Simi Valley
Bicycle Master Plan

CITY OF SIMI VALLEY

December 2008

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Executive Summary

This Executive Summary reviews the **2008 Simi Valley Bicycle Master Plan**. The plan documents the latest bikeway improvements since the previous plan; it also identifies the facilities and programs required to provide residents and visitors with convenient and safe bicycling to, from, and within Simi Valley.

The main purpose of the plan is to encourage the development of an integrated bicycle system throughout Simi Valley with connections to other regional bike systems. Recommended projects will be given priority for various state and federal funding sources, prioritized through the City and Ventura County Transportation Commission (VCTC).

The planning process was largely based on the efforts of the previous plan, which incorporated a Bicycle Master Plan Committee and a number of public meetings. This plan additionally utilized online outreach to gather public input. The updated bicycle facilities system was devised to reflect bicyclists' needs and physical, operational and financial opportunities and constraints.

Simi Valley offers many qualities favorable to bicycling, including areas of moderately flat terrain, temperate climate, and scenic recreation destinations. Natural and man-made obstacles exist as well, including the topography of nearby mountains, and the freeway. The city currently provides 56.74 miles of bicycle paths, lanes and routes—an 800% increase in mileage following the adoption of the previous plan.

Bicycling is one of the most cost-effective and achievable means of reducing traffic congestion and improving air quality. Census 2000 data shows that approximately 1 out of every 8 Simi Valley residents could commute to work on a bicycle (based on reported travel times). Bicycling to school is also a viable possibility for Simi Valley students, and early exposure to physical activity like bicycling to school can encourage healthier living overall.

Recommendations

As a planning tool, this Plan includes recommendations for implementation of expanded and improved bicycle facilities and programs. The plan includes short term recommendations and long term recommendations. Some facilities cannot be immediately implemented. However, these facilities should be considered as opportunities arise in conjunction with future road improvement projects, development projects and redevelopment projects.

It is emphasized that Bicycle Master Plans are planning documents and include many projects and ideas that are sound in concept but have not been explored in detail. Ultimately it is engineering judgement of those that are considering specific projects that will determine whether projects are feasible and desirable from engineering and cost/benefit perspectives.

The facilities prioritized in the short term include the following.

Short Term Recommendations

Arroyo Simi Trail (City Limit to Madera Rd.) - Class I

Arroyo Simi Trail Gap Closure #1/Undercrossing (W/O Sequoia to E/O Sequoia) - Class I

Arroyo Simi Trail Gap Closure #2 (Los Angeles Ave./End Of Trail to Las Llajas Trail/La Ave.) - Class I

Arroyo Simi Trail Gap Closure #3 (Simi Valley Metrolink to Stearns St.) - Class I

Arroyo Simi Trail (Las Llajas Creek to Yosemite) - Class I

Arroyo Simi Trail (south side) – Class I, as discussed in the Visioning Plan

Cochran St. (Madera Rd. to First St.) - Class II

Country Club Dr. (Wood Ranch Pkwy. to Madera Rd.) - Class II

Crosstown Route 1 (First Street to Tapo Canyon Rd.) - Class III

Crosstown Route 2 (Rebecca to Kuehner Rd) - Class III

Crosstown Route 3 (Patricia/LA to Sequoia) - Class III

Erringer Rd. (Future street connection - Alamo St. to Madera Rd.) - Class II

Galena Ave (Cochran St. to Copely St.) - Class III

Katherine St. (Arroyo Simi to Yosemite Ave.) - Class II

Madera Rd (Future street connection - Erringer Ave. to View Line Dr.) - Class II

Ralston Ave. (Cochran St. to Los Angeles Ave.) - Class III

Smith Rd. (Kuehner Dr. to Corriganville Park) - Class III

Stearns St. (Los Angeles Ave. to Arroyo Simi Trail) - Class III

Tapo Canyon Rd. (Avenida Simi to Presidio) - Class II

Tapo Canyon/Arness Fire Rd. Bikeway (City Limit (South) to Guardian) - Class II

Tierra Rejada Rd (City Limit to Madera Rd) - Class II

West Los Angeles Ave. (PSC to Easy St) - Class II

Yosemite Ave. (Mt Sinai to Cochran St.) - Class III

Other recommendations within the plan provide details for specific projects—for example: bicycle lanes on Madera Rd., continuation of bicycle lanes at major arterial intersections, cost estimate details for Arroyo Simi undercrossings, and cost estimate details for crosstown residential bicycle routes.

Specific program recommendations include a Safe Routes to School program, bicycle parking request program, annual participation in Bike-to-Work Day, and annual counts and surveys to evaluate the impact of infrastructure and program implementation.

1. Introduction

1.1. Why Does Simi Valley need a Bicycle Master Plan?

The City of Simi Valley is a growing Southern California City, along with other communities along the SR 118 corridor. People are moving to Simi Valley for the enhanced quality of life—including access to the many recreational destinations, good schools and parks, and less traffic congestion. Quality of life means many things to many people, but surveys around the country have shown that concerns about the safety of school children, access to recreational facilities and specifically the presence of trails and bikeways figure prominently in how many people define the phrase.

Simi Valley is situated in South East Ventura County, next to the northwestern perimeter of the San Fernando Valley, with Los Angeles only minutes away. The city stretches along the Ronald Reagan (SR-118) Freeway, and is close to the Santa Monica Mountains National Recreation Area, Point Mugu State Park, and the beaches of Malibu, Oxnard and Ventura. The city is connected to other regional centers by Amtrak and Metrolink, and scheduled transit services are provided by VISTA. The City also has its own transit service, Simi Valley Transit, operating four regular bus routes.

Since the City's incorporation in 1969, Simi Valley has developed into a high quality community, integrating citizen involvement with effective planning. The City of Simi Valley has grown to nearly 40 square miles with a population of more than 126,000, while remaining dedicated to offering a quality lifestyle.

Why does Simi Valley need a Bicycle Master Plan? One reason is the continuing growth and expansion due to commercial and residential opportunities available to the area, combined with a desire for a higher quality of life by residents. One important facet of this quality of life is the provision of places for people of all abilities and interests to walk and ride, for both commuting and recreational purposes.

Studies show that walking and bicycling facilities are the two most requested facilities in all new communities. Since bicycling is one of the most popular recreational activities in the United States (46% of Americans bicycling for pleasure), we can assume that about 58,000 residents in Simi Valley would like to bicycle purely for pleasure.

Safety is a primary reason to improve bicycling conditions in Simi Valley. Concerns about safety are the single greatest reason people don't commute by bicycle, according to a 1991 Lou Harris Poll.

Addressing those concerns for bicyclists through physical and program improvements is another major objective of the Master Plan.

1.2. Key Issues to Making Simi Valley a Bicycle Friendly City

Safety, access, quality of life, and effective implementation are imperative elements for Simi Valley's success as a bicycle-friendly city.

Safety is the number one concern of citizens, whether they are avid, casual, recreational or commuting cyclists. Since adoption of the 2002 plan, new bicycle facilities were implemented primarily on arterials and grade-separated pathways. Continued development of bicycle lanes may include major reconstruction such as widening roads, median modification and/or parking prohibition for bicycle lanes where fronting homes exist. Also the enhancement of residential bicycle routes would improve the safety of bicycling in the city.

Access for bicycling to shopping, work, recreation, school, and other designations is somewhat hampered by major transportation corridors such as SR 118, Cochran St. and Los Angeles Ave. In addition to the obstacle of a busy street, varied topography of the area can be a challenge to individuals. Movement across major interchanges and arterials is hampered by the sheer volume of traffic (especially during the PM peak period), even at signalized intersections. Although Simi Valley transit has implemented a bikes-on-buses program, efforts of this type should be continually updated to improve access.

This plan urges Simi Valley to take measurable steps toward the goal of improving the **Quality of Life**, creating a more sustainable environment, reducing traffic congestion, vehicle exhaust emissions, noise, and energy consumption. The importance of developing a comprehensive bicycle system is a key element in marketing Simi Valley as a city where people want to live, work, and visit. The attractiveness of the environment not only invites bicyclists to explore Simi Valley, but more importantly, a beautiful environment helps to improve everyone's positive feelings about the quality of life in Simi Valley.

Education, enforcement, engineering, and funding are the basic components of an **Effective Implementation Program** for this Master Plan. Education must be targeted to bicyclists as well as motorists regarding the rights and responsibilities of the respective groups. Comprehensive enforcement of existing traffic and parking laws, coupled with the implementation of sound design and engineering principles for bike corridors is also critical. This plan also proposes systematic review of all new development projects, including public works efforts, to assure compliance with planning and building codes and the principles of this Master Plan.

1.3. Expected Benefits of the Bikeway Plan

Save lives.

Maintain favorable the incident and fatality rates for bicyclists through design standards and guidelines, education, and enforcement.

Provide needed facilities and services.

Meet the demand for increased use of bicycles as a means of travel around the city.

Improve the quality of life in Simi Valley

Design and build people-friendly streets, paths, trails, and activity centers available to everyone while supporting sustainable community development. Reduce traffic congestion, vehicle exhaust emissions, noise and energy consumption. Encourage visitors to stop and enjoy Simi Valley via bicycle.

Maximize funding sources for implementation.

Equip Simi Valley to successfully compete for State and Federal funding, by meeting the requirements of the California Bicycle Transportation Act.

1.4. Major Recommendations of the Bikeway Plan

The Simi Valley Bicycle Master Plan is a planning tool that includes recommendations for implementation of expanded and improved bicycle facilities and programs. The plan includes short term recommendations and long term recommendations. There are some facilities that cannot be implemented at this time. These facilities are considered as opportunities that may be presented in conjunction with future road improvement projects, development projects, redevelopment projects, or lifting of restricted access. The Bicycle Plan recommends further development of a comprehensive bikeway system in Simi Valley comprised of Class I bike paths, Class II bike lanes, Class III bike routes/boulevards. The system effectively connects all residential neighborhoods with the major activity centers in the City, such as the Simi Valley Town Center, Simi Valley Civic Center, Sycamore Shopping Center, Rancho Santa Susana Community Center, the Amtrak/Metrolink Station, schools, parks, the Boys & Girls Club, YMCA and the library. The major components of the plan are:

- An integrated and comprehensive network of bikeway facilities and programs
- Adoption of the goals, policies, recommendations, and guidelines in the Plan

Short term priority projects include:

- Cross-town route 1: Agnew-Alexander St/Alexander Dr-Marvel Ave-Larch St-Parker Ct-Larch St-N Bigelow Ave-Larch St-Wisteria St-E Larch St-Sycamore Dr-Niles St-Lindale Ave-Waldo St-Copley St-Medina Ave-Sequoia Ave-Delilah St-Tracy Ave-Antioch St-Hietter Ave-Gaines Ct-Goodwin Ave-Goddard Ave-Becky St.-Tapo Canyon Ave.
- Cross-town route 2: Rebecca St-Eileen St-Tapo St-Industrial St-Across the Las Llajas Creek-Ralston-Leeds-Stearns St-Rainwood St-Huntley St-Emory Ave-Sandiman St-Tinkerman St-Stow St-Fearing St-St Clair Ave-Malton Ave-Nelda St-Alscot Ave-Menlo St- Kuhner Dr.
- Cross-town route 3: Patricia Ave.-Williams St-Patricia Ave-Duncan St-Heywood St-Morley St-Sycamore Dr-Elizondo Ave-Across Runkle Canyon Drain-Corto St-Ending at Sequoia Ave.
- The Arroyo Simi Bike Path extension, around The Hidden Ranch Area
- Improve Las Llajas Arroyo Simi Trail connection across Los Angeles Ave.
- Promotional Programs, including Safe Routes to School, Bike to Work Week and a City Bicycling website.
- Improve access points to the Arroyo Simi (need County Watershed approval for this)
- Consider developing the bike path on the south side of the Arroyo Simi as discussed in the Visioning Plan

2. Goals and Objectives

The Simi Valley Bicycle Master Plan has been created through the diligent efforts of the City staff and citizens interested in improving the Simi Valley bicycling environment. Without the sustained efforts of these people, this Plan could not have been conceived and written.

2.1. Goals of the Bicycle Master Plan

Goals provide the context for the specific policies and recommendations discussed in the Bicycle Master Plan. The goals provide the long-term vision and serve as the foundation of the plan. The goals are broad statements of purpose that do not provide details, but show the plan's direction and give overall guidance. Objectives provide more specific descriptions of the goal. Policy actions, identified in subsequent sections of this Bicycle Master Plan, provide a bridge between general goals and actual implementation guidelines, which are provided in the Prioritization and Funding chapters.

The following Goals and Objectives are intended to guide bicycle planning, design, and implementation.

Goal 1

Plan for the development of bicycle facilities and programs in Simi Valley as a viable alternative to automobiles

Objectives

1. Develop a viable commuter Bikeway system.
2. Link residential areas, work and transit centers.
3. Integrate bicycles into other modes of transportation.

Goal 2

Maintain Bicycle Safety

Objectives

1. Develop comprehensive education and safety programs.
2. Monitor bicycle incidents and target needed improvements.
3. Manage bicycles on sidewalks through appropriate measures.

Goal 3

Maximize opportunities for bicycle use

Objectives

1. Accommodate bicycle needs as identified in the Master Plan online public outreach process.
2. Develop a user-friendly bicycle system for all levels of experience and abilities.
3. Integrate the local bikeway system into the regional bikeway system.
4. Overcome major barriers and gaps in the development of a bikeway system.
5. Keep the bikeway system well maintained.

Goal 4

Design a Feasible Implementation Plan

Objectives

1. Use accepted design standards.
2. Maximize funding opportunities.
3. Retain existing bikeway system and utilize existing opportunities.
4. Phase and prioritize projects for orderly implementation, coordinated with the capital improvement program.

3. Existing Conditions

The City of Simi Valley implemented vast improvements to its bicycle network, following the adoption of the 2002 City of Simi Valley Bicycle Master Plan. This chapter reviews relevant policies, planning documents, bicycle-related ordinances, existing bikeways, support facilities and programs, and potential bicycle commuters

3.1. Policy Review

This section reviews relevant existing policies, documents and ordinances. City, state, regional, and federal requirements for master plans can be directly related to funding.

3.1.1. Arroyo Simi Visioning Study (2007)

The Arroyo Simi Visioning Study provides a plan with descriptive recommendations and illustrative examples of improvements to manage the Arroyo Simi Bikeway. The bikeway runs through the center of Simi Valley and provides potential connections to multiple parks, schools, and neighborhoods.

The study has multiple goals, seeking to serve bicycle and pedestrian commuter needs, provide increased recreational opportunities with nearby trail systems and parks, and to protect natural resources by improving water quality for habitat areas and educating the public.

Figure 3-1: The Arroyo Simi Greenway provides a map for the overall scope of the study and illustrates how it interfaces trails, bike lanes and routes.

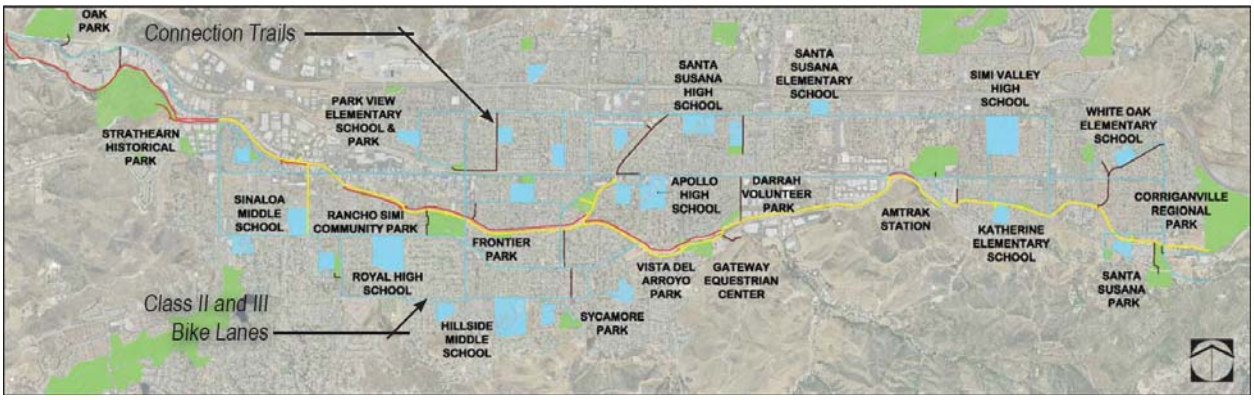


Figure 3-1: The Arroyo Simi Greenway

Grade-separated and At-grade crossings.

Roadway crossings (for lengthy paths through residential and commercial land uses) have the potential to provide a continuous enjoyable, recreational experience. They can also interrupt a smooth ride by creating an obstacle when negotiating traffic. Construction of undercrossings can allow bicyclists to completely circumvent intersections at major roads. Wherever undercrossings are

determined to be too costly or infeasible, at-grade crossings can be made more comfortable through signalization, traffic calming measures, and welcoming entry points

The study recommends construction of undercrossings for the Arroyo Simi Greenway at the following intersections: Madera Rd., Erringer Rd., Sycamore Dr., Royal Ave., and Sequoia Ave.

The visioning study describes existing at-grade crossings as unwelcoming and oriented to restrict motor-vehicles, rather than to facilitate bicycle and pedestrian access. **Figure 3-2 Arroyo Simi Access Points** shows two types of entrances used by bicyclists. Potential improvements feature landscaped plantings with gateways that facilitate bicyclists and pedestrians, like rhino gates and lockable removable bollards.

Figure 3-2: Arroyo Simi Access Points

Entrances at Los Angeles Ave. and Las Llajas Path and with cyclists on Equestrian/Access Road at Erringer Ave. (top and bottom left). Suggested facilities include rhino gates and removable-lockable bollards (top and bottom right).

List of Recommended Bikeways for Improvements

The study recommends a number of bikeway improvements for connecting streets. The following list includes streets recommended for either Class II or III improvements.

Alviso Street
Appleton Road
Aurelia Street
Bridget Avenue
Church Street
Crosby Avenue
Dusan Street
Electra Avenue
Emory Avenue
Fourth Street
Gibson Avenue
Harrington Road
Heywood Street
Hidden Ranch Drive
Katherine Road
Menlo Street
Moreland Road
Planetree Avenue
Racine Street
Rivera Street
School Street
Socrates Avenue
Strathearn Place
Ulysses Street
Union Place
Waldo Avenue

3.1.2. Simi Valley General Plan Update (1998)

The Conservation/Open Space Element of the City's general plan contains relevant sections, including guidelines to promote the appropriate use of open space for recreation. Encouraging the use of open space can be accomplished through the development of a trails system interconnecting open space lands, and promoting responsible use of lands for public health and safety.

3.1.3. Ventura Countywide Bicycle Master Plan (2007)

The 2007 Ventura Countywide Bicycle Master Plan provides a blueprint for bicycle transportation and recreation in Ventura County. The plan makes recommendations to enhance and expand the existing bikeway network, connect gaps, address constrained areas, provide for greater local and regional connectivity, and encourage more residents to bicycle.

The primary importance of this planning document is its identification of funding sources. Funding sources are located inside and outside Ventura County, and include non-infrastructure support to promote bicycling, education, engineering and enforcement programs. Specific to the City of Simi Valley, the countywide plan defers to the 2002 Simi Valley Bicycle Master Plan.

3.1.4. Simi Valley City Ordinance

This section summarizes Simi Valley Municipal Code related to bicycling. Chapter 3 of Section 4 (Public Safety) in the City Code addresses ownership and use of bicycles. Chapters 34 and 39 of Section 9 (Development Code) respectively detail the provision of bicycle parking facilities and bicycling-related Transportation Demand Management programs.

Public Safety: Bicycle Licenses and Riding Regulations

Any bicycle, used within the city, is required to have a license by the police department, unless the bicyclists are only bicycling through the city, or the bicycle is licensed pursuant to state vehicle code. Licenses must be managed in accordance to code with respect to transfer of ownership, loss, theft, junking and/or wrecking (§4-3.01-.14)

Bicycle riders are required to use pathways and lanes whenever riding upon a road with such facilities. However, they are permitted to exit facilities at intersections, when passing an obstruction or other bicyclists, when turning, or as a pedestrian when walking a bicycle. (§4-3.15-.21) Bicycles with wheels 20" or more in diameter are prohibited from being ridden upon city sidewalks, unless traffic engineering signage allows it. Nor are such bicycles allowed to ride on pedestrian sidewalks if adjacent bike lanes or bike paths have been provided. When permitted upon sidewalks and pathways, bicyclists must yield to pedestrians thereon. (§4-3.22)

New Development: Bicycle Parking and Transportation Demand Management

For commercial and industrial projects, a rack providing security for at least one bicycle is required per twenty (20) required parking spaces, for the purpose of storing and protecting bicycles from theft. The devices shall be located in such a way as not to interfere with pedestrian or vehicular traffic. (§9-34.070(D))

Nonresidential developments containing 50 or more full-time employees shall provide bicycle route and facility information, including regional and/or local bicycle maps and bicycle safety information along with a list of facilities and services available for bicyclists at the site. Projects shall also be subject to demonstrating safe and convenient access and circulation for bicyclist as determined by a review of the project by the Commission and/or the Council. (§9-39.020(B)&(D))

3.2. Existing Bikeways

This Bicycle Master Plan refers to bikeways using Caltrans standard designations. The three types of bikeways identified by Caltrans in Chapter 1000 of the Highway Design Manual are defined below. **Figure 3-3: Caltrans Bikeway Classifications** illustrates the three types of bikeways.

- Class I Bikeway: Typically called a "bike path," a Class I Bikeway provides bicycle travel on a paved right-of-way completely separated from any street or highway.
- Class II Bikeway: Often referred to as a "bike lane," a Class II Bikeway provides a striped and stenciled lane for one-way travel on a street or highway.
- Class III Bikeway: Generally referred to as a "bike route," a Class III Bikeway provides for shared use with pedestrian or motor vehicle traffic and is identified only by signing.

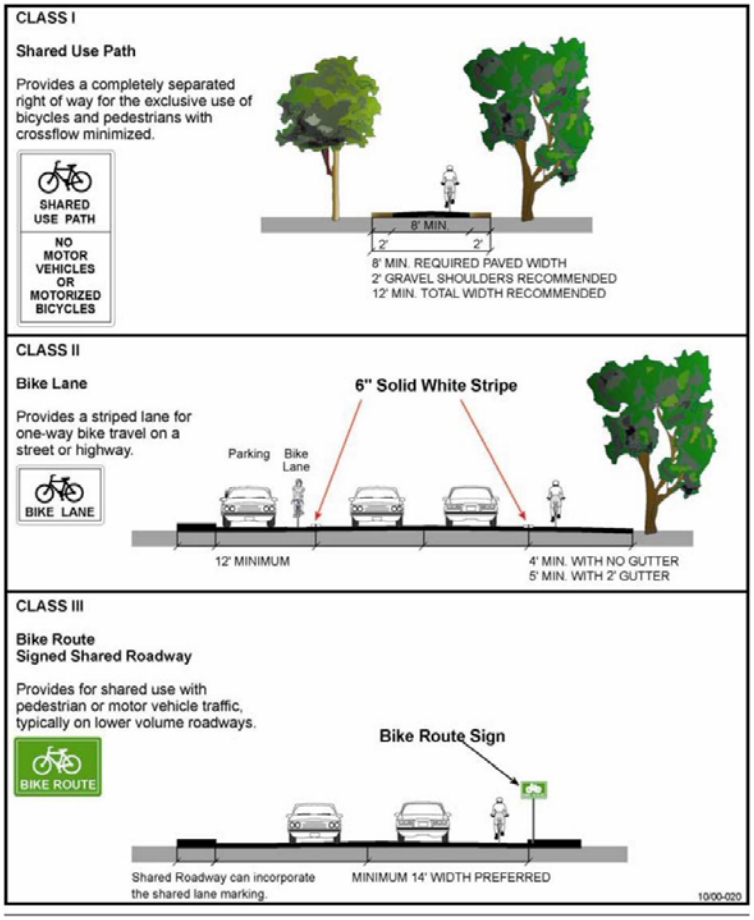


Figure 3-3: Caltrans Bikeway Classifications

Simi Valley contains approximately 56 miles of bikeways. This includes nearly seven miles of off-street bicycle paths, nearly 39 miles of bike lanes and approximately 10 miles of bike routes. Tables 3-1 to 3-3 detail these facilities and a map of them is provided in Figure 3-4: Simi Valley Existing Bikeways.

Table 3-1: Simi Valley Existing Class I Bike Paths

Class	Name	Start	Finish	Miles
I	Arroyo Simi Bike Path	Madera Rd.	Los Angeles Ave.	5.87
I	Arroyo Simi - Las Llajas Creek Spur	Los Angeles Ave.	Cochran St.	0.47
I	Arroyo Simi - Rancho Simi Park Spur	Arroyo Simi Greenway	Los Angeles Ave.	0.49
I	Path parallel to 118 freeway	Sequoia Ave.	Sycamore Dr.	.75
			TOTAL	**7.58**

Table 3-2: Simi Valley Existing Class II Bike Lanes

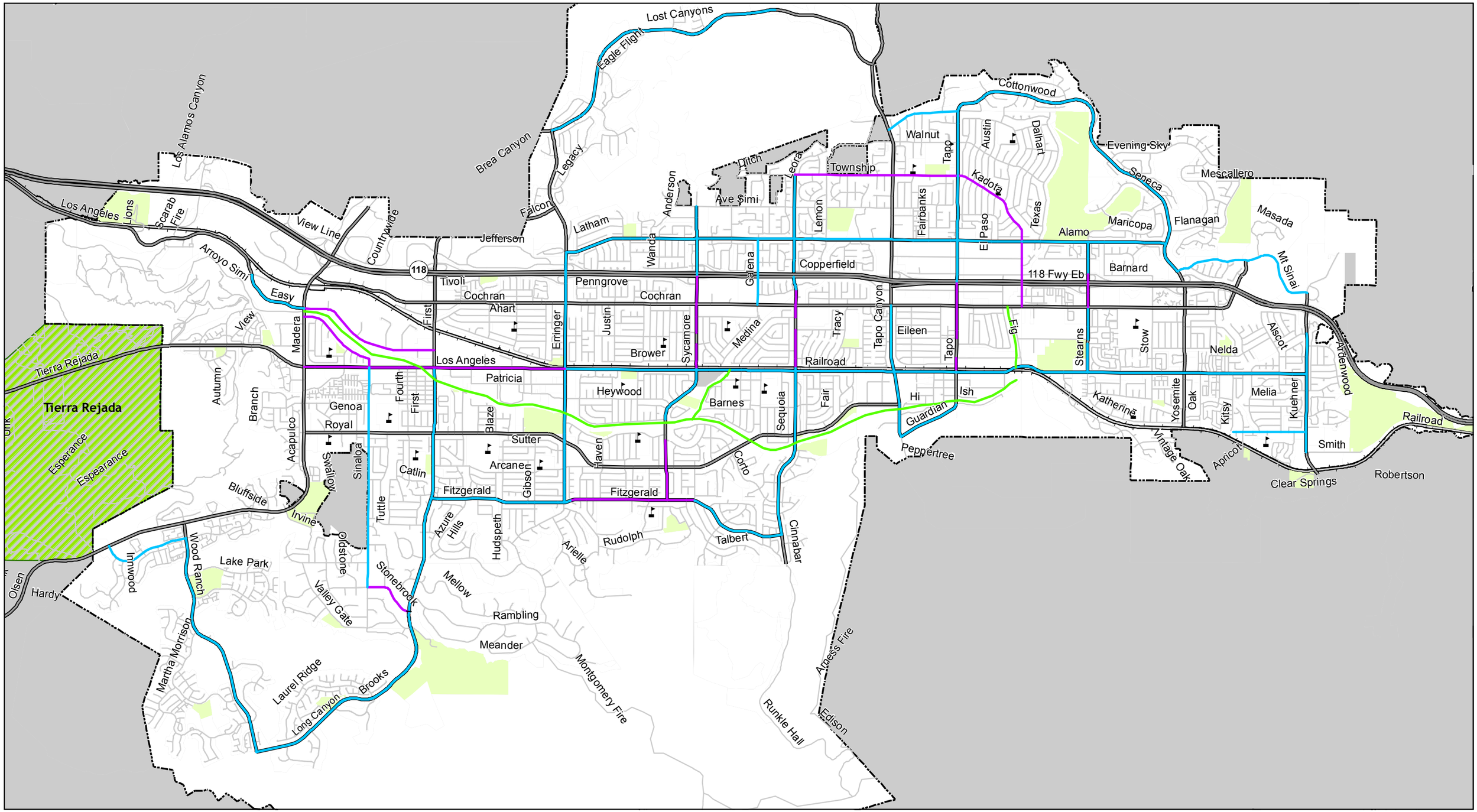
Class	Name	Start	Finish	Miles
II	1st St.	Bluegrass St.	Los Angeles Ave.	1.95
II	Alamo St.	Erringer Rd.	Yosemite Ave	4.62
II	Cottonwood Dr.	Tapo St.	North of Evening Sky Dr.	1.46
II	Country Club Dr.	Madera Rd.	Wood Ranch Pkwy.	0.70
II	Erringer Rd.	Cochran St.	Alamo St.	0.39
II	Erringer Rd.	Fitzgerald Rd.	Cochran St.	1.53
II	Fitzgerald Rd.	First St.	Erringer Rd.	1.01
II	Fitzgerald Rd.	Appleton Rd.	Sequoia Ave.	0.77
II	Galena Ave.	Alamo St.	Cochran St.	0.50
II	Guardian St.	Tapo Canyon Rd.	Tapo St.	0.48
II	Katherine Rd.	Kuehner Dr.	End of Road	0.56
II	Kuehner Dr.	South of Katherine Rd.	Menlo St.	0.87
II	Long Canyon Rd.	Wood Ranch Pkwy	Bluegrass St.	1.71
II	Los Angeles Ave.	Erringer Rd.	Kuehner Dr.	5.70
II	Lost Canyons Dr.	Erringer Rd.	Lost Canyons Golf Club	2.24
II	Mount Sinai Dr.	Yosemite Ave.	Kuehner Dr.	1.25
II	Presidio Dr.	Tapo Canyon Rd.	Tapo St.	0.57
II	Sequoia Ave.	Fitzgerald Rd.	Los Angeles Ave.	1.30
II	Sequoia Ave.	Township Ave.	Copperfield St.	0.87
II	Sinaloa Rd.	Highland Rd.	Royal Ave.	1.69
II	Stearns St.	Alamo St.	SR-118 Off-Ramp	0.25
II	Stearns St.	Cochran St.	Los Angeles Ave.	0.50
II	Sycamore Dr.	Los Angeles Ave.	Arroyo Simi	0.50
II	Sycamore Dr.	Alamo St.	Avenida Simi	0.19
II	Sycamore Dr.	SR-118	Alamo St.	0.27
II	Tapo Canyon Rd.	Guardian St.	El Paseo	1.74

Class	Name	Start	Finish	Miles
II	Tapo St.	Guardian St.	SR-118	0.25
II	Tapo St.	SR-118	Presidio Dr.	1.31
II	W. Los Angeles Ave./ Easy St.	Madera Rd.	West Los Angeles Ave.	1.00
II	Wood Ranch Pkwy	Country Club Dr.	Long Canyon Rd.	1.82
II	Yosemite Ave.	North of Evening Sky	Mount Sinai Dr.	1.26
			TOTAL	**39.26**

Table 3-3 Simi Valley Existing Class III Bike Routes

Class	Name	Start	Finish	Miles
III	Aristotle St.	Madera Rd.	Sinaloa Rd.	0.62
III	Easy St.	Madera Rd.	First St.	1.10
III	Fitzgerald Rd.	Erringer Rd.	Appleton Rd.	1.01
III	Kadota St.	Tapo St.	Cochran	1.27
III	Los Angeles Ave.	Madera Rd.	Erringer Rd.	2.00
III	Sequoia Ave.	Copperfield	Los Angeles Ave.	0.62
III	Sinaloa Rd.	Aristotle St.	Los Angeles Ave.	0.07
III	Stearns St.	SR-118 WB Off-Ramp	Cochran St.	0.26
III	Stonebrook St.	Sinaloa Rd.	First St.	0.41
III	Sycamore Dr.	Arroyo Simi Greenway	Fitzgerald Rd.	0.61
III	Sycamore Dr.	Los Angeles Ave.	Cochran St.	0.70
III	Tapo St.	Los Angeles St.	SR-118	0.68
III	Township Ave.	Sequoia Ave.	Tapo St.	1.25
			TOTAL	**10.60**

Figure 3-4 Simi Valley Existing Bicycle Facilities



Existing Class 1
Existing Class 2
Existing Class 3
Schools
City Limits
Greenbelts
Park or Natural Area
0 1 2 Miles
N
alta PLANNING + DESIGN

3.3. Existing Support Facilities and Programs

Support facilities primarily consist of end-of-trip and multi-modal facilities. Programs are non-infrastructure provisions that help promote bicycling. This section summarizes the existing support facilities and programs in Simi Valley.

3.3.1. Support Facilities

End of Trip Facilities

Bicycle storage can range from a convenient piece of street furniture, to storage in a bicycle locker. Bicycle lockers afford weather, theft, vandalism protection, gear storage space, and 24-hour personal access. **Figure 3-5: Standard Bicycle Parking** presents the simplest of bicycle parking available.

Simi Valley has bicycle parking facilities at several parks, schools, major employment centers, city hall, the civic center and major commercial centers. Simi Valley Municipal Code addresses bicycle parking. (See section 3.1.4 Simi Valley City Ordinance)

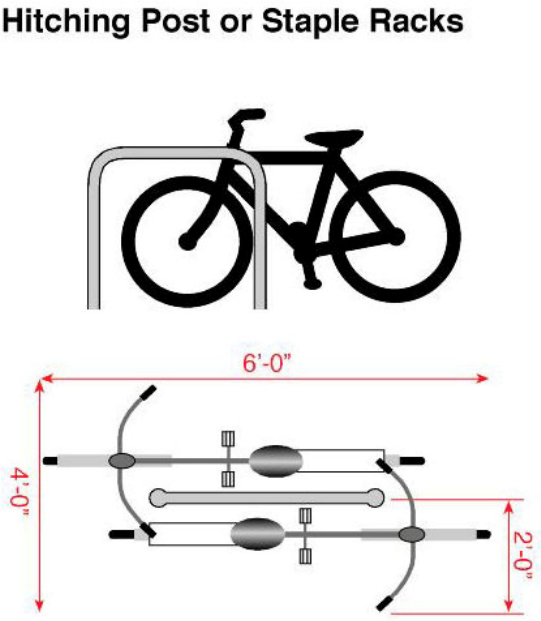


Figure 3-5: Standard Bicycle Parking

Figure 3-6: Bus Bicycle Racks

Multimodal Connections

Improving the bicycle-transit link is important in making bicycling a part of daily life in Simi Valley. The City is serviced by its own Simi Valley Transit system and by commuter rail—the Metrolink Ventura County Line.

Simi Valley Transit Bicycle Racks

Fixed route Simi Valley Transit buses are equipped with double bike racks, available on a first-come, first-served basis. **Figure 3-6: Bus Bicycle Racks** shows the racks employed by the transit agency.

Metrolink

Metrolink trains provide space for two bicycles per train car. The Simi Valley Metrolink station features 24 bicycle lockers. See **Figure 3-7: Simi Valley Metrolink Bicycle Parking**.

Figure 3-7: Simi Valley Metrolink Bicycle Parking

3.3.2. Support Programs

Support programs include encouragement, outreach, and education activities that can help sustain and grow a bicycling community. These can take the shape of bicycle clubs that organize rides, advocacy groups that provide feedback on services and infrastructure within a city, or classes offered to children and adults to promote safe and informed riding. The City of Simi Valley participated in the 2007 Bike to Work day with flyers. Ventura County bicycling clubs and the Ventura County Bicycling Coalition conduct rides and programs that incorporate the city and surrounding areas. The primary service offered by the City is education programs.

Education

The Simi Valley Police Department offers classes to elementary schools (K-8) by request. The presentations focus on general traffic safety geared towards bicycling. Topics covered include the importance of being alert, aware and wearing a helmet correctly along with dangers such as wrong-way riding.

3.4. Existing and Potential Bicycle Commuters

This section presents estimates for the current and potential number of bicycle commuters in Simi Valley. Census data, in combination with national commuting statistics from the 2001 National Household Travel Survey (NHTS) and EPA estimates of standard emissions rates for cars, give a rough projection of future bicycle ridership in Simi Valley, along with trip reduction and air quality benefits.

Calculations are included in this Plan to meet Caltrans Bicycle Transportation Account requirements (a) to provide "the estimated number of existing bicycle commuters in the Plan area and the estimated increase in the number of bicycle commuters resulting from implementation of the Plan."

According to the National Household Travel Survey (NHTS), the average work commute time has remained close to 20 minutes since 1983. In 2001, averaging all modes, the commute time was 23 minutes. Assuming an average speed of 10 miles per hour, a cyclist traveling for 23 minutes covers approximately four miles, which would be equivalent to a nine minute motor vehicle trip (traveling at about 30 mph).

Table 3-4: Journey to Work Data shows that 6,716 Simi Valley commuters (about 12.4%) had a commute time of nine minutes or less in 2000. Subtracting those residents that already walk or bike to work (864), we find that 5,852 Simi Valley residents could potentially convert their short (nine minute or less) commute trip from a vehicle trip into a bicycle trip.

Table 3-4: Journey to Work Data

Current Commute of 9min or Less	Already Walk or Bike to Work	Potential Bicycle Commuters
6,716	864	5,852

Source: U.S. Census 2000

4. Needs Analysis

This chapter provides an overview of the needs within the Simi Valley bicycling community incorporating public input, traffic and air quality benefits, and an analysis of bicycle incidents from 2002-2007.

4.1. Public Input

Public input was collected on the Simi Valley Bicycle Master Plan website through an online survey and from emailed comments. The opportunity to contribute comments was advertised on the front page of the City of Simi Valley website. The survey was designed to capture attitudes, opinions and behaviors of individuals who bicycle in Simi Valley. As of November 4th 2008, 60 surveys were completed. To encourage feedback, the survey was distributed through local recreational clubs and bicycling websites.

4.1.1. Survey Summary

The following tables provide insight into the bicycling environment in Simi Valley. The survey asked respondents for their trip purpose. **Table 4-1: Trip Purpose** shows that respondents primarily bicycle for exercise/health and also enjoyment. A sizeable segment of riders also bicycle for utilitarian purposes.

Table 4-1: Trip Purpose

Answer Options	Response Percent	Total
For exercise/ health reasons	93.3%	56
For pleasure	85%	51
For shopping/errands	40%	24
To get to work	30%	18
To get to school	8.3%	5
To get to transit	0%	0
I don't bike	3.3%	2
Other (please specify)	6%	4

The survey asked respondents for their riding frequency. **Table 4-2: Trip Frequency** shows that approximately 70% of the respondents ride three or more days a week. The results show that respondents are very frequent riders.

Table 4-2: Trip Frequency

Answer Options	Response Percent	Total
0 days per week	5%	3
1 day per week	8.3%	5
2 days per week	16.7%	10
3 days per week	25%	15
4 days per week	20%	12
5 days per week	18.3%	11
6 days per week	3.3%	2
7 days per week	3.3%	2

The survey asked participants for their average trip distance. **Table 4-3: Average Trip Distance** shows that, not only are survey participants' frequent riders, their average rides span l distances. 75% of those who responded indicated that their average ride was over 11 miles.

Table 4-3: Average Trip Distance

Answer Options	Response Percent	Total
Under 2 miles	10.2%	6
3-5 miles	5.1%	3
6-10 miles	25.4%	15
11-24 miles	44.1%	26
25 miles and above	33.9%	20
Clarification (if necessary)	27.1%	16

The survey asked respondents to identify reasons why they don't bicycle more often. **Table 4-4: Reasons for Not Bicycling More Often** shows that two thirds of the surveys listed the following reasons as the major obstacles to riding:

- Too many cars / cars drive too fast
- Drivers don't share the road
- No bike paths, lanes or routes

Table 4-4: Reasons for Not Bicycling More Often

Answer Options	Response Percent	Total
Destinations are too far away	12.3%	7
Too many cars / cars drive too fast	66.7%	38
Drivers don't share the road	64.9%	37
I travel with small children	7%	4
No bike paths, lanes or bike routes	68.4%	39
I have to carry things	10.5%	6

Answer Options	Response Percent	Total
Not enough time	19.3%	11
Insufficient lighting	5.3%	3
Bikeways/roads in poor condition	38.6%	22
Weather	10.5%	6
Other (please specify)	26.3%	15

The survey asked for input on respondents favorite bicycle facilities. **Table 4-5: Bicycle Facility Preference** shows that the most popular bicycle facilities are bicycle lanes, and the least popular are bicycle routes.

Table 4-5: Bicycle Facility Preference

Answer Options	1 (Most Preferred)	2	3	4 (Least Preferred)	Total
Off-street paved bike paths	25	21	7	6	59
On-street bike lanes	28	16	8	8	60
Bike routes	15	17	20	8	60
Unpaved trails or dirt paths	17	11	8	23	59

The survey asked respondents to rate their preferences for bicycle infrastructure improvements, to identify what would encourage them to ride more often. **Table 4-6: Desired Improvementss** shows the most popular responses from the survey are more bike lanes on major streets and widening outside curb lanes on major streets.

Table 4-6: Desired Improvements

Answer Options	Very Likely	Likely	Somewhat Likely	Not Very Likely	Unlikely	No	Not Sure	Total
More Bike Lanes (Separate Lanes for bikes) on Major Streets	44	8	6	1	0	1	0	60
More Bike Routes	29	18	11	1	0	1	0	60
More Paved (off-street) Bike Paths	28	14	9	7	0	0	0	58
Increased Maintenance (sweeping/repairs to bike lanes, routes, paths, and landscape trimming, etc.)	36	13	5	4	0	1	0	59
Widen Outside/Curb Lanes on Major Streets (easier to share lanes with cars)	37	10	7	2	1	0	1	58
More On-Road Bike Signage	15	13	11	7	6	5	1	58
More Bicycle Parking	16	8	10	12	2	8	0	56
Education or Promotional Programs for Drivers	30	6	10	5	2	2	1	56
Education or Promotional Programs for Cyclists	24	10	7	10	2	3	1	57

4.1.2. Additional Comments

A number of additional comments were also submitted via email and through general comments within the survey.

Some of the comments requested more support facilities, including restrooms and drinking fountains along bike paths, map kiosks, and shower amenities at employment centers for bicycle commuters.

A handful of comments expressed the desire to implement better education and enforcement programs for hazardous driving.

A small number of comments requested specific infrastructure improvements, including grade-separated crossings for the Arroyo-Simi Trail, bikeways away from heavy traffic on major arterials, extension of the Arroyo-Simi to Moorpark, and bicycle detectors at intersections to trigger signal lights.

Other feedback included improvements for programming and maintenance for bicyclists, including an annual city bicycle event, more frequent street sweeping on major arterials (e.g. Alamo St., Los Angeles Ave) and multilingual bicycle education programs.

4.2. Traffic and Air Quality Benefits

A key benefit to the implementation of the Simi Valley Bicycle Master Plan will be a reduction in traffic and improved air quality. Policies and infrastructure that improve bicycling conditions in Simi Valley will result in more favorable traffic conditions and a reduction in greenhouse emissions that originate from cars. National statistics and polices have been employed to estimate the benefits of the Bicycle Master Plan in Simi Valley. A detailed analysis of these benefits can be found in **Table 4-7: Simi Valley Demand Model.**

Mode split refers to the choice of transportation made by people for work or non-work purposes. Currently – the average household in the U.S. produces about 10 vehicle trips per day. Work trips account for less than 30% of these trips (on average).

The need for bicycle infrastructure and facilities derived from actual bicyclists is difficult to estimate. Therefore, we must rely on evaluation of comparable communities to determine potential usage.

According to the 2000 U.S. Census data, just over 1% of employed Simi Valley residents commute by bicycle. This figure is slightly above state and national levels.

The U.S. Department of Transportation's "National Walking and Bicycling Study" (1995) sets the goal of doubling the current bicycle modal share by the year 2010. This figure is based on the assumption that comprehensive bicycle infrastructures and policies are in place. Using population estimates, and factoring student populations that bicycle commute translates into a bicycle mode share of 1.4% or approximately 1,100 bicycle commuters.

There is great potential for growing the amount of bicycle commuters in Simi Valley. There are approximately 6,700 individuals whose commute time is nine minutes or less (see **Table 4-7: Simi**

Valley Demand Model). Subtracting the amount of people who already bicycle to work, this shows an increase of approximately 6,400 potential bicycle commuters in Simi Valley. Based on a 10% capture rate of these individuals – this population could reduce the Vehicle Miles Traveled (VMT) by 11 thousand per day, and over 3 million over the course of a year.

The air quality benefit of future bicycle commuters is a reduction of about eight metric tons of Hydro Carbons a year, 63 metric tons of Carbon Monoxide a year, four metric tons of NOX a year and over 330,000 metric tons of Carbon Dioxide a year.

Table 4-7: Simi Valley Demand Model

Current Commuting Statistics	Total	Source
Simi Valley Population	111,351	*2000 US Census*
Number of Commuters	53,976	*2000 US Census (Employed persons minus those working at home)*
Number of Bicycle-to-Work Commuters	314	*2000 US Census*
Number of Walk-to-Work Commuters	550	*2000 US Census*
Bicycle-to-Work Mode Share	1.02%	*Mode share percentage of Bicycle to Work Commuters*
School Children Grades K-8	18,576	*2000 US Census, population ages 5-14*
Estimated School Bicycle Commuters	446	*Healthy People 2010 Mid-course Review (2000) (2.4%)*
Number of College Students	6,991	*2000 US Census*
Estimated College Bicycle Commuters	350	*National Bicycling & Walking Study, FHWA, Case Study No. 1, 1995. Review of bicycle commute share in seven unversity communities (5%)*
Average Weekday Transit Ridership in Simi Valley	-	*Average of weekday system wide Simi Valley Transit boardings on Bus Routes and Light Rail serving Simi Valley*
Estimated Number of Daily Bike/Transit Users in Simi Valley	804	*2000 US Census*
Estimated Total Number of Bicycle Commuters and Utilitarian Riders	1,109	*Total of bike-to-work, transit, school, college and utilitarian bicycle commuters. Does not include recreation.*
Estimated Adjusted Mode Share	1.4%	*Estimated Bicycle Commuters divided by work and school travelers*
Estimated Current Bicycle Trips		
Total Daily Bicycle Trips	2,219	*Total bicycle commuters x 2 (for round trips) plus total number of utilitarian bicycle trips*
Reduced Vehicle Trips per Weekday	721	*Assumes 73% of bicycle trips replace vehicle trips for adults/college students and 53% for school children*
Reduced Vehicle Miles per Weekday	3,275	*Assumes average one-way trip travel length of 4.6 miles for adults/college students and 0.5 mile for schoolchildren*
Potential Future Bicycle Commuters		
Number of workers with commutes nine minutes or less	6,716	*US Census 2000*
Number of workers who already bicycle or walk to work	314	*US Census 2000*
Number of potential bicycle commuters	6,402	*Calculated by subtracting number of workers who already bicycle or walk from the number of workers who have commutes 9 minutes or less*
Future number of new bicycle commuters	640	*Based on capture rate goal of 10% of potential bicycle riders*
Total Future Daily Bicycle Commuters	1,750	*Current daily bicycle commuters plus future bicycle commuters*

Continued on next page

Table 4-7: Simi Valley Demand Model(continued from previous page)

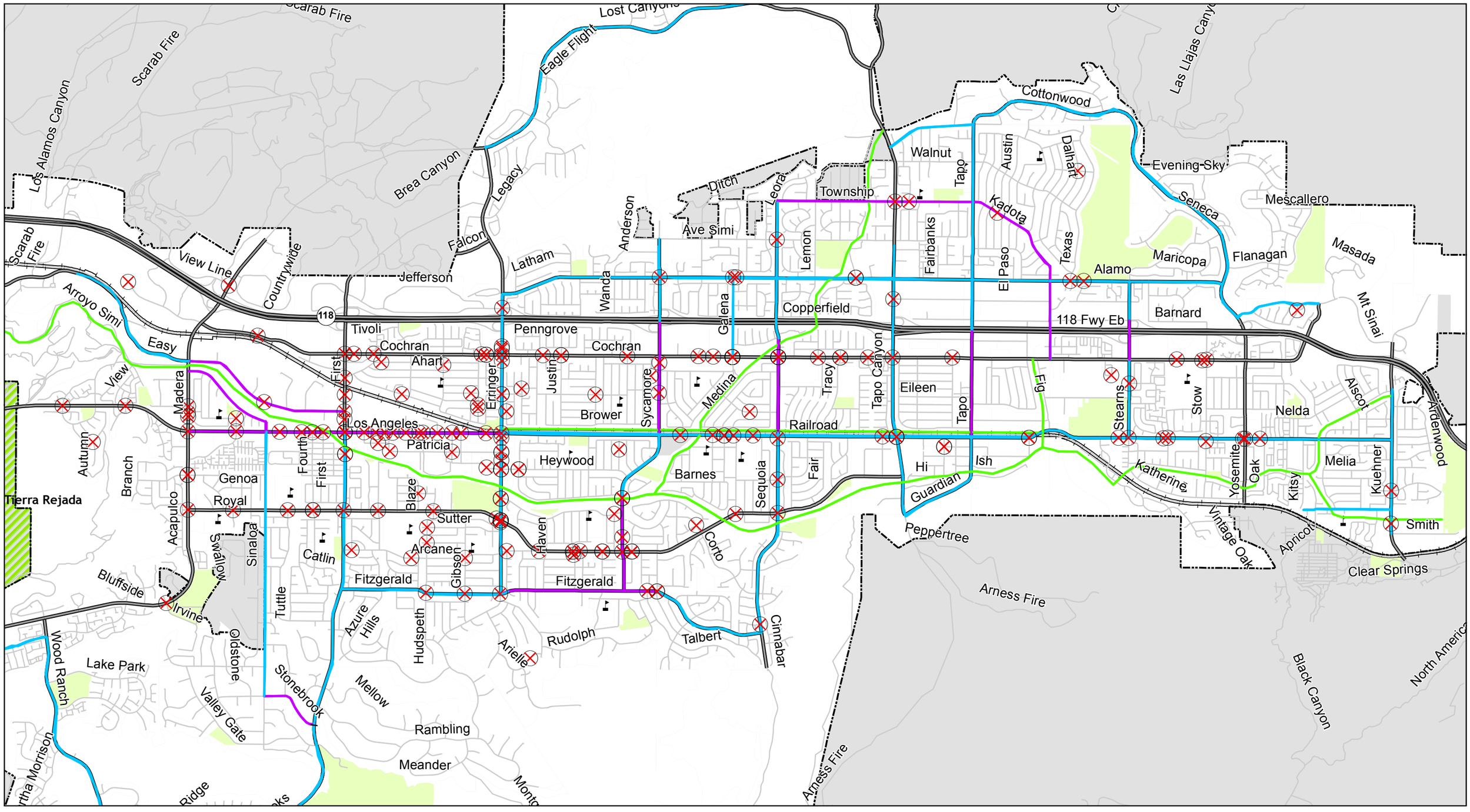
Future Total Daily Bicycle Trips	3,499	*Total bicycle commuters x 2 (for round trips)*
Future Reduced Vehicle Trips per Weekday	2,554	*Assumes 73% of bicycle trips replace vehicle trips*
Future Reduced Vehicle Miles per Weekday	11,750	*Assumes average one-way trip travel length of 4.6 miles for adults. Assumes 12 mph average bicycle speed; 23 minute average travel time. Travel time data from NHTS 2001 Trends, Table 26.*
Future Reduced Vehicle Miles per Year	3,113,787	*256 weekdays per year*
Future Air Quality Benefits		
Reduced HC (kg/weekday)	33	*(0.0028 kg/mile)*
Reduced CO (kg/weekday)	246	*(0.0209 kg/mile)*
Reduced NOX (kg/weekday)	16	*(0.00139 kg/mile)*
Reduced CO2 (kg/weekday)	1,293,778	*(.4155 kg/mile)*
Reduced HC (metric tons/year)	8	*1000 kg per metric ton; 256 weekdays/year*
Reduced CO (metric tons/year)	63	*1000 kg per metric ton; 256 weekdays/year*
Reduced NOX (metric tons/year)	4	*1000 kg per metric ton; 256 weekdays/year*
Reduced CO2 (metric tons/year)	331,207	*1000 kg per metric ton; 256 weekdays/year*
Emissions rates from EPA report 420-F-00-013 "Emission Facts: Average Annual Emisisons and Fuel Consumption for Passenger Cars and Light Trucks." 2000.		

4.3. Incident Analysis

Simi Valley bicycle-related incident data was collected from the Statewide Integrated Traffic Records System (SWITRS) for a five-year period. **Figure 4-1 Simi Valley Bicycle Incidents 2002-2007** shows a map of this data. The most notable pattern was the high number of incidents clustered on Los Angeles Ave., Cochran St., First St., and Erringer Ave. Incidents on Los Angeles Ave. were concentrated between Madera Rd. and Erringer Rd. This incident pattern is not unusual considering that this section of road features fast and high traffic volumes, along with Class III bicycle route signage. Recommended projects address diverting bicycle traffic away from some of these busy corridors

Simi Valley had 215 reported bicycle-related incidents in the years between 2002 and 2007, or about 23 incidents per year. This translates into an average of .207 incidents per 1,000 persons per year, which is almost half of the 1998-2000 average. This indicates that while safety is a concern in Simi Valley, the incident rate does not point to any unusual safety problems for the community.

Figure 4-1 Simi Valley Bicycle Incidents 2002-2007



Class I | Class II | Class III | Schools | City Limits | Park or Natural Area | Greenbelts | Collisions

0 1 2 Miles

N

alta PLANNING + DESIGN

5. Recommended Improvements

This chapter presents the recommended bikeway system for the City of Simi Valley. The recommended system consists of a bikeway network and bicycle support facilities and programs. The recommended bikeway network includes Class I bike paths, Class II bike lanes, and Class III bike routes that connect residential neighborhoods in Simi Valley with schools, parks community centers, libraries, commercial centers and other destinations.

The recommended bicycle support facilities and programs include parking facilities, sidewalk management practices, signal programs, promotional programs and educational programs.

5.1. Recommended Bikeway Network

A bikeway network is a system of bikeways that provides a superior level of service for bicycles and/or is targeted for improvements by the City due to existing deficiencies. The bikeway network is a tool that allows the City to plan for the future and to focus and prioritize implementation efforts where they will provide the greatest benefit to the bicycling community. Benefits often include increased convenience, more direct travel and safer riding conditions. Bikeway network recommendations are provided in the following sections. A map of all the recommendations can be found at the end of the chapter on page 37 in **Figure 5-5 Simi Valley Existing and Proposed Bicycle Facilities**.

5.1.1. Class I Recommendations – Bicycle Paths

Table 5-1: Recommended Class I Bicycle Paths lists proposed Class I improvements.

The Arroyo Simi Trail is the primary bicycle path in Simi Valley, currently winding from Madera Rd. to Las Llajas Creek. It is mostly grade-separated, offering bicyclists and pedestrians a path void of traffic. A number of these proposed improvements include Arroyo Simi Trail extensions, gap closures, and spur trails. Some improvements are built but presently open only to municipal service vehicles.

Other path recommendations provide regional connections, including the Moorpark Connection Trail to Moorpark College and the Sunset Hills Trail to the neighboring City of Thousand Oaks.

Table 5-1: Recommended Class I Bicycle Paths

Name	Start	End	Class	Length
Arroyo Simi Trail	Las Llajas Creek	Yosemite Ave.	I	1.43
Arroyo Simi Trail	Yosemite Ave	Corriganville	I	1.50
Arroyo Simi Trail	City Limit	Madera Rd.	I	1.25
Arroyo Simi Trail Gap Closure (1)	W/O Sequoia	E/O Sequoia	I	0.25
Arroyo Simi Trail Gap Closure (2)	Los Angeles Ave./End Of Trail	Las Llajas Trail/LA Ave.	I	0.25
Arroyo Simi Trail Gap Closure (3)	Simi Valley Metrolink	Stearns St.	I	0.25
Arroyo Simi Trail Spur	Arroyo Simi Trail	West La Ave.	I	0.25
Stearns-Katherine Bridge	Stearns St.	Katherine St.	I	0.25
Sunset Hills Trail	City Limit	Wood Ranch Pkwy.	I	0.20

Name	Start	End	Class	Length
Union Pacific Rail Road Trail	Los Angeles Ave.	Erringer Rd.	I	3.50
White Oak Branch Trail	Arroyo Simi Trail	Kuehner Drive, Nelda St.	I	1.00
			TOTAL	**10.13**

5.1.2. Class II Recommendations – Bicycle Lanes

Table 5-2: Recommended Class II Bike Lanes details proposed Class II improvements.

The existing bicycle network features a comprehensive network of bicycle lanes along arterials. The City constructed most of the immediately feasible Class II recommendations from the previous Bicycle Master Plan. The next round of Class II implementation may require more accommodating measures, including median-width reduction, lane-width reduction or road-widening.

For example, Madera Rd. from Presidential Dr. to the Cancun St. is relatively narrow to stripe for bicycle lanes. But future modification of the large median, reduction in lane width, or widening the road could lead to sufficient width.

Figure 5-1: *Colored Bicycle Lanes* can increase driver awareness when they cross the path of bicyclists

Another example of unique improvement constraints is the recommendation for bike lanes on Stearns St. underneath the 118 Freeway. The freeway on/off ramps produce a challenging intersection for bicyclists, and the City may be interested in pursuing experimental facilities, like colored bicycle lanes (**Figure 5-1: Colored Bicycle Lanes can increase driver awareness when they cross the path of bicyclists**).

Table 5-2: Recommended Class II Bike Lanes

Name	Start	End	Class	Length
Alamos Canyon Rd.	Cochran St.	Madera Rd.	II	2.50
Cochran Street	First Street	Madera Rd.	II	0.90
Country Club Dr.	Wood Ranch Pkwy.	Madera Rd.	II	1.25
Erringer Rd.	Alamo St.	Madera Rd.	II	1.00
First St.	Erringer Rd.	Simi Town Center Way	II	1.50
Fitzgerald Rd.	Erringer Rd.	Appleton Rd.	II	1.00
Katherine St.	Stearns-Katherine Br.	Yosemite Ave.	III	0.75
Madera Rd	Erringer Ave.	View Line Dr.	II	2.25
Madera Rd.	Los Angeles Ave.	Thousand Oaks City Limit	II	3.25
Stearns St.	118 Off-ramp	118 On-ramp	II	0.20
Tapo Canyon Rd.	Tapo Canyon Park	Cochran St.	II	2.50
Tapo Canyon/Arness Fire Rd. Bikeway	City Limit (South)	Guardian	II	0.25
Tapo St.	Cochran St.	Arroyo Simi Trail	II	0.70
Tierra Rejada Rd	City Limit	Madera Rd	II	1.00
West Los Angeles Ave.	Moorpark City Limit	Easy St.	II	1.25
Yosemite Ave.	Cochran St.	Katherine St.	II	0.90
			TOTAL	**21.20 miles**

5.1.3. Class III Recommendations – Bicycle Routes

Table 5-3: Recommended Class III Bicycle Routes. While Class III bikeways may be the simplest facility for installation, they can provide significant improvement. Enhanced variations, like bicycle boulevards, numbered routes for wayfinding, and shared-lane markings, further supplement their benefits.

Bicycle boulevards are enhanced routes on roadways with lower traffic speed and volume. They typically feature road treatments and traffic calming measures that prioritize bicycle movements—possibly limiting auto movement—and intersection improvements to facilitate crossings at major arterials. A system of numbered routes for wayfinding can simplify navigation for bicyclists, especially where routes cross; they also help bicyclists share directions with one another. Finally, shared lane markings on roads that are not wide enough for the striping of bicycle lanes can raise driver awareness to the presence of bicyclists and encourage riders to position themselves away from unexpected door-openings from parked cars.

Feasibility assessment for bicycle route implementation upon residential streets should take into account arterial-crossings, as depicted in **Figure 5-2: Fearing-Yosemite Intersection.** Route intersections with arterials should allow riders to cross safely, unhindered by pressure from oncoming traffic. From the 2002 Simi Valley Bicycle Master Plan, the following residential route and arterial intersections were identified for improvement:

Larch and Erringer	Eileen and Tapo
Larch and Sycamore	Leeds and Stearns
Niles and Sycamore	Fearing and Yosemite
Medina and Sequoia	Heywood and Erringer
Delilah and Sequoia	Becky and Tapo Canyon

Figure 5-2: Fearing-Yosemite Intersection

Fearing St, a wide throughway, is ideal for Class III improvements, but its intersection with Yosemite is uncontrolled, creating potentially challenging crossings.

Table 5-3: Recommended Class III Bicycle Routes

Name	Start	End	Class	Length
Cochran St.	First St.	Yosemite Ave.	III	6.75
Crosstown Route 1	First St.	Tapo Canyon Rd.	III	4.25
Crosstown Route 2	Cochran St.	Kuehner Dr.	III	4.50
Crosstown Route 3	Los Angeles Ave.	Sequoia Ave.	III	3.00
First St.	Cochran St.	Los Angeles Ave.	III	0.50
Galena Ave	Cochran St.	Copely St.	III	0.25
Madera Rd.	View Line Dr.	Los Angeles Ave.	III	1.00
Ralston Ave.	Cochran St.	Los Angeles Ave.	III	0.50
Royal Ave.	Madera Rd.	Tapo Canyon Rd.	III	4.75
Smith Rd.	Kuehner Dr.	Corriganville Park	III	0.50
Stearns St.	Los Angeles Ave.	Arroyo Simi Trail	III	0.25
Stow St.	Cochran St.	Katherine St.	III	0.75
Sycamore Dr.	Arroyo Simi	Fitzgerald Rd.	III	0.60
Yosemite Ave.	Mt Sinai	Cochran St.	III	0.30
			TOTAL	**27.90**

5.1.4. Miscellaneous Bicycle Network Recommendations

In addition to traditional Class I, II and III proposed improvements to the bicycle network, a number of unique situations in the City may warrant further improvement.

Madera Road Improvements

As a major arterial in southwest Simi Valley, Madera Road provides direct access to the city for commuter and recreational bicyclists living in the surrounding neighborhoods. The road features both opportunities and constraints for bicycle facility improvements.

The current stretch of Madera Rd. west of Presidential Drive is striped with two travel lanes in each direction. Although this existing configuration provides room for a bicycle lane, future plans anticipate traffic volumes that may require a total of 6 travel lanes, three in each direction.

As a 6-lane road, a Class III designation as a signed bike route may not sufficiently provide a comfortable and safe bicycling environment. In that case, Madera will require widening in order to accommodate a bicycle lane or to be designated as a Class III route. If future development does not proceed at projected levels within the city's general plan, extra traffic capacity provided by new lanes maybe unnecessary, allowing the city to implement bicycle lanes.

Arroyo Simi Greenway Spot and Access Improvements

The Arroyo Simi Greenway serves as a convenient and safe bikeway for commuters and recreational riders. Spot improvements at various points along the trail can improve bicycling conditions. These can include better arterial crossings, with signalization installation or grade-separated undercrossings, or more simple/inviting access points.

Support facilities such as water fountains, rest areas, maps, and bicycle parking, can also help to encourage more bicycling upon the trail.

Additionally, current surface street access to the Arroyo Simi Greenway is provided via double-right angle turn boxes reinforced with telephone pole fencing, accompanied by locked chain-link gates. These require most bicyclists to dismount and walk through the box. While they are effective in preventing motor vehicles from accessing the greenway, they are generally unwelcoming. Bicyclists who do not frequent the paths may not recognize the boxes as entrances next to the locked gates.

Improvements to these access points should facilitate bicyclists and pedestrians, like rhino gates and lockable removable bollards, both of which provide visual indicators of access to passing bicyclists.

Los Angeles Ave. and the Las Llajas-Arroyo Simi Trail Extension

Los Angeles Ave. meets the Las Llajas-Arroyo Simi Trail Extension at an S-curve, accompanied by a railroad crossing. **Figure 5-3: Los Angeles Ave.-Las Llajas Aerial Photograph** illustrates how these unique conditions create crossing challenges for the intersection of two popular bikeways. Current bicycle and pedestrian crossings are 100ft further west from the railroad crossing.

Potential solutions should address enhanced railroad-crossing safety features as well as a more visible, obvious, and accessible crossing over Los Angeles Ave, connecting to the north and south. Projects will also require cooperation with UPRR management since the area is outside of the City's jurisdiction.

Figure 5-3: Los Angeles Ave.-Las Llajas Aerial Photograph

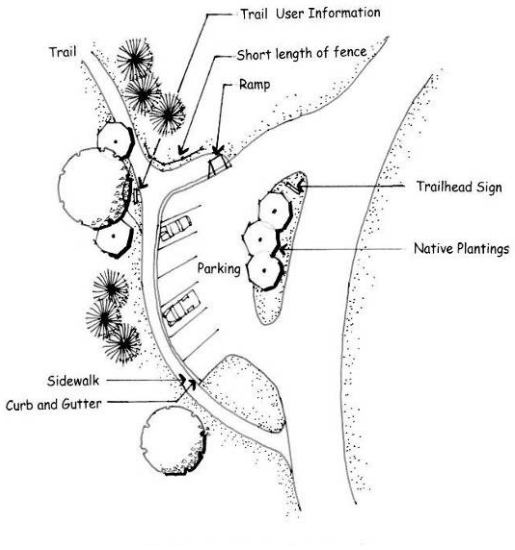


Figure 5-4: Trailhead with Small Parking Lot

Bike Lane Continuation at Major Intersections

Some bicycle lanes terminate before they reach major intersections to accommodate the position of right-turning vehicles. This situation can lead to confusion regarding lane position for bicyclists continuing through the light or when stopped at the traffic signal. **Appendix A: Design Guidelines** provides possible improvements.

One particular instance of this occurs on Los Angeles Ave at the intersection of Tapo St and Los Angeles Ave., a choke point in the road segment that bicyclists frequent. A potential project would widen the road to accommodate bicycle lanes.

Mountain Biking Trailheads

Simi Valley has a number of mountain bike paths near the Rocky Peak Area. Trailhead access improvements, like **Figure 5-4: Trailhead with Small Parking Lot** off Kuehner Dr., Flanagan Dr., Rocky Peak Rd. and Long Canyon Rd. could help encourage riders by providing support facilities (i.e. drinking fountains or restroom facilities). Facilities could also provide trail information and encourage bicyclists to further participate in the bicycling community.

Recreational Routes

The city is conveniently located along routes frequently used by recreational riders. Some of these routes connect to and from Simi Valley on the Santa Susana Pass, Tierra Rejada Rd., and Madera Rd. As major arterials, these roads could best be reconstructed or widened for bikes to provide more comfortable facilities. Extra facilities, like vistas and pocket parks or areas to rest and replenish could attract more recreational riders.

Links to Schools and Colleges

Bicycle facilities providing access to schools and colleges are useful for a number of reasons. Traffic conditions around schools can be frenetic and mismanaged, creating chaotic situations that entangle students and automobiles in a small confined area. Improving facilities with promotional programs offers students and parents a healthy alternative to driving. Bicycling education in grade schools can contribute to future bicycling trends within a community that seriously considers bicycling as a travel mode. Finally, funding for facilities near schools is supplemented by state and federal grant programs.

The previously addressed Class III routes offer connections to a number of Simi Valley schools. While Moorpark College is not in Simi Valley, it is a major destination which can potentially be connected to the city with improved facilities on West Los Angeles Ave.

5.2. Program Recommendations

Bicycle programs can enhance the bicycling experience in Simi Valley by supporting physical bicycle facilities. Programs are organized into five categories: education, encouragement, enforcement, evaluation and engineering This section describes programs best suited for Simi Valley and its bicycle system.

5.2.1. Education Programs

There are many ways to educate Simi Valley residents about bicycle safety and traffic law. The city can develop its Safe Routes to School program – which teaches children and parents how to bicycle safely, while encouraging them to bicycle to school and work. The city can train staff and construction crews regarding bicyclists needs within developments. The city can also compile its bicycling resources onto a website to help keep residents informed of any implementation plans and bicycling training events.

5.2.2. Safe Routes to School

Safe Routes to School (SR2S) refers to a variety of multi-disciplinary programs aimed at promoting walking and bicycling to school. The Safe Routes to School program improves traffic safety around school areas through education, incentives, increased law enforcement, and engineering measures. Safe Routes to School programs typically involve partnerships among

Older students escorting their peers across the roadway.

municipalities, school districts, community and parent volunteers, and law enforcement agencies. These programs facilitate implementation and funding for specific improvements that will help increase bicyclist and pedestrian safety and encourage fewer auto trips.

5.2.3. Train City Staff and Construction Crews

Motorist education on the rights of bicyclists is limited. Many motorists mistakenly believe that bicyclists do not have a right to ride in travel lanes and that they should be riding on sidewalks. Education about the rights and responsibilities of bicyclists can include:

- Incorporating bicycle safety into traffic school curriculum.
- Producing a brochure on bicycle safety and laws for public distribution.
- Enforcing traffic laws for bicyclists.
- Providing bicycle planning training for all City planners.

Working with contractors, subcontractors and city maintenance and utility crews to ensure they understand the needs of bicyclists and follow standard procedures when working on or adjacent to roadways and walkways helps new and existing bicyclists.

Staff should work internally to organize training and education events working with other city departments. This will help implement bicycle improvements in the Bikeway Master Plan.

5.2.4. Bicycle Website

Simi Valley can initiate a website that provides information about laws, events, maps, tips, and bicycling groups. Some examples include the following.

- A list of all bicycling groups, including clubs, racing teams, and advocacy groups
- Information about current projects and how to get involved (e.g., public meetings, comment periods)
- Maps and brochures (links to on-line maps and brochures, where to find in person, and how to request mailed materials)
- Links to laws and statutes relating to bicycling
- Links to all relevant local jurisdictions and their bicycle coordinators
- Information about bicycling events (rides, classes, volunteer opportunities)
- A list of local bike shops, including phone numbers and addresses
- Relevant phone numbers (hotlines for pothole repair, parking enforcement, bike rack installation request, etc.)

5.3. Encouragement Programs

Strategies for community involvement in bicycle improvements will be important to ensure broad-based support to help secure financial resources. Involvement by the private sector in raising awareness of the benefits of bicycling can range from small incremental activities by non-profit groups, to efforts by the largest employers in the City. Targeting these encouragement programs to specific user groups improves their effectiveness. Specific programs are described below.

5.3.1. Bike and Walk to Work/School Day

The City and School District should continue to encourage residents to participate in the annual international Walk-to-School Day held each May. The City and School District could also create a Bike-to-School day. These events raise the profile of bicycling among children. Local Bike-to-Work days can be held annually in conjunction with the school-related events and provide parents with an opportunity to set an example for their children.

Bike to Work Day is usually the third Thursday in May, which is Bike to Work month. The City of Simi Valley could host energizer stations along major work and school commute routes. Council members and other prominent individuals in the community could speak and advocate for bicycling as a means to healthier lifestyles, cleaner air, and less automobile congestion.

5.3.2. Bicycle Light Campaign

A bicycle light give away is an excellent way to promote bicycle safety. Often, light giveaways occur at daylight savings time in the fall when darkness comes earlier. The City could work with the police department to study the levels of bicyclists using lights at night. Based on these results, lights should be ordered and handed to riders in need.

5.4. Enforcement Programs

5.4.1. Municipal Code Recommendations

The municipal code sections, relating to bicycle licensing and bicycles on sidewalks could be updated to better represent the actions of the majority and obtain voluntary compliance. Bicycle licensing could be optional rather than mandatory and bicycles on sidewalks should be discouraged but not illegal unless prohibited by signing. This would necessarily allow, for example, small children, and adults accompanying them, to legally ride on sidewalks.

Police officer educating a motorist during a Marin Share the Road Campaign. Source: MCBC

5.4.2. Share the Road / Path

A Share the Road/Path campaign is intended to educate motorists, bicyclists and pedestrians about their legal rights and responsibilities on the road

including the need to increase courtesy and cooperation to improve safety. The campaign targets all residents and visitors to a community. The program includes: Share the Road flyers, one targeting bicyclists and one targeting motorists that outline safe and courteous behavior, collision reporting procedures and local bicycling resources and hotlines. Additionally, in conjunction with the Police Department, the program could hold periodic traffic checkpoints during months with high bicycling rates. At checkpoints, motorists, bicyclists and pedestrians are stopped, given a Share the Road flyer and have the opportunity to provide feedback to officers regarding the campaign ideas. Checkpoints could be held along local bikeways and trails or on-street near bicycling destinations such as schools. Public service announcements on radio and TV could promote the Share the Road campaign, including publicity about the Share the Road checkpoints.

5.5. Evaluation Programs

5.5.1. Annual Bicycle Counts and Surveys

Many jurisdictions do not perform regular bicycle user counts. As a result, they do not have a mechanism for tracking ridership trends over time or for evaluating the impact of projects, policies, and programs. It is recommended that Simi Valley perform or supervise annual counts of bicyclists according to national practices. The National Bicycle and Pedestrian Documentation Project (www.fhwa.dot.gov/environment/bikeped/study) has developed a recommended methodology, survey and count forms, reporting forms and can be modified to serve the needs and interests of individual jurisdictions.

If desired, further bicycle and pedestrian data collection opportunities may be pursued as well, including:

- Include before-and-after bicycle/pedestrian/vehicle data collection on priority roadway projects
- Insert bicycle/pedestrian survey questions into any existing travel mode or city audit survey instrument
- Require counting of bicyclists/pedestrians in all traffic studies
- Purchase National Household Travel Survey add-on

Counts and surveys should be a top priority. Results of this program are an excellent resource for grants, reporting to the public, and validating bicycle expenditures.

5.5.2. Bicycle Facility Audits and Requests

Bicycle facilities deteriorate over time and do not function as well as when they were originally installed. Bicycle related signage and striping should be audited on an annual basis to evaluate its function and condition. Bicycle parking should be audited on whether enough parking spaces are provided and whether the level of security is sufficient. Some locations, such as transit stations, may warrant bicycle lockers for bicyclists who park for long time periods. Other locations, such as restaurants, malls, and movie theaters may only need bicycle racks. Auditing could be coordinated

with bicycle counts and surveys, making efficient use of time spent in the field while gathering input from bicyclists about existing hazards.

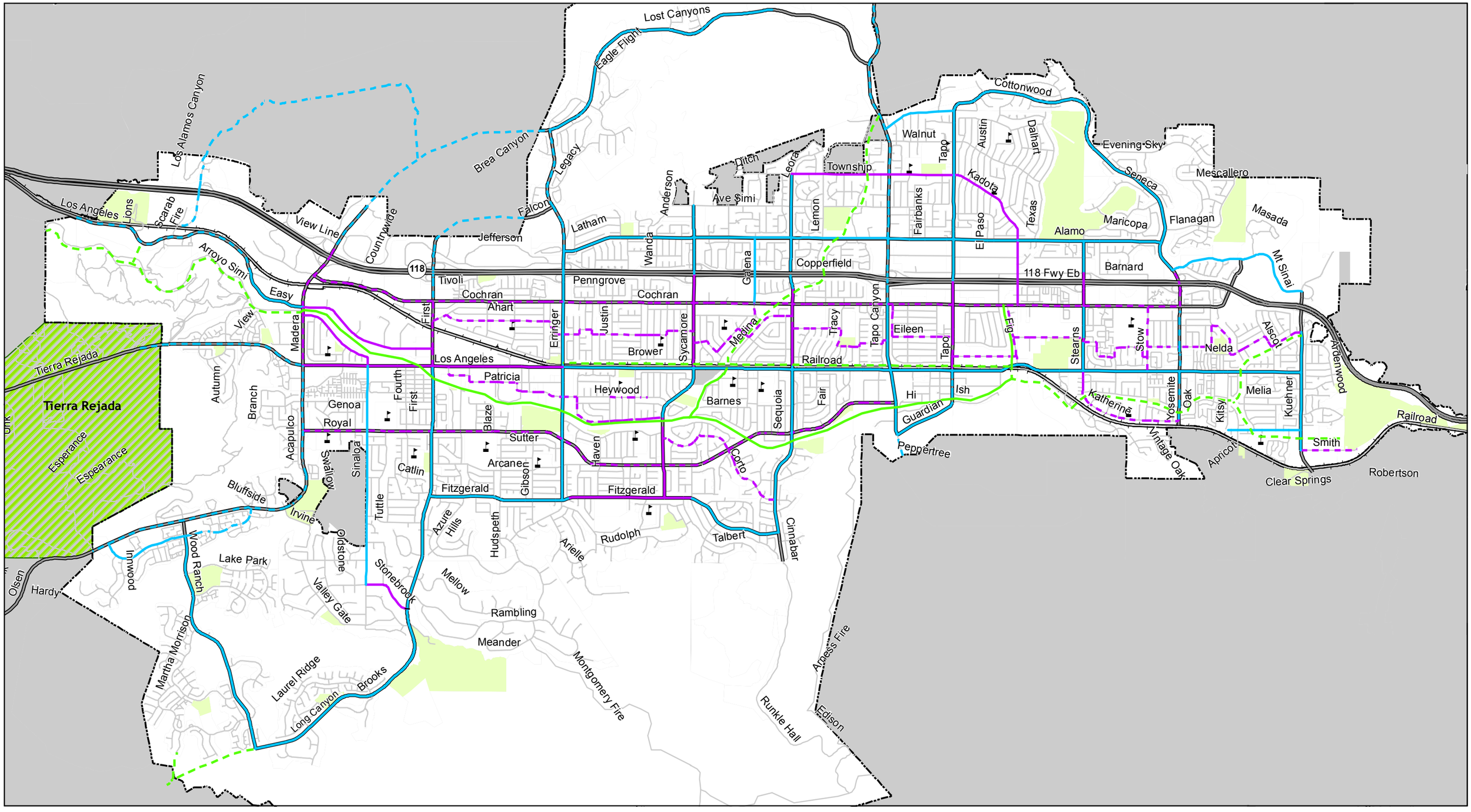
In addition to audits, the City of Simi Valley could provide request forms that encourage bicyclists to identify where they need more bicycle parking or facility maintenance. This will empower bicyclists in feeling responsible for support facilities built for them.

5.6. Engineering Improvements

Engineering improvements involve the incorporation of the latest bicycle related facility treatments into standard practice within the City of Simi Valley. Since new facilities are constantly being created, and old facilities are continually enhanced, it is important for city staff to stay abreast of the latest design standards.

The attached **Appendix A: Design Guidelines** provides details for current common bicycle facility improvements. They have all been adopted by the CAMUTCD, which means they are approved for implementation. Adoption of the plan, along with the guidelines, is the first step towards in improving Simi Valley bicycle-related engineering.

Figure 5-5 Simi Valley Existing and Proposed Bicycle Facilities



Existing Class 1
Existing Class 2
Existing Class 3
Schools
Greenbelts
Proposed Class 1
Proposed Class 2
Proposed Class 3
City Limits
Park or Natural Area

0 1 2 Miles

N

alta PLANNING + DESIGN

6. Prioritization Strategy

This chapter provides cost estimates for recommended projects and develops a phasing scheme for the Simi Valley Bikeway System.

6.1. Prioritization

Prioritization is based on (a) cost and construction feasibility given existing traffic, safety, and environmental constraints, (b) need and benefit, and (c) strength of project as measured by specific funding criteria.

One should note that these rankings are flexible, mainly to provide guidelines for implementation. The bicycle network and segments can change over time, resulting from shifting travel patterns, changes in development and growth areas within the City of Simi Valley, and implementation constraints and opportunities.

Bikeways are divided into **Table 6-1: Proposed Short Term Bikeway Projects** and

Table 6-2: Proposed Long Term Bikeway Projects as short term and long term, respectively. Each table provides complete breakdown of project cost. The short term projects shown in **Table 6-1: Proposed Short Term Bikeway Projects** meet immediate needs in Simi Valley, helping to promote bicycling by offering safe and convenient routing for commute and recreational purposes.

In consideration of the identified short term projects, high-priority short-term projects for initial implementation are as follows:

- On-street class II bike lanes on Country Club Drive (east) from Madera to Wood Ranch Pkwy
- Cochran St. from First Street to Madera Street
- Tapo Canyon Rd. from Avenida Simi to Presidio Dr.
- Cross-town route 1: Agnew-Alexander St/Alexander Dr-Marvel Ave-Larch St-Parker Ct-Larch St-N Bigelow Ave-Larch St-Wisteria St-E Larch St-Sycamore Dr-Niles St-Lindale Ave-Waldo St-Copley St-Medina Ave-Sequoia Ave-Delilah St-Tracy Ave-Antioch St-Hietter Ave-Gaines Ct-Goodwin Ave-Goddard Ave-Becky St.-Tapo Canyon Ave.
- Cross-town route 2: Rebecca St-Eileen St-Tapo St-Industrial St-Across the Las Llajas Creek-Ralston-Leeds-Stearns St-Rainwood St-Huntley St-Emory Ave-Sandiman St-Tinkerman St-Stow St-Fearing St-St Clair Ave-Malton Ave-Nelda St-Alscot Ave-Menlo St- Kuhner Dr.
- Cross-town route 3: Patricia Ave.-Williams St-Patricia Ave-Duncan St-Heywood St/Rose Ln-Morley St-Sycamore Dr-Elizondo Ave-Corto St-Ending at Sequoia Ave.
- The Arroyo Simi Bike Path extension, around The Hidden Ranch Area

- Improve Las Llajas Arroy Simi Trail connection across Los Angeles Ave (subject to rail road approval).
- Improve Kuehner Dr. and Los Angeles Ave. Intersection
- Promotional programs, possibly including Bike to Work Week and/or City Bicycling website.

Cost estimates are mostly derived from an average of typical bikeway implementation costs for a Southern California city. Class I bikeways are assumed to cost $500,000 per mile, Class II bikeways $50,000 per mile, and Class III bikeways $10,000 per mile. It is understood that these costs are merely estimates. Actual costs will vary depending on individual project characteristics. For example, in many cases additional on-street class II or class III projects in Simi Valley would require major street construction/widening or median removal/construction. Cost estimates would be significantly higher for these projects, and some of them are explored in more detail in **Appendix B: Recommendation Constraints**

Table 6-1: Proposed Short Term Bikeway Projects

Name	Start	End	Class	Length	Cost	Constraints
Arroyo Simi Trail	City Limit	Madera Rd.	I	1.25	$625,000	Watershed Approval
Arroyo Simi Trail Gap Closure #1/Undercrossing	W/O Sequoia	E/O Sequoia	I	0.25	$303,600	Arterial Traffic ROW Issues Control Device or Undercrossing
Arroyo Simi Trail Gap Closure #2	Los Angeles Ave./End Of Trail	Las Llajas Trail/La Ave.	I	0.25	$300,000	Railroad Approval
Arroyo Simi Trail Gap Closure #3	Simi Valley Metrolink	Stearns St.	I	0.25	$500,000	Railroad Approval
Arroyo Simi Trail	Las Llajas Creek	Yosemite	I	2.50	$1,250,000	
Arroyo Simi Trail (Movement to South Side)	First St.	Darrah Park	I	2.64	$3,206,000	Watershed Approval
Cochran St.	Madera Rd.	First St.	II	1.0	$50,000	
Country Club Dr.	Wood Ranch Pkwy.	Madera Rd.	II	1.25	$62,500	
Crosstown Route 1	First Street	Tapo Canyon Rd.	III	4.25	$458,400	Arterial Crossings
Crosstown Route 2	Rebecca	Kuehner Rd	III	4.50	$1,017,200	Arterial Crossings
Crosstown Route 3	Patricia/LA	Sequoia	III	3.00	$356,660	Bridge
Erringer Rd.	Alamo St.	Madera Rd.	II	1.00	$500,000	Street/Median Reconstruction
Galena Ave	Cochran St.	Copely St.	III	0.25	$2,500	
Katherine St.	Arroyo Simi	Yosemite Ave.	II	0.75	$50,000	
Madera Rd	Erringer Ave.	View Line Dr.	II	2.25	$112,500	Future Road
Ralston Ave.	Cochran St.	Los Angeles Ave.	III	0.50	$5,000	
Smith Rd.	Kuehner Dr.	Corriganville Park	III	0.50	$5,000	
Stearns St.	Los Angeles Ave.	Arroyo Simi Trail	III	0.25	$2,500	
Tapo Canyon Rd.	Avenida Simi	Presidio Dr.	II	0.60	$30,000	
Tapo Canyon/Arness Fire Rd. Bikeway	City Limit (South)	Guardian	II	0.25	$12,500	Private Property
Tierra Rejada Rd	City Limit	Madera Rd	II	1.00	$500,000	Road diet or reconstruction

West Los Angeles Ave.	PSC	Easy St	II	1.25	$1,000,000	Road Widening
Yosemite Ave.	Mt Sinai	Cochran St.	III	0.30	$3,000	Caltrans Approval
				TOTAL	$10,003,370	

Table 6-2: Proposed Long Term Bikeway Projects

Name	Start	End	Class	Length	Cost	Constraints
Alamos Canyon Rd.	Cochran St.	Madera Rd.	II	2.50	$125,000	Future Street
Arroyo Simi Trail	Yosemite	Kuehner	I	1.25	$1,518,000	Requires ROW Acquisiton
Arroyo Simi Trail Spur	Arroyo Simi Trail	West La Ave.	I	0.25	$125,000	
Cochran St.	First St.	Yosemite Ave.	III	6.75	$142,560+	Street Widening or Parking Removal
Falcon St.	Erringer Rd.	Simi Town Center Wy.	II	1.50	$75,000	Future Street
First St.	Erringer Rd.	Cochran St.	II	1.50	$300,000	Widening, Caltrans
First St.	Cochran St.	Los Angeles Ave.	III	0.50	$1,000,000	Major Street Reconstruction
Los Angeles Ave. Road Widening	200 ft. E of Tapo	200 ft. W of Tapo	II	0.10	$500,000	
Madera Rd.*	Los Angeles Ave.	Thousand Oaks City Limit	II	2.70	$2,000,000	General Plan: 6 travel lanes
Stearns St.	118 Off-ramp	118 On-ramp	II	0.20	$10,000	Caltrans Approval
Stearns-Katherine Bridge	Stearns St.	Katherine St.	I	0.25	$300,000	Requires Ramp for 6' Channel Wall
Stow St.	Cochran St.	Katherine St.	II	0.75	$376,000	Road Reconstruction or Parking Removal
Sunset Hills Trail	Thousand Oaks	Wood Ranch Pkwy.	I	0.20	$242,880	Need approval from private property in Thousand Oaks
Sycamore Dr.	Arroyo Simi	Fitzgerald Rd.	II	0.60	$301,000	Road Reconstruction or Parking Removal
Tapo St.	Cochran St.	Arroyo Simi Trail	II	0.70	$1,000,000	Road Reconstruction /Widening
Tapo Canyon Rd.	Tapo Canyon Park	Presidio Dr.	II	1.90	$3,000,000	Requires Road Widening
Union Pacific Rail Road Trail	Los Angeles Ave.	Erringer Rd.	I	3.50	$1,750,000	Railroad Approval
West Los Angeles Ave.	Moorpark City Limit	PSC	II	1.25	$1,000,000	Road Widening
White Oak Branch Trail	Arroyo Simi Trail	Kuehner Drive, Nelda St	I	1.00	$500,000	Arroyo Simi Private Property Extension
Yosemite Ave.	Cochran St.	Katherine St.	II	0.90	$45,000+	Road Reconstruction or Parking Removal
*Since General Plan and CMP require 6 lanes to maintain LOS C, major road widening would likely be required to implement an on-street facility.				**TOTAL**	**$13,369,440**	

6.2. Facility Specific Details

This section provides some details regarding specific facilities with significantly varying costs. The variance arises from the menu of options which Simi Valley can choose from. These include the Crosstown bicycle routes and the Arroyo Simi Trail undercrossings, which were also highlighted in the Arroyo Simi Greenway Visioning Study.

6.2.1. Crosstown Route Assessments

Costs for Crosstown bike routes include initial and construction costs of the following.

- Construction Area Signs and Temporary Traffic Control
- Asphalt Concrete Rehabilitation (Potholes, Covers)
- Purchase MUTCD Stencil Standard for Pavement Markings on Standard Route Sign
- Pedestrian Bridge (approximately 80' span)
- Roadside Sign Relocation
- Roadside Signs
- Thermoplastic Pavement Marking
- Crosswalk Paint Pavement Markings
- Overhead Intensity Activated Caution Beacons
- Paint for Traffic Striping

6.2.2. Undercrossing Costs

Undercrossings are included in the design guidelines for future class I facilities. Undercrossings facilitate un-interrupted travel, and are most commonly used where bike paths intersect with busy arterials, state roads/highways and rail corridors. The ultimate feasibility of the undercrossings hinges on approval of the Ventura County Watershed District. Costs associated with the construction of undercrossings are detailed in **Table 6-3: Estimates in Lump Sum Amount**.

Table 6-3: Estimates in Lump Sum Amount

Creek Crossing Location	Option A: Sloped Embankment	Option B: Retaining Walls	Option A: Engineering Services	Option B: Engineering Services	Option A: Total Lump Sum	Option B: Total Lump Sum
North Madera Road	$209,000	$502,000	$95,000	$130,000	$304,000	$632,000
Erringer Road	$261,300	$627,500	$118,800	$162,500	$380,100	$790,000
Sycamore Drive	$229,900	$552,200	$104,500	$143,000	$334,400	$695,200
Royal Ave	$250,800	$602,400	$114,000	$156,000	$364,800	$758,400
Sequoia	$219,500	$527,100	$99,800	$136,500	$319,300	$663,600

7. Funding Opportunities

There are a variety of potential funding sources that can be used for bicycle projects, programs and plans from all levels of government. This section covers federal, state, regional and local sources of funding, as well as some non-traditional funding sources that may be used for bicycle projects.

7.1. Federal Funding Sources

The primary federal source of surface transportation funding—including bicycle and pedestrian facilities—is the Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users. This Federal bill is the third iteration of the transportation vision established by Congress in 1991 with the Intermodal Surface Transportation Efficiency Act and renewed in 1998 and extended in 2003 through the Transportation Equity Act for the 21st Century and the Safe, Accountable, Flexible, and Efficient Transportation Equity Act of 2003. Also known as the Federal Transportation Bill, the $286.5 billion bill was passed in 2005 and authorizes federal surface transportation programs for the five-year period between 2005 and 2009.

Federal funding is administered through the state (Caltrans and the State Resources Agency) and regional planning agencies. Most, but not all of these funding programs are oriented toward transportation versus recreation, with an emphasis on reducing auto trips and providing intermodal connections. Many federal programs require a local match of between 10-20%. Federal funding is intended for capital improvements and safety and education programs and projects must relate to the surface transportation system.

Specific funding programs under the federal transportation bill for bicycle facilities that might be potential funding sources for the Simi Valley Bicycle Master Plan include:

- Federal Lands Highway Funds—Approximately $1 billion dollars are available nationally through 2009 for planning and construction of bicycle projects built in conjunction with roadways
- Transportation, Community and System Preservation Program—$270 million nationally through 2009 for projects that improve the efficiency of the transportation system, reduce the impact on the environment, and provide efficient access to jobs, services and trade centers
- Recreational Trails Program—$370 million nationally through 2009 for non-motorized trail projects. (See below).
- Land and Water Conservation Fund

7.1.1. Federal Lands Highway Funds

Federal Lands Highway Funds may be used to build bicycle and pedestrian facilities in conjunction with roads and parkways at the discretion of the department charged with administration of the funds. The projects must be transportation-related and tied to a plan adopted by the State and Metropolitan Planning Organization. Federal Lands Highway Funds may be used for planning and construction.

7.1.2. Transportation, Community and System Preservation Program

The Transportation, Community and System Preservation Program provides federal funding for transit oriented development, traffic calming and other projects that improve the efficiency of the transportation system, reduce the impact on the environment, and provide efficient access to jobs, services and trade centers. The program is intended to provide communities with the resources to explore the integration of their transportation system with community preservation and environmental activities. The Program funds require a 20 % match and can be applied to planning, design and construction.

7.1.3. Recreational Trails Program

The Recreational Trails Program (RTP) provides funds annually for recreational trails and trails-related projects. The RTP is administered at the federal level by the Federal Highway Administration (FHWA). It is administered at the state level by the California Department of Parks and Recreation (DPR). The maximum amount of RTP funds allowed for each project is 88% of the total project cost. The applicant is responsible for obtaining a match amount that is at least 12% of the total project cost. The application deadline is in October. Funds may be used for:

- Maintenance and restoration of existing trails;
- Purchase and lease of trail construction and maintenance equipment;
- Construction of new trails; including unpaved trails
- Acquisition of easements or property for trails;
- State administrative costs related to this program (limited to seven percent of a State's funds); and
- Operation of educational programs to promote safety and environmental protection related to trails (limited to five percent of a State's funds).

7.1.4. Land and Water Conservation Fund

The Land and Water Conservation Fund is a federally funded program that provides grants for planning and acquiring outdoor recreation areas and facilities. The Fund is administered by the National Parks Service and the California Department of Parks and Recreation and has been reauthorized until 2015.

Cities, counties and districts authorized to acquire, develop, operate and maintain park and recreation facilities are eligible to apply. The application deadline is in May, and applicants must fund the entire project, and will be reimbursed for 50% of costs. Property acquired or developed under the program must be retained in perpetuity for public recreational use.

7.2. Statewide Funding Sources

The State of California uses both federal sources and its own budget to fund bicycle projects and programs.

7.2.1. Bicycle Transportation Account

The Bicycle Transportation Account provides state funding for local projects that improve the safety and convenience of bicycling for transportation. Because of its focus on transportation, Bicycle Transportation Account projects must provide a demonstrable level of utility for transportation purposes. For example, all in-town, on-street and paved bikeways would be good candidates for funding. Funds are available for both planning and construction. Bicycle Transportation Account funding is administered by Caltrans and cities and counties must have an adopted Bicycle Transportation Plan in order to be eligible. The maximum amount available through the Bicycle Transportation Account is $1.2 million dollars, cities and counties are eligible to apply. All projects must be designed to the standards outlined in Chapter 1000 of the Highway Design Manual. The application deadline is in December.

7.2.2. Community Based Transportation Planning Demonstration Grant Program

This fund, administered by Caltrans, provides funding for projects that exemplify livable community concepts including bicycle improvement projects. Eligible applicants include local governments, metropolitan planning organizations and regional transportation planning agencies. A 20% local match is required and projects must demonstrate a transportation component or objective. There is $3 million available annually statewide. The application deadline is in October.

7.3. Local and Regional Funding Sources

7.3.1. Transportation Development Act

Transportation Development Act Article 3 funds are state block grants awarded monthly to local jurisdictions for transit, bicycle and pedestrian projects in California. Funds for pedestrian projects originate from the Local Transportation Fund, which is derived from a ¼ percent of the general state sales tax. Local Transportation Funds are returned to each county based on sales tax revenues. Article 3 of the Transportation Development Act sets aside 2% of the Local Transportation Funds for bicycle and pedestrian projects. Eligible pedestrian and bicycle projects include: construction and engineering for capital projects; maintenance of bikeways; bicycle safety education programs (up to 5% of funds); and development of comprehensive bicycle or pedestrian facilities plans. A city or county may use these funds to update their bicycle and pedestrian plan not more than once every

five years. These funds may be used to meet local match requirements for federal funding sources. Application deadlines vary within county transportation agencies.

7.3.2. Developer Impact Fees

Fees placed on new development by Ventura County or the City for parks and recreation could be used as local matching funds to attract other grant sources.

7.4. Non Traditional Sources

7.4.1. Community Development Block Grants

The Community Development Block Grant program provides money for streetscape revitalization, which may be largely comprised of pedestrian improvements. Federal Community Development Block Grant grantees may "use [these] funds for activities that include (but are not limited to): acquiring real property; reconstructing or rehabilitating housing and other property; building public facilities and improvements, such as streets, sidewalks, community and senior citizen centers and recreational facilities, paying for planning and administrative expenses, such as costs related to developing a consolidated plan and managing Community Development Block Grant funds; provide public services for youths, seniors, or the disabled; and initiatives such as neighborhood watch programs."

7.4.2. American Greenways Program

Administered by The Conservation Fund, the American Greenways Program provides funding for the planning and design of greenways. Applications for funds can be made by local regional or statewide non-profit organizations and public agencies. The maximum award is $2,500, but most range from $500 to $1,500. American Greenways Program monies may be used to fund unpaved trail development. The application deadline is June 1.

8. Monitoring and Maintenance

Once the Bicycle Master Plan has been adopted, a monitoring effort is required to ensure that the recommendations are enforced. Additionally, since Class I facilities do not share the same services as on-road facilities, separate actions may be required to maintain and secure grade-separated bicycle paths. The following actions are suggested:

1. Plan Review. All development and infrastructure improvement plans should be reviewed by the Public Works Department to ensure that bikeway segments are implemented, developer requirements are being met, and design standards adhered to in accordance with this document.
2. Incident Monitoring. Bicycle-related incident data should be collected annually and evaluated to determine areas of concern.

8.1. Class I Bike Path Maintenance

Class I bike path maintenance entails trash removal, sweeping, biannual resurfacing, repair patrols, cleaning, surfacing, and re-striping the asphalt path, repairs to crossings, cleaning drainage systems, trash removal, landscaping, underbrush and weed abatement (performed once in the late spring and again in mid-summer).

Maintenance access on the Class I bike path will be achieved using standard pick-up trucks on the pathway itself. Sections with narrow widths or other clearance restrictions should be clearly marked. The following actions are suggested

1. Maintenance. The Recreation and Park District should track long term bike path maintenance, schedule repairs on all City bike facilities, and respond to calls from the public or staff regarding maintenance needs. The Park District receives annual Article 3 funding to help with this effort.
2. Identify a reliable source of funding to cover all new Class I bike path construction. All proposed designs should be closely examined to minimize future maintenance costs.

8.2. Class I Bike Path Security

Security may be an issue along portions of the proposed Class I bike paths. The following actions are recommended to address these concerns.

1. Enforcement of applicable laws on bike paths will be performed by the Police Department, using both bicycle and vehicles. Enforcement of vehicles statutes relating to bicycle operation will be enforced on Class II and Class III bikeways as part of the department's normal operations. No additional manpower or equipment is anticipated for Class II or III segments.
2. Normal bike path hours of operation should be 6am to 9pm, unless otherwise specified.

Appendix A: Design Guidelines

This appendix provides basic bikeway planning and design guidelines for use in developing the Simi Valley bikeway system and support facilities. Where noted, designs are for elements required by the State of California for compliance with Caltrans Highway Design Manual Chapter 1000 "Bikeway Planning and Design" guidelines. Otherwise, these guidelines include additional recommendations, providing information on optional design treatments. Although this information meets Caltrans requirements it is not intended to state a minimum or maximum accommodation or to replace any existing adopted roadway design guidelines. Also included in this Chapter are experimental or nonstandard best practices with information about optional innovative bikeways and support facilities that have not been adopted by the Manual of Uniform Traffic Control Devices (MUTCD) or State of California for use in California and do not meet Caltrans Chapter 1000 design requirements.

All facility designs are subject to engineering design review.

A.1. Bikeway Facility Classifications

According to Caltrans, the term "bikeway" encompasses all facilities that provide primarily for bicycle travel. Caltrans has defined three types of bikeways in Chapter 1000 of the Highway Design Manual: Class I, Class II, and Class III. For each type of bikeway facility both "Design Requirements" and "Additional Design Recommendations" are provided. "Design Requirements" contain requirements established by Caltrans Chapter 1000 "Bikeway Planning and Design." "Additional Design Recommendations" are provided as guidelines to assist with design and implementation of facilities and include alternate treatments approved or recommended but not required by Caltrans. **Figure A-1: Bicycle Facility Types** provides an illustration of these three types of bicycle facilities.

A.2. Class I Bikeway Design

Typically called a "bike path" or "shared use path," a Class I bikeway provides bicycle travel on a paved right-of-way completely separated from any street or highway. The recommended width of a shared use path is dependent upon anticipated usage:

- 8 feet (2.4 m) is the minimum width for Class I facilities
- 8 feet (2.4 m) may be used for short neighborhood connector paths (generally less than one mile in length) due to low anticipated volumes of use
- 10 feet (3.0 m) is the recommended minimum width for a typical two-way bicycle path
- 12 feet (3.6 m) is the preferred minimum width if more than 300 users per peak hour are anticipated, and/or if there is heavy mixed bicycle and pedestrian use

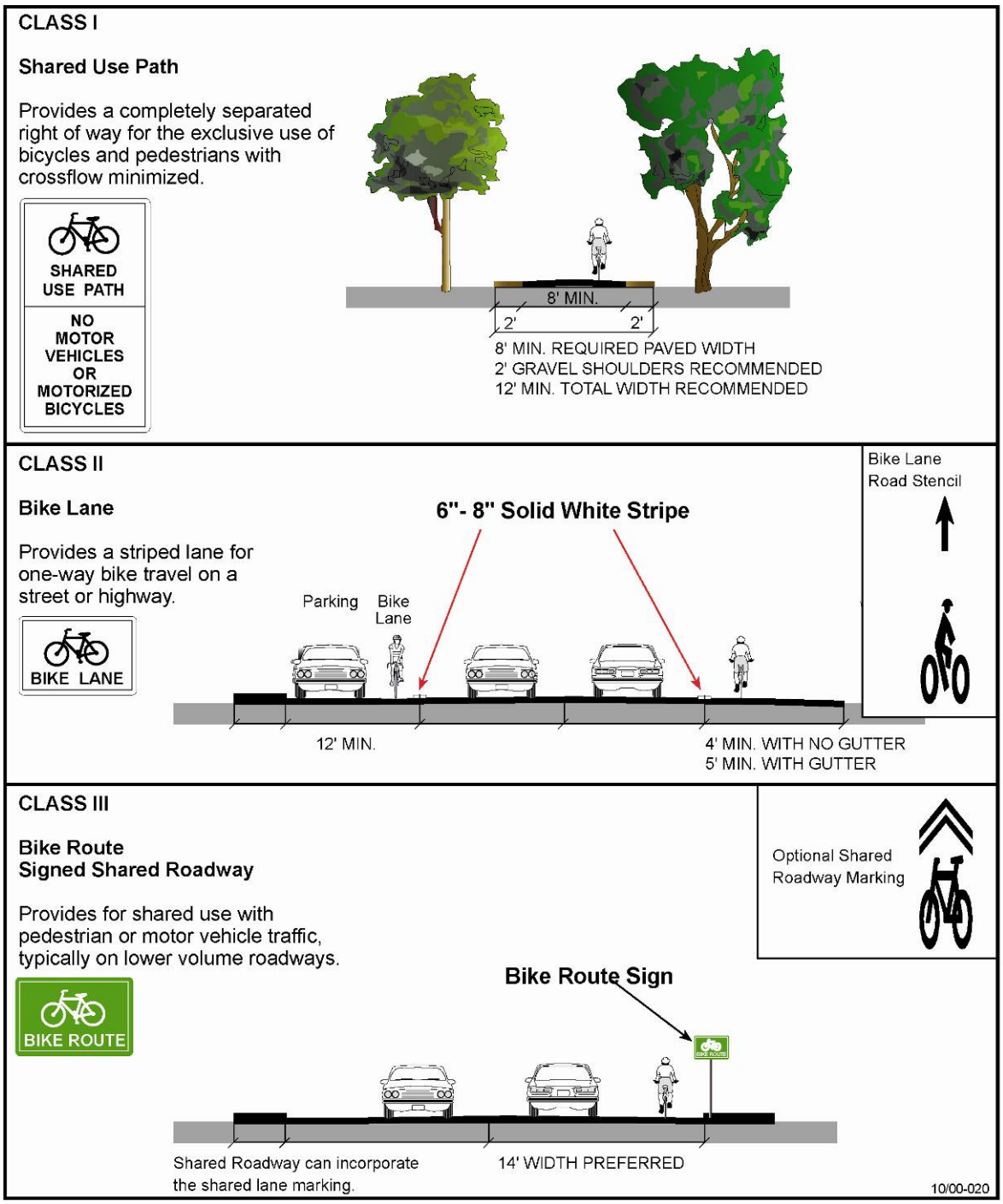


Figure A-1: Bicycle Facility Types

A minimum 2 feet (0.6 m) wide graded area must be provided adjacent to the path to provide clearance from trees, poles, walls, guardrails, etc. On facilities with expected heavy use, a yellow centerline stripe is recommended to separate travel in opposite directions. **Figure A-2: Typical Class I Cross Section** illustrates a typical cross-section of a Class I multi-use path.

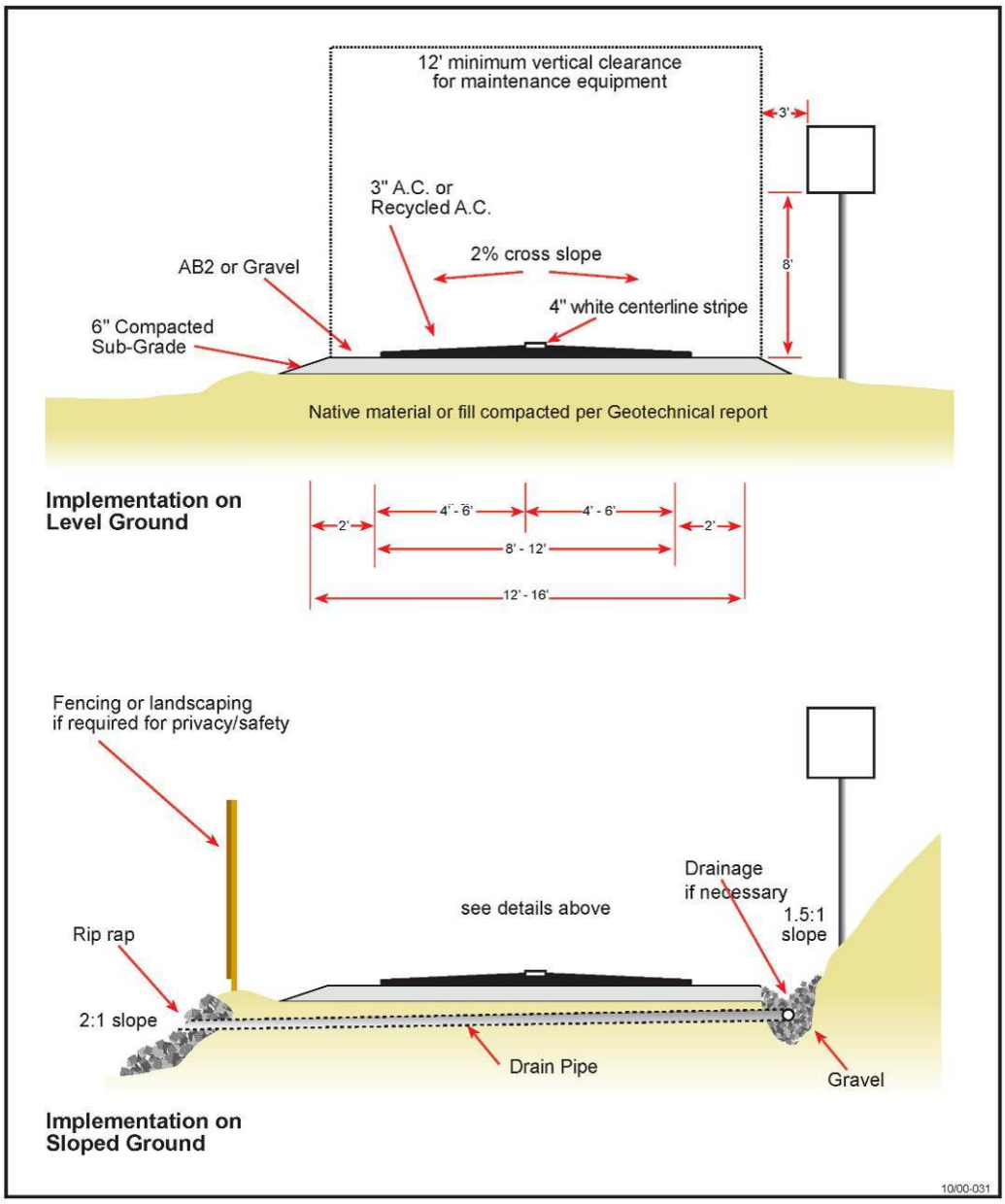


Figure A-2: Typical Class I Cross Section

A.2.1. Class I Bikeway Crossing Designs

At-Grade Intersection

When shared-use paths cross streets, proper design should be developed on the pathway as well as on the roadway to alert bicyclists and motorists of the crossing. Sometimes on larger streets, at mid-block pathway crossing locations as shown in **Figure A-3: Shared Use Path Mid-Block Crossing**, an actuated signal is necessary. A signal allows bicyclists a clear crossing of a multi-lane roadway. If a signal is or is not needed, appropriate signage and pavement markings should be installed, including stop signs and bike crossing pavement markings.

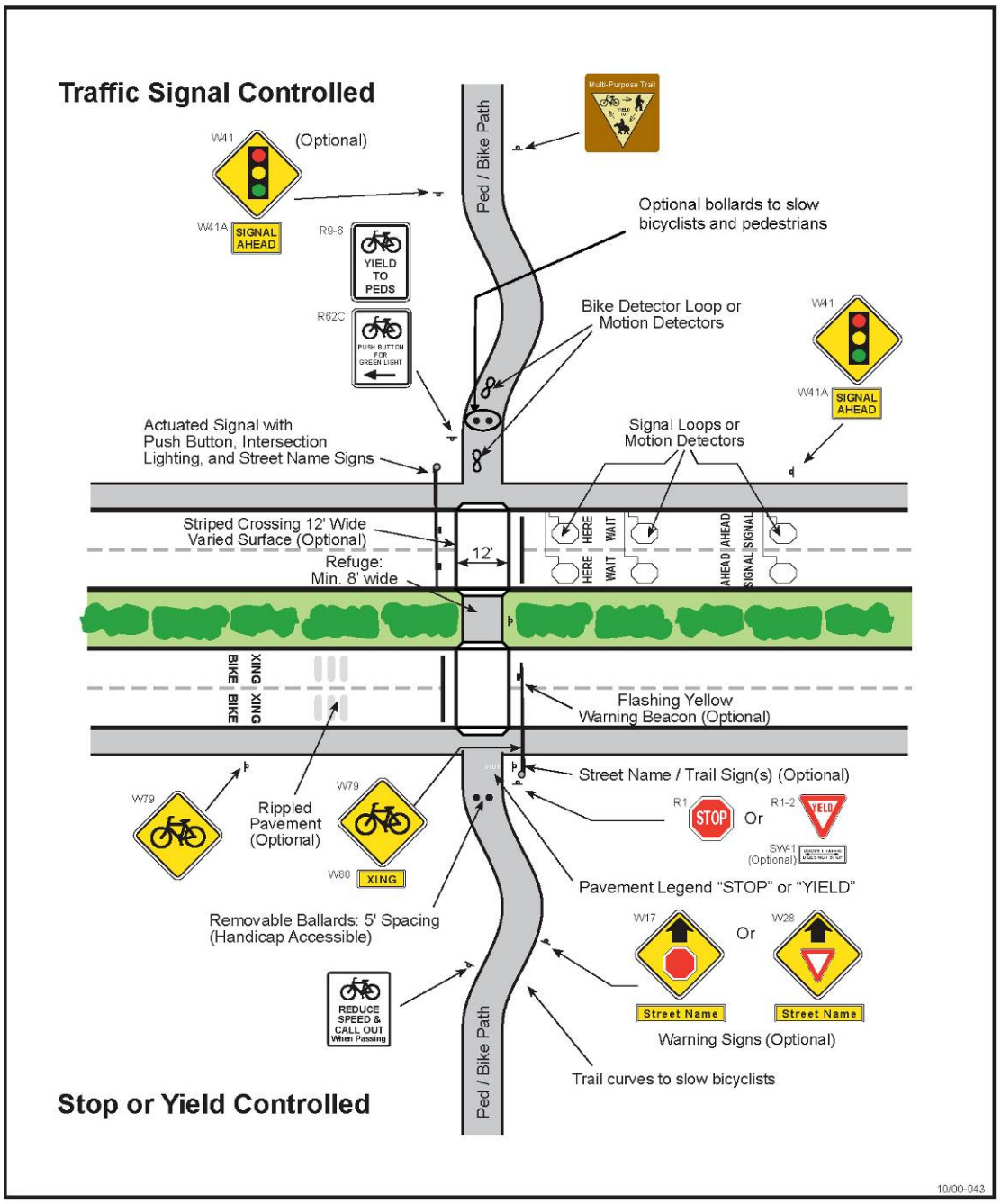


Figure A-3: Shared Use Path Mid-Block Crossing

Overcrossings

Overcrossings are also an important component of bikeway design. Barriers to bicycling often include freeways, complex interchanges, and rivers. When a route is not available to cross these barriers a bicycle overcrossing is necessary.

Figure A-4: Overcrossing Design Guidelines illustrates basic design standards for typical designs. Some design considerations for overcrossings include:

- Pathways must be a minimum 6 feet wide, with a preferred width of 8 or 10 feet wide
- Slope of any ramps must comply with ADA Guidelines
- Screens are often a necessary buffer between vehicle traffic and the bicycle overcrossing

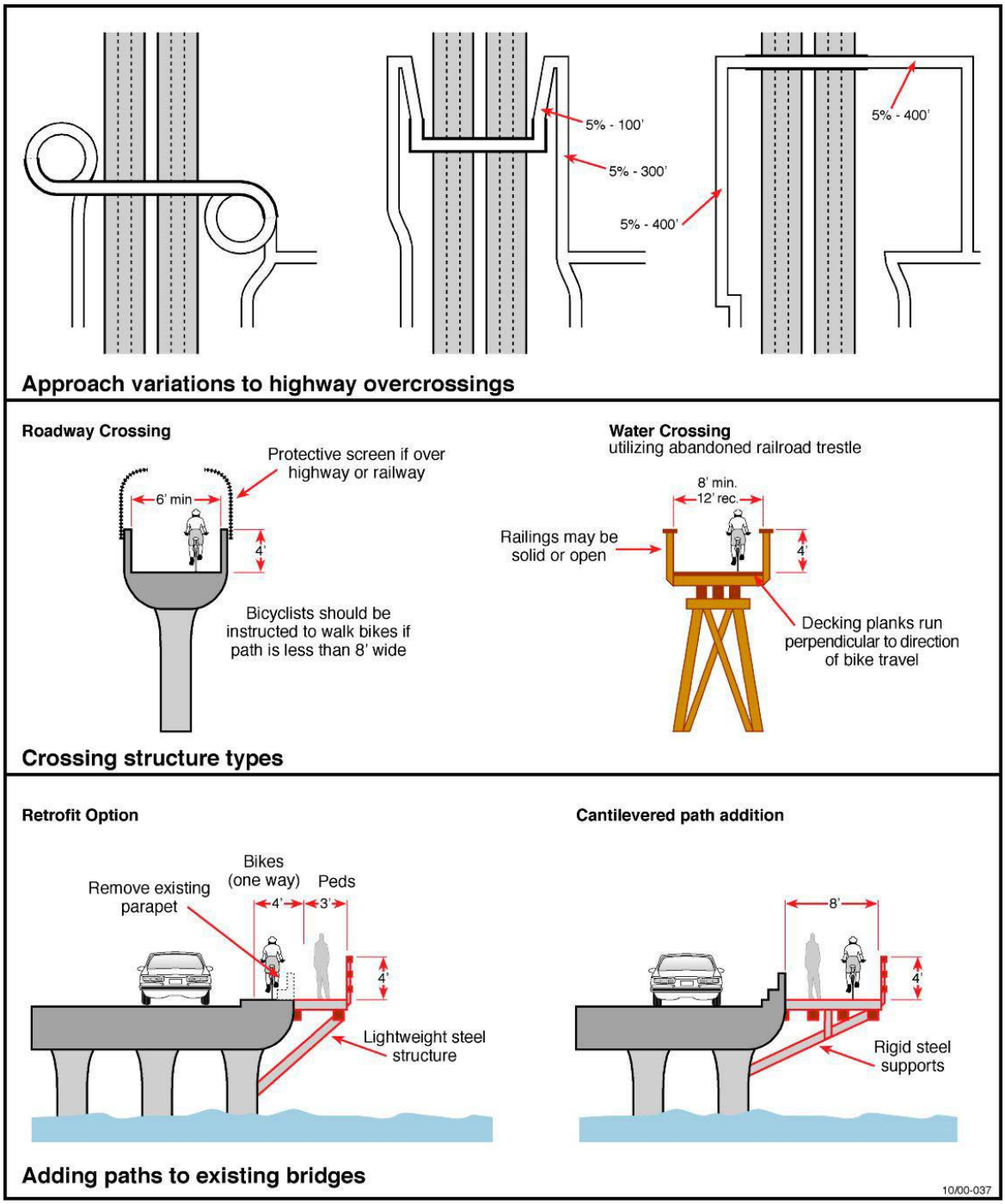


Figure A-4: Overcrossing Design Guidelines

Undercrossings

Undercrossings are an important component of Class I bikeway design. **Figure A-5: Undercrossing Design Guidelines** shows designs for undercrossings. Some considerations for undercrossings include:

- Must have adequate lighting and sight distance for safety
- Must have adequate over-head clearance of at least 3.1 m (10 ft)
- Tunnels should be a minimum 4.3 m (14 ft) for several users to pass one another safely; a 3.0 m x 6.0 m (10 ft x 20 ft) arch is the recommended standard
- "Channeling" with fences and walls into the tunnel should be avoided for safety reasons
- May require drainage if the sag point is lower than the surrounding terrain.

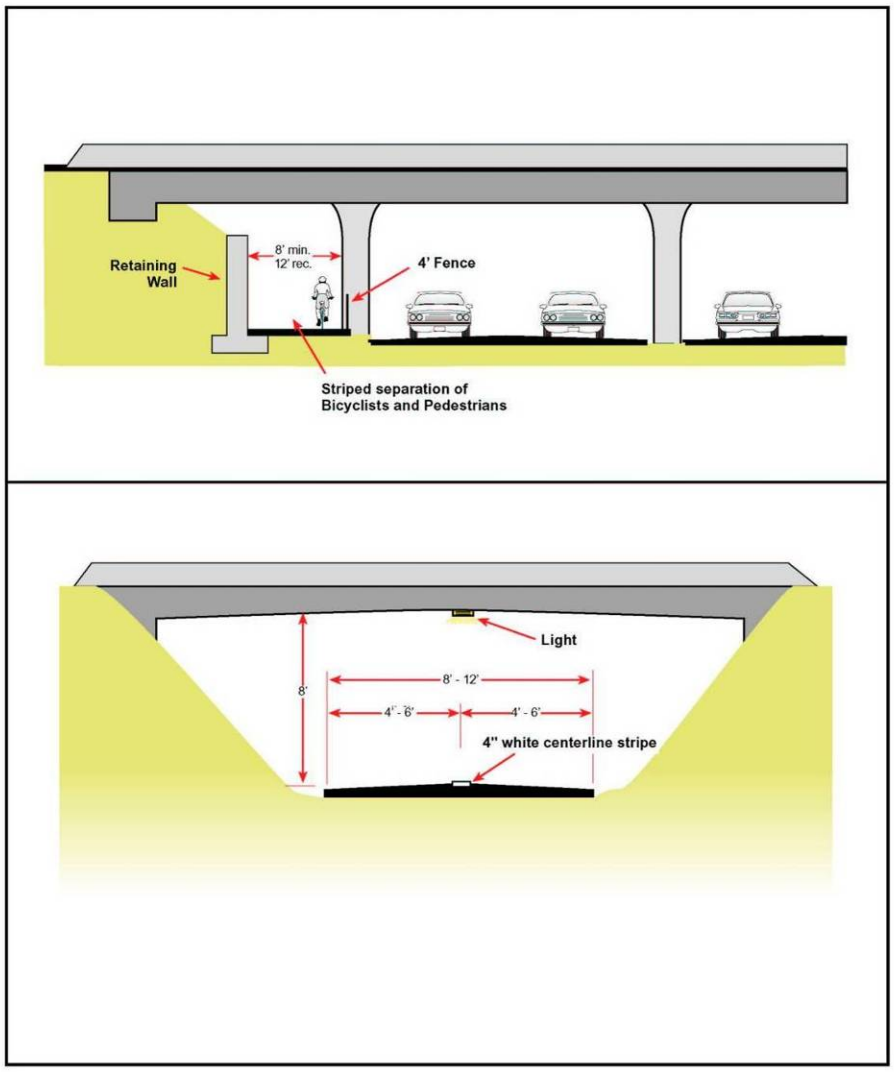


Figure A-5: Undercrossing Design Guidelines

A.3. Class II Bikeway Design

Often referred to as a "bike lane," a Class II bikeway provides a striped and stenciled lane for one-way travel on either side of a street or highway. **Figure A-6: Typical Class II Cross Section** shows a typical Class II cross-section. To provide bike lanes along corridors where insufficient space is currently available, extra room can be provided by removing a traffic lane, narrowing traffic lanes, or prohibiting parking. The width of the bike lanes vary according to parking and street conditions. Note that these dimensions are for reference only, may not meet Simi Valley Standards and are subject to engineering design review.

- 4 feet (1.2 m) minimum if no gutter exists, measured from edge of pavement
- 5 feet (1.5 m) minimum with normal gutter, measured from curb face; or 3' (0.9 m) measured from the gutter pan seam
- 5 feet (1.5 m) minimum when parking stalls are marked
- 11 feet (3.3 m) minimum for a shared bike/parking lane where parking is permitted but not marked on streets without curbs; or 12 feet (3.6 m) for a shared lane adjacent to a curb face.

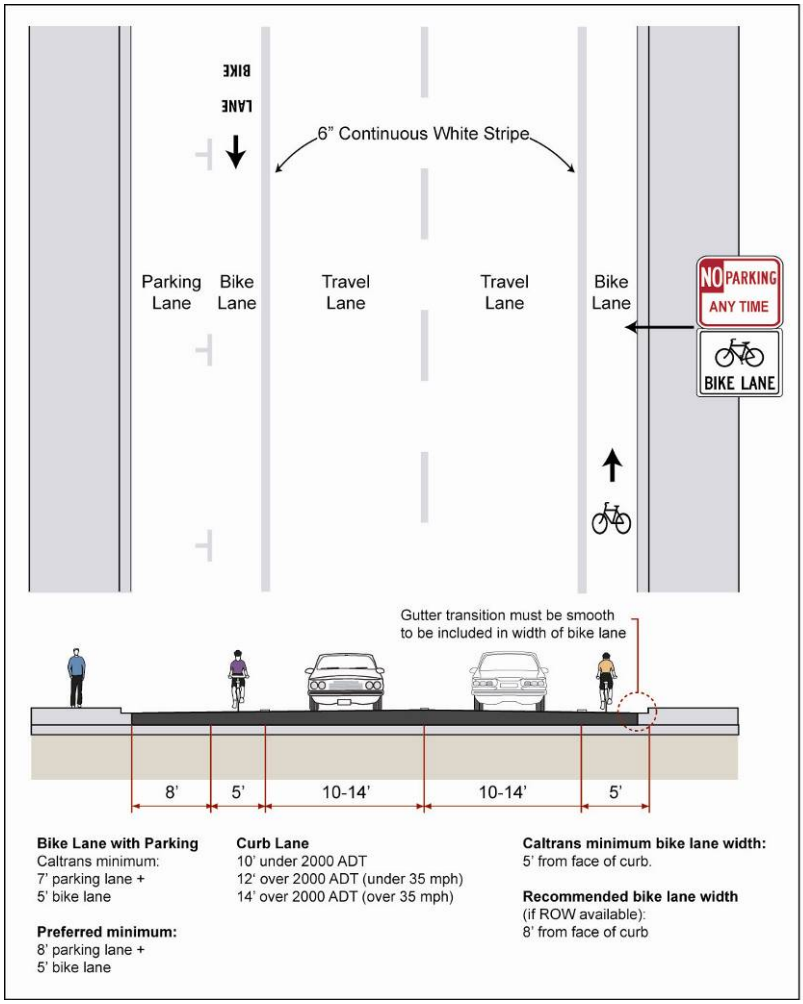


Figure A-6: Typical Class II Cross Section

A.3.1. Bike Lanes

Figure A-7: CA MUTCD Examples of Optional Word and Symbol Pavement Markings for Bicycle Lanes provides examples for bike lane marking and striping. Further details regarding bicycle lane demarcation—specifically addressing turn movements—can be found in the CA MUTCD.

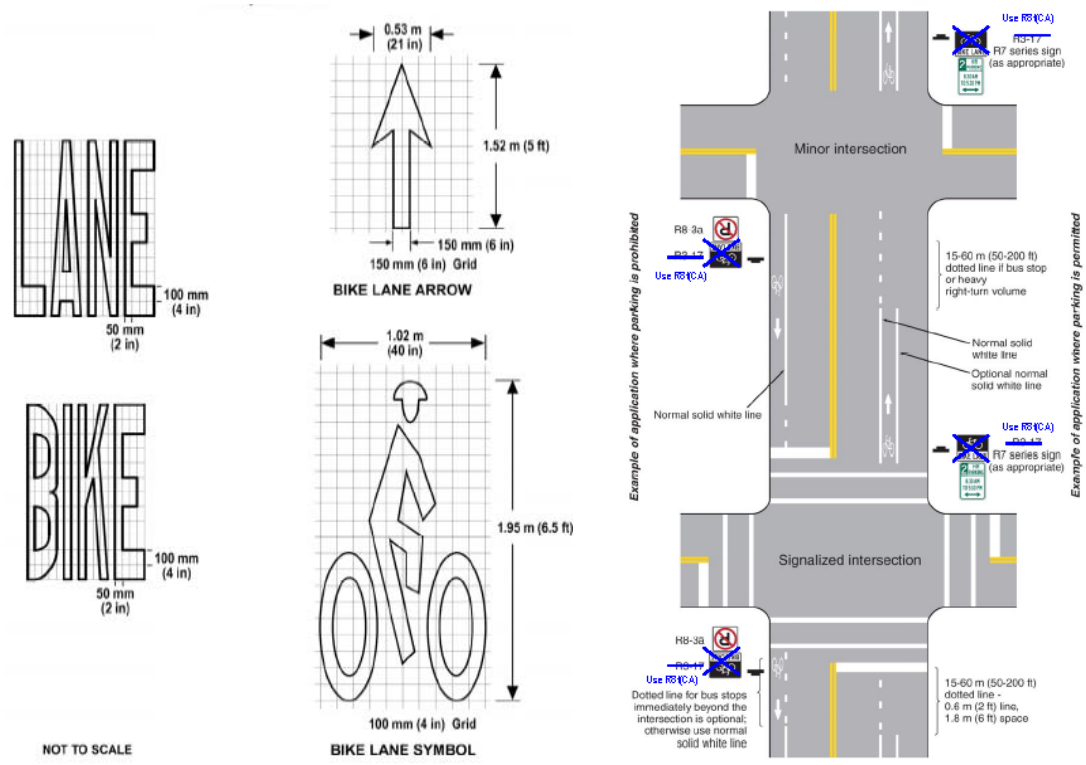


Figure A-7: CA MUTCD Examples of Optional Word and Symbol Pavement Markings for Bicycle Lanes

A.3.2. Class II Intersection Design

Signalized Intersections

Intersections represent a primary collision points for bicyclists. Small intersections with few lanes are relatively easy to manage. **Figure A-8: Bicycle Lane Configurations at Intersections** and **Figure A-9: Dedicated Bike Turn Lanes at an Intersections** show how to configure bicycle lanes at intersections with minimal vehicle lanes. Large, multi-lane intersections are more difficult for bicyclists to travel through than smaller, two-lane intersections.

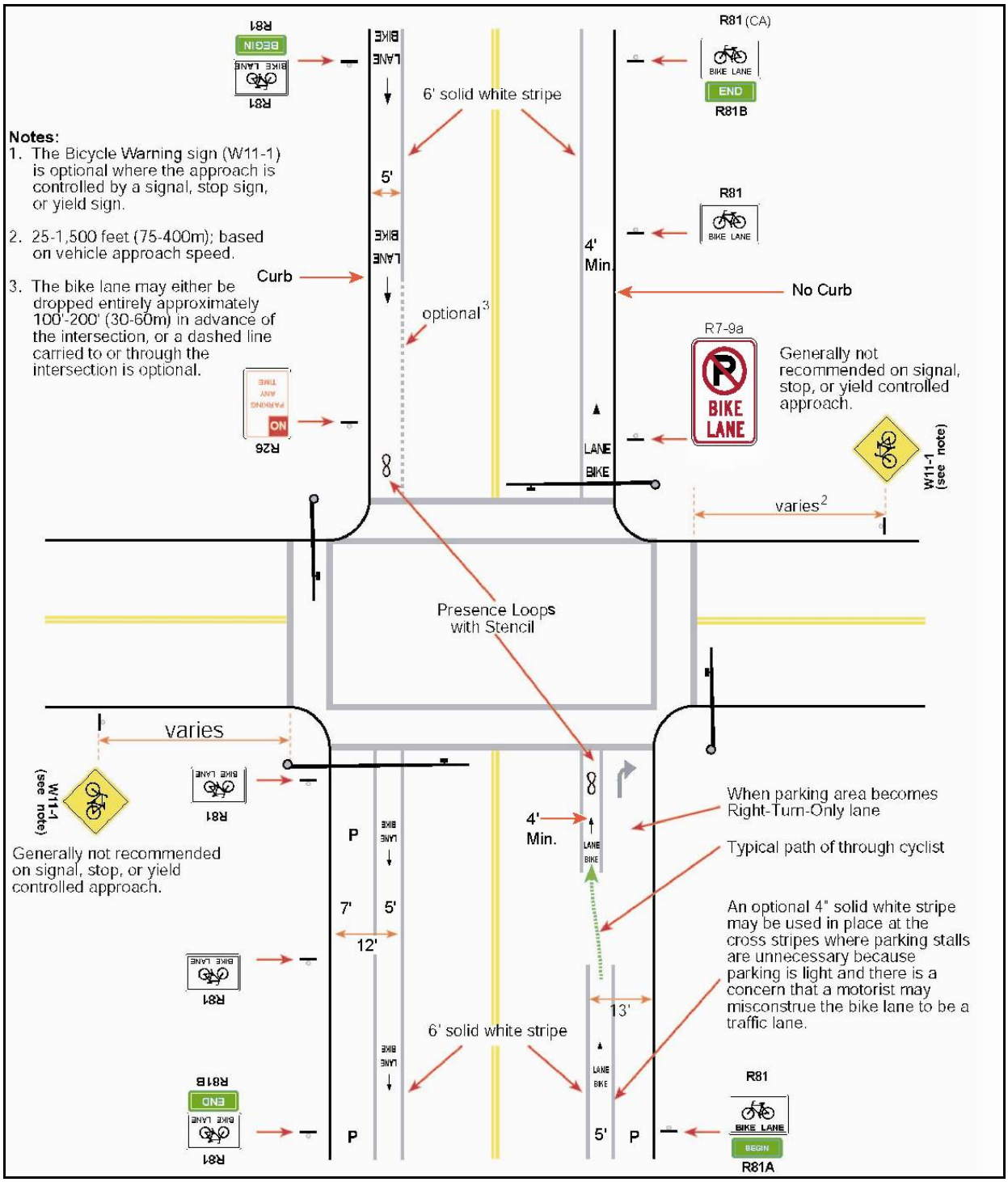


Figure A-8: Bicycle Lane Configurations at Intersections

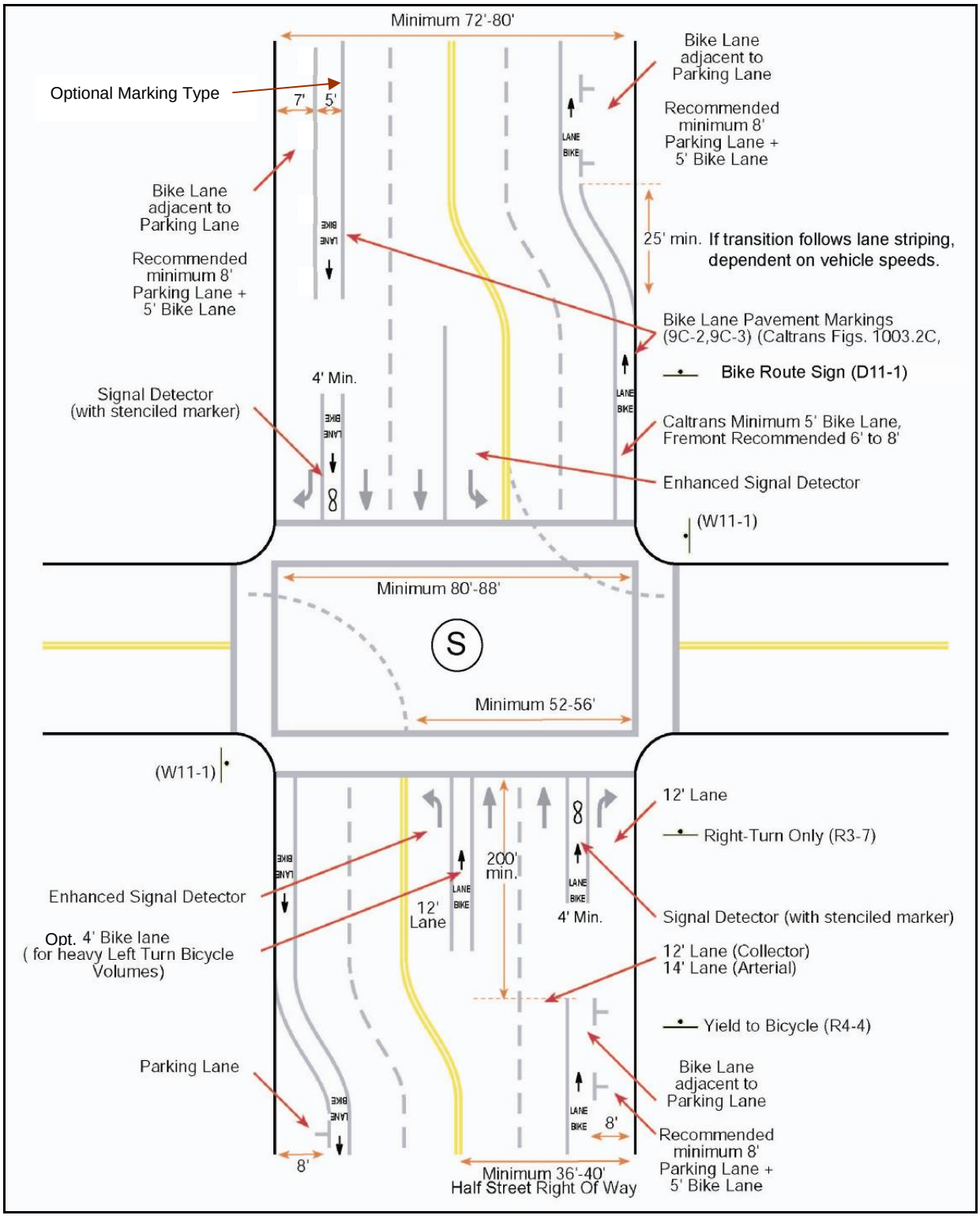


Figure A-9: Dedicated Bike Turn Lanes at an Intersection

Challenges and potential solutions for bicyclists at large signalized intersections include:

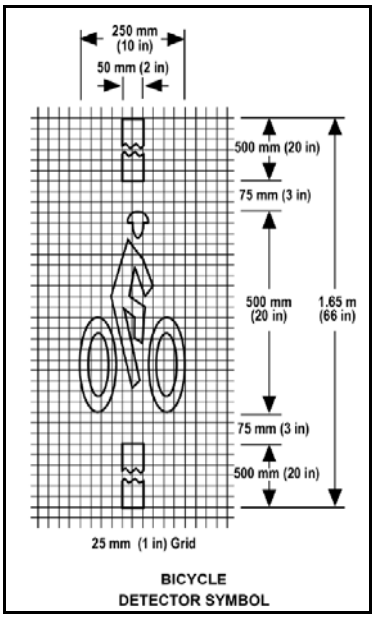
- Signals may not be timed to allow slower-moving bicyclists to travel across the intersection.
    - Solution: Bicycle adaptive signal timing:
- Loop detectors or video detection that is used to actuate the signal may not be calibrated to detect bicyclists.
    - Solution: Design standard of bike loop use.
- Bicyclists may not know how to actuate the signal using loop detectors, even if it is calibrated.
    - Solution: Use of bike loop detector symbol.
- Bicyclists who wish to turn left may be required to travel across several motor vehicle lanes to reach the left hand turn lane.
    - Solution: Enhanced signage.
- Bicyclists who wish to turn left like a pedestrian may experience long delays as they wait through several light cycles.
    - Solution: Well-signed bikeways.
- Bicyclists who are traveling straight may have to merge across motor vehicle traffic that is turning right from a right-turn lane.
    - Solution: Bike lane pockets at intersections, between through and right turn lanes.
- Motorists may be less likely to be aware of bicyclists at large, multi-lane intersections due to higher traffic volumes, more lanes of traffic and the complexity of large intersections
    - Solution: Enhanced bike lane signage.
- Large intersections without bicycle facilities are very auto-centric, leading motorists to assume that bicyclists are not supposed to be on the roadway.
    - Solution: Installation of bicycle facilities, including pavement markings and signage.

Design treatments can help bicyclists travel through intersections and alert motorists of bicyclists' presence. Good intersection design alerts motorist to bicyclists, indicates to motorists and bicyclists where bicyclists may ride, and guides bicyclists through intersections.

This treatment provides a design for where a roadway with Class II bike lanes intersects with a road at a signalized intersection.

Bicycle Actuated Signals & Adaptive Signal Timing

Making intersections more "friendly" to bicyclists, involves modifying how they operate. Improved signal timing, calibrating loop detectors to detect bicyclists, and camera detection makes intersections easier for bicyclists to cross intersections.



The California Manual on Uniform Traffic Devices has specific standards for loop detector pavement markings

Loop detectors are installed within the roadway to allow the metal of a motor vehicle to trigger a change in the traffic signal. Many standard motor vehicle loop detectors can be calibrated to detect bicycles. This allows the bicyclist to stay within the lane of travel and avoid maneuvering to the side of the road to trigger a push button. Signals can be configured so that if a bicycle is detected, an extended green time can be provided. Simi Valley should use hard-wire loops at signalized intersections with bike lanes instead of video detection to reduce false detection or extension of green for adaptive timing.

Standards suggest intersections utilize markings to indicate the location where a bicyclist is to be positioned in order to actuate a signal. Adjacent signage is also recommended to emphasize the connection between the marking and the signal.

Right-Turn Only Lanes

Right-turn only lanes can present challenges for bicyclists traveling through an intersection. Bicyclists must merge to the left to position themselves in the through travel lane. Jurisdictions will sometimes stripe bike lanes on the right-side of right-turn only lanes, which places the through-cyclist in direct conflict with a right-turning vehicle. The appropriate treatment for right-turn only lanes is to either drop the bike lane entirely approaching the right-turn lane, or to place a bike lane pocket between the right-turn lane and the right-most through lane. **Figure A-10: Bike Lane Adjacent to Right Turn Only Lane.** shows an example of the through bike lane pocket.

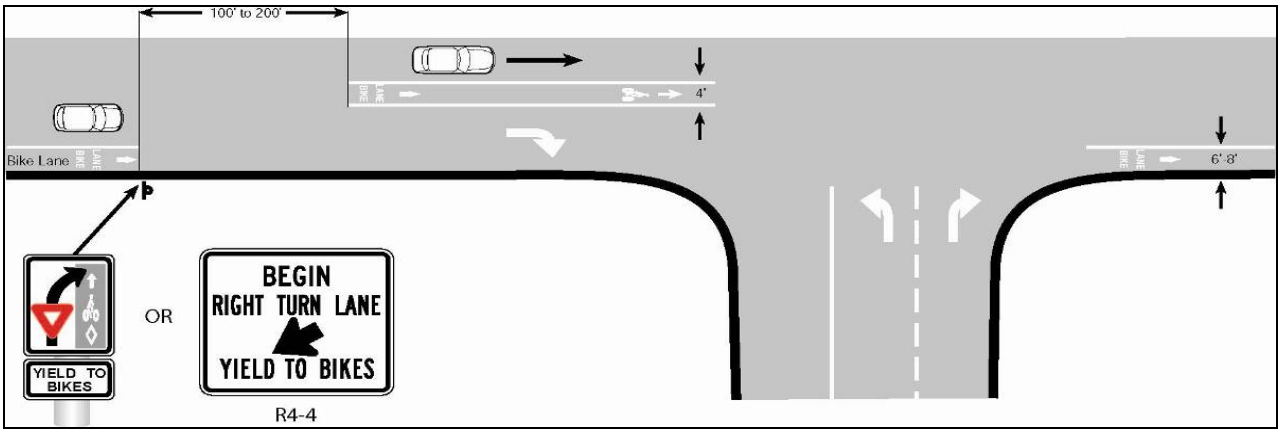


Figure A-10: Bike Lane Adjacent to Right Turn Only Lane.

Freeway Ramps

Freeway on- and off-ramp crossings present a potential conflict zone for bicyclists and motorists, as bicycle lanes are typically dropped and bicyclists must merge across travel lanes where vehicles are accelerating or decelerating from freeway speeds. The appropriate bicyclist behavior is to merge left away so as to be positioned in the through lane well before the mouth of the on-ramp, and to remain out away from the curb until past the off-ramp. Implementation of interchange

improvements requires coordination with Caltrans District 7 regarding placement of signage and striping because these areas are in Caltrans' right-of-way. Two guidelines for these improvements are:

- The bicycle merge should begin 250 feet in advance of the freeway on-ramp.
- Appropriate signage and striping should be used to warn bicyclists and motorists of the merge.

Bicycle improvements to freeway ramps are shown in **Figure A-11: Bike Crossing of Freeway Ramps**

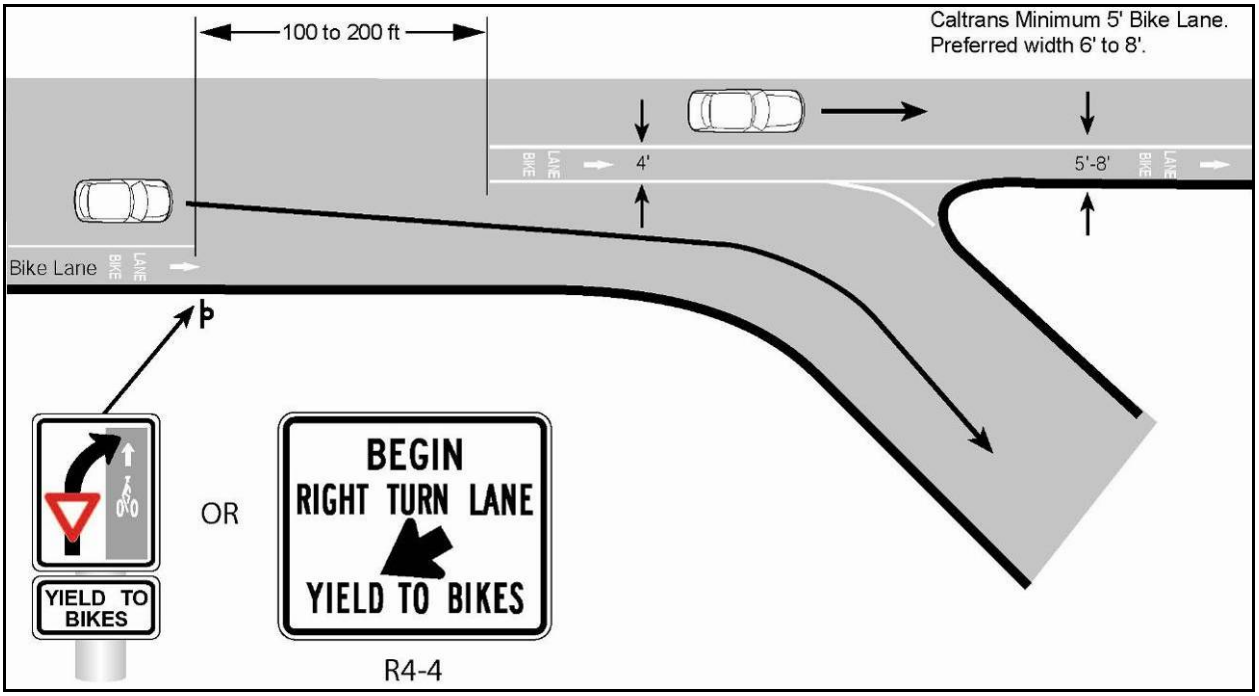


Figure A-11: Bike Crossing of Freeway Ramps

At-Grade Railroad Crossings

Railroad tracks can be hazardous to bicyclists. If bicyclists do not ride at a 90 degree angle over the tracks, bicyclists' wheels can catch in the tracks and potentially lead to a collision. **Figure A-12: Bike Lanes Crossing at Railroad Tracks** shows the proper design for a bike lane crossing railroad tracks. Bike lanes should cross train tracks at 90 degrees, helping to prevent collisions.

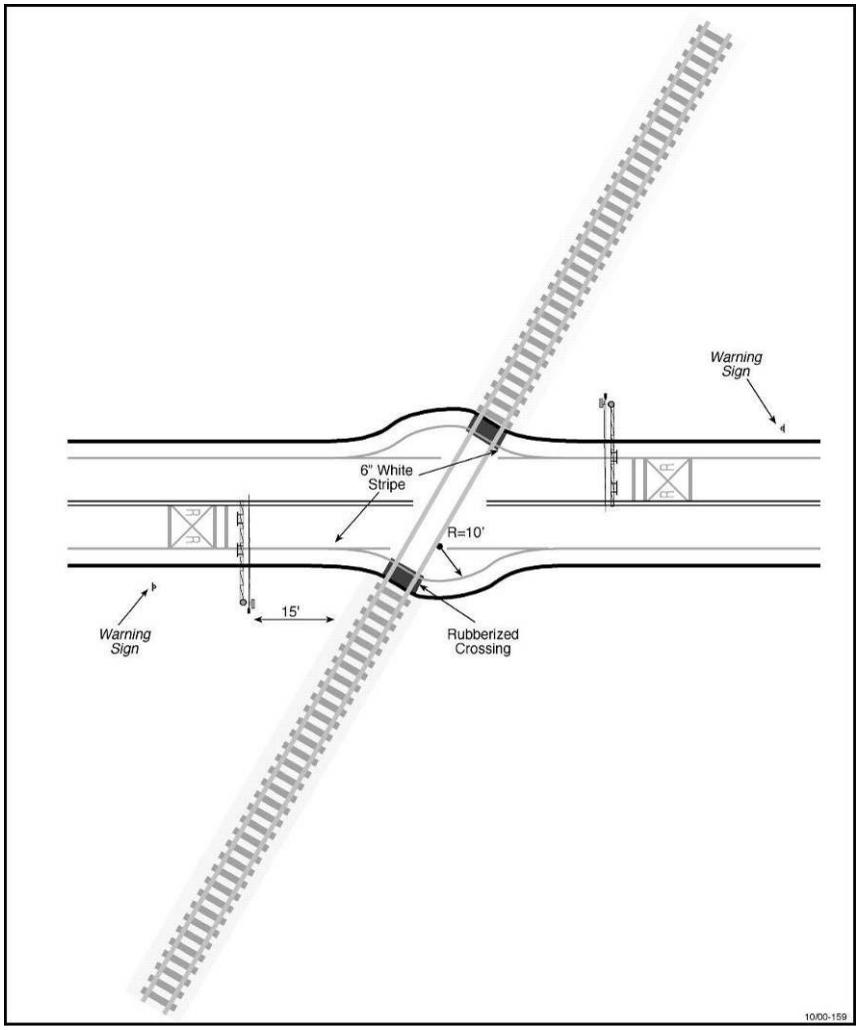


Figure A-12: Bike Lanes Crossing at Railroad Tracks

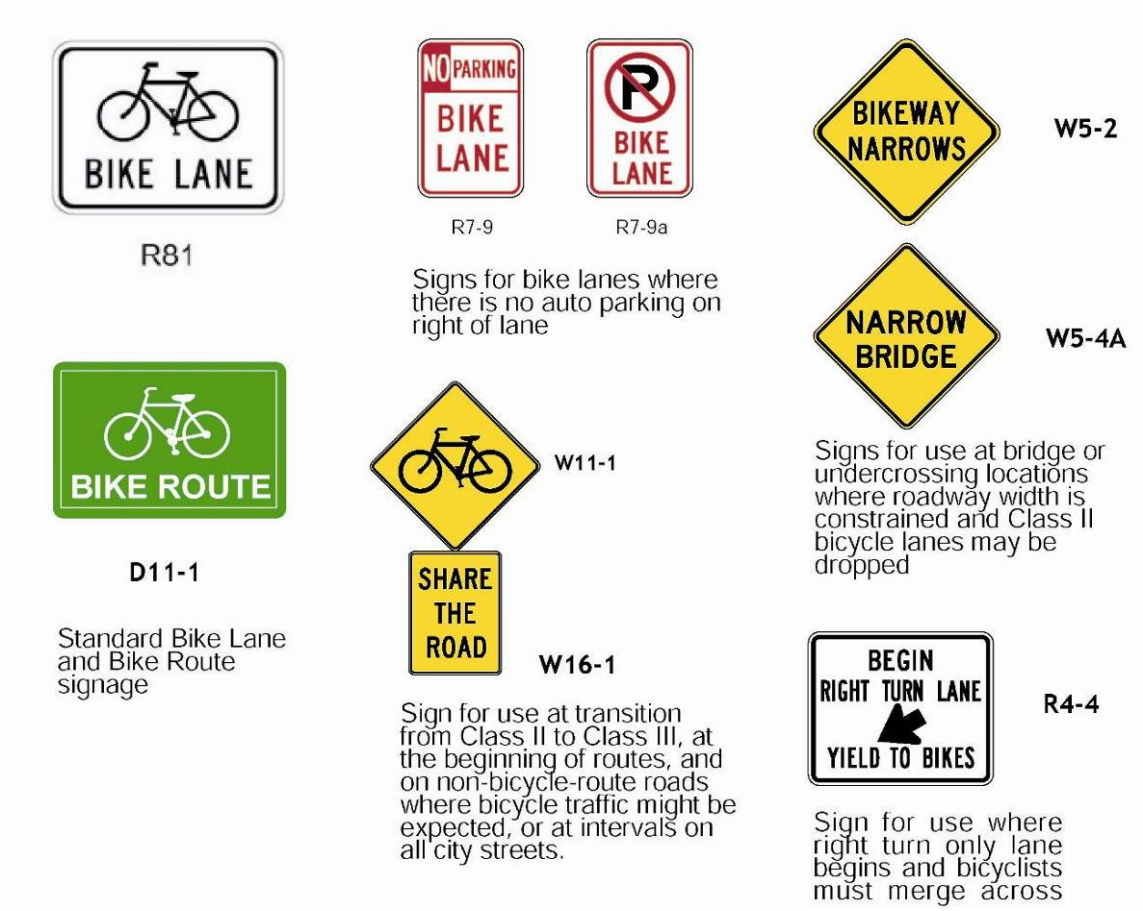
A.4. Class III Bikeway Design

Generally referred to as a "bike route," a Class III bikeway provides routes through areas not served by Class I or II facilities or to connect discontinuous segments of a bikeway.

Class III facilities can be shared with either motorists on roadways or pedestrians on a sidewalk (not advisable) and is identified only by signing. There are no recommended minimum widths for Class III facilities, but when encouraging bicyclists to travel along selected routes, traffic speed and volume, parking, traffic control devices, and surface quality should be acceptable for bicycle travel. Although it is not a requirement, a wide outside traffic lane (14 feet) is typically preferable to enable cars to safely pass bicyclists without crossing the centerline. Caltrans Chapter 1000 provides details regarding the design requirements for placement and spacing of bicycle route signage.

A.5. On-Street Regulatory & Warning Bike Signs

Signage for on-street bikeways includes standard BIKE LANE and BIKE ROUTE signage, as well as supplemental signage such as SHARE THE ROAD and warning signage for constrained bike lane conditions. Signage should be installed on existing signposts if possible, reducing visual clutter along the path or roadway.



A.6. Innovative Bikeway Treatments

A.6.1. Bicycle Boulevards

Bicycle Boulevards have been implemented in numerous locations including Berkeley, Davis, and Pasadena, California. A Bicycle Boulevard, also known as bicycle priority road, is a roadway that allows all types of vehicles, but which has been modified to enhance bicycle safety and security. Roadways are designed to be places where cars and bicycles can equally share right-of-way. Bicycle Boulevards tend to be residential streets with lower traffic volumes, typically between 3000 to 5000 average daily vehicles, but can include secondary commercial streets.

Figure A-13: Bicycle Boulevard Lane Configuration shows the typical design features of bicycle boulevards, these include:

- Traffic calming devices such as traffic circles and curb bulbouts
- Bicycle destination signage
- Pavement stencils indicating status as a Bicycle Boulevard
- Crossing improvements at major arterials such as traffic signals with bicycle-detection, four-way stops and high-visibility crosswalks
- Bicycle-friendly signal preemption at high-volume signalized intersections.
- Stop signs on streets crossing the Bicycle Boulevard

Bicycle Boulevards can be designed to accommodate the particular needs of the residents and businesses along the routes, and may be as simple as pavement markings with wayfinding signs or as complex as streets with traffic diverters and bicycle signals. Many good candidates for Bicycle Boulevards may benefit most from signage and public education. Substantial capital improvements may not be necessary.

A bicycle boulevard sign in Berkeley, CA

To further identify a street as a preferred bicycle route, lower volume roadways may be modified to function as a through street for bicycles, while maintaining only local access for automobiles. Traffic calming devices can lower traffic speeds and through trips, limiting conflicts between motorists and bicyclists and providing priority to through bicycle movement.

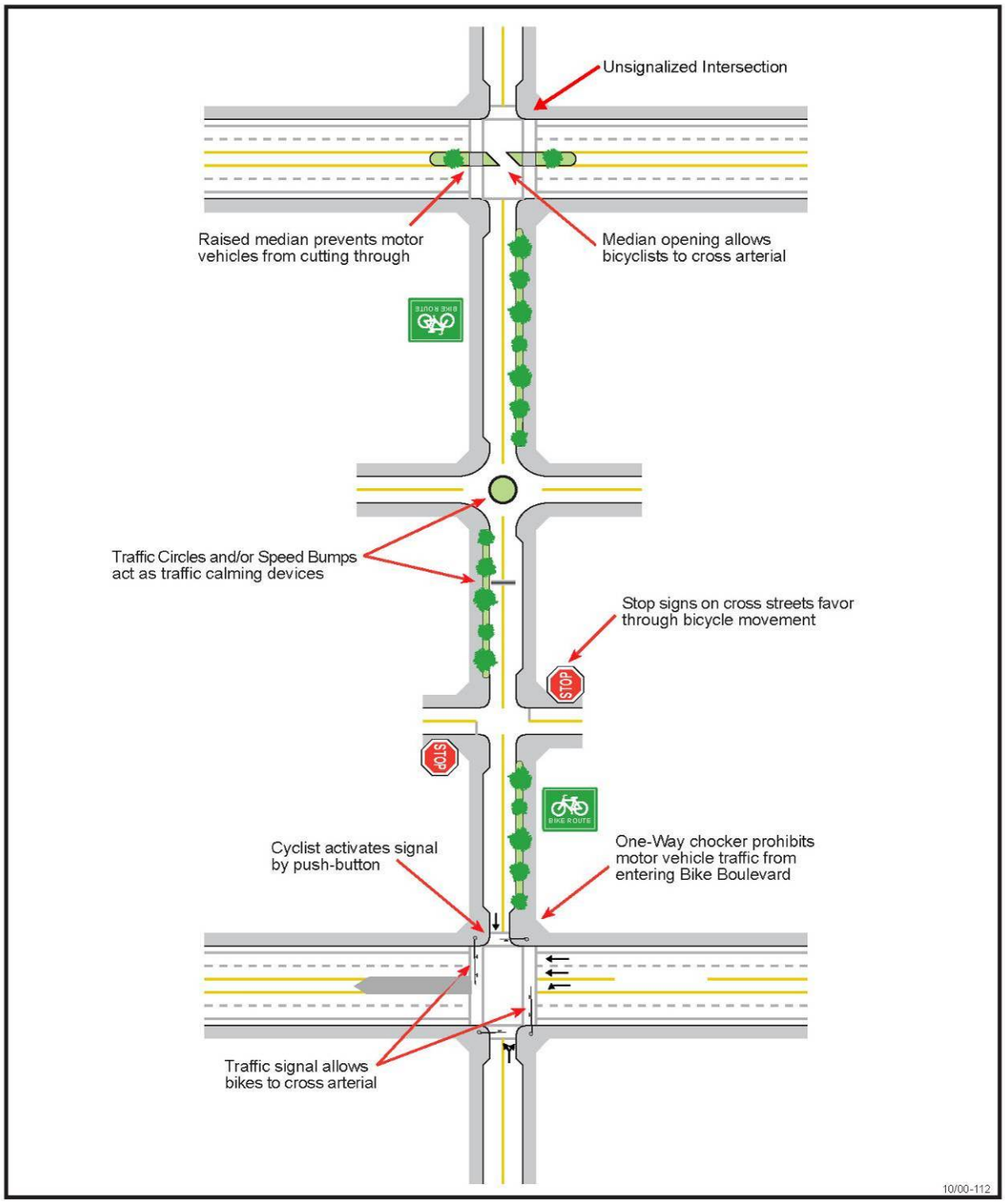


Figure A-13: Bicycle Boulevard Lane Configuration

A.6.2. Shared Roadway Bicycle Marking

Recently, Shared Lane Marking stencils have been introduced for use in California as an additional treatment for Class III facilities. The stencil can serve a number of purposes, such as making motorists aware of bicycles potentially in their lane, showing bicyclists the direction of travel, and, with proper placement, reminding bicyclists to bike further from parked cars to prevent "dooring" collisions.

Figure A-14: Shared Lane Marking Placement and Shared Roadway Bicycle Marking illustrates recommended placement of the stencil in the roadway and the "Chevron" marking design recommended by Caltrans. Caltrans adopted the following pavement markings for official use in 2005 as part of the California MUTCD.

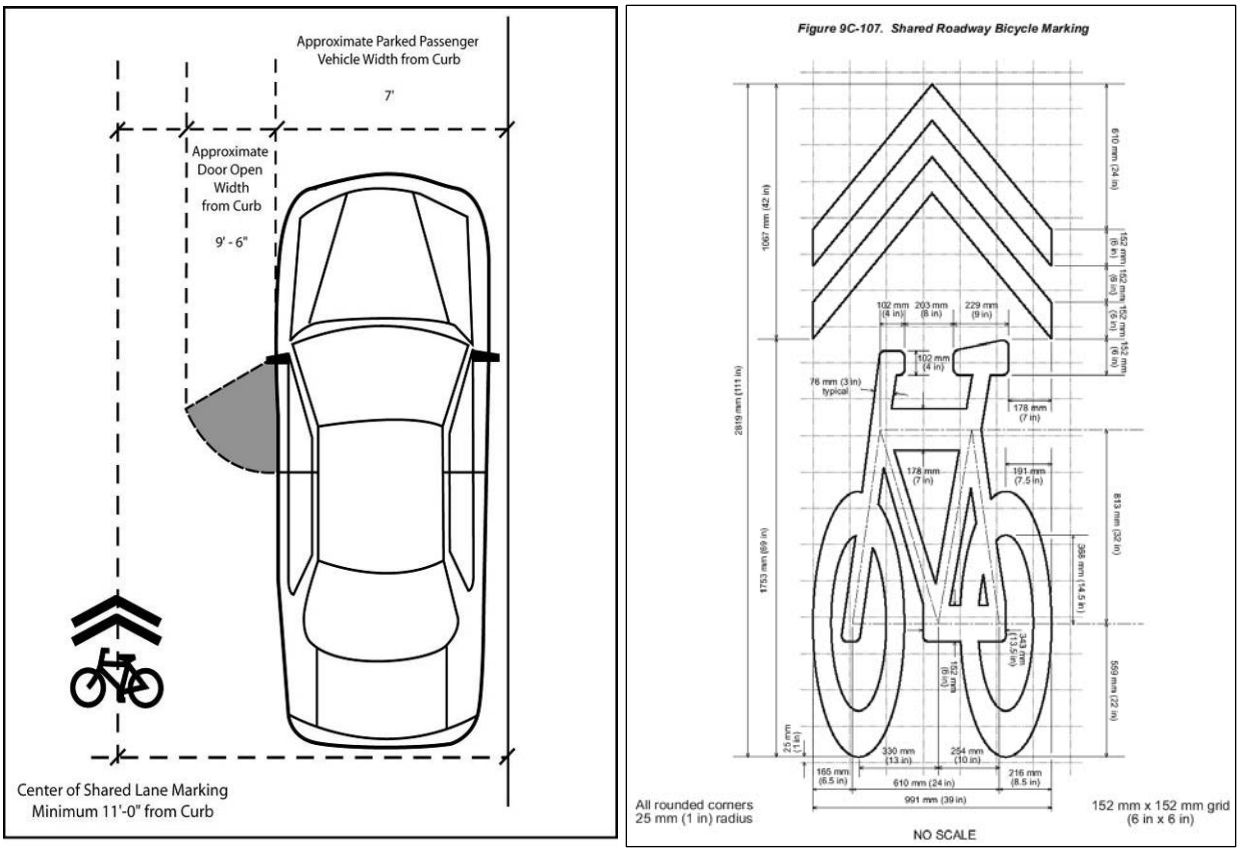


Figure A-14: Shared Lane Marking Placement and Shared Roadway Bicycle Marking

A.7. Signage

A.7.1. Bike Route Signage

In addition to wayfinding signs, bike route network signage is recommended for Simi Valley and the CAMUTCD standard for these signs should be used in the City. Route numbering for these signs should be coordinated with neighboring jurisdictions where bikeways cross the City's boundary. Most commonly, they show the route number and the corresponding direction.

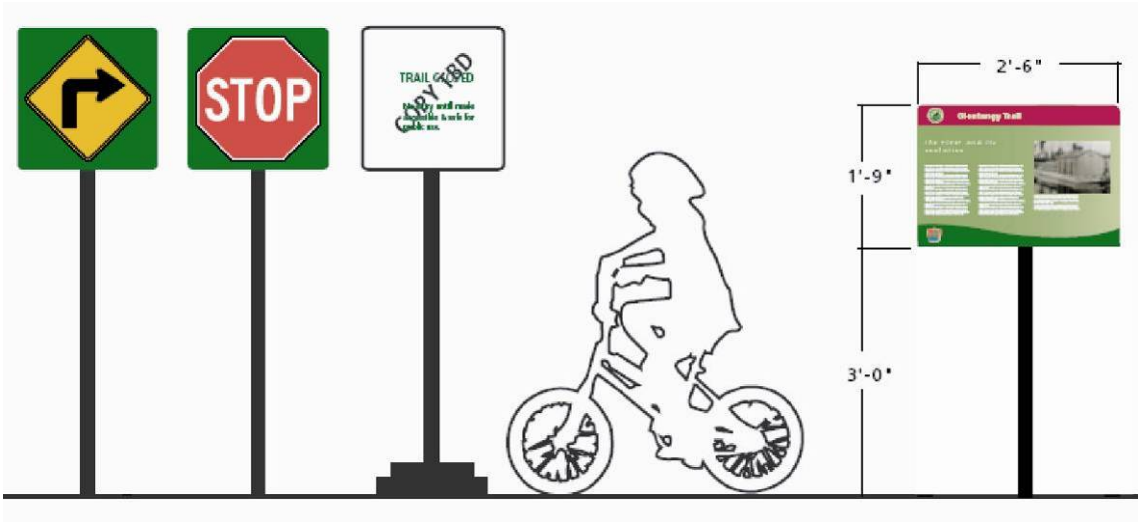
For bike route signs, CAMUTCD requires a green background and white lettering. The top portion of the sign is customizable for the city or region where it located. For example, the City of San Francisco shows the Golden Gate Bridge on its bike route signs. **Figure A-15: Bicycle Route Number Marker** shows an example from San Francisco.

Figure A-15: Bicycle Route Number Marker

Multi-Use Path Signs

The City of Simi Valley and the Parks and Recreation Department should work together to create a sign system for the multi-use path network through the City. It is an expanding network that could link with many destinations citywide. Signs could show destinations as well as proper traffic control.

These signs could be coordinated with other City signage as well as on-street bicycle route signage. This system should encourage use of trails for recreational as well as functional bicycling trip-purposes. Helping bicyclists of all ages reach destinations easily.



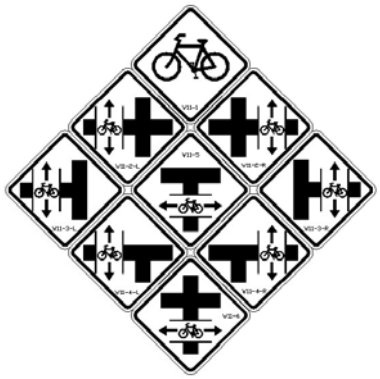
A.7.2. Wrong-Way Signs

The City may want to consider additional signage on bikeways with high levels of wrong-way riding. The City of Sunnyvale, places wrong way riding signs on the back of bike lane signs to help prevent bicyclists using bicycle lanes in the wrong direction, riding against traffic. The City of Simi Valley may want to consider installing similar signs on bikeways where there is wrong-way riding.

Wrong-Way Signs in Sunnyvale

A.7.3. Parallel Path Warning Signage

When paths are located parallel and adjacent to roadways, vehicles turning into and out of streets and driveways must cross the path. Conflicts between bicyclists and pedestrians and turning motorists are common at these types of intersections. Turning motor vehicles do not expect to see bicyclists or pedestrians coming in the opposite direction of traffic.



An example of Denver's parallel path warning signage

Starting in the early 1990's, the City of Denver, Colorado began using experimental warning signage at its parallel paths. The signage is modified from the standard MUTCD railroad warning signage.

An example of Denver's parallel path warning signage in context

Experimental signage, similar to the Denver parallel path warning signs, could help alert motorists to the presence of bicyclists and pedestrians on parallel paths.

A.8. Bicycle Parking

As more bikeways are constructed and bicycle usage grows, the need for bike parking will increase. Short-term parking at shopping centers and similar land uses can support bicycling as well as long-term bicycle parking at transit stations and work sites.

A.8.1. Short Term Bicycle Parking

Short term bicycle parking facilities are best used to accommodate visitors, customers, messengers and others expected to depart within two hours. Bicycle racks provide support for the bicycle but do not have locking mechanisms. Racks are relatively low-cost devices that typically hold between two

and eight bicycles, allow bicyclists to securely lock their frames and wheels, are secured to the ground, and are located in highly visible areas. They are usually located at schools, commercial locations, and activity centers such as parks, libraries, retail locations, and civic centers. See **Figure A-16: Recommended Short-Term Bicycle Parking Facilities**.

Bicycle racks should be installed with the following guidelines in mind:

- The rack element (part of the rack that supports the bike) should keep the bike upright, supporting the frame in two places and allowing one or both wheels to be secured.

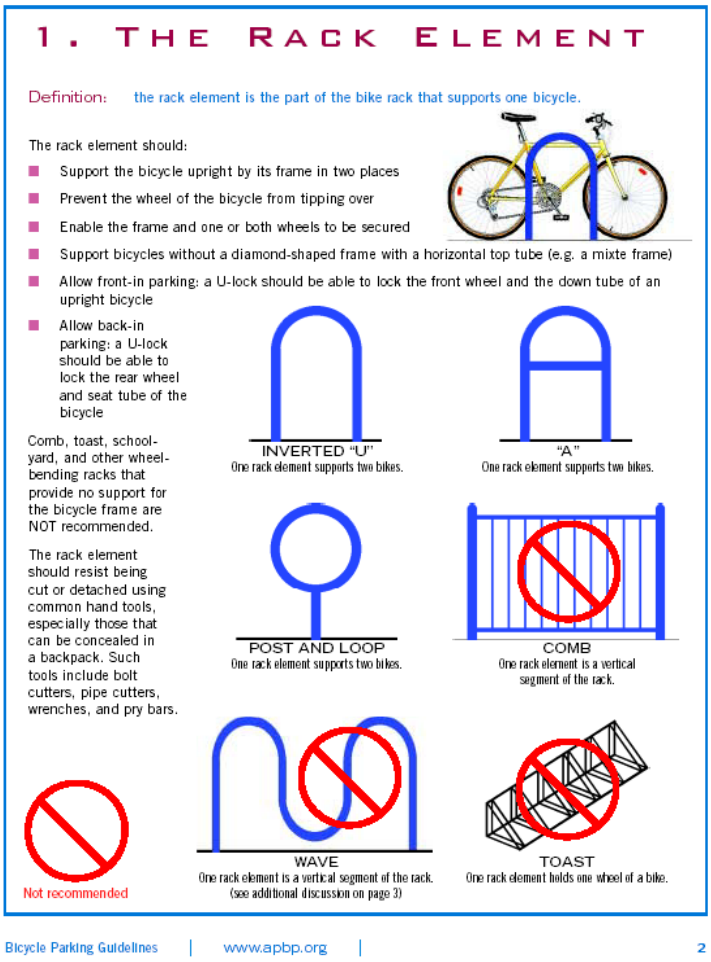
- Install racks so there is enough room between adjacent parked bicycles. If it becomes too difficult for a bicyclist to easily lock their bicycle, they may park elsewhere. A row of inverted "U" racks should be installed with 15 inches minimum between racks.

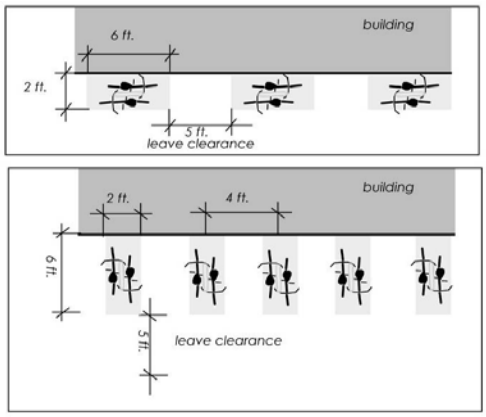
- Empty racks should not pose a tripping hazard for visually impaired pedestrians. Position racks out of the walkway's clear zone.

When possible, racks should be in a covered area protected from the elements. Long-term parking should always be protected.

Generally, 'U' type racks bolted into the sidewalk are preferred and should be located intermittently or in front of key destinations. Bicycle racks should be installed to meet ADA standards and not block pedestrian through traffic.

The City may want to consider custom racks that can serve not only as bike racks, but also public artwork or as advertising for a specific business. The "post and ring" style rack is an attractive alternative to the standard inverted-U, which requires only a single mounting point and can be customized to have the city name or emblem stamped into the rings. These racks can also be easily retrofitted onto existing street posts, such as parking meter posts. While custom racks can add a decorative element and relate to a neighborhood theme, the rack function should not be overlooked: All racks should adhere to the basic functional requirement of supporting the bicycle by the frame (not only the wheel) and accepting a U-lock.





Recommended bicycle parking spacing dimensions

Figure A-16: Recommended Short-Term Bicycle Parking Facilities

Possible alternatives to the inverted-U bike rack include the simple post-and-ring style (left), or a custom artistic rack (middle) or the abstract rack (right) . All styles allow the bicycle to be secured by the frame with a U-lock.

A.8.2. Long Term Bicycle Parking

For long-term parking, the city may want to consider bicycle lockers. Bicyclists are usually more comfortable storing bicycles in lockers for long periods because they offer increased security and

protection from natural elements. Although they may be more expensive to install, they can make the difference for commuters deciding whether or not to bicycle.

Lockers can be controlled with traditional key systems or through more elaborate subscription systems. Subscription locker programs, like e-lockers, or park-by-phone systems allow even more flexibility within locker use. Instead of restricting access for each patron to a single locker, subscribers can gain access to all lockers within a system, controlled by magnetic access cards, or caller ID. These programs typically have fewer administrative costs because they simplify or eliminate key management and locker assignment.

Long-term bicycle parking facilities accommodate employees, students, residents, commuters, and others expected to park more than two hours. This parking, as shown in **Figure A-17: Recommended Long-Term Bicycle Parking Facilities** should be provided in a secure, weather-protected manner and location.

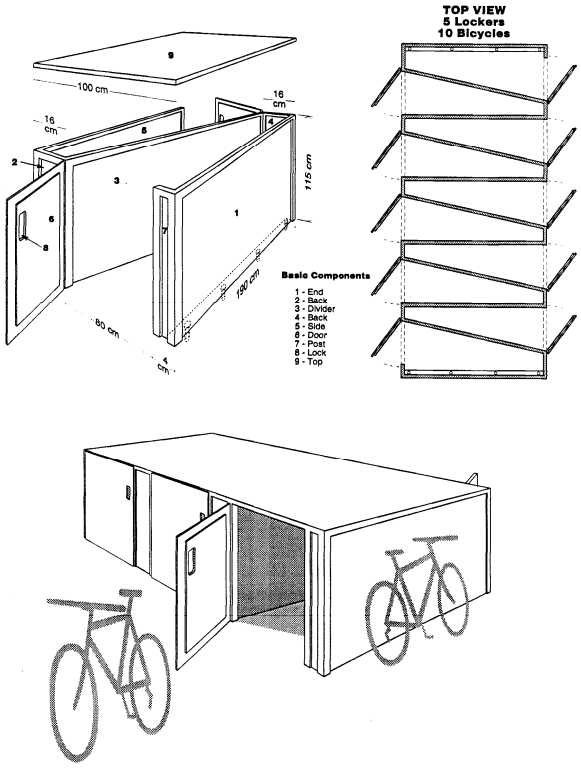


Figure A-17: Recommended Long-Term Bicycle Parking Facilities

A.8.3. Innovative High Volume Bicycle Parking

In many locations, individual U-racks located on the sidewalk can be sufficient to meet bicycle parking demand. Where bicycle parking demand is higher, more formal structures and larger facilities need to be provided. Several options for high-volume bicycle parking are outlined below.

Bike Corral in Portland, Oregon
Photo: Bill Stiles

On-Street Bike Parking Corral

A relatively inexpensive solution to providing high-volume bicycle parking is to convert one or two on-street motor vehicle parking spaces into on-street bicycle parking. Bike racks are installed in the street and protected from motor vehicles with removable curbs and bollards. These Bike Parking Corrals move bicycles off the sidewalks, and leave space for sidewalk café tables or pedestrians. Bicycle parking does not block sightlines like motor vehicles do, so it may be possible to locate bicycle parking in no-parking zones near intersections and crosswalks.

Bike Oasis

In 2008, the City of Portland, Oregon began installation of several "Bike Oases" in commercial districts. These signature bicycle parking facilities are installed on curb extensions and consist of attractive covered bike parking and an information panel. Portland's Bike Oases provide parking space for ten bikes. Bike and walking maps are installed on the information panel.

Bike Oasis installed in Portland, OR near NE 43rd and Hancock

Appendix B: Recommendation Constraints

This appendix reviews constraints within the recommended bicycle network. Specifically, some bike lane projects require road widening in addition to lane striping. Also, while installation of signage for bicycle routes is almost always feasible with regard to road-width (i.e. signage does not require any new lane demarcation), roads with recommendations for bike routes should additionally be assessed for factors like traffic speed and volume in order to provide a safe and comfortable riding environment. In some cases, it may serve to employ shared lane markings along with bike route signage or reclassification of a bike route project into a bike lane facility.

Table B-1: Recommendation Constraints details some project specific factors to provide a more comprehensive view of the plan's recommended projects. The "Notes" column also includes other suggested improvements, including road diets and shared lane markings.

- Road diets involve reallocation of road width, which can include lane width reduction, or elimination of a travel lane. These types of solutions can be appropriate when traffic speeds and/or volumes do not necessitate the existing road way configuration.
- Shared lane markings work as a roadway stencil in conjunction with Class III signage facilities. More detail is provided about them in Appendix A: Design Guidelines.

Table B-1: Recommendation Constraints

Facility	Start	Stop	Class	Notes
Madera Rd.	Los Angeles Ave.	Thousand Oaks City Limit	2	Since General Plan and CMP require six travel lanes to maintain LOS C, major road widening would likely be required to implement an on-street facility.
Tierra Rejada Rd	City Limit	Madera Rd	2	From the city limit to Stargaze Pl., the westbound side has room for bike lanes. The eastbound side requires either road widening or a road diet. East of Stargaze Pl., there is room for bike lanes.
Cochran St.	Madera Rd.	Yosemite Ave.	2/3	Signage is feasible; with traffic speed and volume, bike lanes are suggested. Some areas may require road widening, and/or parking removal, including Chandler to Justin, Sycamore to Galena, Tracy to Tapo Canyon, and Stearns to Archwood.
First St.	Cochran St.	Los Angeles Ave.	2/3	Since General Plan and CMP require six travel lanes to maintain LOS C, major road widening would likely be required to implement an on-street facility.
Madera Rd.	View Line Dr.	Los Angeles Ave.	2/3	Since General Plan and CMP require six travel lanes to maintain LOS C, major road widening would likely be required to implement an on-street facility.
Royal Ave.	Madera Rd.	Tapo Canyon Rd.	2/3	Signage is feasible; with traffic speed and volume, bike lanes are suggested. Road is wide enough for bike lanes from Erringer to Whitcomb and Corto to Tapo Canyon, but parking removal is required.
Stow St.	Cochran St.	Katherine St.	2/3-SLM	Signage is feasible, but lanes may be a good option from Cochran to Los Angeles Ave. They may require parking removal on the southbound side. South of Los Angeles Ave, the road is too narrow for bike lanes, but lower traffic volumes make it a good candidate for shared lane markings.

Facility	Start	Stop	Class	Notes
Sycamore Dr.	Arroyo Simi	Fitzgerald Rd.	3-SLM	Signage is feasible; with medium traffic volume and speeds, bike lanes or shared lane markings are suggested. Shared lane markings would be easier with the existing permanent parking and wider outside lane. Parking removal required.
Fitzgerald Rd.	Erringer Ave.	Appleton Rd.	3-SLM	Lower traffic volumes, wide outside lanes and permanent parking for most of this road segment make it a good candidate for shared lane marking improvements.
Tapo St.	Cochran St.	Arroyo Simi Trail	2/3	Cochran to Los Angeles: Signage is feasible; with traffic speed and volume, bike lanes would require median and/or lane-width reduction, road widening, or a road diet. South of Los Angeles Ave, shared lane markings are suggested.
Yosemite Ave.	Mt. Sinai Dr.	Cochran St.	2/3	Signage is feasible; with traffic speed and volume, bike lanes would require median and/or lane-width reduction, road widening, or a road diet, and/or parking removal.