Existing*

- Bicycle route from Arroyo Boulevard to eastern City limit
- Difficult jog at Lake Avenue

*Proposed*

- Repave and add bike route to blocked off road between West Washington Boulevard and Arroyo Boulevard
- Add signs to direct people from this road to Howard Street
- Improve bike route with
  - Sharrows
  - Improved crossing at Lake Avenue; consider staggered crosswalk treatment with islands and rapid flash beacons

**Kinneloa Avenue**

(Between Foothill Boulevard and Del Mar Boulevard; this will follow a future tunnel under I-210)

*Existing*

- No bikeway designation

*Proposed*

- Remove on-street parking between Foothill Boulevard and Del Mar Boulevard
- Add bike lanes between Foothill Boulevard and Del Mar Boulevard that link to the planned Eaton Wash bike path



**La Loma Road**

(Between Avenue 64 and Arroyo Boulevard)

*Existing*

- No bikeway designation

*Proposed*

- Add bike route with sharrows

**Lake Avenue**

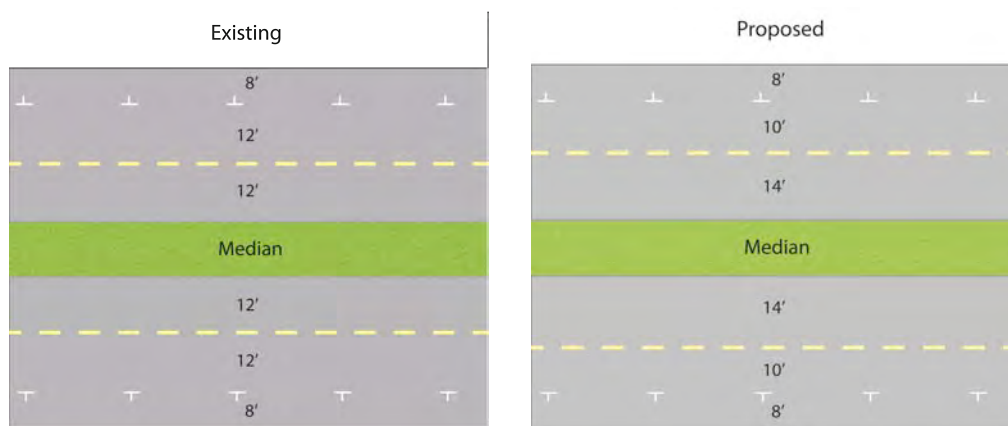
(Maple St. and Arden Road)

*Existing*

- Four lanes between northern City limit and California Boulevard; some segments wide enough to stripe bike lanes without changing configuration
- Sharrows between Colorado Boulevard and California Boulevard

*Proposed*

- Add bike route between Arden Road and the I-210 Freeway
- Widen either curb lane from 12' to 14' feet between Del Mar Boulevard and California Boulevard (see Figure 6-2)
- Add sharrows between Arden Road and California Boulevard, and between Colorado Boulevard and the I-210 Freeway



**Figure 6-2: Lane Adjustments between Del Mar Boulevard and California Boulevard**



**Lida Street**

(Between western City limit / Art Center College of Design to Linda Vista Avenue)

*Existing*

- Bike lanes from Art Center College of Design to Lancashire Street
- Bike route from Lancashire Street to Linda Vista Avenue

*Proposed*

- Add bike route from western City limits to Art Center College of Design
- Add bike route from Linda Vista Avenue to Parkview Drive, and on Parkview Drive to West Drive

**Linda Vista Avenue**

(Between northern City limits to CA-134 freeway)

*Existing*

- Enhanced bike route from northern City limits to El Circulo Drive

*Proposed*

- Add sharrows from northern City limits to El Circulo Drive
- Add bike lanes on one-way connectors from El Circulo Drive to San Rafael Avenue

**Los Robles Avenue**

(Between northern City limit and southern City limit)

*Existing*

- Enhanced bike route between northern City limit and southern City limit

*Proposed*

- Add sharrows between northern City limit and southern City limit
- In multi-lane segments ensure that the curb lane is striped to widest possible

**Melrose Avenue / Avenue 64**

(Between Colorado Boulevard and southern City limit)

*Existing*

- No bikeway designation

*Proposed*

- Add bike route with sharrows



**Marengo Avenue**

(Between Howard Street and Glenarm Street)

*Existing*

- Bike route between Orange Grove Boulevard and Del Mar Boulevard
- 5'-wide bike lanes between Del Mar Boulevard and Glenarm Street (see Figure 6-3)
- Traffic diverter south of Washington Boulevard preventing southbound travel from the intersection
- Traffic diverter north of Orange Grove Boulevard preventing northbound travel from the intersection



**Figure 6-3: Existing Bike Lane on Marengo Avenue**

*Proposed*

- Create emphasized bikeway with sharrows between Howard Street and Orange Grove Boulevard
- Create gap in existing diverters for bicycles
- Widen bike lanes from 5' to 6' between Del Mar Boulevard and Glenarm Street

**Mountain Street / Paloma Street**

(Mountain Street between Lincoln Avenue and Altadena Drive; Paloma Street between Sierra Bonita Avenue and Sierra Madre Villa Avenue)

*Existing*

- Mountain Street: Enhanced bike route from Lincoln Avenue to Altadena Drive
- Paloma Street: No bikeway designation

*Proposed*

- Mountain Street: Add wide bike lanes between Lincoln Avenue and Sunset Avenue
- Mountain Street: Add emphasized bikeway from Raymond Avenue to Sierra Bonita Avenue with sharrows
- Paloma Street: Add bike route from Sierra Bonita Boulevard to Sierra Madre Boulevard with sharrows

**New York Drive**

(Between western City limit and Sierra Madre Boulevard)

*Existing*

- 7'-wide bike lane on the west/south side between western City limit and Sierra Madre Boulevard
- 7'-wide bike lane on the east between western City limit and about 700' north of Sierra Madre Boulevard

*Proposed*

- Extend bike lane on east to close gap
- Add buffer to bike lanes between western City limit and Sierra Madre Boulevard

**Oak Grove Drive**

(Between Berkshire Avenue and unincorporated County line)

*Existing*

- 5' wide bike lane
- Some stretches of street are excessively wide

*Proposed*

- Widen bike lanes to 6' where possible
- Add painted hatched buffer where possible
- Add green bicycle lane at right-turn lanes onto Linda Vista Avenue and onto Yucca Lane

**Orange Grove Boulevard**

(Between Columbia Street and Sierra Madre Villa Avenue)

*Existing*

- Enhanced bike route from Walnut Street to Sierra Madre Villa Avenue

*Proposed*

- Extend enhanced bike route from Walnut Street to Columbia Street
- Add bike lanes from Walnut Street to I-210
- Add sharrows from I-210 to Lake Avenue



**Pasadena Avenue / Corson Street**

(Between Glenarm Street and Sierra Madre Boulevard)

*Existing*

- Two lanes one-way east- and northbound
- Freeway frontage road for I-210
- Ranges from 34' to 38' midblock
- On-street parking exists along portions
- 5'-6' wide bike lane between Del Mar Boulevard and Carmelo Avenue
- Gaps on bike lane between Lake Avenue and Mentor Avenue, between just north of Walnut Street and Fair Oaks Avenue, and between Hudson Avenue and Mentor Avenue

*Proposed*

- Add new bike lane to fill gaps between Lake Avenue and Mentor Avenue, between just north of Walnut Street and Fair Oaks Avenue, and between Hudson Avenue and Mentor Avenue
- Add new bike lane from Carmelo Avenue to Sierra Madre Boulevard
- Widen bike lane from 5' to 6' between Hill Avenue and Lola Avenue
- Widen bike lane from 5' to 6' between Del Mar Boulevard and Union Street
- Add a painted hatched buffer to the bike lane between Union Street and Hill Avenue
- Add bike lane at intersections between through-travel lanes and right-turn lane at Allen Avenue, Hill Avenue, Lake Avenue, and Fair Oaks Avenue
- Add new 5'-6' bike lanes between Del Mar Boulevard and Glenarm Street

**Raymond Avenue**

(Between Montana Street and Maple Street)

*Existing*

- 5'-wide bike lanes between Montana Street and Washington Boulevard
- 6'-wide bike lanes between Washington Boulevard and Orange Grove Boulevard
- Bike route between Orange Grove Boulevard and Maple Street
- At intersection of Orange Grove Boulevard southbound one left-turn lane, one through lane, and one right-turn lane

*Proposed*

- Widen bike lanes to 6' between Montana Street and Washington Boulevard
- Add sharrows between Orange Grove Boulevard and Maple Street
- Consider removing left-turn lane at intersection of Orange Grove Boulevard and adding bike lanes between through lane and right-turn lane



**Rose Bowl Loop**

(Rosemont Avenue / W. Washington Boulevard / West Drive / Seco Street)

*Existing*

- Bike lanes on West Drive and Seco Street
- Bike route on W. Washington Boulevard and Rosemont Avenue
- Bike route on Seco Street between Linda Vista Drive and West Drive, and between Rosemont Avenue and Lincoln Avenue
- Bike route on Rose Bowl Drive between Rosemont Avenue and Seco Street

*Proposed*

The City is proposing changes to bicycle, pedestrian, and motor vehicle flow under a separate study. One proposal includes one-way motor vehicle travel on West Drive and Rosemont Avenue with a wide bike lane clockwise. A second proposal maintains two-way travel for motor vehicles sharing the lanes with cyclists. Once this study is completed, the City will select an option to implement.

**Rosemead Boulevard**

(Between Sierra Madre Boulevard and Foothill Boulevard)

*Existing*

- Enhanced bike route between Sierra Madre Boulevard and Hastings Ranch Drive

*Proposed*

- Extend enhanced bike route between Halstead Street and Foothill Boulevard
- Add sharrows between Sierra Madre Boulevard and Foothill Boulevard

**Sierra Bonita Avenue**

(Between Washington Boulevard and southern City limit)

*Existing*

- Bike route (needs more signs)

*Proposed*

- Create emphasized bikeway with sharrows between Washington Boulevard and southern City limit
- Add signs between Washington Boulevard and southern City limit
- Improve crossing of Orange Grove Boulevard
- Add green bike lanes to transitions to wider segment over the I-210 freeway
- Add bike lanes to bridge over I-210 freeway



- Work with Pasadena City College to plan a route through campus from Colorado Boulevard to Del Mar Boulevard using either an existing wide sidewalk, or through the east side of campus

### **Sierra Madre Boulevard**

(Between eastern City limit and Del Mar Boulevard)

#### *Existing*

- 5' to 6'-wide bike lane on north/west side from eastern City limit to Washington Boulevard (needs more signs and stencils on northwest end)
- 5'-wide bike lane on south/east side from eastern City limit to Orange Grove Boulevard
- Enhanced bike route from Orange Grove Boulevard to Altadena Drive
- Bike lanes from Altadena Drive to Del Mar Boulevard

#### *Proposed*

- Add 6' to 7'-wide bike lane from Orange Grove Boulevard to Altadena Drive
- Widen existing bike lanes to 6' to 7'
- Add signs and stencils, especially at northwest end

### **Sierra Madre Villa Avenue**

(Between Sierra Madre Boulevard and I-210)

#### *Existing*

- Enhanced bike route between Sierra Madre Boulevard and I-210

#### *Proposed*

- Add sharrows between Sierra Madre Boulevard and I-210

### **St. John Avenue / Maple Street**

(Between Sierra Madre Boulevard and Del Mar Boulevard)

#### *Existing*

- Two lanes one-way west- and southbound
- Freeway frontage road for I-210
- Ranges from 34' to 40' midblock
- On-street parking exists along portions
- 5'-6' wide bike lane between Sierra Madre Boulevard and just south of Green Street
- Gaps on bike lane between Raymond Avenue and Fair Oaks Avenue, between Marengo Avenue and Pearl Place, and between Lake Avenue and Mentor Avenue





*Proposed*

- Add new bike lane between Sierra Madre Boulevard and Altadena Drive
- Add new bike lane to fill gaps between Raymond Avenue and Fair Oaks Avenue, between Marengo Avenue and Pearl Place, and between Lake Avenue and Mentor Avenue
- Add 6' painted hatched buffer (see Figure 6-4) to bike lane between Sierra Madre Boulevard and Walnut Street, except where on-street parking exists from Sierra Bonita Avenue and Hamilton Avenue, and from Mar Vista Avenue to Mentor Avenue
- Add new bike lane from Green Street to Del Mar Boulevard
- Widen bike lane from 5' to 6' and add double stripe from Walnut Street to where existing bike lane ends just south of Green Street
- Add bike lane at intersections between through-travel lanes and right-turn lane at Allen Avenue, Lake Avenue, Fair Oaks Avenue, and Colorado Boulevard

**Figure 6-4: Painted Hatched Buffer****Union Street**

(Between Hill Avenue and St. John's Avenue)

*Existing*

- One-way westbound with three lanes and on-street parking on both sides between Hill Avenue and Arroyo Parkway
- Two lanes and on-street parking on one side between Arroyo Parkway and Pasadena Avenue

*Proposed*

- Reduce from three lanes to two lanes between Arroyo Parkway and Marengo Avenue
- Add new bike lane for the entire length

**Villa Street**

(Between Lincoln Avenue and Sierra Madre Boulevard)

*Existing*

- Enhanced bike route from Los Robles Avenue to Hill Avenue
- Bike lanes from Hamilton Avenue to Altadena Drive (see Figure 6-5)

*Proposed*

- Add enhanced bike route from Lincoln Avenue to Los Robles Avenue
- Add sharrows from Lincoln Avenue to Holliston Avenue
- Add 6' bike lanes from Holliston Avenue to Hamilton Avenue
- Widen existing bike lanes to 6' from Hamilton Avenue to Altadena Drive
- Add 6' bike lanes from Altadena Drive to Sierra Madre Boulevard



Figure 6-5: Existing Bike Lane

**Walnut Street**

(Between Orange Grove Boulevard and Pasadena Avenue)

*Existing*

- No bikeway designation

*Proposed*

- Add bike lanes from Orange Grove Boulevard to Pasadena Avenue

**Washington Boulevard**

(Between Rosemont Avenue and eastern City limit; City limit near Altadena Drive to Sierra Madre Boulevard)

*Existing*

- Bike route from Arroyo Boulevard to Lincoln Avenue
- Enhanced bike route from Lincoln Avenue to eastern City limit
- Four lanes with on-street parking on both sides and 55-60 feet wide

*Proposed*

- Add wide bike lanes on eastbound side between Rosemont Avenue and Arroyo Boulevard
- Add sharrows on westbound side between Rosemont Avenue and Arroyo Boulevard
- Add bike lanes from City limit near Altadena Drive to Sierra Madre Boulevard
- If green sharrow lanes become adopted in California, investigate installing them on multi-lane segments where insufficient space exists for bike lanes



**Wilson Avenue**

(Between Washington Boulevard and Arden Road)

*Existing*

- Enhanced bike route between Colorado Boulevard and California Boulevard
- Bike route between Orange Grove Boulevard and Colorado Boulevard

*Proposed*

- Create emphasized bikeway with sharrows from Washington Boulevard to Cordova Street
- Add bike route with sharrows between California Boulevard and Arden Road
- Add green bike lanes to transitions to wider segment over the I-210 freeway
- Add bike lanes to bridge over I-210 freeway
- Add bike lanes between California Boulevard and Cordova Street

**PROPOSED OFF-ROAD PATHS****Arroyo Seco Bike Path**

Construct a bike path along the Arroyo Seco starting in Hahamonga Watershed Park to the I-210 Freeway. In the future, it may be possible to plan a bike path along the Arroyo Seco all the way to the southern City limit. This would require coordination with an update of the Plan for the Arroyo. This bike path would eventually connect with a bike path the entire length of the Arroyo Seco and link to the Los Angeles River bike path.

**Eaton Wash Bike Path**

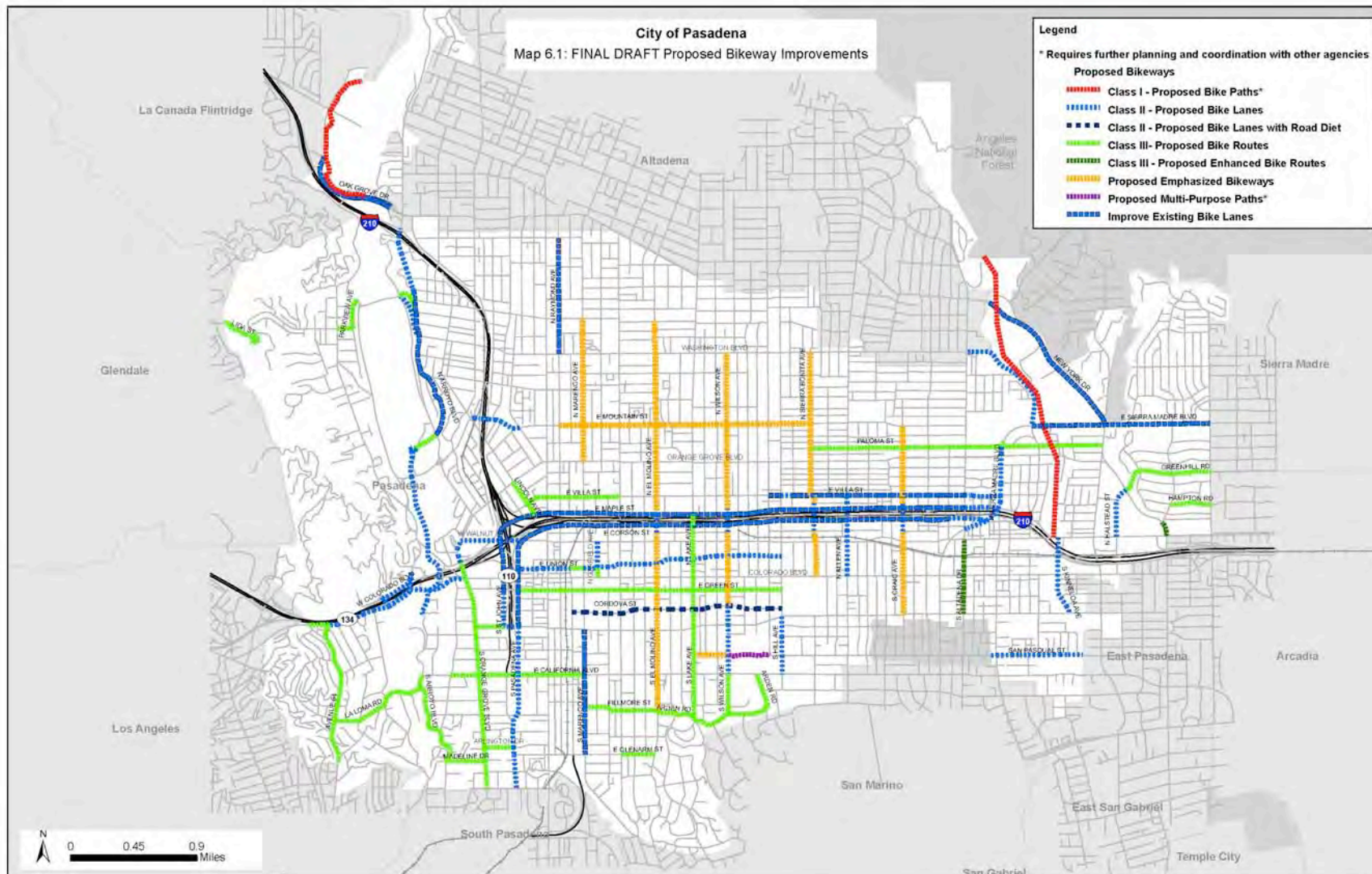
Construct a bike path along the Eaton Wash and utility corridor from Eaton Canyon Reservoir to Foothill Boulevard. This will require coordination with County Flood Control to determine the most appropriate alignment, especially north of Sierra Madre Boulevard. Provide a connection along the north side of Sierra Madre Boulevard to Washington Boulevard to connect with Pasadena High School and a planned multi-purpose path there. Add crosswalk and rapid-flashing beacons to cross Sierra Madre Boulevard east of Canyon Wash Drive. The alignment should follow the utility corridor to Foothill Boulevard. It will require a special crossing treatment of Orange Grove Boulevard (roundabout or crossing islands with rapid-flashing beacons), and signalized crossing of Foothill Boulevard. This will link to the Kinneloa Avenue bike lanes.



**Multi-Purpose Path on Caltech Campus**

A wide sidewalk through Caltech campus exists that connects San Pasqual Street on both sides of campus. Many cyclists use this route today. If this sidewalk were designated as a multi-purpose path and put on a map, greater connectivity in the bikeway network would result. This would require coordination with campus administrators.

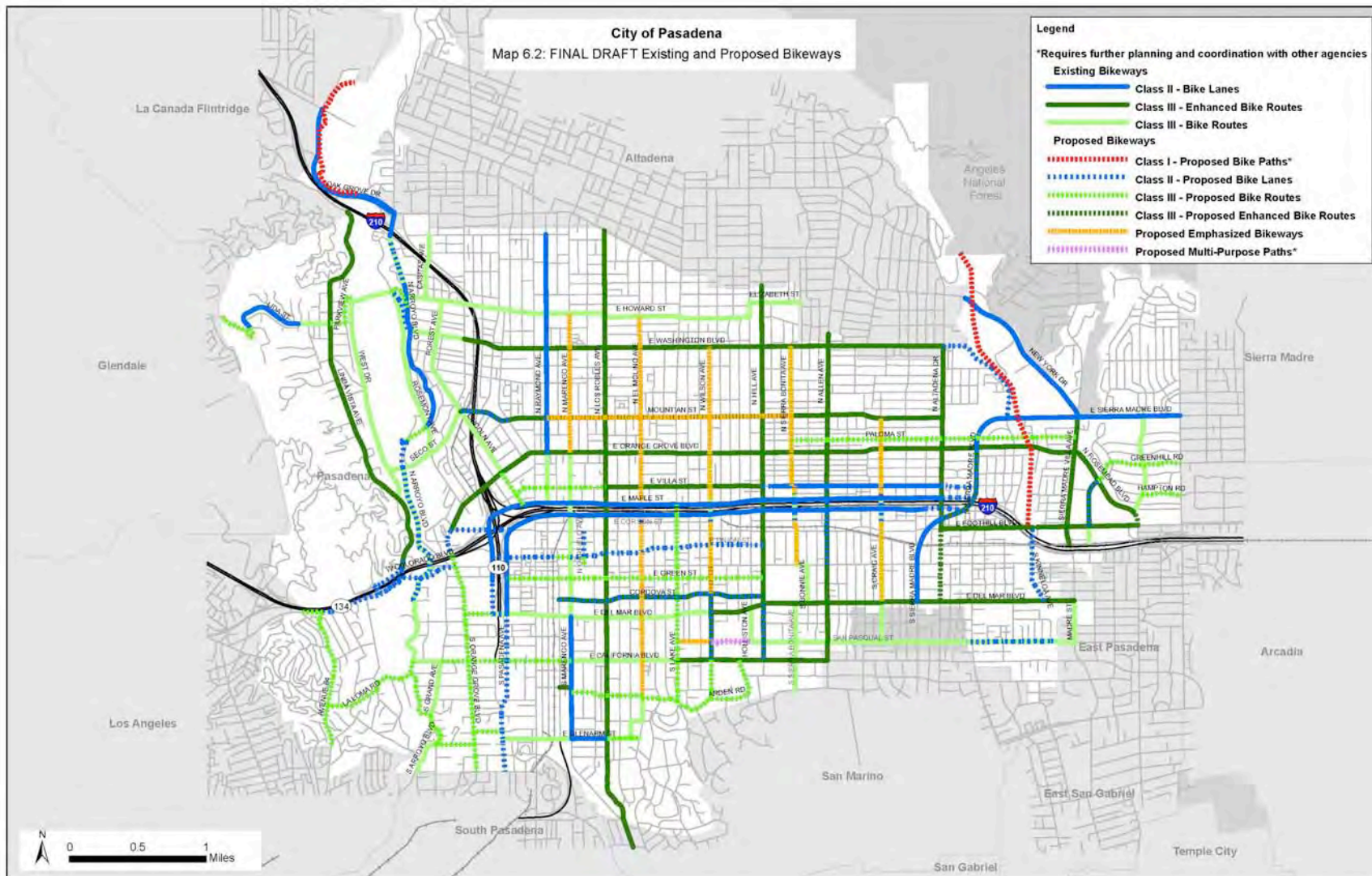




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## 6.2 Emphasized Bikeways

Emphasized bikeways (Figure 6-6) are streets that allow for through traffic for bicyclists, but divert motor vehicle traffic in order to keep these streets quiet, pleasant, and low-traffic volume to cycle on. These diverters may consist of curbed islands with gaps for bicyclists or traffic signals that allow cyclists to pass through, but require motor vehicles to turn right or left.



Figure 6-6: Sample Emphasized Bikeways

They are quiet streets that have little traffic and are pleasurable to ride on. They often have additional traffic calming devices, as well as beautification. Emphasized bikeways offer comfortable cycling and encourage people to ride bicycles who do not feel comfortable riding on busy streets. Emphasized bikeways make pleasant streets to live on. People can access their homes, but through traffic is discouraged.

The streets selected for emphasized bikeways are through streets that can accommodate cyclists for reasonable distances to get them around Pasadena. They have parallel arterial streets that can carry through motor vehicle traffic. Only one east-west street, Mountain Street, is recommended as an emphasized bikeway. It already serves as an enhanced bike route and will link with Paloma Street to take cyclists most of the way across Pasadena. The north-south streets selected for emphasized bikeways (Marengo Avenue, El Molino Avenue, Wilson Avenue, Sierra Bonita Avenue, and Craig Street) will take cyclists to key destinations including Old Pasadena, Caltech, and Pasadena City College. They were selected because they cross the I-210 Freeway but do not have on and off-ramps. Parallel arterial streets flank these streets and provide freeway access.

Emphasized bikeways typically need different devices to discourage cut-through traffic. Several of the devices that can be used are described below. Before installing any such traffic-calming measures, the City will conduct traffic studies.

## Diverters

Diverters can be placed every ½ to 1 mile, depending on what cross streets and current traffic levels to discourage car use. Diverters allow for bicycles to continue through, but force vehicles to turn left or right. Residents can still access their homes, and the street will see slower speeds and less traffic. They are often used on streets located next to major arterials that may see increased traffic during peak periods.

The recommended emphasized bikeways in this plan will generally need two or three diverters each to maintain their character. They should be placed at or between intersections of major streets. The north-south emphasized bikeways in this Plan could have a diverter somewhere south of Washington Boulevard, and on either side of the I-210 Freeway spaced to allow motorists to access the freeway, but to discourage them from using this as their main access street for longer distances. On Marengo Avenue and El Molino Avenue, it makes sense to use existing diverters south of Washington Boulevard and one at Orange Grove Boulevard and to construct gaps for cyclists. The only planned east-west emphasized bikeway is on Mountain Street and may need spaced diverters, one on the west side and one in the middle or east side.

## Roundabouts and Traffic Circles

Roundabouts offer intersection treatment that enables users of the street to travel through the intersection with minimal delay. Cyclists find this especially advantageous as stopping and reaccelerating requires significantly more energy than maintaining continuous momentum. Roundabouts also eliminate “T-bone” crashes and have a better safety record than conventional intersections. Further, the various types of roundabouts calm traffic and thus make for safer bicycling. They also bring opportunities for beautification by creating places that can be landscaped.

Roundabouts come in a variety of forms. *Full roundabouts* take the place of signal or stop-controlled intersections. They have splitter islands on the approaches as well as mountable aprons for larger trucks and emergency vehicles (see Figure 6-7). *Mini-roundabouts* typically take the place of stop-controlled intersections. They also have splitter islands on the approaches as well as mountable aprons for larger trucks and emergency vehicles. In some cases, mini-roundabouts may be fully mountable. Depending on the intersection geometry, some mini-roundabouts may be accompanied by curb extensions on the corners to further channel and calm traffic, as well as improve pedestrian crossings. *Mini-traffic circles*, sometimes called “*minis*,” may simply consist of a circle in the middle of the intersection that street users travel around.



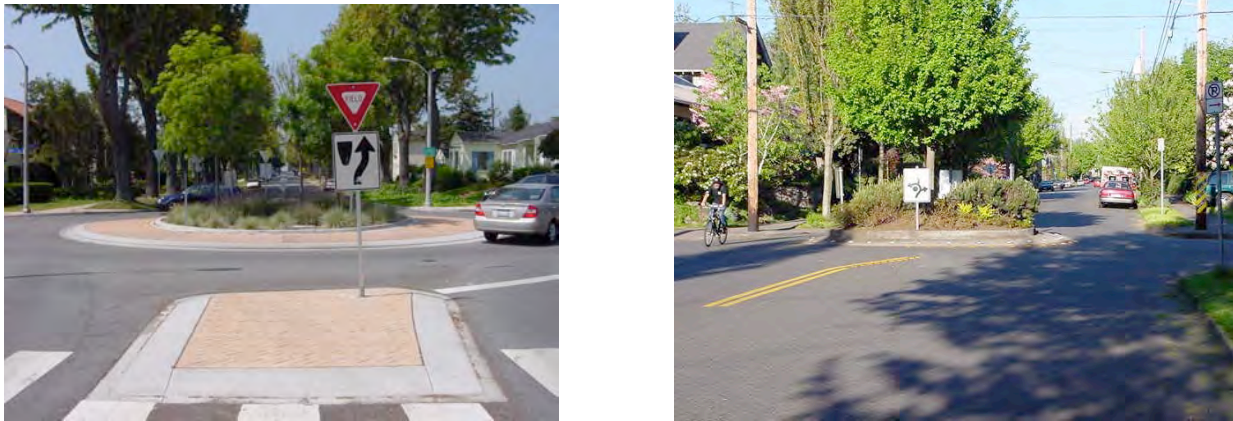


Figure 6-7: Full Roundabout (left), Mini-Roundabout (right)

This Plan recommends using appropriate roundabout treatments at suitable intersections of two-lane streets that are on existing or planned bikeways. The larger intersections, especially signal-controlled intersections, are candidates for full roundabouts. They must have proper size and geometry to accommodate the roundabout and splitter islands. Approximately 16 to 24 intersections on planned bikeways are candidates for full roundabouts. Some of these depend on road diets that take four-lane streets down to two lanes, or two lanes and a center turn lane. Another 30 to 40 intersections have potential for mini-roundabouts or mini-circle treatment.

### 6.3 Bicycle Parking

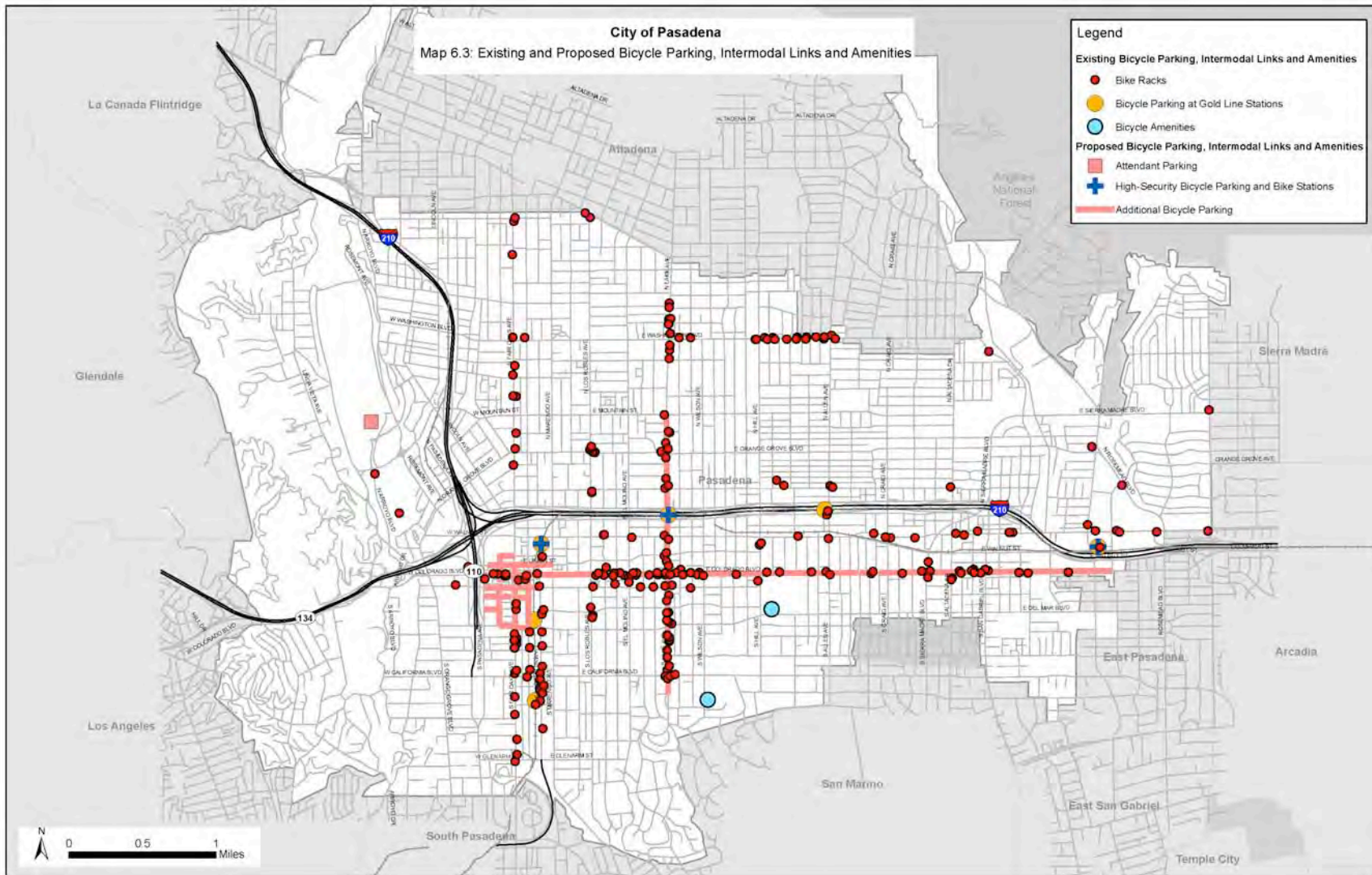
The City keeps an ongoing bicycle fund that pays for bicycle parking. The City adds parking as needed. This may be on request, or if bicycles are regularly seen locked to trees, parking meters, or other fixtures. The City also replaces old racks as needed. The City will continue these practices.

Code 17.46.320 of Article 4 of the City Site Planning and Development Code specifies that new developments and development additions of at least 15,000 square feet must provide bicycle parking. This code specifies the number of bicycle parking devices that are required in different types of development. It requires a minimum amount of “Class 1” bicycle parking that includes bicycle lockers, attendant parking, and similar provisions. The Code also specifies where bicycle parking should be located along with its configuration. This Code is well-written and will remain in place.

The City will work with volunteer organizations to add attendant bicycle parking at the Rose Bowl during games and events.

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## 6.4 Bicycle Amenities

The City will consider an ordinance or other developer mandates to require showers and clothing lockers in new work sites of significant size. The requirements may use the following as a guide:

- Retail and commercial developments over 25,000 square feet should have at least one shower per gender, and an additional shower per gender for each additional 50,000 square feet.
- Industrial developments over 50,000 square feet should have at least one shower per gender, and an additional shower per gender for each additional 100,000 square feet.
- Retail and commercial developments over 25,000 square feet should have at least one clothing locker per gender, and an additional clothing locker per gender for each additional 50,000 square feet.
- Industrial developments over 50,000 square feet should have at least one clothing locker per gender, and an additional clothing locker per gender for each additional 100,000 square feet.
- Showers and clothing lockers should be placed in the same facility.
- Signs should direct cyclists to the showers and clothing lockers.

The City will work with organizations, such as Bikestation, to provide showers, clothing lockers, and changing facilities near Gold Line Stations where the organizations add bicycle parking facilities.

## 6.5 Links to Other Transportation Modes

The City will coordinate with Metro to add secure bicycle parking at Gold Line stations and the park-and-ride lot at the Sierra Madre Villa Station (see map on page 27). Eventually, all the stations will have a combination of bike racks for occasional users, and higher-security parking for every day users. This higher-security parking may consist of bicycle lockers. Given the need for even higher security, the City will seek to put in any of the following bicycle parking at or near stations:

- Bicycle lockers in attended parking garages near the Lake Station. This will require coordination with commercial property owners, and may include providing incentives to the property owners to encourage them to add or accommodate this parking.
- The Bikestation offers a variety of high-security parking options ranging from attendant parking to automated parking. The City will consult with Bikestation to discuss options at train stations.



- Other automated bicycle parking options, such as the Biceberg, B-igloo, and Eco Cycle that are being used in Europe and Japan.
- Since the Lake Station has no bicycle parking, it will have priority. The City will put in high-security parking at the other stations that do not have it now - the Fillmore Station and Allen Avenue Station.

## 6.6 Education Programs

Our bicycle safety education program will be expanded as part of this Plan to teach bicycle safety to children, adults, and other groups that encounter bicyclists. The curriculum for cyclists will focus on teaching safe riding behavior, such as how to ride in traffic, how to make left turns, where to ride in the lane, and so forth. A specific curriculum geared for each audience, along with a handbook or other literature, is recommended.



Figure 6-8: Bicycle Safety Program

- Children: All children in public schools will go through a bicycle safety program before they graduate. This will start at a young age (safety education program will be offered to third graders at all of 18 our elementary schools between 2010 and 2012, see Figure 6-8).
- Adults: A bicycle safety education component should also be available to adults at employment sites, and on selected weekends for the general public.
- Motorists: The safety curriculum should educate motorists as to how to interact with bicyclists.
- Other groups: Safety education should be taught to others who come in to contact with bicyclists, such as ARTS bus drivers and local police.
- City staff: Bicycle safety education can be incorporated into existing training and orientations.
- Bike shops: These can sponsor fairs and clinics to teach safe cycling.



## 6.7 Promotional Campaigns

The City will continue its present promotional efforts and seek ways to expand promotion. The City will work to do the following:

- Bike map: The City will continue to update and publish its “Pasadena Bikes” maps for users.
- Bike events: The City will continue its successful annual ride around the Rose Bowl (Figure 6-9) to encourage bicycle riding. The City also holds an annual Bike Week Pasadena to encourage people to cycle to work and other destinations. The City will



Figure 6-9: Rose Bowl Annual Ride

the area find their destinations.

- Equipment: The City will continue to work with outside organizations and agencies to provide free helmets and lights to students and low-income cyclists.
- Employer incentives: Through its Transportation Demand Management program, Pasadena will work with major employers to encourage bicycle commuting by their employees by coordinating promotional events and encouraging the provision of bicycle lockers and access to shower facilities. The City will work with employers to offer incentives, such as prizes, financial incentives, or giving regular commuters new bicycles. Bike-to-Work Week will be advertised and promoted as a week where employees around Pasadena are encouraged to bike to work. The goal is to start people bicycling to work regularly after participating in this annual event.

consider initiating a “cyclovia” where streets are closed to cars for bicycles and pedestrians.

- System identification: The City will develop its own identifying logo and name that is shown on bikeway and parking signs throughout the City. Directional signage (i.e., *downtown, Rose Bowl*) placed at strategic locations will help first time users in

## 6.8 Estimated Number of Existing Bike Commuters and Estimated Increase

The U.S. Census Bureau estimates in its 2005-2007 American Community Survey that 950 of 65,529 Pasadena residents who are commuters rode bicycles. This amounts to 1.5 percent of work commute trips, higher than most cities in Los Angeles County.

The City sets a goal of 5 percent of all commute trips to be made by bicycle when the Plan is fully implemented 10 years from now. We believe this is achievable based on what other cities (Portland, Palo Alto, and others) have done with ambitious bicycle plans. It will be a very significant increase, but we believe our Plan is strong enough to meet this given that other cities have accomplished this with roughly similar efforts.



## FUNDING AND IMPLEMENTATION

### 7.1 FUNDING

A variety of potential funding sources, including local, state, regional, and federal funding programs, may be used to construct the proposed bicycle improvements. Most of the Federal and State programs are competitive, and involve the completion of extensive applications with clear documentation of the project need, costs, and benefits. Local funding for projects can come from sources within jurisdictions that compete only with other projects in each jurisdiction's budget. A detailed program-by-program explanation of available funding along with the latest relevant information follows.



#### Federal Funding Programs

##### SAFETEA-LU

The Safe Accountable Flexible Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) sets the framework for spending federal transportation revenue. SAFETEA-LU expires with the federal fiscal year in 2009, and Congress will adopt successor legislation with new funding programs and guidelines. At the time of the writing of this report, it appears that Congress may extend the SAFETEA-LU framework for 18 months while it works on new legislation. Many of the programs described in this section may remain once there is a new transportation bill.

Federal funding through SAFETEA-LU will likely provide some of the outside funding for Pasadena projects. SAFETEA-LU currently contains three major programs that fund bikeway and/or trail projects: Surface Transportation Program (STP), Transportation Enhancement Activities (TEA), and Congestion Mitigation and Air Quality Improvement (CMAQ), along with other programs such as the National Recreational Trails Fund, Section 402 (Safety) funds, Scenic Byways funds, and Federal Lands Highway funds.



SAFETEA-LU funding is administered through the California Department of Transportation (Caltrans) and the Los Angeles County Metropolitan Transportation Authority (Metro). Metro manages a biennial Call-for-Projects competitive allocation process that determines project funding. A local match by local jurisdictions is often required for receipt of funds.

### Safe Routes to School (SRTS)

As of 2006, a new federal Safe Routes to School program offers grants to local agencies and others for facilities and programs. Bikeways, sidewalks, intersection improvements, traffic calming, and other projects that enhance bicycle and pedestrian safety to elementary and middle schools are eligible. Safety education, enforcement, and promotional programs are also eligible.

Caltrans administers this grant and releases the funds in multi-year cycles through its district offices. Approximately \$46 million was spent statewide in 2008 SRTS-funded projects. The funds are distributed to each Caltrans district according to school enrollment. Local jurisdictions, school districts, and other agencies compete for these funds. This program will have to be reauthorized with the upcoming federal transportation bill.

## **State Funding Programs**

### Transportation Development Act (TDA) Article 3 (SB 821)

TDA Article 3 funds—also known as the Local Transportation Fund (LTF)—are used by cities within Los Angeles County for the planning and construction of bicycle and pedestrian facilities. Each city in Los Angeles County receives TDA Article 3 funds from Los Angeles County Metro according to population.

TDA Article 3 funds may be used for the following activities related to the planning and construction of bicycle and pedestrian facilities:

- Engineering expenses leading to construction.
- Right-of-way acquisition.
- Construction and reconstruction.
- Retrofitting existing bicycle facilities to comply with the Americans with Disabilities Act (ADA).
- Route improvements, such as signal controls for cyclists, bicycle loop detectors, rubberized rail crossings, and bicycle-friendly drainage grates.
- Purchase and installation of bicycle facilities, such as improved intersections, secure bicycle parking, benches, drinking fountains, changing rooms, rest rooms, and showers



adjacent to bicycle trails, employment centers, park-and-ride lots, and/or transit terminals accessible to the general public.

#### Bicycle Transportation Account (BTA)

The State Bicycle Transportation Account (BTA) is an annual statewide discretionary program that is available through the Caltrans Bicycle Facilities Unit for funding bicycle projects. Available as grants to local jurisdictions, the BTA emphasizes projects that benefit bicycling for commuting purposes. Agencies may apply for these funds through the Caltrans Office of Bicycle Facilities. Applicant cities and counties are required to have an approved bicycle plan that conforms to Streets and Highways Code 891.2 to qualify and compete for funding on a project-by-project basis. Cities may apply for these funds through the Caltrans Office of Bicycle Facilities. A local match of 10 percent is required for all awarded funds. Every year \$7.2-million is allocated for bicycle projects statewide.

#### Safe Routes to School (SR2S)

The Safe Routes to School (SR2S) program uses allocated funds from the Hazard Elimination Safety (HES) program of SAFETEA-LU. This program, initiated in 2000, is meant to improve school commute routes by improving safety to bicycle and pedestrian travel through bikeways, sidewalks, intersection improvements, traffic calming, and ongoing programs. This program funds improvements for elementary, middle, and high schools. A local match of 10 percent is required for this competitive program, which allocates over \$20-million annually, or \$40 million to \$50 million in two-year cycles. Each year the state legislature decides whether to allocate funds to the program. Caltrans administers SR2S funds through its district offices.

#### Office of Traffic Safety (OTS)

The California Office of Traffic Safety (OTS) seeks to reduce motor vehicle fatalities and injuries through a national highway safety program. Priority areas include police traffic services, alcohol and other drugs, occupant protection, pedestrian and bicycle safety, emergency medical services, traffic records, roadway safety, and community-based organizations. The OTS provides grants for one to two years. The California Vehicle Code (Sections 2908 and 2909) authorizes the apportionment of federal highway safety funds to the OTS program. Bicycle safety programs are eligible programs for OTS start-up funds. City agencies are eligible to apply.

#### Environmental Enhancement and Mitigation Program (EEMP)

EEM Program funds are allocated to projects that offset environmental impacts of modified or new public transportation facilities, including streets, mass transit guideways, park-n-ride facilities, transit stations, tree planting to mitigate the effects of vehicular emissions, off-road trails, and the acquisition or development of roadside recreational facilities. The State Resources Agency administers the funds.



### AB 2766

AB 2766 Clean Air Funds are generated by a surcharge on automobile registration. The South Coast Air Quality Management District (AQMD) allocates 40 percent of these funds to cities according to their proportion of the South Coast's population for projects that improve air quality. The projects are up to the discretion of the city and may be used for bicycle projects that could encourage people to bicycle in lieu of driving. The other 60 percent is allocated through a competitive grant program that has specific guidelines for projects that improve air quality. The guidelines vary and funds are often eligible for a variety of bicycle projects.

### Per Capita Grant Program

The Per Capita Grant Program is intended to maintain a high quality of life for California's growing population by providing a continuing investment in parks and recreational facilities. Specifically it is for the acquisition and development of neighborhood, community, and regional parks and recreation lands and facilities in urban and rural areas.

Eligible projects include acquisition, development, improvement, rehabilitation, restoration, enhancement, and the development of interpretive facilities for local parks and recreational lands and facilities. Per Capita grant funds can only be used for capital outlay. These funds could be used for either the Arroyo Seco Bike Path or the Eaton Canyon Bike Path. They are administered by the California State Parks Department.

### Roberti-Z'Berg-Harris (RZH) Grant Program - Proposition 40

Funds for this grant program are to be allocated for projects pursuant to the Roberti-Z'berg-Harris Urban Open Space and Recreational Grant Program and are to be used for:

- High priority projects that satisfy the most urgent park and recreation needs, with emphasis on unmet needs in the most heavily populated and most economically disadvantaged areas within each jurisdiction.
- Projects for which funding supplements--rather than supplants--local expenditures for park and recreation facilities and does not diminish a local jurisdiction's efforts to provide park and recreation services.
- Block grants allocated on the basis of population and location in urbanized areas.
- Need-basis grants to be awarded competitively to eligible entities in urbanized areas and in non-urbanized areas.



Eligible projects include:

- Acquisition of park and recreation lands and facilities
- Development/rehabilitation of park and recreation lands and facilities
- Special Major Maintenance of park and recreation lands and facilities
- Innovative Recreation Programs

These funds could be used for either the Arroyo Seco Bike Path or the Eaton Canyon Bike Path. They are administered by the California State Parks Department.

#### Land and Water Conservation Fund

States receive individual allocations of LWCF grant funds based upon a national formula, with state population being the most influential factor. States initiate a statewide competition for the amount available annually. Applications are received by the State up to its specified deadline date. Then, they are scored and ranked according to the project selection criteria so that only the top-ranked projects (up to the total amount available that year) are chosen for funding. Chosen applications are then forwarded to the National Park Service for formal approval and obligation of federal grant monies. These funds could be used for either the Arroyo Seco Bike Path or the Eaton Canyon Bike Path. They are administered by the California State Parks Department.

#### **Local Funding**

##### Proposition C Local Return

Countywide, 20 percent of Proposition C Los Angeles County ½ cent sales tax revenue returns to the cities according to population. The money may be spent on a variety of transportation projects, including bicycle projects.

##### Proposition R Local Return

A portion of this Los Angeles County ½ cent sales tax revenue returns to the cities according to population. The money may be spent on a variety of transportation projects, including bicycle projects. The transit capital funds may be used for bicycle facilities at Gold Line stations. Metro is in the process of creating guidelines as to the uses of Proposition R funds and other funds may become eligible.

##### Redevelopment Agency Funds

Redevelopment Agency funds are tax increments derived from taxes on property within redevelopment areas. They must be spent on improvements in the designated redevelopment area.



### Resurfacing and Repaving

The City is able to add bicycle lanes and sharrows upon resurfacing and repaving of streets. While other lanes are restriped, the bike facilities can be painted as well.

### New Construction

Future road widening and construction projects are one means of providing bike lanes. To ensure that roadway construction projects provide bike lanes where needed, it is important that an effective review process is in place to ensure that new roads meet the standards and guidelines presented in this master plan. Developers may also be required to dedicate land toward the widening of roadways in order to provide for enhanced bicycle mobility.

### Impact Fees and Developer Mitigation

Impact fees may be assessed on new development to pay for transportation projects, typically tied to vehicle trip generation rates and traffic impacts generated by a proposed project. A developer may reduce the number of trips (and hence impacts and cost) by paying for on- or off-site bikeway improvements that will encourage residents to bicycle rather than drive. In-lieu parking fees may also be used to contribute to the construction of new or improved bicycle parking facilities. Establishing a clear nexus or connection between the impact fee and the project's impacts is critical in avoiding a potential lawsuit.

### Benefit Assessment Districts

Bike paths, lanes, parking, and related facilities can be funded as part of a local benefit assessment district. However, defining the boundaries of the benefit district may be difficult since the bikeways will have citywide benefit.

### Business Improvement Districts

Bicycle improvements can often be included as part of larger efforts of business improvement and retail district beautification. Similar to benefit assessments, Business Improvement Districts (BIDs) collect levies on businesses in order to fund area-wide improvements that benefit businesses and improve access for customers. These districts may include provisions for bicycle improvements such as bicycle parking or shower and clothing locker amenities.

### Parking Meter Revenues

Cities can fund various improvements through parking meter revenues. The ordinance that governs the use of the revenues would specify eligible uses. Cities have the option to pass ordinances that specify bicycle facilities as eligible expenditures.





## 7.2 IMPLEMENTATION

### Past Expenditures

Pasadena dedicates \$80,000 every year from its Capital Improvement Project budget for the bicycle program. That money funds bicycle parking, maps, studies, and other miscellaneous projects. In 2004 the City won a \$500,000 Caltrans Bicycle Transportation Account (BTA) grant to fund emphasized bikeway improvements on Marengo Avenue. In 2007 the City was awarded another BTA grant for \$300,000 for a bicycle parking facility at the Memorial Park Gold Line station. The City also received \$250,000 from a Safe Routes to School grant to fund safety education, encouragement, and enforcement. The grant began in 2010 and will run for three years.

### Future Financial Needs

Altogether the City seeks funds for 3.3 miles of Class I bike path, 17 miles of new bike lanes, 15.8 miles of improved bike lanes, 17.5 miles of new or improved Class III bike routes, 0.6 miles of new or improved Class III enhanced bike routes, and 10.4 miles of emphasized bikeways. The total estimated cost for Pasadena's bikeways is \$1.7 million (Detailed cost estimate in Appendix A).

The City may decide to install other devices to improve its bikeways. Full roundabouts cost approximately \$200,000 each, whereas mini-roundabouts and mini-circles will cost about \$15,000 each. Pasadena's emphasized bikeways may need diverters as well. If the diverters are curbed, the cost will be approximately \$10,000 each. If the diverters were modified traffic signals, the unit cost would be about \$50,000 each.

**TABLE 7-1 CAPITAL FINANCIAL NEEDS**

Major Cost Item	Cost/Range
Bikeways	\$1.7 million
Bicycle Parking	\$300,000
<b>TOTAL CAPITAL COST RANGE</b>	<b>\$2 million</b>



TABLE 7-2 UNIT COSTS FOR OTHER DEVICES

Major Cost Item	Unit Cost/Range
Roundabouts and Traffic Circles	
Full Roundabout	\$200,000
Mini-Roundabout / Mini-Circle	\$15,000
Diverter	
Curbed Diverter	\$10,000
Modified Traffic Signal Diverter	\$50,000

The City also has ongoing costs, including about \$80,000 for bicycle parking, planning, and other miscellaneous functions, and hopes to continue the bicycle education, encouragement, and enforcement program at a cost of \$83,000 per year.

### Project Priorities

This Plan will be implemented as funds become available to the City. Projects are prioritized into three categories: Short-Term, Medium-Term, and Long-Term, according to the following criteria:

- Preferences expressed by local cyclists at the public workshops and through comments received from the public via email and personal contact
- Preferences expressed by the Bicycle Advisory Commission
- Priorities established in the Community Opinion Survey (See Chapter 2)
- City staff preferences
- Destinations served
- Completion of a network
- History of bicycle-involved crashes
- Improvement of program that serves an immediate safety need
- Current availability and/or suitability of right-of-way
- Likelihood of attracting large numbers of users
- Connectivity with the regional bikeway system
- Links to other transportation modes
- Cost effectiveness

The City will also seek to implement bikeways based on opportunity, such as when streets are resurfaced, or other street projects are taking place.

The following tables (7-3, 7-4, and 7-5) identify all the projects grouped according to their priority category. The projects are not ranked within each priority category.



TABLE 7-3: TOP PRIORITY BIKEWAYS

Bikeway Improvements	From	To
Washington Blvd. bike route improvements	Rosemont Ave	Eastern City Limit
Washington Blvd. bike lanes	City Limit east of Altadena Dr.	Sierra Madre Ave.
Mountain St./Paloma St. emphasized bikeway/bike route	Lincoln Ave.	Sierra Madre Villa Ave.
El Molino Ave. emphasized bikeway	Howard St.	Fillmore St.
Wilson Ave. emphasized bikeway	Washington Blvd.	Arden Road
Orange Grove Blvd. bike route and bike lanes	Columbia St.	Walnut St.
Walnut St. bike lanes	Orange Grove Blvd.	Pasadena Ave.
Colorado Blvd. bike lanes and bike route	Western City Limit	Orange Grove Blvd.
Union St. bike lanes	Hill Ave.	St. John's Ave.
Del Mar Blvd. bike route	Orange Grove Blvd.	Madre St.
Cordova St. bike lanes	Arroyo Parkway	Hill Ave.
Rose Bowl Loop improvements (per new plan)	Rosemont Ave. / W. Washington Blvd.	West Drive / Seco St.
California Blvd. bike route	Arroyo Blvd.	Allen Ave.
Sierra Madre Blvd. bike lanes	Orange Grove Blvd.	Altadena Dr.
Marengo Ave. bike lanes, bike route and emphasized bikeway	Howard St.	Glenarm St.
Los Robles Ave. bike route	Northern City Limit	Southern City Limit
Garfield Ave. bike lanes and bike route	Walnut St.	Colorado Blvd.
Sierra Bonita Ave. emphasized bikeway	Washington Blvd.	Southern City Limit



TABLE 7-4: MEDIUM-TERM BIKEWAYS

Bikeway Improvements	From	To
Howard St / Elizabeth St bike route	West Washington Blvd.	Eastern City Limit
Villa St. bike route and bike lanes	Lincoln Ave.	Sierra Madre Blvd.
St. John Ave./ Maple St. bike lane	Sierra Madre Blvd.	Del Mar Blvd.
Pasadena Ave. / Corson St. bike lane	Glenarm St.	Sierra Madre Blvd.
Green St. bike route	Pasadena Ave.	Hill Ave.
Holliston St. / San Pasqual St. (Caltech Campus) bike route	Lake Ave.	Eastern City Limit
Arroyo Blvd. bike lanes	I-210 freeway	Rosemont Ave.
Lake Ave. bike route	I-210	Arden Road
Oak Grove Drive bike lanes	Berkshire Ave.	Unincorporated County Line
Casitas Ave./Howard St./Forest Ave./Lincoln Ave. bike route	Northern City Limit	Maple St.
Raymond Ave. bike lanes and bike route	Montana St.	Maple St.
Glenarm St. bike route	Pasadena Ave.	El Molino Ave.
Hill Ave. bike lanes and bike route	Northern City limit	California Blvd.
Allen Ave. bike lanes and bike route	Northern City Limit	California Blvd.
Craig St. emphasized bikeway	Mountain St.	Southern City Limit
New York Drive bike lanes/buffer	West City Limit	Sierra Madre Blvd.
Arroyo Seco Bike Path	Hahamonga Watershed Park	I-210 freeway
Arlington Dr./Madeline Dr./Arroyo Blvd. bike route	Pasadena Ave.	California Blvd.
Arroyo Blvd./California Blvd./Grand Ave. bike route	Rosemont Ave.	Columbia St.



TABLE 7-5: LONG-TERM BIKEWAYS

Bikeway Improvements	From	To
Greenhill Road bike route	Rosemead Blvd.	Eastern City Limit
Hampton Road bike route	Hastings Ranch Rd.	Eastern City Limit
Foothill Blvd. bike route	Altadena Dr.	Rosemead Blvd.
Fillmore St./Arden Road bike route	Fillmore Gold Line Station	Wilson Ave.
Melrose Ave./ Ave. 64 bike route	Colorado Blvd.	Southern City Limit
Linda Vista Ave. bike route and bike lanes	Northern City Limits	San Rafael Ave.
Altadena Drive bike route	Northern City Limit	Del Mar Blvd.
Kinneloa Ave. bike lanes	Foothill Blvd.	Del Mar Blvd.
Sierra Madre Villa Ave. bike route	Sierra Madre Blvd.	I-210
Halstead St. bike lanes	Rosemead Blvd.	End of St. South of Foothill Blvd.
Rosemead Blvd. bike route	Sierra Madre Blvd.	Foothill Blvd.
Eaton Wash Bike Path	Eaton Canyon Reservoir	Foothill Blvd.
Lida St. bike route and bike lanes	Western City Limit/ Art Center College of Design	Linda Vista Ave.

## Monitoring

The City will monitor the progress of Bicycle Plan Implementation. One of the best ways to do this is by conducting regular counts of bicyclists. Results will be made available to the public. In order to gain meaningful information from bicycle counts, it will be important to conduct the counts:

- At numerous locations that represent overall travel behavior
- During the week and on the weekend
- All hours of the days when cyclists are likely to ride
- During at least two times of the year
- At the same times every year
- At the same places every year
- With the same methodology every year
- On representative normal days; not holidays, etc.



### Locations

Bicycle counts should be conducted at a variety of locations. Intersections are best since they capture cyclists on two streets. It will be most useful to conduct counts at a number of locations that present a different picture. Some should be at the intersection of two bikeways to see if the bikeway network is working, or if bikeways are on the proper streets. Others may be conducted at future bikeways so that the impact of the bikeway can be assessed over time. It will also be useful to know about travel on very busy streets that are not bikeways, as well as on quiet streets that are not bikeways. The following are suggested count locations.

For existing bikeway intersections:

- Washington Boulevard @ Marengo Avenue
- Marengo Avenue @ Mountain Street
- Orange Grove Boulevard @ Hill Avenue
- Villa Street @ Craig Street
- Sierra Boulevard @ New York Boulevard
- Corson Street @ Wilson Avenue
- Cordova Street @ Wilson Avenue
- California Boulevard @ Hill Avenue
- Marengo Avenue @ California Boulevard

For future bikeways, or bikeway improvements

- Mountain Street @ Wilson Avenue
- Lake Avenue @ Orange Grove Boulevard
- Wilson Avenue @ Green Street
- Paloma Street @ Altadena Drive

For high-traffic locations:

- Colorado Boulevard @ Fair Oaks Avenue
- Colorado Boulevard @ San Gabriel Boulevard

Many small streets may be selected without bikeways as representative streets to indicate how many people cycle on streets with few cars. Ideally, full counts could be conducted at these locations. If the City does not have the resources to count at all these locations, fewer intersections can be counted. The first two categories are most important.



### Times

Cyclists should be counted at all times when they are likely to be present. This may be 7:30 am to 7:30 pm, or extended hours. The counts should be broken into time intervals of 15, 30, or 60 minutes.

### Days of the Week

Counts should be conducted on typical days. One weekday, Monday through Thursday, should represent typical weekday behavior. They should also be done on at least one weekend day. Saturdays may even differ from Sundays. The most accurate will count on both days, but selecting one should be sufficient. They should be conducted on typical days – no holidays, rainy days, etc. They should not be done during Bike to Work Week because the event may skew the numbers. If the City wants to see how effective Bike to Work Week is, it could add this week for additional counts.

### Times of the Year

Cyclists often ride more during summer than other months. Selecting one month to conduct counts in the summer, then one another time of year should yield representative results. June may be a representative summer month because fewer people travel in June than July or August. Another count in the fall, winter, or spring could represent typical non-summer months.

### Regular Counts

Bicycle counts should be done regularly. Ideally, they will be done during the same weeks every year, or comparable weeks. They should use the same count sheets and overall methodology. It will be best to use the same weekend days as well. In other words, if one is done on a Saturday in June, the next time the counts are done in June they should be on a Saturday.

### Tallying

Those conducting the manual counts should have tally sheets that enable them to record and compile all the desired information easily. They tally sheets should come with instructions.

### Motor Vehicle Counts

For additional information, motor vehicles counts could be conducted at, or about, the same time as the bicycle counts at the bicycle count locations. This would enable the City to determine the percentage of vehicles that are bicycles at those locations. They could also be averaged to approximate a citywide percentage.



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# CHAPTER 8.0

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## DESIGN GUIDELINES

### 8.1 Bikeway Definitions

The following section summarizes key operating and design definitions.

**Bicycle:** The American Association of State Highway and Transportation Officials' (AASHTO) (1999) definition of a bicycle is “every vehicle propelled solely by human power which any person may ride, having two tandem wheels, except scooters and similar devices. The term ‘bicycle’ also includes three- and four-wheeled human-powered vehicles, but not tricycles for children.”



**Class I:** Referred to as a bike path, shared-use path, or multi-purpose trail. Provides for bicycle travel on a paved right-of-way completely separated from any street or highway. Other users may also be found on this type of facility.



**Class II:** Referred to as a bike lane. Provides a striped lane for one-way bicycle travel on a street or highway.



**Class III:** Referred to as a bike route. Provides for shared use with pedestrian or motor vehicle traffic.

**Enhanced Class III:** A bikeway type defined by the City of Pasadena that adds “share the road” signs to Class III routes. The City also paints parking stripes at approximately nine feet from the curb to further define these routes on some of the enhanced Class III routes. Enhanced Class III bike routes follow the same Caltrans guidelines as Class III bike routes.

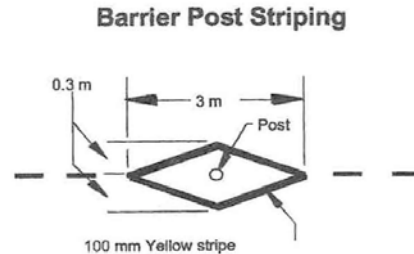
The following guidelines present the recommended minimum design standards and other recommended ancillary support items for shared use paths, bike lanes, and bike routes. Where possible, it may be desirable to exceed the minimum standards for shared use paths or bike lane widths, signage, lighting, and traffic signal detectors. These guidelines cover basic concepts. The Caltrans Highway Design Manual Chapter 1000 and the AASHTO Guide for the Development of Bicycle Facilities contain more detail standards and guidance and should be followed.

**Class I Bike Path Facilities Design Recommendations**

1. All Class I bike paths should conform to the design guidelines set forth by Caltrans.
2. Class I bike paths should generally be designed as separated facilities away from parallel streets. They are commonly planned along rights-of-way such as waterways, utility corridors, railroads, and the like that offer continuous separated riding opportunities.
3. Both AASHTO and Caltrans recommend against using most sidewalks for bike paths. This is due to conflicts with driveways and intersections. Where sidewalks are used as bike paths, they should be placed in locations with few driveways and intersections, be properly separated from the roadway, and have carefully designed intersection crossings.
4. Bike paths should have a minimum of eight feet of pavement, with at least two feet of unpaved shoulders for pedestrians/runners, or a separate tread way where feasible. Pavement width of 12 feet is preferred.
5. Multi-use trails and unpaved facilities that serve primarily a recreation rather than transportation function and will not be funded with federal transportation dollars may not need to be designed to Caltrans standards.
6. Class I bike path crossings of roadways should be carefully engineered to accommodate safe and visible crossing for users. The design needs to consider the width of the roadway, whether it has a median, and the roadway's average daily and peak-hour traffic volumes. Crossings of low-volume streets may require simple stop signs. Crossings of streets with Average Daily Traffic (ADT) of approximately 15,000 should be assessed for signalized crossing, flashing LED beacons, crossing islands, or other devices. Roundabouts can provide desirable treatment for a bike path intersecting with roadways where the bike path is not next to a parallel street.
7. Landscaping should generally consist of low water-consuming native vegetation and should have the least amount of debris.
8. Lighting should be provided where commuters will likely use the bike path in the late evening.



9. Barriers at pathway entrances should be clearly marked with reflectors and be ADA accessible (minimum five feet clearance), see Figure 8-1.



**Figure 8-1: Bike Path Barrier Post Treatment**

10. Bike path construction should take into account vertical requirements and the impacts of maintenance and emergency vehicles on shoulders.

### **Class II Bike Lane Facilities Design Recommendations**

The following guidelines should be used when designing Class II bikeway facilities. These guidelines are provided by the Caltrans Highway Design Manual Chapter 1000, the American Association of State Highway and Transportation Officials (AASHTO), the Manual on Uniform Traffic Control Devices (MUTCD), and the Caltrans Traffic Manual.

1. Class II Bike Lane facilities should conform to the minimum design standard of 5 feet in width in the direction of vehicle travel adjacent to the curb lane. Where space is available, a width of 6 to 8 feet is preferred, especially on busy arterial streets, on grades, and adjacent to parallel parking.
2. Under certain circumstances, bike lanes may be 4 feet in width. Situations where this is permitted include the following.
  - Bike lanes located between through traffic lanes and right turn pockets at intersection approaches (see Figure 8-4).
  - Where there is no parking, the gutter pan is no more than 12" wide, and the pavement is smooth and flush with the gutter pan.
  - Where there is no curb and the pavement is smooth to the curb.

3. “Bike Lane” signage, as shown in Figure 8-2, shall be posted after every significant intersection along the route of the bike lane facility. Directional signage may also accompany this sign to guide bicyclists along the route. If a bike lane exists where parking is prohibited, “no parking” signage may accompany bike lane signage.



Figure 8-2: Bike Lane Sign (Caltrans)

4. Bike lanes should be striped with a solid white stripe of width at least 4 inches and may be dashed up to 200 feet before the approach to an intersection. This design of a dashed bike lane allows for its dual use as a right-turn pocket for motor vehicles.
5. Stencils shall also be used within the lane on the pavement that read “bike lane” and include a stencil of a bicycle with an arrow showing the direction of travel (see Figure 8-3).



Figure 8-3: Bike Lane Striping and Stencil

6. Bike lanes with two stripes are more visible than those with one and are preferred. The second stripe would differentiate the bike lane from the parking lane where appropriate.

7. Where space permits, intersection treatments should include bike lane 'pockets' as shown in Figure 8-4.
8. Loop detectors that detect bicycles should be installed near the stop bar in the bike lane at all signalized intersections where bicycles are not reasonably accommodated. Signal timing and phasing should be set to accommodate bicycle acceleration speeds (see Figure 8-4.)

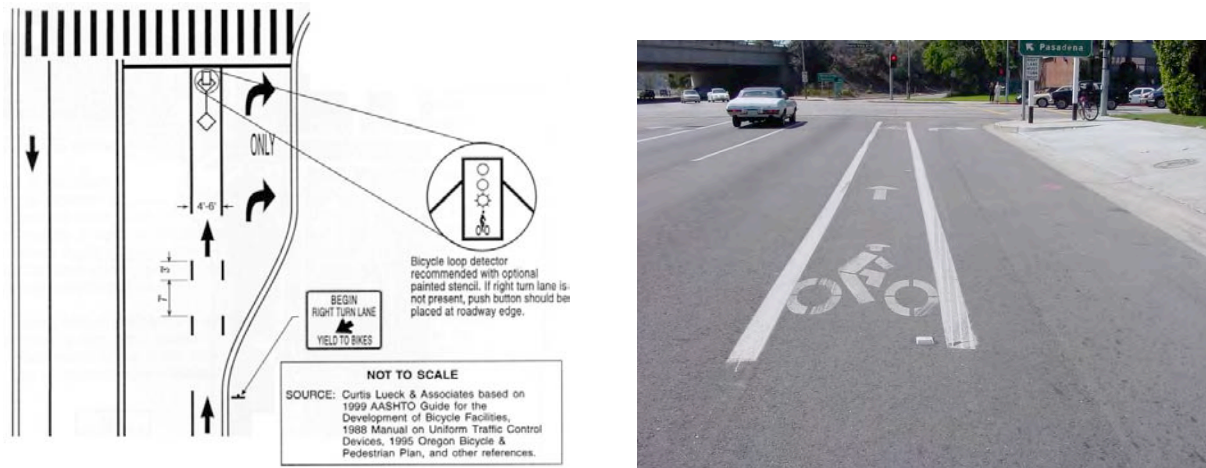


Figure 8-4: Bike Lane Treatment at Intersection (MUTCD, AASHTO)

### Class III Bike Route Facilities Design Recommendations

Bike routes have been typically designated as simple signed routes along street corridors, usually local streets and collectors, and sometimes along arterials. With proper route signage, design, and maintenance, bike routes can be effective in guiding bicyclists along a route suited for bicycling without having enough roadway space to provide a dedicated Class II bike lane. Class III Bike Routes can be designed in a manner that encourages bicycle usage, convenience, and safety. There are a variety of other improvements that can enhance the safety and attraction of streets for bicyclists. Bike routes can become more useful when coupled with such techniques as the following:

- Route, directional, and distance signage
- Wide curb lanes
- Sharrow stencils painted in the traffic lane along the appropriate path of where a bicyclist would ride in the lane
- Accelerated pavement maintenance schedules
- Traffic signals timed and coordinated for cyclists (where appropriate)
- Traffic calming measures

The following design guidelines should be used with the implementation of new Class III Bike Route facilities:

Proper “Bike Route” signage, as shown in Figure 8-5, should be posted after every intersection along the route of the bikeway. This will inform bicyclists that the bikeway facility continues and will alert motorists to the presence of bicyclists along the route. Directional signage may accompany this sign as well to guide bicyclists along the route.



Figure 8-5: Class III Bike Route Sign

This Plan recommends using the sharrow stencil (Figure 8-6) as a way to enhance the visibility and safety of new Class III Bike Route facilities. The stencil should be placed outside of on-street vehicle parking to encourage cyclists to ride away from parked cars’ open doors. Stencils should also be placed at one or two locations on every block.

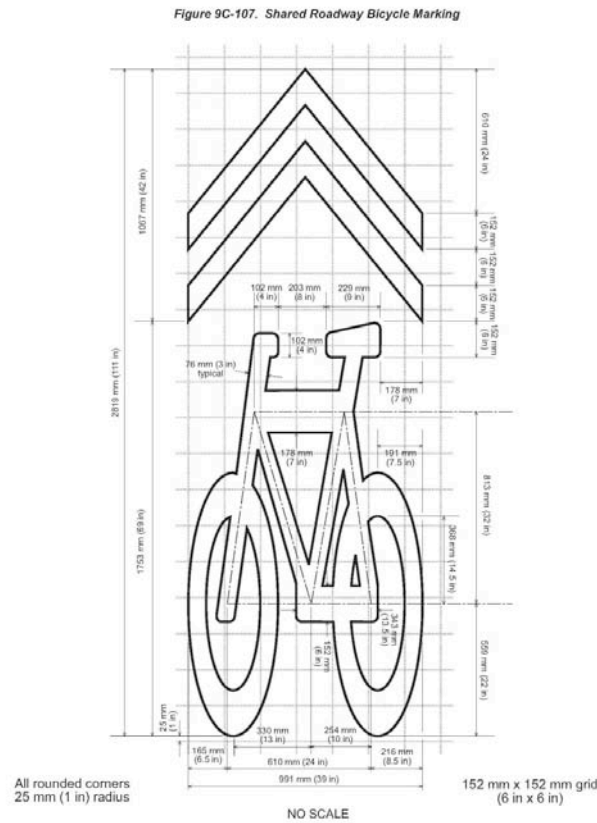


Figure 8-6: Sharrow Stencil



A numbered bike route network may be devised as a convenient way for bicyclists to navigate through the valley much the way the numbered highway system guides motorists efficiently through the roadway network. This could be used on all classes of bikeways. An example of a numbered bikeway sign is shown in Figure 8-7.



**Figure 8-7: Numbered Bikeway Sign (MUTCD)**

Destination signs add value to bike routes and assist cyclists to develop a mental map of the route system. Arrows pointing to “Old Pasadena,” “Caltech,” or “Rose Bowl” should be a standard part of the bikeway network. Destination signs should be placed at the intersection of bikeways to notify cyclists where each bike route goes.

## 8.2 Signage and Markings

Bikeway signage should conform to the signage standards identified in the Manual on Uniform Traffic Control Devices (MUTCD, 2003) and the Caltrans Traffic Manual. These documents give specific information on the type and location of signage for the primary bikeway system. A full list of applicable on-street bikeway signage from the MUTCD is shown in Table 8-1.

**TABLE 8-1: RECOMMENDED BIKEWAY SIGNAGE AND MARKINGS**

Signage	Location	Color	Caltrans Designation	MUTCD Designation
Bike Lane Ahead: Right Lane Bikes Only	At beginning of bike lanes	B on W	N/A	R3-16 R3-17
Bicycle Crossing	For motorists at a bikeway crossing	B on Y	N/A	W11-15 with W11-15a
Bike Lane	At the far side of significant arterial intersections	B on W	R81	D11-1
STOP Ahead	Where a STOP sign is obscured	B,R on Y	W17	W3-1
Signal Ahead	Where signal is obscured	B,R,G	YW41	W3-3
Pedestrian Crossing	Where a pedestrian walkway crosses a bikeway	B on Y	W54	W11A-2
Directional Signs	At intersections where access to major destinations is available	W on G	G7 G8	D1-1b(r/l) D1-1c
Right Lane Must Turn Right; Begin Right Turn Here, Yield to Bikes	Where a bike lane ends before an intersection	B on W	R18	R3-7 R4-4





Pasadena may want to add its own logo to give the bikeway signage a distinctive local flavor as in the picture of signs used in Berkeley.



Figure 8-8: Berkeley Sign

Vancouver, British Columbia, marks street signs with bicycles if it is a bicycle route as shown below:



Figure 8-9: Vancouver Street Signs

It is important to provide information to cyclists where bike routes turn, or where bikeways intersect. This can be done with both signs and pavement markings as shown below:

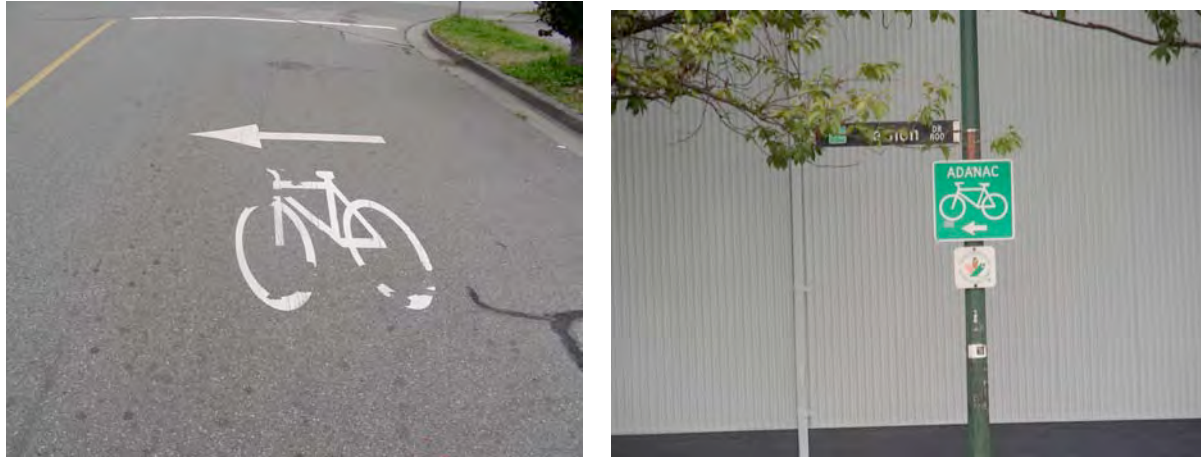


Figure 8-10: Bicycle Signage and Pavement Markings

### 8.3 Emphasized Bikeways

Emphasized bikeways are created where streets allow through traffic for bicyclists, but divert motor vehicle traffic in order to keep these streets quiet, pleasant, low-traffic volume streets to cycle on. These diverters may consist of bridges, dead-end streets with passages for bicycles, curbed islands with gaps for bicyclists or traffic signals that allow cyclists to pass through, but require motor vehicles to turn right or left. In order to keep traffic volumes low, diverters are generally needed every ½ mile or mile. Emphasized bikeways also may have features to slow traffic, such as chicanes, mini-roundabouts or mini-circles. The mini-roundabouts have the added advantage of allowing cyclists to go through intersections without slowing down.



Figure 8-11: Emphasized Bikeways



Figure 8-12: Mini-Circle

### Green Bicycle Lanes

Green bicycle lanes (Figure 8-12) are short lanes that are used where right-turn pockets direct motorists through a bicycle lane to turn right. The green lane makes it obvious to motorists that they are crossing the bicycle lane and makes them more likely to be cautious and to look for bicycles.



**Figure 8-13: Green Bicycle Lanes**

Green bicycle lanes can be used as continuous treatment as well, not only in conflict zones. However, neither treatment has been approved as part of the California Manual of Uniform Traffic Control Devices (CA MUTCD). Until they are approved, the City would have to use them under a sanctioned experimental process.

### Green Sharrow Lanes

The City of Long Beach is presently experimenting with green coloring of travel lanes (see Figure 8-13) with sharrows to strengthen the sharrows. The wide green stripe sends a strong signal to cyclists as to where they should ride, and to motorists that bicyclists are legitimate users of the entire travel lane. Although no standards are established, multi-lane streets with narrow curb lanes are likely the most appropriate to apply this treatment. This treatment has not yet been approved as part of the California Manual of Uniform Traffic Control Devices (CA MUTCD). Until it is approved, the City would have to use them under a sanctioned experimental process.

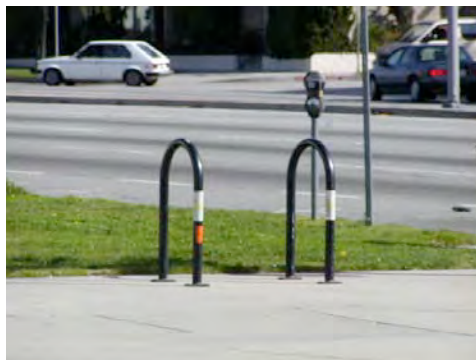


Figure 8-14: Green Sharrow Lanes

## 8.4 Bicycle Parking

Bicycle parking is not standardized in any state or municipal code. However, there are preferable types of secure bicycle accommodations available. Bicycle parking is a critical component of the network and facilitates bicycle travel, especially for commuting and utilitarian purposes. The provision of bicycle parking at every destination ensures that bicyclists have a place to safely secure their mode of travel. Elements of proper bicycle parking accommodation are outlined below.

1. Bike racks provide short-term parking. Bicycle racks should offer adequate support for the bicycles and should be easy to lock to. Figures 8-14 and 8-15 display a common inverted-U design that does this. Figure 8-16 depicts a multi-bicycle rack that works well. Figure 8-17 shows an innovative concept in which the bike rack itself looks like a bicycle.



Figures 8-15 and 8-16: “Inverted-U” Bicycle Rack





**Figure 8-17: Multi-Bicycle Parking Rack**



**Figure 8-18: "Bike" Bike Rack**

2. Long-term parking should be provided for those needing all day storage or enhanced safety. Bicycle lockers offer good long-term storage, as shown in Figure 8-18. Attendant and automated parking also serves long-term uses as shown in Figure 8-19.



Figure 8-19: Bicycle Lockers



Figure 8-20: Automated Bicycle Parking

3. Bicycle parking should be clearly identified by signage, such as in Figure 8-20. Signage shall also identify the location of racks and lockers at the entrance to shopping centers, buildings, and other establishments where parking may not be provided in an obvious location, such as near a front door.



Figure 8-21: Bicycle Parking Sign (Caltrans)

4. Bicycle parking should be located close to the front door of buildings and retail establishments in order to provide for the convenience, visibility, and safety of those who park their bicycles.
5. Bicycle lockers should have informational signage, placards, or stickers placed on or immediately adjacent to them identifying the procedure for how to use a locker. This information at a minimum should include the following:
  - Contact information to obtain a locker at City Hall or other administrating establishment
  - Cost (if any) for locker use
  - Terms of use
  - Emergency contact information
6. Bicycle lockers should be labeled explicitly as such and shall not be used for other types of storage.
7. Bicycle racks and storage lockers should be bolted tightly to the ground in a manner that prevents their tampering.
8. Bike corrals are created when a local jurisdiction replaces on-street auto-parking spaces with rows of bicycle racks. They should be used where bicycle parking is in high demand.





## 8.5 Drainage Grates

Care must be taken to ensure that drainage grates are bicycle-safe. If not, a bicycle wheel may fall into the slots of the grate, causing the cyclist to tumble. Replacing existing grates or welding thin metal straps across the grate perpendicular to the direction of travel is required to make them bicycle safe. These should be checked periodically to ensure that the straps remain in place. Grates with bars perpendicular to the roadway must not be placed at curb cuts, because wheelchairs could also get caught in the slot. Figure 8-21 shows the appropriate types of drainage grates that should be used.

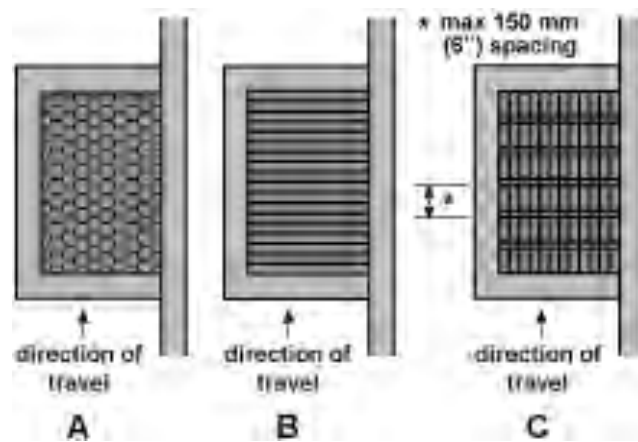


Figure 8-22: Proper Drainage Grate Design

## 8.6 Loop Detectors

Loop detectors at signalized intersections should be designed to detect when a bicycle rides or stops over them. Loop detectors at the signalized intersections of minor streets (minor arterials or collectors) should have priority when retrofitting existing detectors where the minor approaches do not call a green phase during every signal cycle. However, in the long run all signalized intersections should provide loops of other detection device to detect cyclists to provide for enhanced seamless travel. The State of California passed a new law that became effective in 2009 requiring local jurisdictions to add bicycle-sensitive loop detectors to all new signals and those that are replaced. The general specifications are that a detection area of 6' by 6' be created behind the limit line, and that bicyclists be given enough time to travel through the intersection with the clearance speed calculated at 14.7 feet per second plus 6 seconds for start-up. Painting the loop detectors and adding a bicycle stencil can help to notify cyclists where they need to be to trip the detectors.

APPENDIX A  
COST ESTIMATES

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Street	From	To	Proposed Facilities	Length (mile)	Total
<b>Proposed Bikeways of East-West Streets</b>					
Arlington Dr./Madeline Dr./Arroyo Blvd.	Pasadena Ave.	La Loma Rd.	Add bike route the whole length	1.1	\$9,289.72
			Add sharrows the whole length	1.1	\$10,567.48
California Blvd.	Arroyo Blvd.	Allen Ave.	Add bike route between Grand Ave. and Marengo Ave.	0.96	\$7,805.95
			Add sharrows for the whole length	2.96	\$27,506.69
Colorado Blvd.	Western City Limit	Eastern City Limit	Add bike lanes from Melrose Ave. to Orange Grove Blvd.	1.21	\$10,218.69
			Add bike route with sharrows western City limit to Melrose Ave.	0.12	\$1,152.82
			Consider a shared bus/bike lane if the City ever adds a bus lane	5.8	\$-
Cordova St.	Arroyo Parkway	Hill Ave.	Add road diet with bike lane for the whole length	1.5	\$39,600.00
Del Mar Blvd.	Orange Grove Blvd.	Madre St.	Add bike route between Orange Grove Blvd. and St. John Ave.	0.2	\$1,689.04
			Add bike lane between St. John Ave. and Pasadena Ave.	0.1	\$844.52
			Add sharrows between Orange Grove Blvd. and Madre St., except between St. John Ave. and Pasadena Ave.	4.4	\$40,888.32
Fillmore St./Arden Rd.	Fillmore Gold Line Station	Wilson Ave.	Add left turn lanes in both directions with signs at jog at the intersection of Marengo	0.08	\$1,314.00
			Add bike route from Marengo Ave. to Wilson Ave.	1.12	\$9,458.62
			Add sharrows from Marengo Ave. to Wilson Ave.	1.12	\$10,759.62
			Add directional signage/markings the whole length	1.12	\$17,740.80
Foothill Blvd.	Altadena Dr.	Rosemead Blvd.	Add sharrows for the whole length	2.45	\$22,767.36
Glenarm St.	Pasadena Ave.	El Molino Ave.	Add bike route between Los Robles Ave. and El Molino Ave.	0.23	\$1,942.40
			Add sharrows between Pasadena Ave. and Marengo Ave., and between Los Robles Ave. and El Molino Ave.	0.51	\$4,739.33
			Widen bike lane to 6' between Marengo Ave. and Los Robles Ave.	0.25	\$4,672.80
Green St.	Pasadena Ave.	Hill Ave.	Add bike route the whole length	1.92	\$16,214.78
Greenhill Rd.	Rosemead Blvd.	Eastern City Limit	Add bike route with sharrows	0.67	\$6,436.56

Street	From	To	Proposed Facilities	Length (mile)	Total
Hampton Rd.	Hastings Ranch Rd.	Eastern City Limit	Add bike route with sharrows	0.42	\$4,034.86
Holliston St. / San Pasqual St.	Lake Ave.	Eastern City Limit	Create emphasized bikeway from Lake Ave. and Wilson Ave. with sharrows	0.25	\$2,401.70
			Add sharrows on Holliston St. between Del Mar Blvd. and San Pasqual St., and on San Pasqual St. between Holliston St. and Greenwood St.	0.25	\$2,323.20
			Add 6'-7' bike lanes between San Gabriel Blvd. & eastern City limit	0.6	\$5,067.12
Howard St./ Elizabeth St.	West Washington Blvd.	Eastern City Limit	Repave and add bike route to blocked off road between West Washington Blvd. and Arroyo Blvd.	0.17	\$35,990.54
			Add signs to direct people from this road to Howard St.		\$157.00
			Improve bike route with sharrows	3.5	\$29,558.20
			Improved crossing at Lake Ave., consider staggered crosswalk treatment with islands and rapid flash beacons	0.03	\$35,000.00
La Loma Rd.	Ave. 64	Arroyo Blvd.	Add bike route with sharrows	0.71	\$12,593.98
Lida St.	Western City Limit/ Art Center College of Design	Linda Vista Ave	Add bike route from western City limits to Art Center College of Design	0.36	\$3,040.27
			Add bike route from Linda Vista Ave. to Parkview Dr., and on Parkview Dr. to West Dr.	0.34	\$2,871.37
Mountain St.	Lincoln Ave.	Altadena Dr.	Mountain St.: Add wide bike lanes between Lincoln Ave. and Sunset Ave.	0.32	\$2,601.98
			Mountain St.: Add emphasized bikeway from Raymond Ave. to Sierra Bonita Ave. with sharrows	1.79	\$562.06
Orange Grove Blvd.	Columbia St.	Sierra Madre Villa Ave.	Extend enhanced bike route from Walnut St. to Columbia St.	1.79	\$18,902.40
			Add bike lanes from Walnut St. to I-210	0.19	\$1,604.59
			Add sharrows from I-210 to Lake Ave.	2.06	\$19,143.17
Paloma St.	Sierra Bonita Ave.	Sierra Madre Villa Ave.	Paloma St.: Add bike route from Sierra Bonita Boulevard to Sierra Madre Boulevard with sharrows	2.29	\$21,999.57

Street	From	To	Proposed Facilities	Length (mile)	Total
Pasadena Ave. / Corson St.	Glenarm St.	Sierra Madre Blvd.	Add new bike lanes to fill gaps between Lake Ave. and Mentor Ave.; between just north of Walnut St. and Fair Oaks Ave.; between Hudson Ave. and Mentor Ave.	0.24	\$2,609.76
			Add new bike lane from Carmelo Ave. to Sierra Madre Blvd.	0.14	\$1,182.33
			Widen bike lane from 5' to 6' between Hill Ave. and Lola Ave.	0.97	\$7,887.26
			Widen bike lane from 5' to 6' between Del Mar Blvd. and Union St.	0.42	\$3,415.10
			Add a painted hatched buffer to the bike lane between Union St. and Hill Ave.	2.06	\$21,753.60
			Add bike lane at intersections between through-travel lanes and right-turn lane at Allen Ave., Hill Ave., Lake Ave., and Fair Oaks Ave.	0.03	\$3,443.94
			Add new bike lanes from south city limit to Bellefontaine St.	0.52	\$4,391.50
			Add new 5'-6' bike lane between Del Mar Blvd. and Glenarm St.	0.93	\$7,854.04
St. John Ave./ Maple St.	Sierra Madre Blvd.	Del Mar Blvd.	Add new bike lane Sierra Madre Blvd. and Altadena Dr.	1.25	\$10,556.50
			Add new bike lanes to fill gaps between Raymond Ave. and Fair Oaks Ave.; between Marengo Ave. and Pearl Place; and between Lake Ave. and Mentor Ave.	0.2	\$1,689.04
			Add 6' painted hatched buffer to bike lane between Sierra Madre Blvd. and Walnut St., except where on-St. parking exists from Sierra Bonita Ave. and Hamilton Ave., and from Mar Vista Ave. to Mentor Ave.	4.35	\$45,936.00
			Add new bike lane from Green St. to Del Mar Blvd.	0.35	\$2,955.82
			Widen bike lane from 5' to 6' and add double stripe from Walnut St. to where existing bike lane ends just south of Green St.	0.36	\$2,927.23
			Add bike lane at intersections between through-travel lanes and right-turn lane at Allen Ave., Lake Ave., Fair Oaks Ave., and Colorado Blvd.	0.03	\$4,253.36
Union St.	Hill Ave.	St. John's Ave.	Add new bike route between Arroyo Parkway and Marengo Ave.	0.09	\$864.61
			Add new bike lane for the whole length	1.98	\$16,721.50
Villa St.	Lincoln Ave.	Sierra Madre Blvd.	Add enhanced bike route from Lincoln Ave. to Los Robles Ave.	0.67	\$7,075.20
			Add sharrows from Lincoln Ave. to Holliston Ave.	1.74	\$16,169.47
			Add 6' bike lane from Holliston Ave. to Hamilton Ave.	0.17	\$1,435.68
			Widen existing bike lanes to 6' from Hamilton Ave. to Altadena Dr.	1.22	\$9,920.06
			Add 6' bike lane from Altadena Dr. to Sierra Madre Blvd.	0.25	\$2,111.30

Street	From	To	Proposed Facilities	Length (mile)	Total
Walnut St.	Orange Grove Blvd.	Pasadena Ave.	Add bike lanes from Orange Grove Blvd. to Pasadena Ave.	0.47	\$3,969.24
Washington Blvd.	Rosemont Ave.	Eastern City Limit	Add wide bike lane on eastbound side between Rosemont Ave. and Arroyo Blvd.	0.32	\$2,601.98
			Add sharrows on westbound side between Rosemont Ave. and Arroyo Blvd.	0.32	\$1,486.85
			Add bike lanes from City limit near Altadena Dr. to Sierra Madre Blvd.	0.92	\$7,769.58

Street	From	To	Proposed Facilities	Length (mile)	Total
<b>Proposed Bikeways of North-South Streets</b>					
Allen Ave.	North City Limit	California Blvd.	Add bike lane between Colorado Blvd. and Villa St.	0.58	\$4,898.22
			Add sharrows between north City limit and Villa St., and between Colorado Blvd. and California Blvd.	1.49	\$13,846.27
			Add more bike route signs	2.31	\$725.34
Altadena Dr.	North City Limit	Del Mar Blvd.	Add enhanced bike route between Foothill Blvd. and Del Mar Blvd.	0.51	\$4,146.91
			Add sharrows north City limit and Del Mar Blvd.	1.75	\$16,262.40
Arroyo Blvd.	I-210 freeway	Rosemont Ave.	Add bike lane between I-210 freeway and Stanton St.	0.38	\$3,209.18
			Widen existing bike lane to 7 feet	1.1	\$8,944.32
			Add double striping to bike lane	1.1	\$9,289.72
			Add green bicycle lane at right-turn onto eastbound Westgate St.		\$1,500.00
Arroyo Blvd./California Blvd./Grand Ave.	Rosemont Ave.	Columbia St.	Add red curb on Arroyo Blvd. next to Rose Bowl parking lot from Rose Bowl Dr. to Seco St.	0.16	\$844.80
			Add bike lane from Rose Bowl Dr. to Westbridge Place, except on steep downhill segment of Arroyo Blvd. (only on the downhill side)	1.25	\$10,556.50
			Add sharrows on steep downhill segment of Arroyo Blvd. (only on the downhill side)		\$696.96
			Add sharrows from Westbridge Place to Columbia St.	1.5	\$13,939.20
			Add more signs from Rosemont Ave. to Rose Bowl Dr., and from Westbridge Place to Columbia St.	0.17	\$314.00
Casitas Ave./Howard St./Forest Ave./Lincoln Ave.	North City Limit	Maple St.	Extend bike route to Maple St.	0.27	\$84.78
			Add sharrows the whole length	2.32	\$10,779.65
Craig St.	Mountain St.	South City Limit	Create a emphasized bikeway with sharrows between Mountain St. and south City limit	1.4	\$439.60
			Add green bike lane to transitions to wider segment over the I-210 freeway	0.07	\$3,696.00
			Add bike lane to bridge under I-210 freeway	0.07	\$591.16

Street	From	To	Proposed Facilities	Length (mile)	Total
El Molino Ave./Madison Ave.	Howard St.	Fillmore St.	Create emphasized bikeway between Howard St. and Fillmore St. with sharrows	2.75	\$99,018.70
			Add green bike lane to transitions to wider segment over the I-210 freeway	0.06	\$3,168.00
			Add bike lane to bridge over I-210 freeway	0.06	\$506.71
			Create gap in existing diverter for bicycles		\$5,000.00
Fair Oaks Ave.	Washington Blvd.	South City Limit	Restripe to widen curb lane the whole length (without bikeway designation)	3.08	\$25,044.10
Garfield Ave.	Walnut St.	Colorado Blvd.	Add 6'-7'-wide bike lanes from Walnut Street to Union Street	0.17	\$1,435.68
			Add bike route from Union Street to Colorado Boulevard	0.05	\$422.26
Halstead St.	Rosemead Blvd.	End of St. South of Foothill Blvd.	Add bike lanes between Rosemead Blvd. and Foothill Blvd.	0.34	\$2,817.99
Hastings Ranch Dr.	Sierra Madre Blvd.	Rosemead Blvd.	Add sharrows between Sierra Madre Blvd. and Rosemead Blvd.	0.72	\$6,690.82
Hill Ave.	North City limit	California Blvd.	Add more signs	2.72	\$471.00
			Add sharrows between north City limit and Del Mar Blvd.	2.3	\$21,373.44
			Add bike lane between Del Mar Blvd. and California Blvd.	0.4	\$3,378.08
Kinneloa Ave.	Foothill Blvd.	Del Mar Blvd. (this will follow a future tunnel under I-210)	Remove on-St. parking between Foothill Blvd. and Del Mar Blvd.	0.46	\$3,740.00
			Add bike lane between Foothill Blvd. and Del Mar Blvd. that links to the planned Eaton Wash bike path	0.46	\$3,812.57
Lake Ave.	Arden Rd.	Maple St.	Add bike route between Arden Rd. and Maple St.	1.46	\$12,329.99
			Narrow curb lane from 12' to 10' feet between Del Mar Blvd. and California Blvd.	0.34	\$106.76
			Add sharrows between Claremont St. and Rio Grande St., between Arden Rd. and California Blvd., and between Colorado Blvd. and Maple St.	1.01	\$9,385.73
Linda Vista Ave.	Northern City Limits	CA-134 Freeway	Add bike lanes on one-way connectors from El Circulo Drive to San Rafael Avenue	1	\$13,091.60
			Add sharrows for the entire length	2.9	\$26,949.12
Los Robles Ave.	North City Limit	South City Limit	Add sharrows between north City limit and south City limit	4.32	\$20,072.45
			In multi-lane segments ensure that the curb lane is striped to widest possible		\$5,000.00



Street	From	To	Proposed Facilities	Length (mile)	Total
Marengo Ave.	Howard St.	Glenarm St.	Create emphasized bikeway with sharrows between Howard St. and Orange Grove Blvd.	1.0	\$8,445.20
			Create gap in existing diverters for bicycles		\$5,000.00
			Widen bike lanes from 5' to 6' between Del Mar Blvd. and Glenarm St.	0.88	\$7,155.46
Melrose Ave./ Ave. 64	Colorado Blvd.	South City Limit	Add bike route with sharrows	1.05	\$18,624.90
New York Dr.	West City Limit	Sierra Madre Blvd.	Add buffer to bike lanes between western City limit and Sierra Madre Blvd.	1.23	\$12,988.80
			Extend bike lane on east to close gap	1.23	\$10,001.38
Oak Grove Dr.	Berkshire Ave.	Unincorporated County Line	Widen bike lane to 6' where possible	0.66	\$5,366.59
			Add painted hatched buffer where possible	0.66	\$
			Add green bicycle lane at right-turn lanes onto Linda Vista Ave. and onto Yucca Lane	0.03	\$1,500.00
Raymond Ave.	Montana St.	Maple St.	Widen bike lane to 6' between Montana St. and Washington Blvd.	0.8	\$6,504.96
			Add sharrows between Orange Grove Blvd. and Maple St.	0.36	\$3,345.41
			Consider removing left-turn lane at intersection of Orange Grove Blvd. and adding bike lane between through lane and right-turn lane	0.03	\$15,000.00
Rosemead Blvd.	Sierra Madre Blvd.	Foothill Blvd.	Extend enhanced bike route between Halstead St. and Foothill Blvd.	0.45	\$3,659.04
			Add sharrows between Sierra Madre Blvd. and Foothill Blvd.	0.74	\$6,876.67
Sierra Bonita Ave.	Washington Blvd.	South City Limit	Create emphasized bikeway with sharrows between Washington Blvd. and south City limit	2.23	\$21,423.16
			Add signs between Washington Blvd. and south City limit	2.47	\$775.58
			Improve crossing of Orange Grove Blvd.	0.03	\$5,000.00
			Add green bike lane to transitions to wider segment over the I-210 freeway	0.07	\$3,696.00
			Add bike lane to bridge over I-210 freeway	0.07	\$591.16
			Work with Pasadena City College to plan a route through campus from Colorado Blvd. to Del Mar Blvd. using either an existing wide sidewalk, or through the east side of campus	0.25	\$5,000.00

Street	From	To	Proposed Facilities	Length (mile)	Total
Sierra Madre Blvd.	East City Limit	Del Mar Blvd.	Add 6' to 7'-wide bike lane on north/west side from Orange Grove Blvd. to Altadena Dr.	0.8	\$6,630.56
			Add 6' to 7'-wide bike lane on south/east side from Orange Grove Blvd. to Altadena Dr.	0.8	\$6,630.56
			Widen existing bike lanes to 6' to 7'	2.29	\$18,620.45
			Add signs and stencils, especially at northwest end	2.29	\$18,620.45
Sierra Madre Villa Ave.	Sierra Madre Blvd.	I-210	Add sharrows between Sierra Madre Blvd. and I-210	0.95	\$4,414.08
Wilson Ave.	Washington Blvd.	Arden Rd.	Create emphasized bikeway with sharrows from Washington Blvd. to Corova St. Add bike route with sharrows between California Blvd. and Arden Rd.	1.78	\$17,100.10
			Add green bike lane to transitions to wider segment over the I-210 freeway	0.07	\$3,696.00
			Add bike lanes between California Boulevard and Cordova Street	0.43	\$3,631.44
			Add bike lane to bridge over I-210 freeway	0.07	\$591.16

Street	From	To	Proposed Facilities	Length (mile)	Total
<b>Proposed Bike Paths</b>					
Arroyo Seco Bike Path	Hahamonga Watershed Park	I-210 Freeway		1.28	\$236,971.26
Eaton Wash Bike Path	Along the Eaton Wash and utility corridor from Eaton Canyon Reservoir	Foothill Blvd.		2.05	\$379,524.29
<b>TOTAL ALL PROJECTS</b>					<b>\$1,696,019.56</b>