San Joaquin County Bicycle Master Plan Update

San Joaquin County Public Works Department

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Plan Contents

The San Joaquin Bicycle Master Plan Update is organized as follows:

Chapter 1 – Introduction: Sets the context for the Plan, including purpose and structure.

Chapter 2 – Goals, Objectives, and Policies: Summarizes the goals, policies, and objectives guiding the implementation of the Plan. The chapter incorporates previous planning efforts.

Chapter 3 – Existing Conditions: Provides a description of the existing bicycling conditions in San Joaquin County. The chapter includes a map of existing bikeways and descriptions of programs.

Chapter 4 – Needs Analysis: Reviews the relationship between bicycle activity, commute patterns, demographics, land use, and collisions.

Chapter 5 – Benefits of Bicycling: Provides an outline of the benefits of bicycling, and explains why it is important to the region's future.

Chapter 6 – Recommended Bikeway Improvements: Includes recommended countywide bikeway facilities and bikeway projects, such as signing, striping, and maintenance.

Chapter 7 – Recommended Policies and Programs: Describes proposed bicycle education, encouragement, enforcement and evaluation programs.

Chapter 8 – Implementation: Outlines project prioritization and an implementation strategy, taking into account the cost estimates for proposed projects.

Chapter 9 – Funding: Provides a list of potential funding sources for implementing recommended projects and programs.

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1. Introduction

The San Joaquin County Bicycle Master Plan Update provides a blueprint for making bicycling an integral part of daily life in San Joaquin County. It provides for an updated system of bike lanes, bike routes and bike paths; identifies necessary support facilities such as bicycle parking; and recommends a variety of programs to allow for safe, efficient and convenient bicycle travel within San Joaquin County and connecting to regional destinations. This Plan was developed by San Joaquin County Public Works Department staff and guided by extensive input from the community.

1.1. Why Bicycling?

The bicycle is a low-cost and effective means of transportation that is quiet, non-polluting, extremely energy-efficient, versatile, healthy, and fun. Bicycles also offer low-cost mobility to the non-driving public. Bicycling as a means of transportation has been growing in popularity as many communities work to create more balanced transportation systems. Directly related to this trend, recent national surveys have found that more people are willing to cycle more frequently if better bicycle facilities are provided.[1-1] In addition, substituting bicycle trips for vehicle trips reduces transportation-related greenhouse gas emissions, helping to reach the reduction targets outlined in California Assembly Bill 32: Global Warming Solutions Act, discussed further in **Chapter 2**.

Figure 1-1: Bicyclists in San Joaquin County

San Joaquin County is in a unique position to capitalize on its bicycle-friendly features. The area has a temperate climate, scenic roadways and flat topography, key elements that aid in the success of increasing the number of people who see the county by bicycle.

1.2. Purpose of the Bikeway Master Plan

This Bicycle Master Plan provides a vision, strategies, and actions for the improvement of bicycling in San Joaquin County. This plan is an update to the San Joaquin Bicycle Master Plan adopted in 2002, and was developed to build upon and enhance that plan. The purpose of this Plan is to expand the existing networks, close gaps, address constrained areas, provide greater connectivity, educate, encourage, and secure project funding. Existing bikeways are outlined in **Table 1-1**.

[1-1] National Bicycling and Walking Study: Ten Year Status Report (www.bicyclinginfo.org/pp/nbsw2.htm)

Table 1-1: San Joaquin County Existing Bikeways

Class	Name	Start	End	Miles
II	B Street	Stockton City Limits	Ralph Avenue	1.20
II	Golden Gate	Waterloo Road	East Roosevelt Street	0.58
II	Sanguinetti Lane	Alpine Avenue	Wilson Way	0.25
II	Filbert Street	Waterloo Road	East Harding Way	0.26
III	Davis Road	Woodbridge Road	Kettleman Lane	3.07
III	DeVries Road	Armstrong Road	Thornton Road	0.94
III	Schulte Road	Hansen Road	Lammers Road	2.04
III	Armstrong Road	Davis Road	DeVries Road	1.00
III	Armstrong Road	State Highway 99	Lower Sacramento Road	2.65
III	Austin Road	Lathrop Road	Louise Avenue	1.00
III	Austin Road	Lathrop Road	French Camp Road	1.47
III	Wilson Way	Alpine Avenue	Highway 99	1.37
III	South Tradition Street	East Legacy Drive	Amaudo Boulevard	0.19
III	South Providence Street	East Legacy Drive	Amaudo Boulevard	0.18
III	East Legacy Drive	South Central Parkway	Historic Street	0.46
III	Historic Street	East Legacy Drive	E Heritage Drive	0.15
III	East Heritage Drive	South Central Parkway	Historic Street	0.51
III	South Tradition Street	East Heritage Drive	Mascot Boulevard	0.28
III	Prosperity Street	East Heritage Drive	Mascot Boulevard	0.28
III	Wicklund Way Crossing	Historic Street	Mountain House Parkway	0.31
			Total	18.19

The Bicycle Master Plan is important for the following reasons:

Figure 1-2: Bicycle Route

Maximize Funding Sources for Implementation

A key reason for the Bicycle Master Plan is to satisfy requirements of the California Bicycle Transportation Account (BTA) and other state and federal funding programs for bicycle transportation projects, for which Caltrans plays an oversight and review role. In order to qualify for available funding, the State of California requires that applicants have a master plan adopted, or updated, within the past five years that includes a number of specific elements related to bicycle commuting, land uses, multi-modal connections, funding, and public input. The complete list of required BTA elements and their locations in this document is provided at the end of this chapter.

Improve Safety and Encourage Bicycling

This plan provides tools to reduce the crash rate for bicyclists in San Joaquin through design standards and guidelines, education, and enforcement. This Plan provides recommendations for spot improvements intended to make

bicycling safer for all ability levels. Examples of encouragement programs are also provided to motivate San Joaquin residents to ride to work, school, for exercise and recreation.

Provide Needed Facilities and Services

San Joaquin County has 18 miles of existing bikeways. While the majority of the county's roadways have low vehicular traffic volumes and are comfortable for cyclists experienced with riding on streets, much of the success of encouraging new cyclists will depend on meeting the needs of less experienced riders who are less comfortable on such roadways. In addition to incorporating more routes into the existing bikeway network, support facilities such as clear directional signage along existing and future bikeways and connections to cities will encourage more people to ride bicycles and enhance the level of comfort for all.

Enhance the Quality of Life in San Joaquin County

The development of bicycle facilities provides for people-friendly streets, paths, and activity centers available to everyone, and supports sustainable community development. Bicycling can reduce traffic congestion, vehicle exhaust emissions, noise, and energy consumption. It is also a healthy and active form of travel.

1.3. Setting

San Joaquin County is located in central California, east of the San Francisco Bay Area and south of Sacramento County. The county's topography is varied with flat terrain to the west and rolling hills to the east. The population centers are generally in the western areas of the county and include most of the incorporated cities. The incorporated cities are Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton, and Tracy. The unincorporated areas are generally agricultural, but also contain residential developments and recreational facilities. The county's flat terrain and scenic rural roadways attract many recreational bicyclists.

Land use patterns, including major employer and recreational facility locations, influence bicycling activity in San Joaquin County. Observation of land use patterns can aid in predicting demand and are important to bikeway planning because changes in land use (and particularly employment areas) will affect average commute distance, which in turn affects the attractiveness of bicycling as a commute mode. The majority of the unincorporated county is agricultural, and the major employers are located in the cities. Bicycling in San Joaquin County includes commuters traveling between cities, recreational bicyclists enjoying the rural environment and those traveling to recreational opportunities. San Joaquin County's recreational opportunities include Camanche Reservoir, Caswell Memorial State Park, Micke Grove Park and Zoo, Oak Grove Park and the Regional Sports Complex.

1.4. Major Recommendations of the Plan

The San Joaquin County Bicycle Master Plan outlines a range of recommendations developed to reflect existing conditions, public input and logical connections. The recommendations include infrastructure improvements, programs, implementation strategies and design recommendations. The recommended bicycle facilities connect communities through direct and feasible bikeway improvements. **Table 1-2**

provides a mileage and cost summary of proposed bikeways by class. The proposed facilities are described in **Chapter 6** and shown in **Figures 6-8** through **6-18**.

Table 1-2: Summary of Proposed Bikeway Improvements and Cost Estimates

Bikeway Class	Miles	Cost Estimate
Class I	4.13	$4,524,300
Class II	5.88	$583,900
Class III	270.24	$38,996,200
Totals	**280.25**	**$44,104,00**
Utility Allowance & Contingency		**19,295,800**
Grand Total		**$63,400,200**

In addition to the recommended infrastructure improvements, the Plan recommends specific programs indented to facilitate bicycling in San Joaquin County. The recommendations outlined in **Chapter 7** include events and incentives to encourage people to bike, education programs to teach bicycle safety and enforcement programs to promote safer interactions between drivers and bicyclists.

1.5. BTA Compliance

In order to qualify for State of California Bicycle Transportation Account (BTA) funding, local bicycle plans must meet the criteria of California Streets and Highways Code Sec 891.2, detailed in **Table 1-3** below, and must be updated at least every five years. As of 2009, the amount of funding available to California communities through the BTA on an annual basis is only $7 million statewide. Most communities will need to seek additional funding to implement the elements of their bicycle and pedestrian plans. While not required for other grant sources, an adopted bicycle and pedestrian plan substantially improves the chances of securing funding.

Table 1-3: Caltrans BTA Requirements

Required Plan Element	Location of Element
(a) 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.	Pages 4-7 and 4-8 (existing) and 5-5 and 5-6 (estimated increase).
(b) A map and description of existing and proposed land use and settlement patterns which shall include, but not be limited to, locations of residential neighborhoods, schools, shopping centers, public buildings, and major employment centers.	Pages 3-1 through 3-3.
(c) A map and description of existing and proposed bikeways.	Chapter 3. Existing Conditions. Pages 3-5 through 3-13 (existing). Chapter 6. Recommended Bicycle Improvements. Pages 6-5 through 6-24 (proposed).

Required Plan Element	Location of Element
(d) A map and description of existing and proposed end-of-trip bicycle parking facilities. These shall include, but not be limited to, parking at schools, shopping centers, public buildings, and major employment centers.	Pages 3-7 through 3-14 (existing) and 6-3, 6-4, and 6-15 through 6-24 (proposed).
(e) A map and description of existing and proposed bicycle transport and parking facilities for connections with and use of other transportation modes. These shall include, but not be limited to, parking facilities at transit stops, rail and transit terminals, ferry docks and landings, park and ride lots, and provisions for transporting bicyclists and bicycles on transit or rail vehicles or ferry vessels.	Pages 3-3, 3-4, and 3-7 through 3-13 (existing) and 6-4 and 6-15 through 6-24 (proposed).
(f) A map and description of existing and proposed facilities for changing and storing clothes and equipment. These shall include, but not be limited to, locker, restroom, and shower facilities near bicycle parking facilities.	Pages 3-14 (existing) and 6-3, 6-4, and 6-15 through 6-24 (proposed).
(g) A description of bicycle safety and education programs conducted in the area included within the plan, efforts by the law enforcement agency having primary traffic law enforcement responsibility in the area to enforce provisions of the Vehicle Code pertaining to bicycle operation, and the resulting effect on accidents involving bicyclists.	Page 3-15.
(h) A description of the extent of citizen and community involvement in development of the plan, including, but not limited to, letters of support.	Pages 4-8 through 4-14.
(i) A description of how the bicycle transportation plan has been coordinated and is consistent with other local or regional transportation, air quality, or energy conservation plans, including, but not limited to, programs that provide incentives for bicycle commuting.	Pages 2-3 through 2-9.
(j) A description of the projects proposed in the plan and a listing of their priorities for implementation.	Pages 8-1 through 8-9.
(k) A description of past expenditures for bicycle facilities and future financial needs for projects that improve safety and convenience for bicycle commuters in the plan area.	Pages 8-10 through 8-12.

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2. Goals, Objectives and Policies

2.1. Goals and Objectives

The infrastructure improvements and programs recommended in the San Joaquin County Bicycle Master Plan Update are shaped by the Plan's goals, objectives, and policy actions.

GOALS are broad statements of purpose that reflect the community's collective vision of the future.

OBJECTIVES provide detailed descriptions of the goals. They describe specific conditions that are desirable in order to attain a given goal.

POLICY ACTIONS are coordinated by the County to achieve the identified goals and objectives.

Goal 1: Provide safe and efficient bikeways in San Joaquin County

Objective: Construct bikeways identified in the San Joaquin County Bicycle Master Plan and provide for the maintenance of both existing and new facilities.

Policy Actions:

1.1 Prepare and maintain a bikeway plan that identifies existing and future needs, and provide specific recommendations for facilities and programs, including provisions for bicycle use and bikeways in all new developments.

1.2 Create a bikeway system that is cost-effective to construct and maintain; respects landowners, utilities, and special districts' property rights; and minimizes the potential for conflicts with other types of vehicles and users.

1.3 Require all bikeways to conform to design standards contained in the California Highway Design Manual, Chapter 1000: Bikeway Planning and Design, unless otherwise established by San Joaquin County.

1.4 Update local roadway design standards, if necessary, to include sufficient pavement sections and adequate rail height to accommodate bikeway facilities.

1.5 Consider a proposed route's importance in providing access to regional bikeway facilities when recommending local routes for implementation.

1.6 Coordinate with agencies such as Caltrans, Alameda County, Amador County, Calaveras County, Sacramento County, Solano County, Stanislaus County, and the cities of Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton, and Tracy regarding the implementation of the proposed system.

1.7 Provide connections to the proposed system from all existing and future transit facilities, stations, and terminals in San Joaquin County where feasible.

Goal 2: Ensure that the transportation network within future development areas is accessible by bicycles and connects to routes identified in the proposed system.

Objective: Include bikeway facilities in all appropriate future development projects to facilitate on-site circulation for bicycle travel, on-site bicycle parking, and connections to the proposed system.

Policy Actions:

2.1 Require future development to construct bikeways as a condition of development along appropriate roadways included in the Plan's proposed system.

2.2 Condition future, large-scale development to provide support facilities such as bicycle racks, personal lockers, and showers at appropriate locations such as parks, major recreational destinations, park-and-ride facilities, employment centers, schools, and commercial centers.

2.3 Consider landowner concerns when planning and acquiring off-street bikeway easements.

2.4 Meet the requirements of the Americans with Disabilities Act when constructing facilities contained in the proposed system, where applicable.

2.5 Whenever feasible, require future development to incorporate parks and schools as important destinations for bicyclists when designing circulation plans for subdivisions and other developments.

Goal 3: Improve the safety of bicyclists and promote bicycling skills through education and encouragement programs.

Objective: Develop and implement education and encouragement programs aimed at youth, adult cyclists, and motorists. Increase public awareness of bicycling, available resources, and facilities.

Policy Actions:

3.1 Incorporate standard signing and traffic controls, as established by Caltrans, to ensure a high level of safety for the bicyclist and motorist.

3.2 Use the California Statewide Integrated Traffic Records System (SWITRS) accident data to monitor bicycle-related accident levels annually, and target a 10 percent reduction on per capita basis over the next twenty (20) years.

3.3 Work with local law enforcement agencies and local school districts to cooperatively develop a comprehensive bicycle education program that is taught to all school children in San Joaquin County.

3.4 Develop adult and youth bicycle education, encouragement and safety programs.

3.5 Publicize the health benefits of bicycling.

Goal 4: Avoid adverse environmental impacts associated with the implementation of the proposed bicycle system.

Objective: Mitigate potentially significant impacts to a level of less than significant.

Policy Actions:

4.1 Conduct environmental review of individual projects as they advance to the implementation stage of development.

4.2 Avoid areas of sensitive habitats for plants and wildlife when constructing facilities contained in the proposed system.

4.3 Solicit and consider community input in the design and location of bikeway facilities.

4.4 Consider the effect on other transportation facilities such as travel lane widths, turn lanes, and on-street parking when planning and designing on-street bikeways.

Goal 5: Ensure the timely funding and construction of the bicycle improvements described in this Plan

Objective: The County should work to fund construction of the bicycle improvements in this plan and maximize the amount of local, state, and federal funding for bikeway facilities that can be received by agencies in San Joaquin County.

Policy Actions:

5.1 Maintain current information regarding regional, state, and federal funding programs for bikeway facilities along specific funding requirements and deadlines.

5.2 Prepare joint grant applications with other local and regional agencies for state and federal funds, as appropriate.

2.2. Plan and Policy Review

2.2.1. Countywide Plans

San Joaquin County General Plan 2010 (1992)

A General Plan guides the future development of a jurisdiction with the goal of maintaining orderly growth and the health of its residents. The General Plan is made up of seven elements, one of which provides adopted polices directly relevant to this plan. The Community Development chapter seeks the orderly development of land and communities. The element refers to bicyclist accommodation as a means to achieve goals. **Table 2-1** outlines the policies of the Community Development chapter that contain provisions that consider bicycle accommodation as it relates to land use and development.

Table 2-1: Relevant General Plan Policies

Element	Policy
Community Development: Community Organization and Development Pattern	
(Volume I, IV-30)	12. Commercial uses should be designed for bicycle access and parking.
Community Development: Mixed Use Development	
(Volume I, IV-38)	2.d. Transit and bicycle access to the Airport East Property shall be provided.
Community Development: Public Facilities	
(Volume I, IV-115)	Bicycle access is required for regional and local parks.
Community Development: Transportation System Design and Management	
(Volume I, IV-126)	5. The County shall support the reduction of dependency on the automobile and the reduction of automobile trips. 6. To reduce peak-hour traffic congestion, the County shall support alternative forms of commuting, such as transit, car and vanpooling, the use of High Occupancy Vehicle (HOV) lanes, bicycling, and walking
Community Development: Transportation	
(Volume I, IV-151)	Objective 1: To provide a countywide system of bicycle facilities for safe and convenient transportation and recreation. 1. The bike route system shall: a. Provide for inter- and intra-county bicycle circulation; b. Connect residential areas with commercial areas, employment centers, educational facilities, local and regional recreational facilities, and other major attractions; c. Interface with city bicycle routes; d. Be constructed to acceptable standards; e. Be physically separated from automobile traffic when warranted because of traffic or safety concerns. 2. New development shall include appropriate bicycle facilities: a. Adequate bicycle access shall be provided; b. Off-street shared pedestrian/bicycle paths shall be considered in large developments; c. Bicycle parking and/or storage facilities shall be provided in the following areas: convenience, neighborhood, and community commercial; employment centers; educational facilities; recreation facilities; and park and ride lots. 3. Bicycle use shall be included in a trail system. 4. Roads planned as part of the bicycle route system shall: a. Be constructed with bicycle safety considered; b. Have bridges with adequate widths and rail height for bicycles; c. Have adequate width to accommodate bicycle travel without the necessity of traveling in a gutter or on unimproved shoulder; and d. Have traffic sensors that respond to bicycles.

The Transportation Element of the San Joaquin County General Plan does not include specific policies, but does reference bicyclist accommodation and the County transportation system. As discussed in the Transportation Element, the Transportation System Management (TSM) Program suggests that employers provide bicycle storage and that developers construct paths for bicycle access to encourage more people to bicycle. The Transportation Element also refers to the 2002 Unincorporated San Joaquin County Bikeway Plan, the content of which is summarized later in this chapter.

Regional Transportation Plan (2007)

The San Joaquin Council of Governments (SJCOG) adopted their latest Regional Transportation Plan (RTP) in 2007, which provides a transportation vision through the year 2030. One goal of the RTP is to "support the improvement or expansion of bicycle facilities…" The implementation of this goal is paid for by Measure K funds, which is a voter-approved ½ cent sales tax administered by the SJCOG. The RTP allocates about $400,000 of Measure K funds per year to local bicycle plans.

The RTP notes specific issues that directly affect this Plan. First, the RTP includes a variation of the Caltrans Highway Design Manual Standard Class III Bicycle Route (refer to Figure 3-2 for details), which provides a four-foot, delineated shoulder and bicycle route signage to denote a Class III Bicycle Route. In contrast, the Caltrans Standard does not require, nor suggest, the use of a shoulder. Second, the SJCOG modified policies as part of the Measure K extension to reward bicycle capital projects over bicycle planning projects. Third, SJCOG members are encouraged to develop their local bicycle plan.

Table 2-2 lists the priority bikeways identified in the RTP, all of which are Class III bicycle routes.

Table 2-2: RTP Tier I Bicycle Projects in San Joaquin County

Roadway Location	To	From
Airport Way	Durham Ferry Road	Trahem Road
Airport Way	West Ripon Road	Trahem Road
Armstrong Road[1]	Davis Road	Lower Sacramento Road
Armstrong Road[2]	Micke Grove Road	Frontage Road
Armstrong Road[2]	West Lane	Micke Grove Road
Armstrong Road[2]	Davis Road	West Lane
Austin Road[1,2]	French Camp Road	Louise Avenue

[1] *Also cited in the Regional Congestion Management Plan*

[2] *Already built-out, but not identified by signage*

Unincorporated San Joaquin County Bikeway Plan (2002)

In 2002, the County adopted a bikeway plan for its unincorporated area. The goals of the plan are listed below.

Goal 1.0 Provide safe and efficient bikeways in San Joaquin County.

Goal 2.0 Ensure that the transportation network within future development areas is accessible by bicycles and connects to routes identified in the proposed system.

Goal 3.0 Improve bicycling conditions in San Joaquin County by reducing accidents and increasing the number of bikeway system users.

Goal 4.0 Avoid adverse environmental impacts associated with the implementation of the proposed system.

Goal 5.0 Acquire sufficient funding to construct the proposed system by 2025.

Priority bicycle projects are provided in the plan, all of which are Class III bicycle routes.

The 2002 Bikeway Plan also provides recommendations for bicycle support facilities and programs. The recommendations include:

- Bicycle parking, shower and locker facilities should be required as condition of approval for new developments.
- Secure bicycle lockers should be encouraged at employment centers, transit stations/stops, and park-and-ride lots.
- Intersection improvements where high levels of bicycle demand exist.
- A bicycle education program that focuses on bicycle education and safety in the school system.
- Community sponsored bicycle events should provide education and outreach.

San Joaquin Council of Governments Air Quality Conformity Analysis (2007)

Federal and State regulatory statutes require SJCOG to submit an air quality conformity analysis of its Regional Transportation Plan and Transportation Improvement Plan. Bicycle facilities, including on- and off-street facilities and parking, are referenced as accepted measures in mitigating poor air quality.

Regional Congestion Management Plan (2007)

This plan is a revision of the region's 1992 plan, which sought to decrease congestion through the building of roadways. The 2007 revision mitigates congestion through the promotion of alternative modes of transport, including bicycling. The plan provides a comprehensive network of bicycle facilities and travel demand management strategies that encourage bicycling.

2.2.2. City Plans

Review of the existing and planned bicycle networks adopted in local city plans is an important step in development of the San Joaquin County Bicycle Master Plan. This review ensures that existing and planned local bikeways are identified.

Six of the seven cities in San Joaquin County have bicycle plans that prioritize the construction of future bikeways. Lodi has not developed a bicycle plan, but does identify existing and proposed bikeways on the City's website.

One goal of this Plan is to incorporate the recommendations of the city plans to provide connectivity of bicycle facilities. Each of the local bicycle plans are reviewed below. **Table 2-3**, at the end of this chapter, lists the proposed high priority regionally connecting bikeways from each plan, with the exception of Escalon, which did not include prioritization information so all regionally connecting bikeways were included.

Escalon Bicycle Plan (1994)

The City of Escalon adopted a bicycle plan in November 1994. The purpose of the plan is to "maximize the number of bicycle commuters and recreational riders in the City of Escalon." The plan process included three public workshops and a bicyclist questionnaire. The questionnaire found that downtown Escalon was the major destination and that the purpose of most bicycle trips was to run errands or for recreation. The questionnaire also identified problem areas, including the intersections of McHenry Avenue/State Route 120, McHenry Avenue and the railroad tracks, 1st Street/Main Street, and 1st Street and the railroad tracks.

Lathrop Bicycle Transportation Plan (2004)

The City of Lathrop adopted a Bicycle Transportation Plan in 1995. This plan was subsequently amended later that year to account for the Central Lathrop Specific Plan, and to update the collision rates and selected policies and facilities. Updates to the plan in 2003 and 2004 were made to include the River Islands and Mossdale Landing projects. The purpose of the Lathrop Bicycle Transportation Plan is to "improve and expand bicycling opportunities in Lathrop." The plan's development process included one community workshop and a bicyclist questionnaire. Of the 43 respondents to the survey, 23 percent commute to work and 69 percent bicycle for recreation on a daily or weekly basis. Lathrop Road and Louise Avenue were repeatedly cited as crossing hazards. Proposed bikeways include facilities that make connections to the unincorporated county areas, such as along the Southern Pacific Railroad right-of-way to Stockton and on East Louise Avenue to Manteca.

Lodi Bicycle Routes (2008)

The City of Lodi provides an interactive map with existing and proposed bikeways on its website.[2-1] Bikeways are proposed on Holly Drive (east of Mills Avenue), Lodi Avenue, Vine Street, and Cherokee Lane.

Manteca Bicycle Master Plan (2003)

The City of Manteca prepared their Bicycle Master Plan in 2003. The plan's development process included two community workshops and a bicyclist survey. The survey found that the Tidewater Bicycle Path and Lathrop Road were the most popular destinations, while the State Route 120 and 99 crossings presented the most barriers. Proposed regionally connecting bikeways include a Class II Bike Lane on Airport Way.

[2-1] City of Lodi online bikeways map can be found at: http://mapguide.lodi.gov/lodiinternet.htm

Stockton Bicycle Plan (2007)

The City of Stockton first adopted a Bikeway Plan in 1994, with subsequent revisions and amendments. The most recent update of the plan was completed in 2007. The overall goal of the plan is to expand bicycle usage and ensure safety among cyclists. The update focused on connecting Stockton's existing discontinuous bikeways systems and added 300 miles of proposed bikeways.

Tracy Bikeways Master Plan (2005)

The City of Tracy's 2005 Bikeways Master Plan built upon their 1992 Bikeways Master Plan. The goals of the plan are to improve the safety of bicyclists, bicycle access, the quality of life of the residents of Tracy, and the implementation of bicycle facilities. The plan identifies access points into the city at Eleventh Street, Byron Road, UPRR right-of-way, Corral Hollow Road and MacArthur Drive.

2.2.3. State Plans and Policies

California AB 32 – Global Warming Solutions (2006)

California Assembly Bill (AB) 32, the Global Warming Solutions Act, establishes a comprehensive program to reduce greenhouse gas emissions using regulatory and market mechanisms. The California Air Resources Board is responsible for monitoring and reducing greenhouse gas emissions. The bill established a statewide target of reducing greenhouse gas emissions to 1990 levels by 2020.

California AB 1358 – Complete Streets (2008)

California Assembly Bill (AB) 1358 is known as the Complete Streets Bill. Effective in 2011, the bill will require revisions to a city or county's Circulation Element to include provisions for the accommodation of all roadway users including bicyclists and pedestrians. Accommodations include bikeways, sidewalks, crosswalks, and curb extensions.

California SB 375 – Sustainable Communities (2009)

California Senate Bill (SB) 375 requires the San Joaquin Council of Governments to create a Sustainable Communities Strategy (SCS) as part of the Regional Transportation Plan. The SCS must identify the ways in which the region will meet the greenhouse gas emissions targets outlined by the California Air Resources Board. One of the ways to meet the greenhouse gas emissions targets is to increase the bicycle mode share. Substituting bicycle trips for vehicle trips will reduce San Joaquin County's greenhouse gas emissions.

2.2.4. Other Regional Plans

Just as maintaining a well-connected bicycle network within San Joaquin County is important for increasing bicycle access, the same is true for connecting bikeways to other regions. The following plans were consulted, and their bikeways considered, in the development of this plan.

- Alameda Countywide Bicycle Master Plan (2006)
- Draft Sacramento County Bicycle Master Plan (2009)
- Stanislaus Non-Motorized Transportation Plan (2008)
- Calaveras County Bicycle Master Plan (2007)
- Contra Costa Countywide Bicycle and Pedestrian Plan (2003)
- East Bay Regional Parks District Master Plan Map (2009)

Table 2-3: Regionally Connecting Bikeways Planned by Local Jurisdictions

Local Jurisdiction	Roadway	Bikeway
Escalon	Brennan Road	Class II
	Arthur Road	Class II
	First Street	Class II
	Highway 1201	Class II
	McHenry Avenue	Class II
	Ullrey Road	Class II
	Santa Fe Avenue	Class II
Lathrop	Lathrop Road	Class II
	Louise Avenue	Class II
Lodi	Kettleman Lane2	Class II
Manteca	Airport Way	Class II
Stockton	EBMUD Corridor	Class I
	Airport Way	Class II
	Eight Mile Road	Class III
	Lower Sacramento Road	Class III
	South Wolfe Road	Class III
	French Camp Road	Class III
	West Lane	Class III
Tracy	Byron Road	Class I
	West Side Irrigation Canal Bicycle Path	Class I
	West Valley Mall Connector	Class I
	Union Pacific RR	Class I
	MacArthur Drive	Class I and II
	Coral Hollow Road	Class I and II
	Valpico Road	Class II
	Linne Road	Class II
	Schulte Road	Class II
	Chrisman Road	Class III

[1]*Facility under Caltrans jurisdiction.*
[2]*This bikeway is not identified on an official bikeway plan.*

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3. Existing Conditions

This chapter presents existing conditions in San Joaquin County as they relate to bicycle transportation and recreation. It includes a discussion of the area setting and existing bicycle facilities and programs. The chapter concludes with an overview of opportunities and constraints.

3.1. Setting

San Joaquin County is located in central California, east of San Francisco and south of Sacramento County. The county's topography is varied with flat terrain to the west and rolling hills to the east. The population centers are generally in the western areas of the county and include the incorporated cities. Incorporated cities include Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton, and Tracy. The unincorporated areas are generally agricultural, but also include residential developments and recreational facilities. The county's flat terrain and scenic rural roadways attract many recreational bicyclists.

Land use patterns, major employer locations, and multi-modal connections are elements of the San Joaquin County setting that influence bicycling activity.

3.1.1. Land Use

Land use patterns can help predict demand and are important to bikeway planning because changes in land use (and particularly employment areas) will affect average commute distance, which in turn affects the attractiveness of bicycling as a commute mode.

Unincorporated San Joaquin County is predominantly agricultural. See **Figure 3-1** for the County land use map. The seven incorporated cities contain the majority of the employment, commercial and residential development. Unincorporated areas such as Thornton, Lockeford, Clements, Linden, Woodbridge, and French Camp also function as residential and employment centers; however to a lesser degree.

While the majority of unincorporated county areas are agricultural, amenities such as county and city parks offer recreational opportunities that are regional destinations, some of which are listed below.

- **Camanche Reservoir** is a recreational facility in both San Joaquin and Calaveras counties. It offers picnic areas, hiking, fishing and water sports.
- **Caswell Memorial State Park** is located along the Stanislaus River near Ripon, CA. Facilities and activities include picnic areas, hiking, fishing, wildlife viewing, and camping.
- **Micke Grove Park and Zoo** is a 258-acre park that features the Micke Grove Zoo, Wortley Lake, the Japanese Garden, the San Joaquin County Historical Museum and Fun Town at Micke Grove.
- **Oak Grove Park** is a popular destination. It includes Oak Grove Lake, fishing, the Oak Grove Nature Center, two nature trails, an 18-hole disc (frisbee) golf course and picnic areas.
- **The Regional Sports Complex** includes four softball fields, four soccer fields, concession stands and picnic areas. It is operated by San Joaquin County, along with the City of Stockton.

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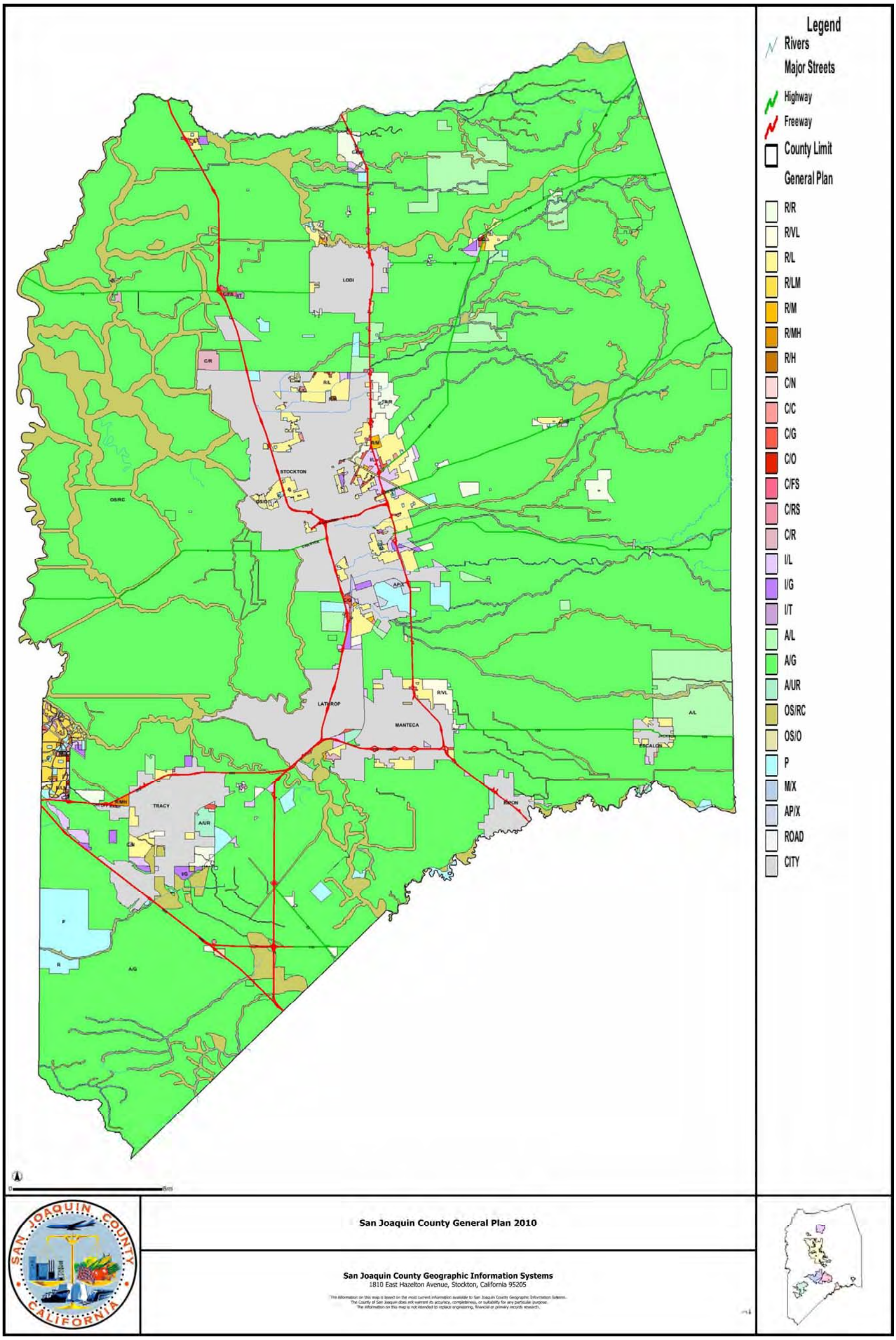

Figure 3-1: San Joaquin County General Plan Land Use Map (2010)

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3.1.2. Major Employers

San Joaquin County's major employers are located within the incorporated cities, illustrating the development pattern previously described. **Table 3-1** shows the major employers, their addresses, and estimated number of employees.

Table 3-1: Major Employers in San Joaquin County

Company	Address	Employees
San Joaquin County	222 East Weber Avenue Stockton, CA 95202	6,500
State of California	Various agencies & locations	4,200
Stockton Unified Schools	701 North Madison Street Stockton, CA , 95202	4,043
St. Joseph's Medical Center (San Joaquin/Sierra Service Area)	1800 North California Street Stockton, CA 95204	4,000
Lodi Unified Schools	1305 East Vine Street Lodi, CA , 95240	2,466
M&R Company	33 East Tokay Street Lodi, CA 95240	50-2,000
Manteca Unified Schools	2901 East Louise Avenue Lathrop, CA 95330	1,916
San Joaquin General Hospital[1]	500 West Hospital Road French Camp, CA 95231	1,780
City of Stockton	425 North El Dorado Street Stockton, CA 95202	1,683
Tracy Unified Schools	1875 West Lowell Avenue Tracy, CA 95376	1,514
Defense Distribution Center San Joaquin	Various locations	1,504
Safeway Distribution Center	16900 West Schulte Road Tracy, CA 95377	1,500
Pacific Gas & Electric	4040 West Lane Stockton, CA 95204	1,100
Pacific Coast Producers	741 South Stockton Street Lodi, CA 95240	300-1,100
Unilever Best Foods North America	1400 East Waterloo Road Stockton, CA 95205	200-1,100

[1]The San Joaquin County Hospital is a County facility and, therefore, these employees are included in the total number of San Joaquin County employees identified above.
Source: San Joaquin Partnership

3.1.3. Multi-Modal Connections

The bicycle-transit link is an important part of making bicycling a part of daily life in San Joaquin County. Linking bicycles with transit overcomes such barriers as lengthy trips, personal security concerns, and riding at night, in poor weather, or up hills. Intermodal trip linking also enables bicyclists to reach more distant areas and increases transit ridership on weekends and midday.

Bicycling to transit, as an alternative to commuting via car, benefits communities by reducing taxpayer costs, air pollution, demand for park-and-ride land, energy consumption, and traffic congestion with

relatively low cost investments. Transit stops are shown on the existing bikeway maps (**Figures 3-3** through **3-8**).

There are four main components of bicycle-transit integration:

- Allowing bicycles on buses and commuter rails
- Offering bicycle parking at bus stops and passenger rail stations
- Improving bikeways to and from transit
- Encouraging usage of bicycle and transit programs

Approximately one percent of commuters use public transit in San Joaquin County. Transit includes bus service provided by the San Joaquin Regional Transit District (RDT) and Altamont Commuter Express (ACE) commuter rail service.

During the 2008 fiscal year, RTD provided over 4.7 million rides on its public bus system. Of this, approximately 800,000 rides were provided outside of the Stockton Metropolitan Area (SMA). RTD operates 28 Fixed Routes that serve the Stockton Metropolitan Area (Metro), including four limited weekday service routes and bus rapid transit. Three Intercity Routes connect Stockton with Lathrop, Manteca, Ripon, Tracy and Lodi. Nineteen Commuter Service subscription routes connect San Joaquin County to Sacramento, the Bay Area and Bay Area Rapid Transit (BART). The Downtown Trolley has four routes serving the Downtown Area.

For those unable to reach fixed route stops, Hopper routes will deviate up to ¾ of a mile for ADA-certified Elderly and Disabled passengers. Hopper routes also service areas not served by the Intercity Fixed Routes, including Escalon and Linden. Finally, Dial-A-Ride (DAR) is a paratransit service providing curb-to-curb service for passengers unable to reach fixed route stops due to disability.

ACE provides commuter rail service between Stockton and San José with San Joaquin County stops in Stockton, Lathrop/Manteca and Tracy. Service includes four round trip weekday trains. Trains consist of five to six cars, which seat approximately 700-800 people. Total ACE ridership in 2007 was 752,600.

Bicycle parking and storage is available in some form by both RTD and ACE. Metro, Intracity and Hopper buses all contain front-loading bicycle racks that carry up to two bicycles. Bicycle racks are not available on Downtown Trolley or Dial-A-Ride vehicles. RTD estimates it carries approximately 600-850 bicycles per weekday. Express BRT Route bike racks are filled to capacity on almost every trip.

ACE provides on board bicycle storage and bicycle parking at each of its San Joaquin County stations. Each train includes a bicycle car identified by signage. The bicycle cars have storage for 16 bicycles. Regular coach cars also provide storage for four bicycles. In addition to on board storage, each station in San Joaquin County provides assigned bicycle lockers as well as bicycle racks.

3.2. Existing Bicycle Facilities and Programs

This 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, and the minimum standards are illustrated in **Figure 3-2**.

- 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.

3.2.1. Existing Bikeways

San Joaquin County's existing bicycle network is listed in **Table 3-2** and shown in **Figures 3-3** through **3-8**. **Figures 3-4** through **3-8** show the County in quadrants to better illustrate the existing facilities. San Joaquin County's existing bikeway network consists of approximately two miles of bike lanes and over 15 miles of bike routes. There are no existing maintained Class I multi-use paths in San Joaquin County; however, there are two unmaintained Class I multi-use paths that have been proposed for resurfacing. The 2.29 miles of existing Class II bike lanes are located on urban roadways while the 15.90 miles of existing Class III bike routes are on rural roads.

Table 3-2: San Joaquin County Existing Bikeways

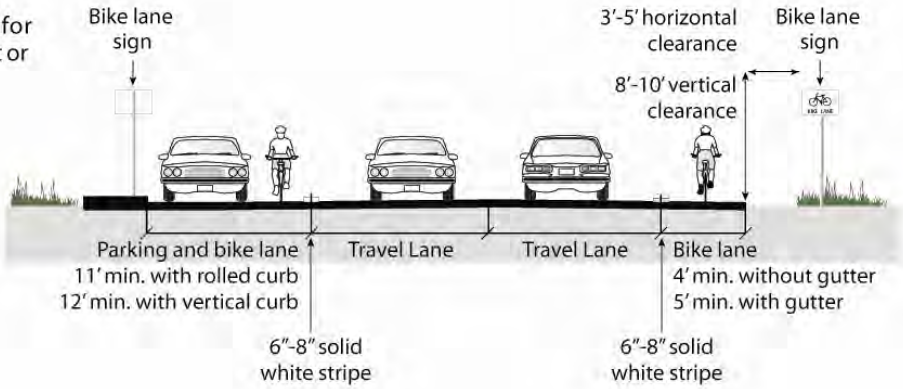
Class	Name	Start	End	Miles
II	B Street	Stockton City Limits	Ralph Avenue	1.20
II	Golden Gate	Waterloo Road	East Roosevelt Street	0.58
II	Sanguinetti Lane	Alpine Avenue	Wilson Way	0.25
II	Filbert Street	Waterloo Road	East Harding Way	0.26
III	Davis Road	Woodbridge Road	Kettleman Lane	3.07
III	DeVries Road	Armstrong Road	Thornton Road	0.94
III	Schulte Road	Hansen Road	Lammers Road	2.04
III	Armstrong Road	Davis Road	DeVries Road	1.00
III	Armstrong Road	State Highway 99	Lower Sacramento Road	2.65
III	Austin Road	Lathrop Road	Louise Avenue	1.00
III	Austin Road	Lathrop Road	French Camp Road	1.47
III	Wilson Way	Alpine Avenue	Highway 99	1.37
III	South Tradition Street	East Legacy Drive	Amaudo Boulevard	0.19
III	South Providence Street	East Legacy Drive	Amaudo Boulevard	0.18
III	East Legacy Drive	South Central Parkway	Historic Street	0.46
III	Historic Street	East Legacy Drive	E Heritage Drive	0.15
III	East Heritage Drive	South Central Parkway	Historic Street	0.51
III	South Tradition Street	East Heritage Drive	Mascot Boulevard	0.28
III	Prosperity Street	East Heritage Drive	Mascot Boulevard	0.28
III	Wicklund Way Crossing	Historic Street	Mountain House Parkway	0.31
			Total	18.19

CLASS I
Bikeway

Provides a completely separated right of way for the exclusive use of bicycles and pedestrians with crossflow minimized.

CLASS II
Bike Lane

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



CLASS III
Bike Route
Signed Shared Roadway

Provides for shared use with pedestrian or motor vehicle traffic, typically on lower volume roadways.

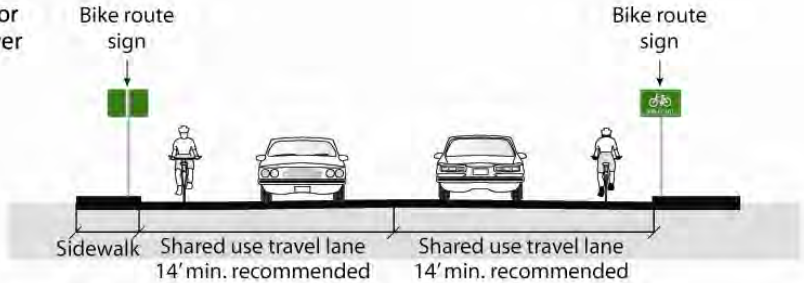


Figure 3-2: Caltrans Bikeway Classifications

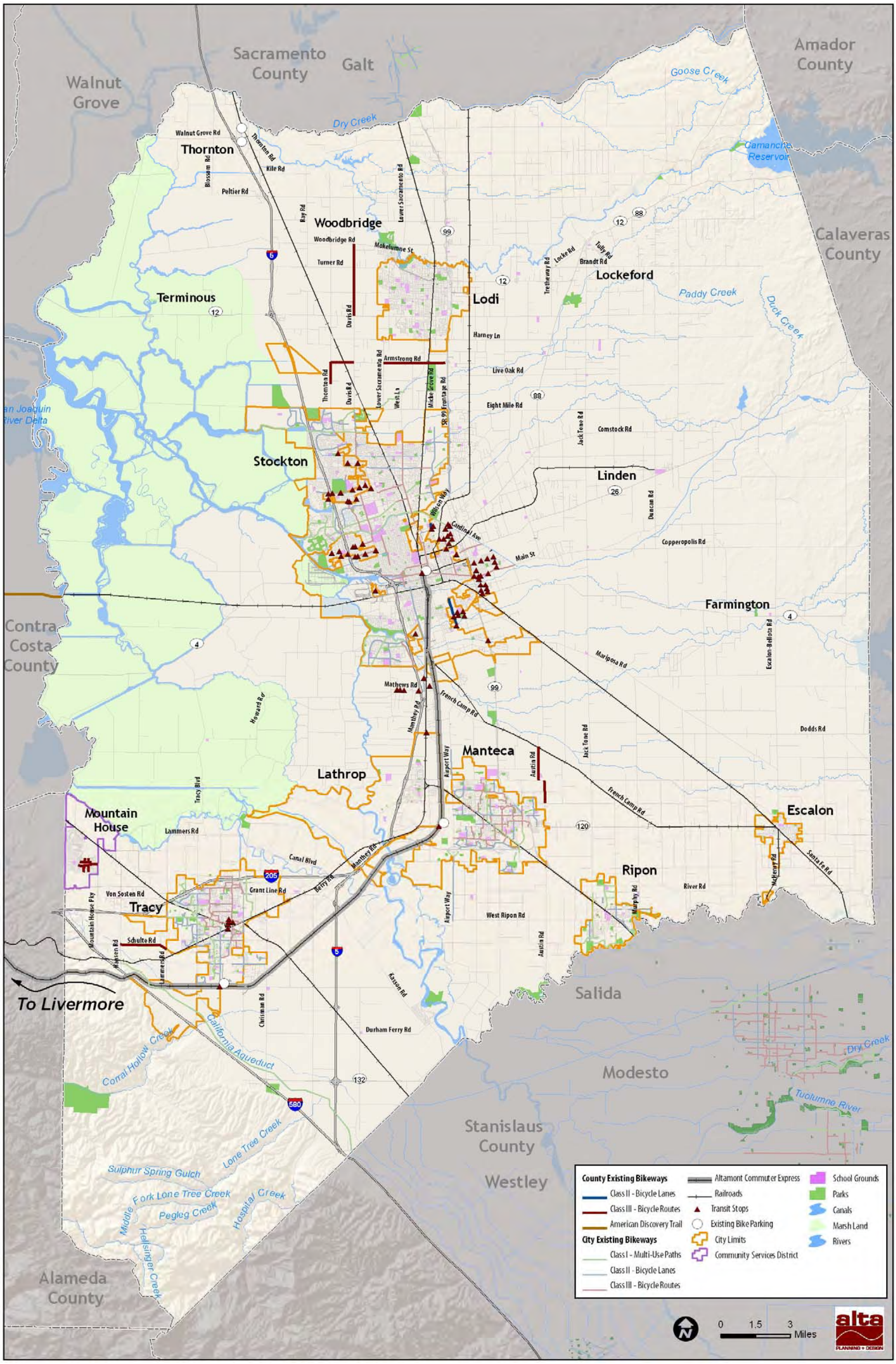


Figure 3-3: San Joaquin County Existing Bikeways

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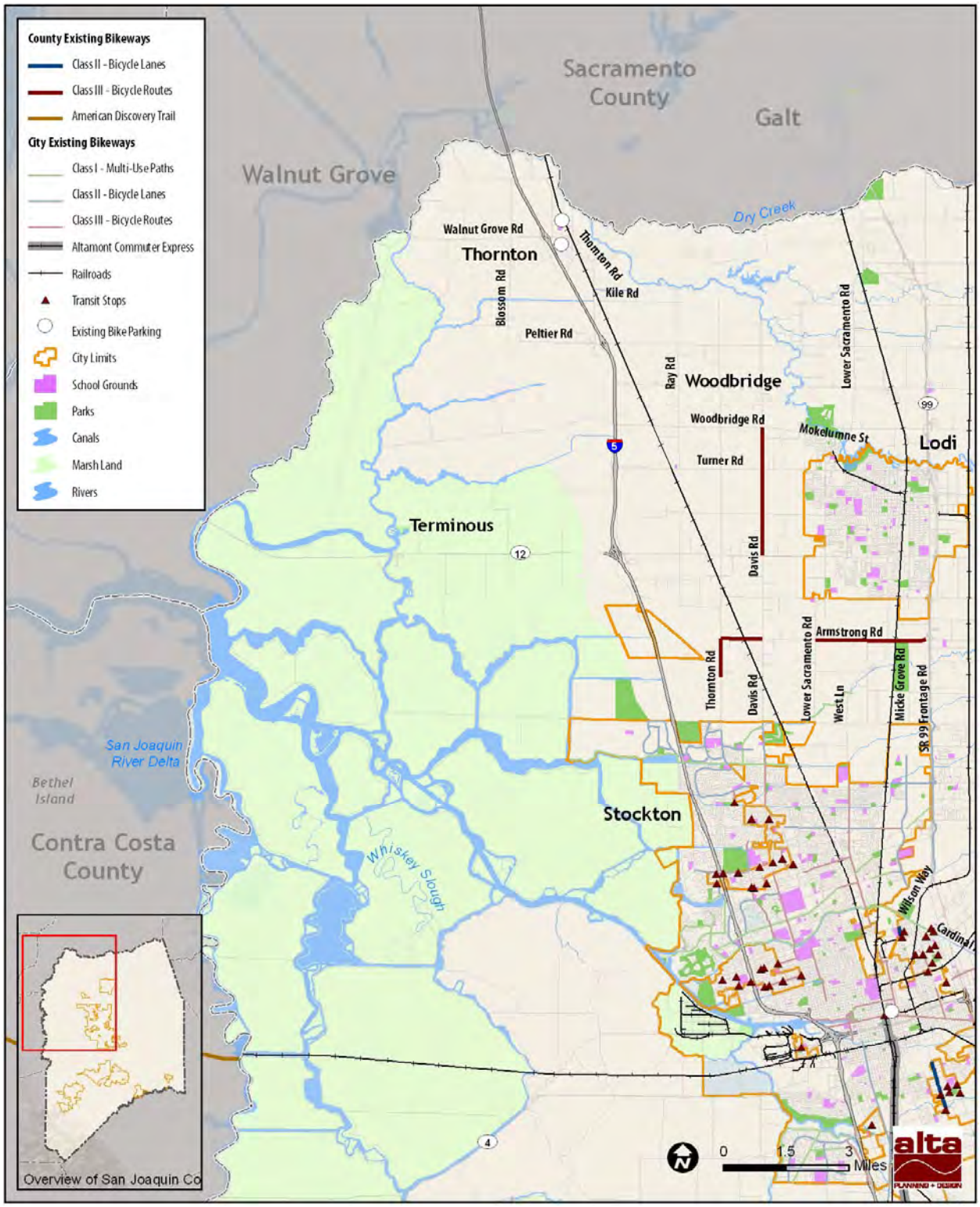

Figure 3-4: NW San Joaquin County Existing Bikeways

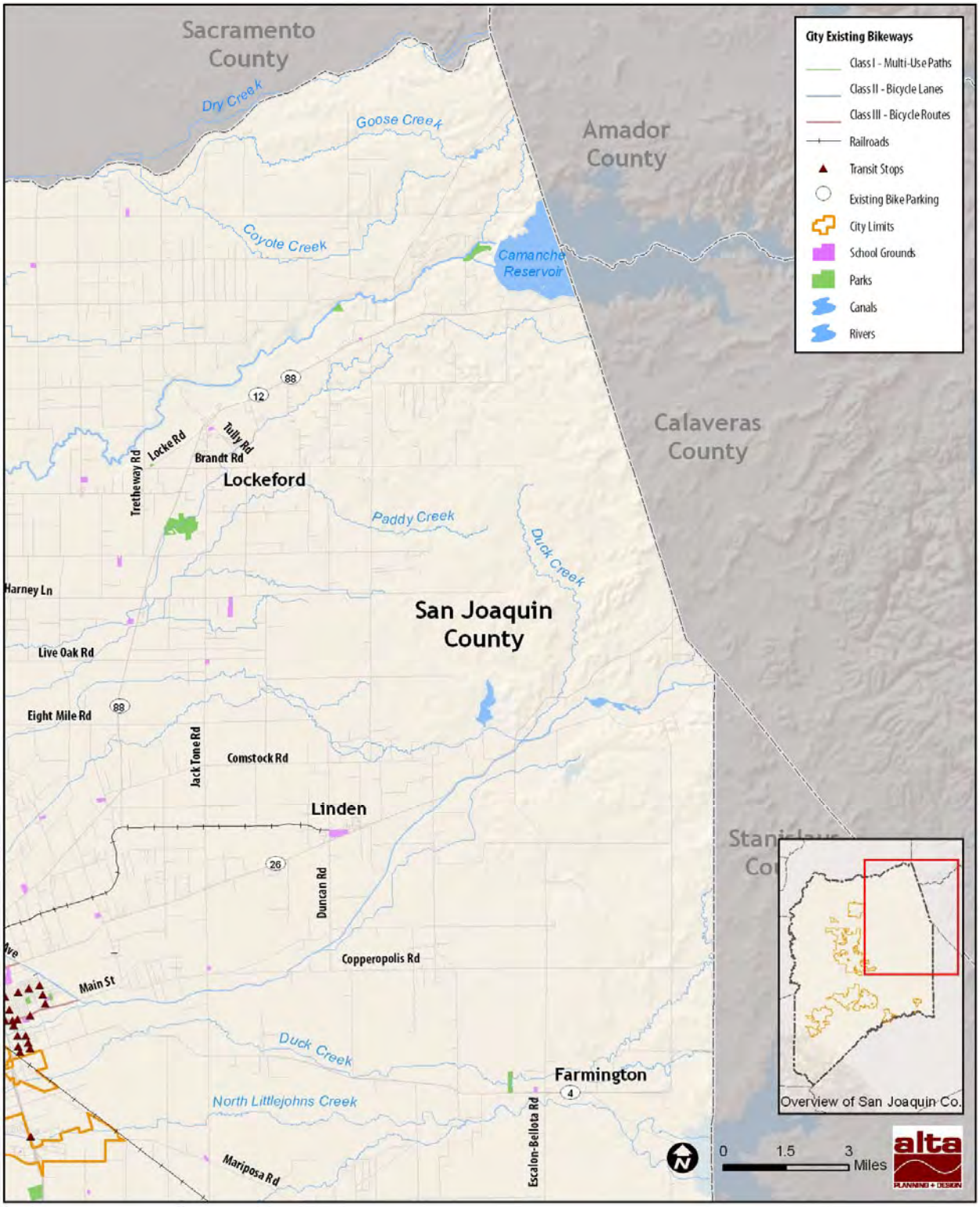

Figure 3-5: NE San Joaquin County Existing Bikeways

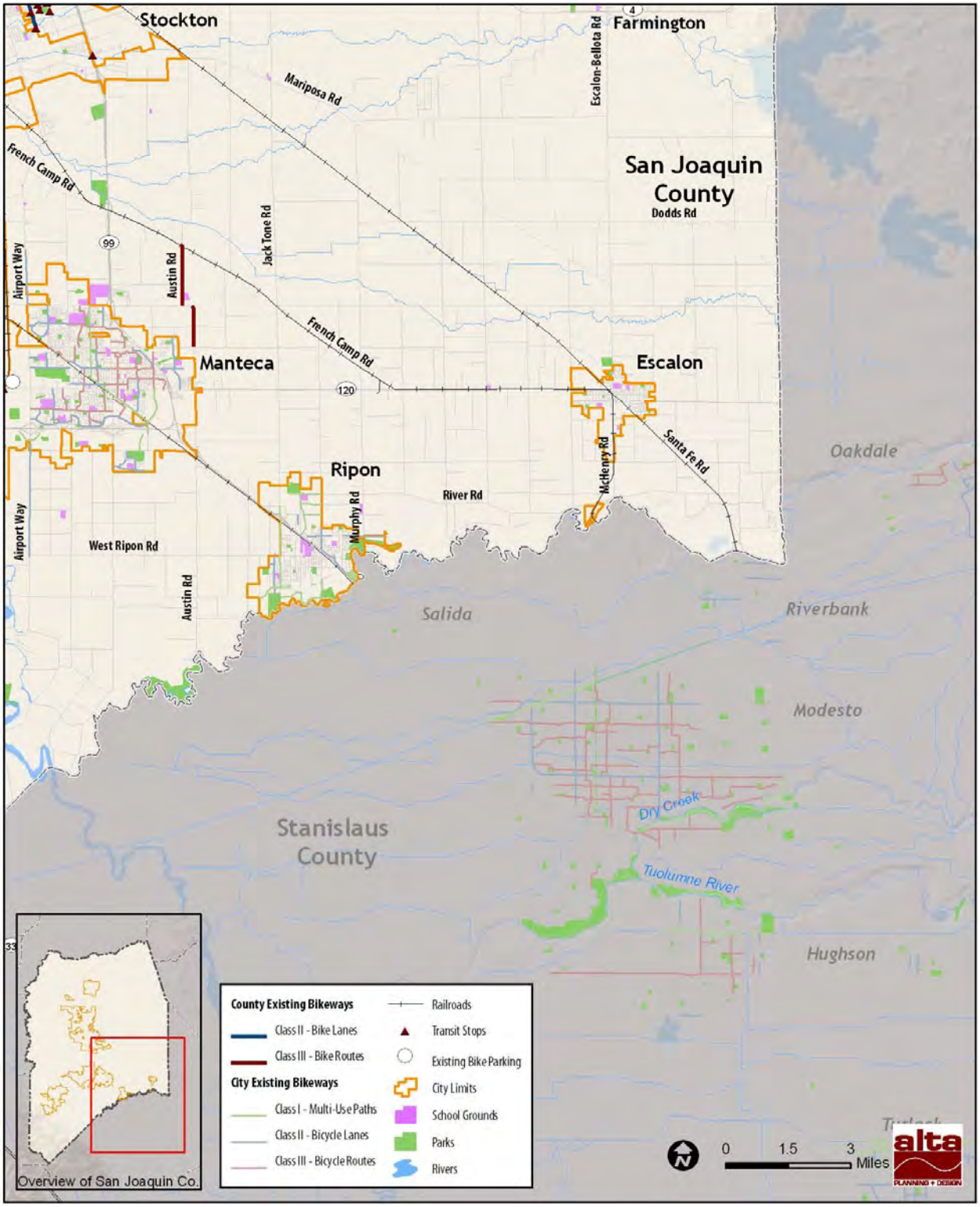

Figure 3-6: SE San Joaquin County Existing Bikeways

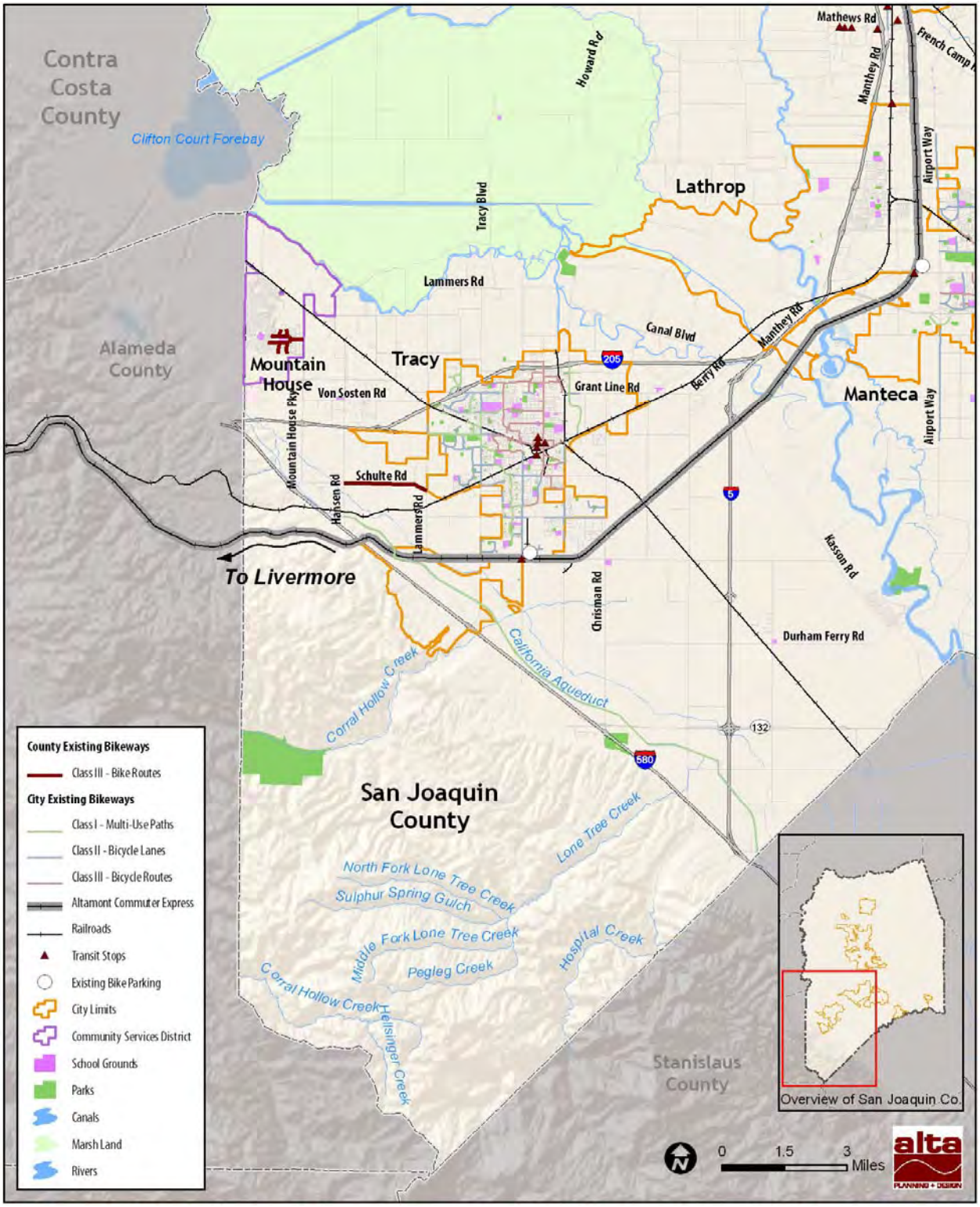

Figure 3-7: SW San Joaquin County Existing Bikeways

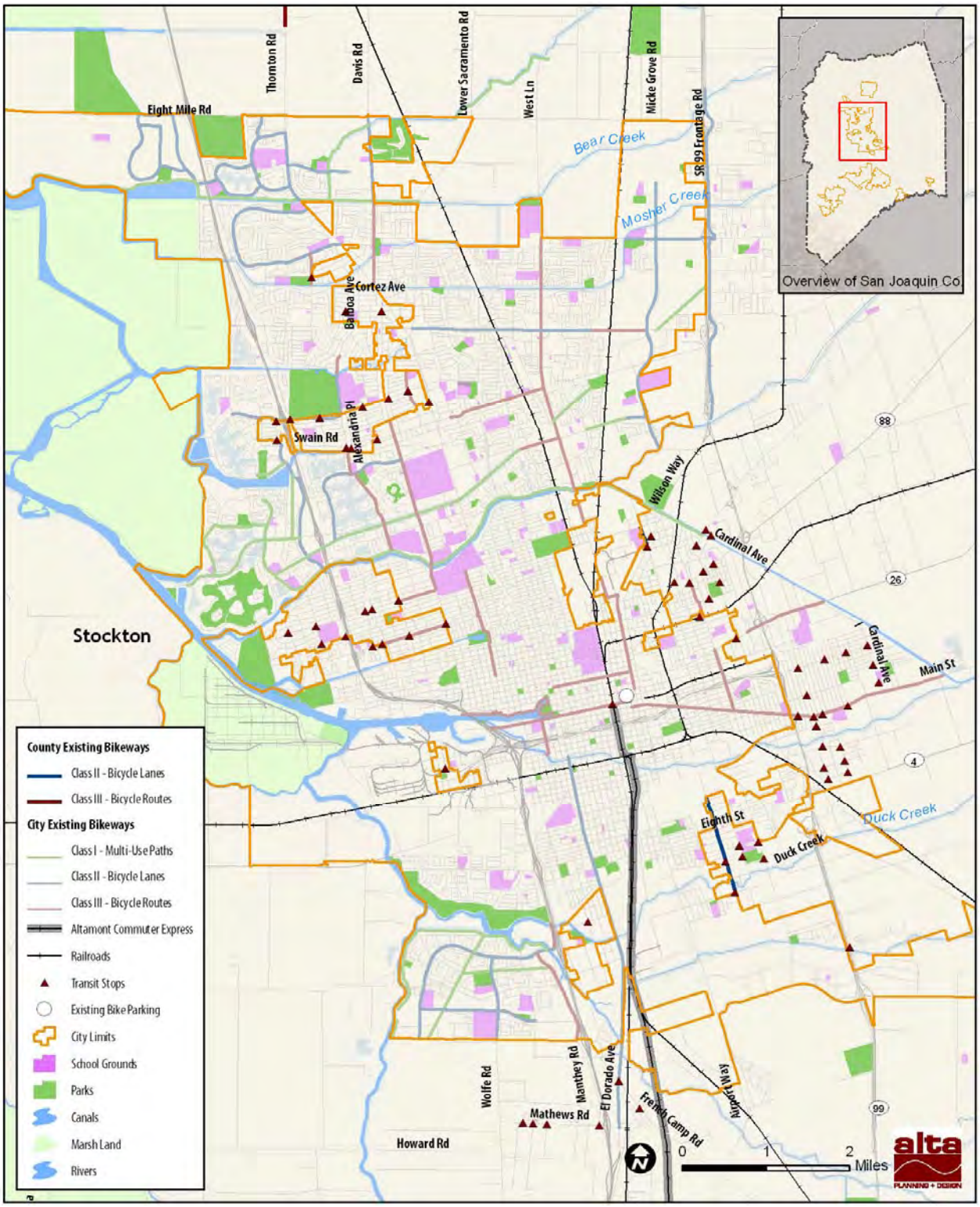

Figure 3-8: Central San Joaquin County Existing Bikeways

3.2.2. Signage

Bikeway signage identifies a bike route, lane or path, as well as provides regulation, warning, and wayfinding information. (**Appendix A** shows example signage.) Signage is important for numerous reasons. It can identify bikeway routes and can also increase bicyclist visibility and promote bicyclist presence.

Figure 3-9: Existing Signage

The California Manual on Uniform Traffic Control Devices (CA MUTCD) and the California Highway Design Manual outline the requirements for bikeway signage. The Bike Lane Sign (R81) is required at the beginning of each designated bike lane and at each major decision point. The Bike Route Sign (D11-1) is required on Class III facilities. Multi-Use paths require additional standardized signs to help manage different user groups.

Currently, San Joaquin County has standard bike route signs on Class III facilities (**Figure 3-9**). Class II bike lanes are not signed with the standard bike lane signs.

3.2.3. End-of-Trip Facilities

Commuter bicyclists need end-of-trip facilities including bike racks, showers, lockers, and changing rooms. Bicyclists' need for bicycle storage ranges from a simple and convenient piece of street furniture, to storage in a bicycle locker that affords weather, theft, and vandalism protection, gear storage space, and 24-hour personal access. For bicyclists who dress more formally, travel longer distances, or bicycle during wet or hot weather, the ability to shower and change clothing can be as critical as bike storage.

A field review of San Joaquin County revealed that there are few bicycle parking facilities in the unincorporated county. **Figure 3-10** shows existing bicycle parking at Thornton Library. Other known bicycle parking locations and are shown on **Figures 3-3** through **3-8**.

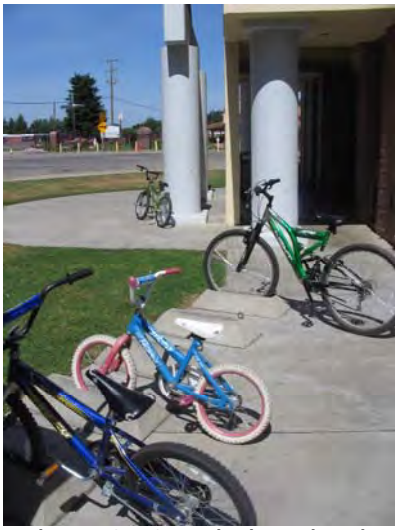
Figure 3-10: Existing Bicycle Parking

Bicyclists visiting stores, restaurants, places of employment, and community facilities must temporarily store their bicycles by locking them to existing street signs, parking meters or other street furniture when it exists. Lack of secure bicycle parking in the public right-of-way is a significant barrier to ridership.

Despite the lack of much available bicycle parking, Section 9-1015.7 of the San Joaquin County Development Title includes a requirement for bicycle parking in commercial and industrial development that has 20 or more automobile parking spaces. One bicycle parking space is required for every 20 automobile parking spaces.

No official shower or locker facility for bicycle commuters is known to exist in San Joaquin County. Private employers may provide facilities that are not on record with the County or known to participants in this planning process.

3.2.4. Bicycle Safety Education Programs

Bicycle education can increase awareness of bicycling as a viable mode of transportation, improve bicyclist and motorist observance of traffic laws, and improve bicyclist and motorist safety. Education programs are an important complement to capital programs. No known formal bicycle safety education programs are currently offered in San Joaquin County. **Chapter 7** presents recommended education programs for San Joaquin County.

3.2.5. Encouragement and Support Programs

Support Groups

The San Joaquin Council of Governments, Stockton Bike Club and Sprocket Rockets provide bicycling related services in San Joaquin County. These services are described below:

- Commute Connection, sponsored through the San Joaquin Council of Governments, provides information on bicycling in the county, sponsors Bike to Work Week in May, and provides available bike maps for cities in its jurisdiction.[3-1]
- The Stockton Bike Club hosts numerous rides a week for bicyclists living in or near Stockton. The group publishes a monthly newsletter, sponsors fundraisers, and makes charitable donations to junior riding clubs.[3-2]
- Sprocket Rockets, located in Lodi, is a youth bicycling group sponsored by the Rocket Sports Foundation. The club is designed for children 8 to 11 years old. Sprocket Rockets hosts monthly rides that include lessons on shifting, braking, handling corners, and other educational information.[3-3]

Events

Bike Week takes place every year in May (National Bike Month) and is sponsored locally by the San Joaquin Council of Governments' Commute Connection. Past events have included raffles and site rallies at employment centers.

The Delta Century is an annual bike ride held the first Sunday in May. The ride has three levels of routes (26, 62 and 100 miles) that cover flat terrain through vineyards, farms and Delta roads.

3.3. Opportunities and Constraints

The following summary of opportunities and constraints are from fieldwork, conversations with County staff, public meetings and a review of existing planning documents. Opportunities include scenic roadways, planned trails, funding sources, rising bicycling levels, flat terrain, and a countywide public transit system. Potential constraints to bicycling in San Joaquin County include shared roadways, high vehicle speeds, narrow shoulders, and the expense of constructing facilities over many miles.

3.3.1. Opportunities

Scenic Rural Roads

The roadways in unincorporated San Joaquin County traverse miles of scenic landscapes. These routes are inviting for recreational cyclists and sponsored bicycle rides.

[3-1] Commute Connection, *Bike/Walk* (No date). http://www.commuteconnection.com/bike.htm [23 April 2009].
[3-2] Stockton Bike Club, *Rides* (No date). <http://www.sbclub.org/sbc/rides.html> [23 April 2009].
[3-3] Rocket Sports Foundation, *Kids Cycling* (No date). <http://www.rocketsportsfoundation.org/kidscycling.htm> [23 April 2009].

Regional Trails
Signed into law as a part of SB 1556 in 2006, the Great California Delta Trail will eventually form a recreational corridor from Martinez to Sacramento, and will pass through San Joaquin County. The Mokelumne Coast to Crest Trail (MCCT) will run from the Pacific Ocean to the crest of the Sierra Nevada Mountains, passing through San Joaquin County along the way. These two trails will enhance both recreational and utilitarian bicycling opportunities in the county.

Measure K Funding
As noted in Chapter 2, Measure K is a ½ cent sales tax dedicated to transportation projects in San Joaquin County. Measure K allocates 1.3 percent of its total revenue to bicycle projects. The tax is expected to generate $7.6 million for bicycle projects in San Joaquin County over the 20-year term of Measure K. This is a significant local funding source for projects recommended in this plan.

High Ridership in Population Centers
Bicycle ridership is on the rise in several cities in San Joaquin County. Developing bicycle facilities in unincorporated San Joaquin County that connect seamlessly with city facilities will result in increased opportunities for recreational and utilitarian bicycle trips.

Terrain and Climate
San Joaquin County has topography and climate that are favorable for bicycling. These are important factors, as extreme temperatures, precipitation and hills can be deterrents to regular bicycle riding.

Public Transit
San Joaquin Regional Transit District's Commuter, Intercity and Metro transit route buses are all equipped with bicycle racks. The integration of bicycles and transit presents residents with the opportunity for longer bicycle commute trips, made in combination with transit.

3.3.2. Constraints

Shared Roadways
Farm equipment tends to travel in the shoulder of county roads. Shoulders are also good places for bicyclists, but the heavy equipment creates excessive wear on the shoulders and can impact the quality of the pavement. Farm equipment often leaves debris in the shoulders creating hazards for bicyclists.

Speed Differential
Vehicles tend to travel very fast on county roads. Higher vehicle speeds leave less reaction time, increasing the likelihood of hitting a bicycle. The knowledge that vehicles travel at high speeds is a deterrent for people to get on their bicycles in the first place.

Narrow Shoulders
Many roads in San Joaquin County have very narrow shoulders, which impacts the real and perceived safety of bicyclists.

Implementation Cost
The construction cost of installing bicycle facilities is related to the length of the facility and number of crossings. Installation of facilities on long county roads that intersect canals and other waterways can represent a significant expense.

4. Needs Analysis

This section presents bicyclist needs in San Joaquin County, including a general summary of the needs and characteristics of bicyclists, a summary of bicycle collisions, and an estimate of bicycle demand.

4.1. Types of Bicyclists and Their Preferences

Understanding the preferences of bicyclists is important for developing a plan that accommodates bicyclists of all skill levels. Just as skill levels and types vary, so do bicyclist desires. This plan identifies bicyclists by two skill levels: casual and experienced. Casual bicyclists include youth and adults who are intermittent riders, as well as families. Experienced bicyclists include commuters and long-distance road bicyclists. A summary of bicyclist types and needs are provided in **Table 4-1**.

Table 4-1: Bicyclist Preferences

Casual Riders	Experienced Riders
Prefer off-street bike paths or bike lanes along low-volume, low-speed streets.	Prefer on-street or bicycle-only facilities to multi-use paths.
May have difficulty gauging traffic and may be unfamiliar with rules of the road. May walk bike across intersections.	Comfortable riding with vehicles on streets. Negotiate streets like a motor vehicle, including "taking the lane" and using left-turn pockets.
May use less direct route to avoid arterials with heavy traffic volumes.	May prefer a more direct route.
May ride on sidewalks and ride the wrong way on streets and sidewalks.	Avoid riding on sidewalks or on multi-use paths. Ride with the flow of traffic on streets.
May ride at speeds comparable to walking, or slightly faster than walking.	Ride at speeds up to 20 mph on flat ground, and up to 40 mph on steep descents.
Bicycle shorter distances: up to 2 miles.	May bicycle longer distances, sometimes more than 100 miles.

Casual bicyclists benefit from route markers, multi-use paths, bicycle lanes on low-volume streets, traffic calming and programs for educational and encouragement. They also benefit from a connected network of marked routes that lead to parks, schools, shopping areas, and other destinations.

Because experienced bicyclists, such as commuters, generally desire the shortest path between their origin and destination, they benefit from a connected network of bicycle lanes and wider curb lanes on high-volume arterial roadways with signal detection.

The experienced bicyclist is primarily interested in exercise benefits from routes that lead back to the point of origin. These bicyclists typically travel at high speeds and prefer on-street facilities, or off-street facilities with few pedestrians.

4.1.1. Types of Bicycle Trips

This Plan separates bicycle trips into two types: recreational and utilitarian. Recreational trips can range from a 50-mile weekend group ride to a family outing to Micke Grove Park. Utilitarian trips, which are a primary focus of state and federal bicycle funding, include bicycling to school, work or for running errands. **Table 4-2** describes these differences.

Table 4-2: Characteristics of Recreational and Utilitarian Trips

Recreational Trips	Utilitarian Trips
Directness of route not as important as visual interest, shade, and protection from wind.	Directness of route and connected, continuous facilities are more important than visual interest, etc.
Loop trips may be preferred to backtracking.	Trips generally travel from residential to shopping, or work areas, and back.
Trips may range from under a mile to over 50 miles.	Trips generally are 1-5 miles in length.
Short-term bicycle parking should be provided at recreational sites, parks, trailheads and other recreational activity centers.	Short-term and long-term bicycle parking should be provided at stores, transit stations, schools, and workplaces.
Varied topography may be desired, depending on the skill level of the cyclist.	Flat topography is desired.
May be riding in a group.	Often ride alone.
May drive with their bicycles to the starting point of a ride.	Use bicycle as primary transportation mode for the trip, may transfer to public transportation, and may or may not have access to a car for the trip.
Trips typically occur on the weekend, on weekdays before morning commute hours or on weekdays after evening commute hours.	Trips typically occur during morning and evening commute hours (commute to school and work), shopping trips also occur on weekends.
Preferred facilities vary and depend on cyclist's skill level.	Generally use on-street facilities, but may use pathways if they provide easier access to destinations than on-street facilities.

Recreational bicyclists' needs vary depending on their skill level. Road bicyclists on a 100-mile weekend ride may prefer well-maintained roads with wide shoulders, few intersections, and few stop signs or stop lights. Casual bicyclists on a family trip may prefer a quiet path with adjacent parks, benches, and water fountains.

Utilitarian bicyclists' needs include direct continuous routes. Arterial roadways are often the most direct route and should provide bicycle facilities. Utilitarian bicyclists may prefer protected intersection crossings. Finally, utilitarian riders need end-of-trip facilities, such as bicycle parking.

4.2. Bicycle Collision Analysis

Data for reported bicycle collisions in San Joaquin County was collected from the Statewide Integrated Traffic Records System (SWITRS) from 2002 to 2007. This data was analyzed to better understand the state of bicycle safety in San Joaquin County. Collision trends include distribution by jurisdiction, change in collisions over time, and locations with numerous collisions. Information regarding the type of collision (e.g., bicycle-vehicle, bicycle-bicycle, bicycle-pedestrian, solo bicycle) between 2002 and 2007 is not available at the County level.

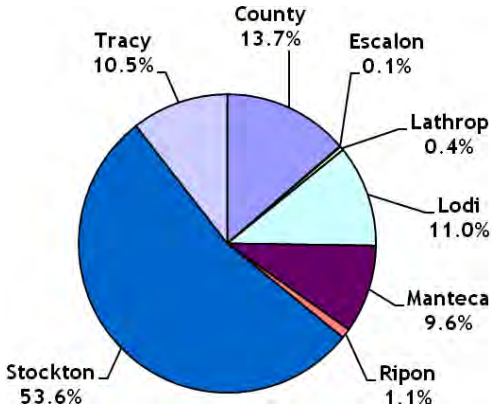

Figure 4-1: Bicycle Collision Distribution

Though 23 percent of the population lives in the unincorporated areas of the county, only 14 percent of the bicycle related collisions between 2002 and 2007 occurred in the unincorporated areas. **Figure 4-1** shows the distribution of bicycle collisions by jurisdiction. **Figure 4-2** shows the collisions distributed on the county map.

The number of bicycle collisions over time in the unincorporated County has not significantly varied since 2002. **Table 4-3** illustrates the number of fatalities and injuries for this time frame. The number of fatalities has dropped since 2005, but injuries have remained somewhat consistent.

Table 4-3: Bicycle Fatalities and Injuries

Year	Fatalities	Injuries
2002	0	16
2003	1	29
2004	3	23
2005	0	26
2006	1	25
2007	1	29
Total	6	148

Finally, numerous collisions at certain locations may indicate a need for improved facilities. Listed below are the intersections with the most collisions from 2002-2007.

- Filbert Street and Waterloo Road (three collisions)
- Benjamin Holt Drive and Belmont Place (two collisions)
- Cardinal Avenue and Ardelle Avenue (two collisions)
- Eight Mile Road and RT 99 (two collisions)

- Marsh Avenue and Cardinal Avenue (two collisions)
- Pershing Avenue and Rivara Road(two collisions)
- RT 4 and Olive Avenue (two collisions)
- RT 99 and Hammer Lane (two collisions)
- Swain Road and Harrisburg Place (two collisions)
- Waterloo Road and Auto Avenue (two collisions)

The recommended bikeway improvements will help address these problem areas by identifying specific programs and projects (including safety and education programs) and/or providing alternative routes. Several intersection improvements are already underway or completed. A new interchange at RT 99 and Hammer Lane was constructed in 2007, and improvements at Eight Mile Road and RT 99 are currently in the planning process.

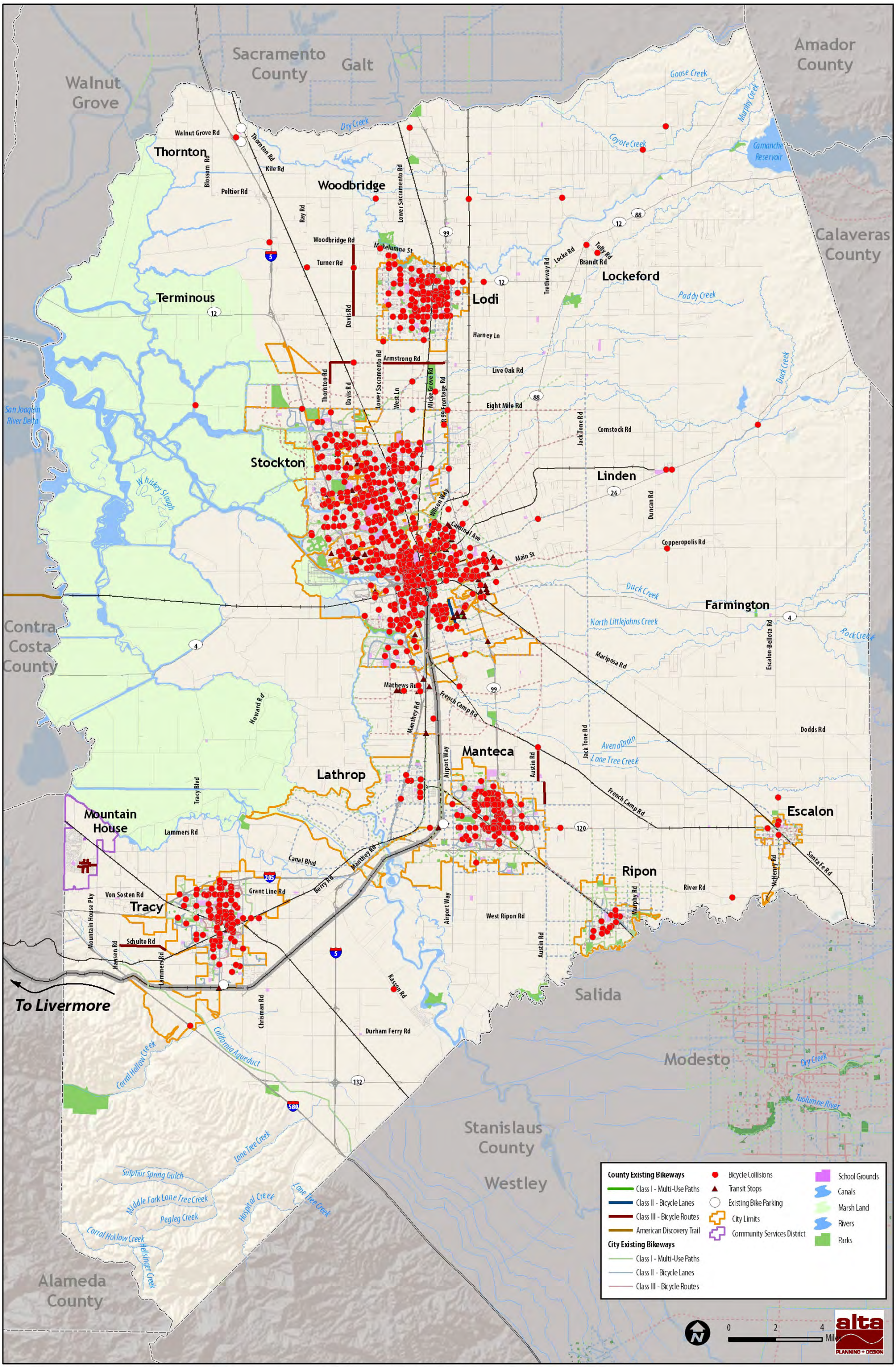

Figure 4-2: Bicycle Collisions 2002-2007

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4.3. Bicycle Usage

Monitoring the number of bicyclists in the county provides a way to track the success of bicycle facilities. This Plan presents U.S. Census Journey to Work data as a basis for estimating bicycle use. As bicycle facilities are built and education and encouragement programs are implemented, Journey to Work data can be revisited to monitor the success of projects and programs.

Journey to Work data was obtained from the 2000 U.S. Census for San Joaquin County, and compared to California and the United States (**Table 4-4**).

Table 4-4: Journey to Work Data

Mode	San Joaquin County	California	United States
Bicycle	0.7%	0.8%	0.4%
Drove Alone	74.6%	71.8%	75.7%
Carpool	17.0%	14.6%	12.2%
Public Transit	1.4%	5.1%	4.7%
Walked	2.3%	2.9%	2.9%
Other	4.0%	4.8%	4.1%

Source: U.S. Census 2000

Approximately 0.7 percent of employed residents in San Joaquin County commute by bicycle. This rate is higher than the national average bicycle commute mode share of 0.4 percent, but slightly lower than the California average bicycle mode share of 0.8 percent. The bicycling commute rate in San Joaquin County is in contrast with the level of drive-alone commuters (74.6 percent); it is higher than the California average but lower than the national average.

A central focus of presenting commute information is to consider how people in San Joaquin County travel. Two major objectives of any bicycle facility improvement are to increase the percentage of people who choose to bike rather than drive and to provide a mode of transportation to those who do not drive. Currently, approximately 6.5 percent of San Joaquin County households do not have access to a vehicle. This suggests a need for bicycle facilities.

4.4. Bicycle Demand

A key goal of the Bicycle Master Plan is to maximize the number of local bicycle commuters in order to help reduce traffic congestion, maintain air quality and increase healthy lifestyles. To set the framework for these benefits, national statistics and policies are used as a basis for determining latent demand and the benefits to the San Joaquin County region. The latent "need" for facilities – versus actual users - is difficult to quantify, requiring adaptation of existing available data to arrive at numerical estimate.

The U.S. Census provides bike-to-work mode share as part of its surveys. The 2000 Census reports San Joaquin County's mode share as 0.7 percent. However, this does not include students bicycling to school or people bicycling to transit. When students and transit riders are considered, a more comprehensive estimate of daily bicycle use in the county can be calculated. The model in **Table 4-5** below estimates that 2,841 of the county's population bicycle daily.

Table 4-5: Existing Usage and Benefits

Variable	Figure	Source and Notes
Existing study area population	563,598	2000 Census, STF3, P1.
Existing employed population	213,629	2000 Census, STF3, P30.
Existing bike-to-work mode share	0.7%	2000 Census, STF3, P30.
Existing number of bike-to-work commuters	1,496	Employed persons multiplied by walk-to-work mode share
Existing work-at-home mode share	2.9%	2000 Census, STF3, P30.
Existing number of work-at-home bike commuters	61	Assumes 50% of population working at home makes at least one daily bicycle trip
Existing school children, ages 6-14 (grades K-8)	45,768	2000 Census, STF3, P8.
Existing school children bicycling mode share	2.0%	National Safe Routes to School surveys, 2003.
Existing school children bike commuters	915	School children population multiplied by school children bike mode share
Existing number of college students in study area	18,422	2000 Census, STF3, P147A
Existing estimated college bicycling mode share	2.0%	Review of bicycle commute share in seven university communities (source: National Bicycling & Walking Study, FHWA, Case Study No. 1, 1995).
Existing college bike commuters	368	College student population multiplied by college student bicycling mode share
Existing total number of bike commuters	2,841	Total bike-to-work, school, college and utilitarian bike trips. Does not include recreation.
Total daily biking trips	5,682	Total bicycle commuters x 2 (for round trips)
Reduced Vehicle Trips per Weekday	3,297	Assumes 73% of bicycle trips replace vehicle trips for adults/college students and 53% for school children
Reduced Vehicle Trips per Year	860,475	Reduced number of weekday vehicle trips multiplied by 261 (weekdays in a year)
Reduced Vehicle Miles per Weekday	11,732	Assumes average round trip travel length of 8 miles for adults/college students and 1 mile for schoolchildren
Reduced Vehicle Miles per Year	3,062,034	Reduced number of weekday vehicle miles multiplied by 261 (weekdays in a year)

4.5. Community Input

Public involvement is an important component of the San Joaquin County Bicycle Master Plan process and helps identify bicycle related needs. The public outreach process for this project included four community meetings and a community survey.

4.5.1. Community Workshop

Community workshops were held in February 2009, one at the Cesar Chavez Library in Stockton and one at the Manteca Library. At the workshops, the Plan's consultant presented the benefits of developing a bicycle plan, the various elements of a plan, and the types of improvements and recommendations that are in a bicycle plan. Community members marked up large-scaled maps indicating where they currently bicycle, difficult connections, and recommendations for specific location improvements. Generally, the public recommended:

- Shoulder maintenance
- Pavement maintenance
- Wider shoulders on frequently used recreational routes
- Bikeways connecting cities, including Stockton and Tracy
- Motorist education
- Encouragement and education programs for adults
- Bicycle detection at signalized intersections

Figure 4-3 includes the community-identified bicycle routes.

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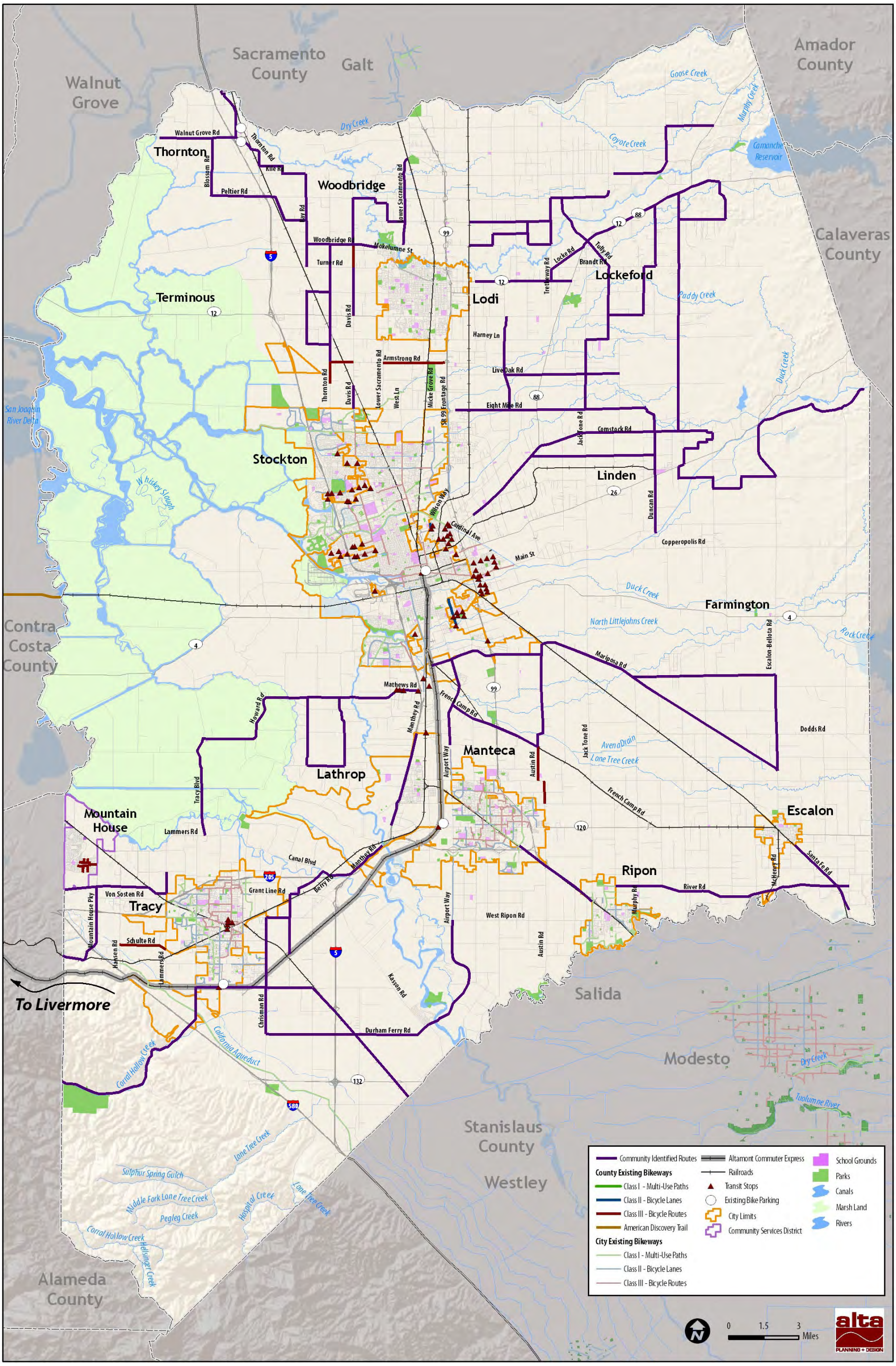

Figure 4-3: Community Identified Routes

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4.5.2. Community Survey

The public outreach process for the Bicycle Master Plan included a community survey to gather data on bicycle usage and preferences. The survey was available online at the Plan website, through a link available on the San Joaquin County website, and was distributed at the first two community workshops. In total, 124 people completed the survey and, of the total, 56 of them lived in Stockton, the largest city in the county. A copy of the survey is included as **Appendix C**.

Of the respondents, over 45 percent bicycle one to three days a week. The majority of these bicyclists ride ten miles or less on their typical biking trips. Approximately 75 percent of these trips are for recreation or exercise, and just over 20 percent are for commute purposes.

The survey asked what the reasons are that people do not bike more often in the San Joaquin County region. The responses to this question are presented in **Figure 4-4**. The most common responses include: lack of available bikeways, excessive traffic and traffic speeds, and poor condition of bikeways and roads. Responses to this question reflect the need for more bicycle facilities that provide safe places for bicyclists to ride separated from traffic.

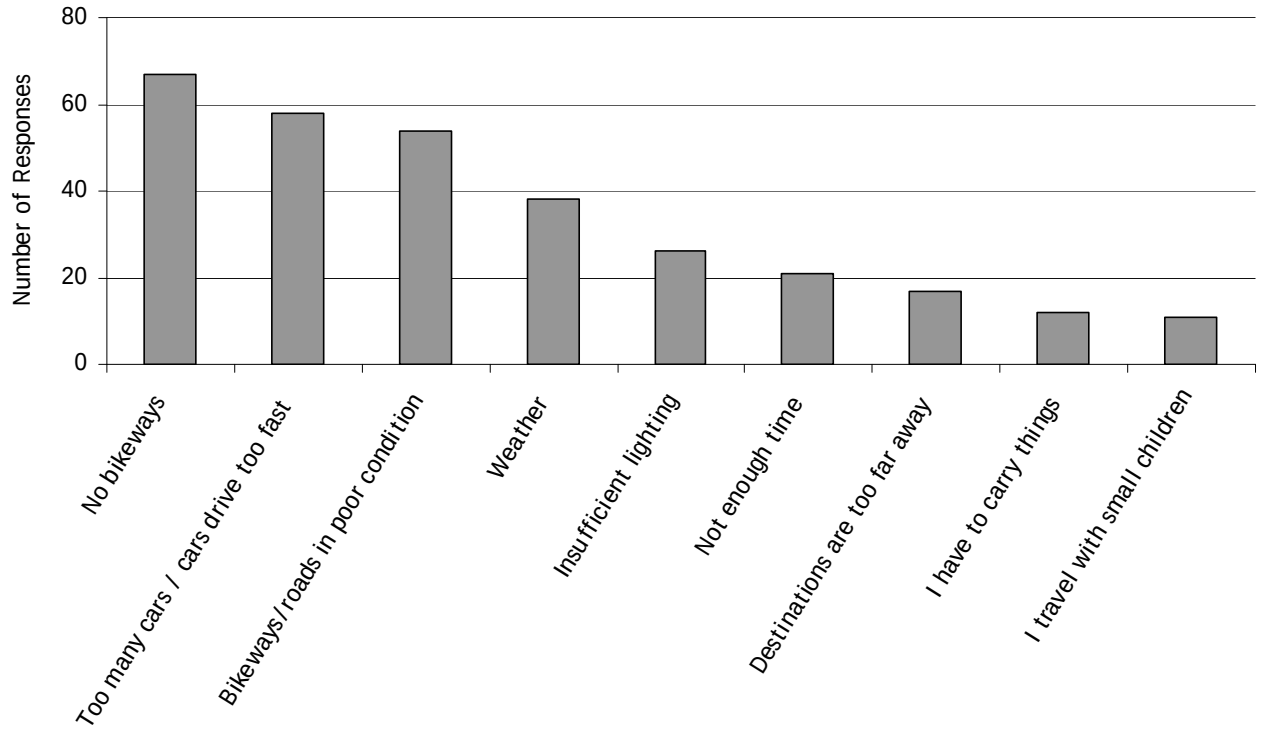


Figure 4-4: Reasons San Joaquin County Residents Do Not Bike More Often

As **Figure 4-5** shows, survey respondents have a strong preference for off-street paved paths and on-street striped bike lanes.

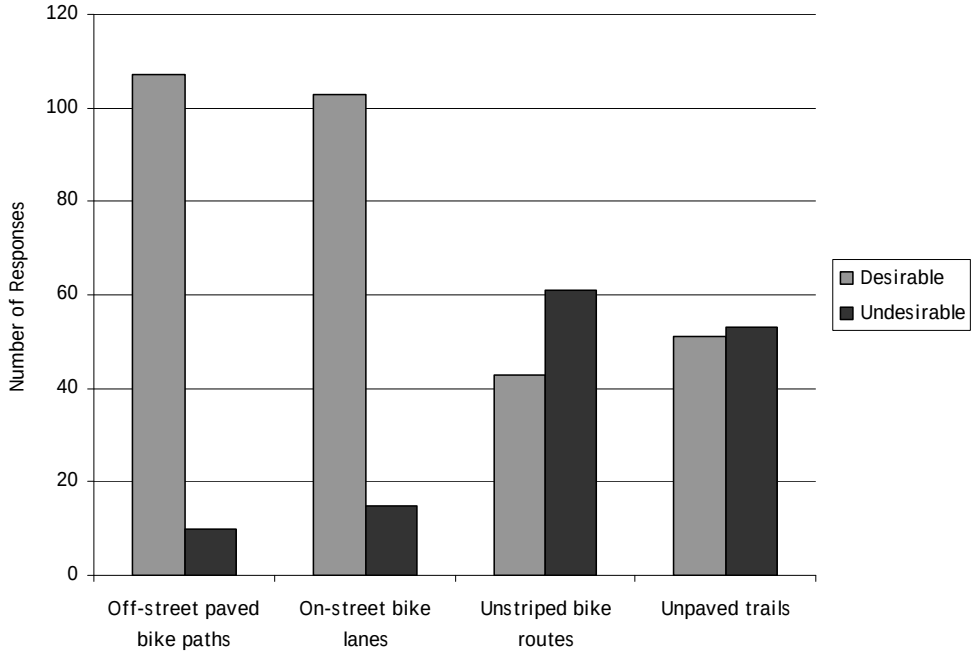


Figure 4-5: Bicycle Facility Preferences

Finally, the survey asked what can be done to encourage more bicycling (**Figure 4-6**). The most common response was more bikeways followed by better connections to community destinations. Responses to this question reflect the need for a bikeway network that connects to parks, libraries and schools.

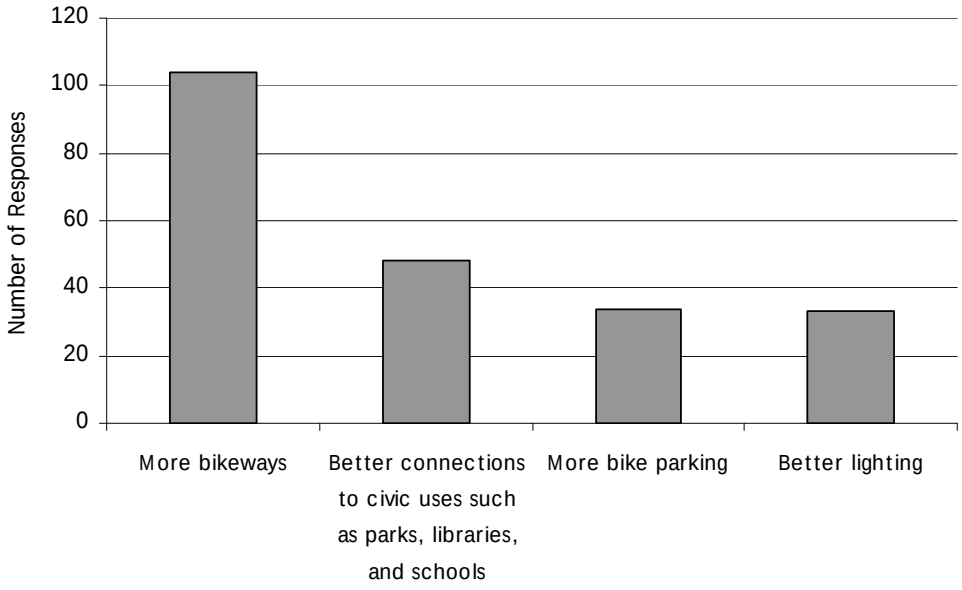


Figure 4-6: What Will Encourage More Bicycling

5. Benefits of Bicycling

5.1. Why Bicycling Is Important

Bicycling is important to San Joaquin County's future. Increased bicycle transportation mode share has the potential to address several interrelated challenges including traffic, congestion, vehicle miles traveled, air quality, creating a sense of community, and public health. Non-motorized transportation infrastructure can also provide economic benefits to the community. By planning a region that is more bikeable, the San Joaquin County region can affect all of these elements and can collectively influence the existing and future quality of life.

5.2. Traffic and Air Quality

Each time residents in San Joaquin County choose to bicycle, vehicles are removed from the road. As the County and its cities become more inviting to bicycles, increasing numbers of work, school, shopping, and recreational trips will be made by bicycle. Cumulatively, this pattern may reduce traffic in some areas and improve air quality. For example, according to the World Watch Institute, a four-mile bicycle trip prevents nearly 15 pounds of airborne pollutants. Measuring environmental improvements by reduction in greenhouse gases allow easy measurement and tracking of real benefits. This measurement of potential environmental benefits of San Joaquin County's bicycle network is described later in this chapter.

5.3. AB 32

California Assembly Bill (AB) 32, the Global Warming Solutions Act, establishes a comprehensive program to reduce greenhouse gas emissions using regulatory and market mechanisms. The California Air Resources Board is responsible for monitoring and reducing greenhouse gas emissions. The bill established a statewide target of reducing greenhouse gas emissions to 1990 levels by 2020. Replacing vehicle trips with bicycle trips will help reach the statewide greenhouse gas emissions reduction target.

5.4. SB 375

California Senate Bill (SB) 375 requires the San Joaquin Council of Governments to create a Sustainable Communities Strategy (SCS) as part of the Regional Transportation Plan. The SCS must identify the ways in which the region will meet the greenhouse gas emissions targets outlined by the California Air Resources Board. One of the ways to meet the greenhouse gas emissions targets is to increase the bicycle mode share. Substituting bicycle trips for vehicle trips will reduce San Joaquin County's greenhouse gas emissions.

5.5. Quality of Life Benefits

Fostering conditions where bicycling is accepted and encouraged increases a community's livability from a number of different criteria that are often difficult to measure, but nevertheless important. In areas where people ride a bicycle, there are more opportunities for chance meetings than where people generally travel by vehicle. People bicycling are also more likely to talk and interact on a more human level. More activity at a slower rate provides more "eyes on the street" or people looking out for one another. All of these quality of life benefits can enhance San Joaquin County's sense of place.

5.6. Public Health

Bicycling can improve public health through an increase in activity. In recent years, public health professionals and urban planners have become increasingly aware that the impacts of vehicles on public health extend far beyond asthma and other respiratory conditions caused by air pollution. Dependency on vehicles has decreased the amount of peoples' physical activity.

There is an understanding about the connection between low levels of physical activity resulting from communities designed primarily for vehicles. Although diet and genetic predisposition contribute to these conditions, physical inactivity is now widely understood to play a significant role in chronic diseases in the US, including coronary obesity, heart disease, stroke and diabetes.[5-1] Improving non-motorized transportation facilities may help alleviate these disorders. As **Figure 5-1** shows, there is a direct link between walking, bicycling, and transit use and obesity. In comparison to listed European countries and Canada, the US has a higher rate of obesity and a lower percent of walking, bicycling, and public transportation use.

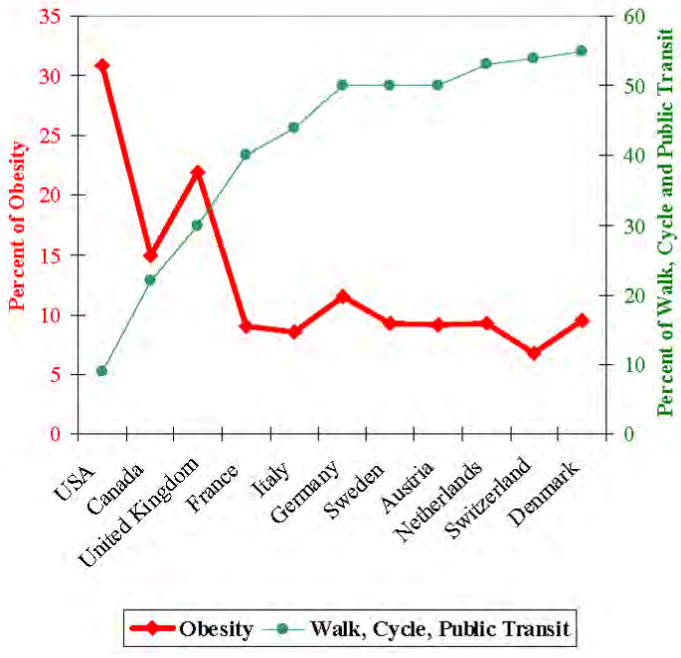
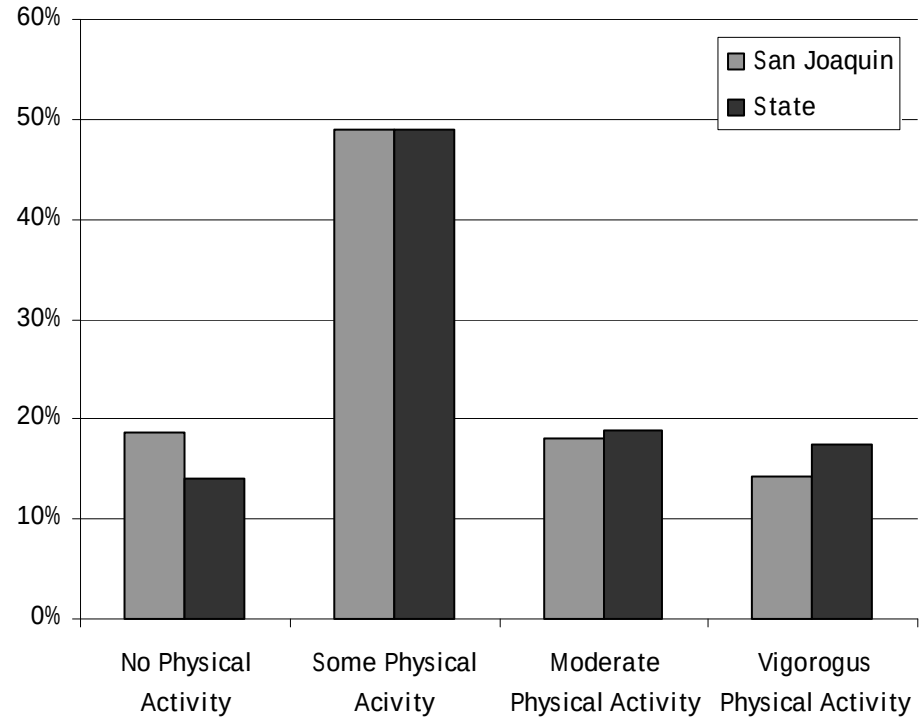


Figure 5-1: Transportation and Obesity Rates[5-2]

[5-1] McKenna, M.T., Taylor, W.R., Marks, J.S., & Koplan, J.P., "Current issues and challenges in chronic disease and control" in Chronic Disease Epidemiology and Control, 2nd edition, American Public Health Assn. , 1988.
[5-2] Pucher and Dijkstra, "Promoting Safe Walking and Cycling to Improve Public Health, Am Journal of Public Health, September 2003.

In response to these trends, the public health profession advocates for walkable neighborhoods and bikeable communities as effective ways to encourage active lifestyles. As San Joaquin County and its communities become more bikeable, the population will have more opportunities to exercise and potentially decrease related chronic diseases. Data show that San Joaquin County has low physical activity rates and high obesity rates.

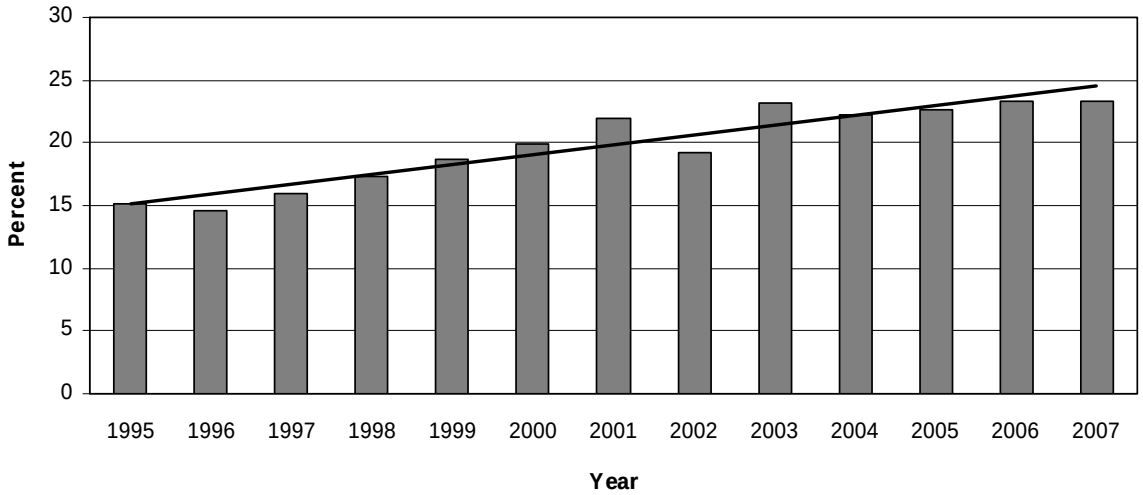
Figure 5-2 shows physical activity statistics for San Joaquin County. The majority of San Joaquin County residents participate in minimal physical activity. The figure shows responses to a series of questions on level of physical activity. Moderate physical activity includes bicycling, swimming and gardening. As shown, over 50 percent of San Joaquin County and California respondents do not participate in moderate activity on a regular basis.



Source: California Health Interview Survey

Figure 5-2: Level of Physical Activity

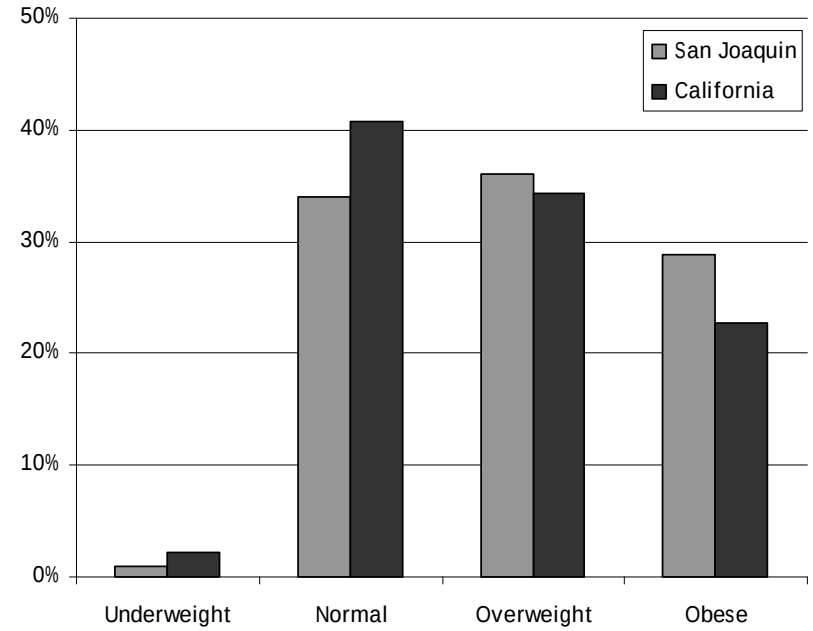
Physical inactivity can lead to the growing trend of obesity. As **Figure 5-3** shows, in California obesity or body mass index (weight in kilograms divided by height in meters squared, abbreviated to BMI) has been rising for the last twelve years. Like the state of California, San Joaquin County also has a trend of increasing obesity.



Source: CDC Behavioral Risk Factor Surveillance System

Figure 5-3: Annual Obesity in California by Body Mass Index

Figure 5-4 shows a comparison of BMI between San Joaquin County and California. BMI is categorized into four categories: underweight, normal, overweight and obese. As shown, approximately 65 percent of respondents in San Joaquin County are either overweight or obese. This is higher than the state totals.



Source: California Health Interview Survey

Figure 5-4: Body Mass Index Statistics for Adults

Obesity alone is a health issue and it can also lead to other chronic diseases, such as heart disease and diabetes. By providing a bicycle friendly environment, more people may bicycle and help reverse these health trends.

In addition to individual health benefits, physical activity provides fiscal rewards to the entire community with a reduction in health care costs and lost days of work. A report prepared for the Centers for Disease Control and Prevention found that the annual per capita cost of building and maintaining bicycle trails was $209.28 per person, whereas the per capita annual direct medical benefit of using the trail was $564.41 per person. This indicates that every $1 spent on building bicycle facilities returns $2.94 in medical benefits.[5-3]

5.7. Economic Benefits

With the fluctuating expense of gasoline, bicycling can be a more economic mode of transportation than driving a vehicle. By encouraging the use of bicycles and walking, residents will save money on gas and then spend it elsewhere in the local economy. Additionally, building local pride and international recognition for San Joaquin County's bicycling infrastructure and events will likely increase the attraction of the region for tourists interested in conferences, races, and other related events and associations. Developing these facilities can potentially enhance the economy, as it has in Portland Oregon (**Figure 5-5**).

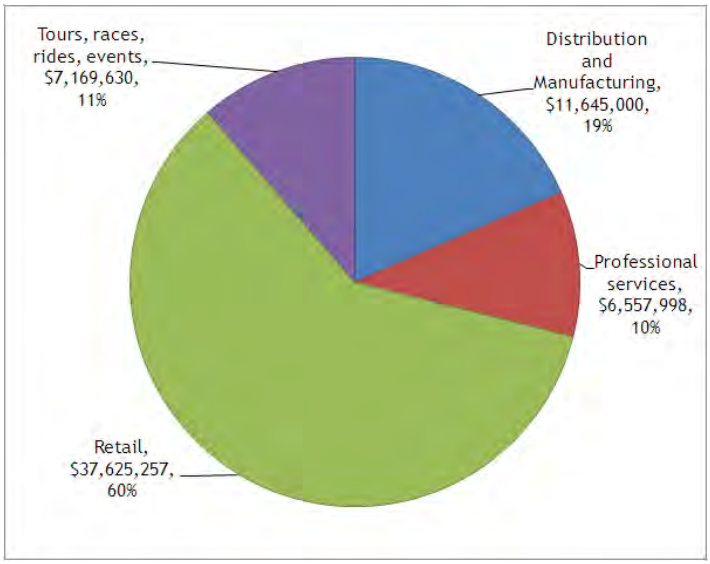


Figure 5-5: Portland, Oregon's Bike Economy

5.8. Future Usage and Benefits

Alta has developed a state of the art bicycle model that estimates usage and benefits. This is the first model of its type to be based on empirical data. **Table 5-1** quantifies the estimated reduction in vehicle miles traveled and estimated reduction in air pollutants in San Joaquin County, following the implementation of the bicycle network, as well as an increase of bicycle mode share from 0.7 percent to 1.0 percent.

[5-3] Wang, Macera, Scudder-Soucie, Schmid, Pratt, and Buchner. 2005. A Cost-Benefit Analysis of Physical Activity Using Bike/Pedestrian Trails. Health Promotion Practice 6(2) 174-179.

Table 5-1: San Joaquin County Future (Year 2020) Bicycle Use and Benefits

Future Commute Statistics	Figure	Source and Notes
Future study area population	888,536	San Joaquin Council of Governments
Future employed population	250,624	San Joaquin Council of Governments
Future bike-to-work mode share	1.0%	Make a logical estimate of the potential mode share increase associated with planned/proposed bikeway system improvements
Future number of bike-to-work commuters	2,506	Employed persons multiplied by bike-to-work mode share
Future work-at-home mode share	3.0%	Estimate this number based on historic work-at-home population growth (or decline) trends
Future number of work-at-home bike commuters	75	Assumes 50% of population working at home makes at least one daily bicycle trip. Change the formula in this cell if the percentage is expected to increase or decrease
Future school children, ages 6-14	72,155	Estimated based on growth projection
Future school children bicycling mode share	2.0%	Make a logical estimate of the potential mode share increase associated with planned/proposed bikeway system improvements
Future school children bike commuters	1,443	School children population multiplied by school children bicycling mode share
Future number of college students in County	29,043	Estimate based on growth projection
Future estimated college bike mode share	5.0%	Make a logical estimate of the potential mode share increase associated with planned/proposed bikeway system improvements
Future college bike commuters	1,452	College student population multiplied by college student bicycling mode share
Future total number of bicycle commuters	5,477	Total bike-to-work, school, college and utilitarian walking trips. Does not include recreation.
Future total daily biking trips	10,953	Total walk commuters x 2 (for round trips)
Future Vehicle Trips and Miles Reduction		
Reduced Vehicle Trips per Weekday	3,709	Assumes 73% of walking trips replace vehicle trips for adults/college students and 53% for school children
Reduced Vehicle Trips per Year	968,143	Reduced number of weekday vehicle trips multiplied by 261 (weekdays in a year)
Reduced Vehicle Miles per Weekday	24,321	Assumes average round trip travel length of 8 miles for adults/college students and 1 mile for schoolchildren
Reduced Vehicle Miles per Year	6,347,769	Reduced number of weekday vehicle miles multiplied by 261 (weekdays in a year)
Future Air Quality Benefits		
Reduced PM10 (tons/weekday)	448	Daily mileage reduction * 0.0184 tons per reduced mile
Reduced NOX (tons/weekday)	12,131	Daily mileage reduction t* 0.4988 tons per reduced mile
Reduced ROG (tons/weekday)	1,766	Daily mileage reduction * 0.0726 tons per reduced mile
Reduced C02 (pounds/weekday)	20,673	Yearly mileage reduction * 0.85 pounds per reduced mile
Reduced PM10 (tons/year)	116,799	Yearly mileage reduction * 0.0184 tons per reduced mile
Reduced NOX (tons/year)	3,166,267	Yearly mileage reduction * 0.4988 tons per reduced mile
Reduced ROG (tons/year)	460,848	Yearly mileage reduction * 0.0726 tons per reduced mile
Reduced C02 (pounds/year)	5,395,603	Yearly mileage reduction * 0.85 pounds per reduced mile

6. Recommended Bicycle Improvements

Chapter 6 presents recommendations for the San Joaquin County bicycle system. The recommended bicycle facility design guidelines, bicycle support facilities, and bicycle network presented in this chapter are the result of extensive community outreach, analysis of outreach results, field work, and professional engineering judgment. This chapter presents the following general recommendation categories:

- Countywide Strategies
- San Joaquin County Bicycle Network (Class I, II, and III)
- Bikeways for Coordination with Caltrans
- Priority Project Sheets

These recommendations are presented with cost data and a recommended implementation and phasing program in **Chapter 8**.

6.1. Countywide Strategies

Countywide strategies refer to physical improvements that support the network of bikeway connections. Recommended strategies include standard CA MUTCD signage, wayfinding/Share the Road signage, stenciling, striping, bicycle detection, bicycle parking, multimodal connections and maintenance.

6.1.1. CA MUTCD Signing

All bikeways in the San Joaquin County Bikeway Network should conform to the signing identified in the Caltrans Highway Design Manual and/or the California Manual on Uniform Traffic Control Devices (CA MUTCD). Signs should be placed at decision points to inform the bicyclists of route direction. Confirmation signs should also be placed at regular intervals to reaffirm the route. Confirmation signs are particularly important on roadways with frequent decision points.

In many county pockets (areas of county jurisdiction surrounded by a city) city routes and facilities end abruptly at the city border without notice to the bicyclist. Many recommended bikeways are within county pockets and, when implemented, will provide seamless transitions between city and county jurisdictions. The County should coordinate with the cities to ensure end of route signs are installed where appropriate. **Appendix A** presents recommended minimum signing guidelines.

6.1.2. Wayfinding and Share the Road Signage

Wayfinding signage enhances a bikeway network by providing bicyclists directional guidance to facilities and significant destinations. Implementing well-planned, attractive, and effective wayfinding signage greatly enhances bikeway facilities by promoting their presence to both existing and potential users. Currently, the County has no wayfinding or Share the Road signage.

Figure 6-1: Bike Route Wayfinding Sign

Figure 6-2: Share the Road Sign

It is recommended that the County install a system of signs on the implemented bikeway network to assist bicyclists, navigating the county and reaching local destinations. This signage program would work as a map on the streets by identifying designated routes connecting to key destinations in the region. All cities and towns should be signed destinations.

Bikeway signs on public roadways in San Joaquin County should conform to the signage identified in the current version of the CA MUTCD. All signs should convey the "Four Ds": Direction, Destination, Distance and Distinction. The County should consider using D11-1 Bike Route Signs in conjunction the D1 Series Bicycle Guide Signs (**Figure 6-1**) as part of the wayfinding system directing users to key destinations, such as cities.

In addition, the County should integrate installation of Share the Road signs (**Figure 6-2**) into the wayfinding system, as needed, on rural roads and on approaches to bridges. A Share the Road sign may be placed on any bikeway to alert motorists that they should expect to see bicyclists.

6.1.3. MUTCD Stenciling and Striping

All bikeways on public roadways should conform to the stenciling and striping standards identified in the Caltrans Highway Design Manual and/or the California Manual on Uniform Traffic Control Devices (CA MUTCD). These documents provide specific guidance on the type and location of signing, stenciling, and striping for bicycle facilities. **Appendix A** presents CA MUTCD stenciling and striping standards. Bikeways should regularly be checked for proper signage and striping.

6.1.4. Bicycle Detection

Bicycle detection at signalized intersections can provide a substantial safety improvement for bicyclists and motorists by providing bicyclists with a green light rather than forcing them to cross a road when automobile loop detection is not set to detect bicycles. This is particularly true in rural areas where signals are found at crossings of state highways and other major roads. Community members of San Joaquin County identified bicycle detection as a needed improvement. California Assembly Bill 1581 requires all new and replacement actuated traffic signals to detect bicycles.

The County should follow the standard practices outlined below to improve bicycle detection throughout the County. Specific project types that can be implemented through existing County signal maintenance programs, bikeway projects, residential and commercial development projects with associated roadway improvements, and other roadway improvement projects include:

- Regular maintenance and calibration of existing auto and bicycle loop detectors to detect bicycles
- Installation of type A, C, or D bicycle loop detectors along designated bicycle routes and at major intersections where location and orientation of auto loop detectors may not be appropriately positioned for bicycles
- Installation of on-pavement stencils indicating proper placement for bicyclists to achieve detection

Each of these recommendations is presented in greater detail below, with additional explanation of project rationale and related engineering best practices.

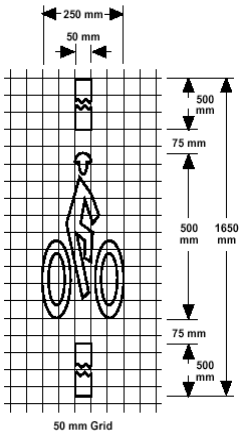


Figure 6-3: Bicycle Detection Marking

Regularly Maintain and Calibrate Loop Detectors

While loop detectors facilitate faster and more convenient motorist trips, if they are not calibrated properly or stop functioning, they can force bicyclists to wait for long periods of time for signals to change, unaware that the loop is not detecting their bicycle. Where appropriate, all existing loops should be tested regularly and calibrated for bicycle users. Impatient bicyclists may take more risks, crossing streets when not permitted.

Install Loop Detectors Along Designated Bikeways

Traffic Operations Policy Directive 09-06, issued August 27, 2009 modified MUTCD 4D.105 (CA) to require bicyclists to be detected at all traffic-actuated signals on public and private roads and driveways. In addition, Caltrans issues a memorandum on August 19, 2010 indicating that Type D loops may be used for in-pavement detection, in conjunction with either Type A or C loops (**Appendix A** includes information regarding their configurations). Detection equipment should conform to Caltrans and County standards.

Apply Bicycle Detection Marking Above All Bicycle Loop Detectors

Since most bicyclists, as well as motorists, do not know how loop detectors work, a pavement stencil that shows bicyclists where to stop to activate a loop should mark all detector loops. **Figure 6-3** shows the Caltrans Standard Plan 24C bicycle detection marking. Educational materials distributed by the County should describe how to activate bicycle loop detectors, and stencils should be repainted when needed.

6.1.5. Bicycle Parking

Bicyclists' needs for bicycle parking range from simple and convenient street furniture, to storage in bicycle lockers. Bicycles are one of the most stolen items in all communities, with components stolen even when a bicycle is securely locked. Theft can be a serious deterrent to riding, especially for low-income riders or those with particularly expensive bicycles.

Racks should be distributed in cooperation with schools, local business owners, business managers and property owners, and should be located according to need and interest of adjacent land uses and businesses. For example, need for bicycle parking at parks or open space is determined by whether or not the park is primarily passive versus active. The amount of appropriate parking should be determined by whether or not riders need to lock up their bicycles to engage in another activity, such as hiking or simply enjoying open space with their bicycles nearby. Guidelines for location and placement of bicycle parking are provided in **Appendix A.**

Specific locations that would benefit from bicycle parking are identified on **Figures 6-8** through **6-18.** Bicycle parking in the public right-of- way is recommended at:

- North Lower Sacramento Road at Augusta Street, Woodbridge
- North Lower Sacramento Road at Mokelumne Street, Woodbridge

The following public schools, that are accessible by bicycle and located within unincorporated San Joaquin County, would also benefit from bicycle parking. The County encourages the respective school districts to install high quality bicycle parking at:

- Banta Elementary, Banta
- Franklin High School, Stockton
- Jefferson Middle School, Tracy
- Linden Elementary, Linden
- New Jerusalem Elementary, Tracy
- Waterloo School, Stockton
- Waverly Elementary, Stockton

6.1.6. Multi-Modal Connections

Improving nonmotorized access to transit is an important part of making bicycling a part of daily life in San Joaquin County. Linking bicycles with public transit overcomes barriers such as trip distance, personal safety and security concerns, and riding at night or in poor weather. This link also enables bicyclists to reach more distant areas for both recreation and transportation. Existing transit stops (**Figures 6-8** through **6-18**) are generally in the incorporated cities. While there are few transit stops in the County, multimodal connections can be encouraged with the following projects.

Transit agencies operating in San Joaquin County should continue to allow bicycle access on all buses with bus-mounted bicycle racks, similar to those shown in **Figure 6-4**. Bicycle travel to bus stops should be enhanced to make the transfer between bicycle and transit travel as convenient as possible.

Figure 6-4: Bike Rack on San Joaquin RTD Bus

Source: SJRTD
http://sanjoaquinrtd.com

Where demand merits, electronic lockers that allow rental by the hour should be installed at transit stations. Bicyclists can use electronic lockers with a pre-purchased card. This type of system allows lockers to be used by multiple bicyclists and can improve on a conventional locker system that requires annual rental agreements.

Specific project types that will improve bicycle access to transit include:

- Bikeways connecting residential, employment and shopping centers to bus stops
- Bike racks at bus stops
- The installation of electronic bicycle lockers if there is demand.

6.1.7. Maintenance

Routine maintenance of bikeway facilities is a critical and often overlooked element of bikeway planning. Maintenance includes street sweeping of bicycle lanes and shoulders, repainting and replacing bicycle lane striping, and replacing missing or damaged signage. This plan recommends the following maintenance related actions to improve bicycle conditions:

Routine Street Sweeping

As motor vehicles travel along the roadway, debris is pushed to the outside lanes and shoulder. Debris also collects at the center of intersections. Roads striped with bike lanes or designated as bicycle routes should be swept more frequently than roads without designated bikeways because these have higher

volumes of bicyclists. Street sweeping on these roadways should include removing debris on the shoulder and at intersections.

Proactively Sweep Streets after Collisions

In addition to regular street sweeping, the County should work closely with the local law enforcement to ensure that streets are swept after automobile collisions.

Minor Repairs and Improvements

Potholes and cracks along the shoulder of roadways primarily affect bicyclists, and repairs should be completed within a timely manner. All repairs should be flush to the existing pavement surface, and should be compacted to prevent differential settlement leading to sharp-edged holes.

Drainage Grates

When repaving or maintaining roadways, drainage grates should be inspected to ensure that grate patterns are perpendicular to the road. Replacement of bicycle-unfriendly drainage grates should be standard.

Street Resurfacing

When streets are resurfaced, utility covers, grates and other in-street items should be brought up to the new level of pavement. Similarly, the new asphalt should be tapered to meet the gutter edge and provide a smooth transition between the roadway and the gutter pan.

Proactive Maintenance

The County should publicize its 24-hour road maintenance hotline (209-468-3074) on the recommended One-Stop Bicycle website (**Chapter 7**). The County can promote this service as a way of identifying maintenance needs for on-street bikeways and paths.

Regular Maintenance of Multi-Use Paths

Multi-use paths require regular maintenance, including trimming adjacent vegetation, sweeping, and removing trash and debris. Paths should be monitored on a weekly basis to check for problems with the paved surfaces, debris, litter, signage and vandalism in order to schedule maintenance repairs.

Maintenance Worker Coordination

When County staff is developing bicycle-related maintenance policies, the maintenance workers should be included so all affected staff can discuss and understand the needs and limitations.

6.2. Unincorporated County Bikeway Network

The following bikeway network is comprised of specific recommended bikeway improvements in the unincorporated areas of San Joaquin County. The recommendations focus on connecting communities, providing recreational opportunities, addressing routes used by bicyclists, recognizing opportunities and constraints, as well as considering input provided by the public at workshops.

One key element of a county bicycle network is connecting communities through direct and feasible proposed bikeway improvements. A bikeway network is a system of bikeways that for a variety of reasons – safety, convenience, destinations served, attractiveness, economic development opportunities – provides a superior level of service for bicyclists. The bikeway network serves as a tool that allows the County to focus and prioritize bicycle facility implementation efforts where they will provide the greatest benefit to bicyclists and the community at large. Establishment of a network does not imply that bicycles should not be accommodated on streets not in the network. Bicyclists are legally allowed on all streets and roads regardless of whether they are part of the designated bikeway network.

The recommendations were developed with the following guidelines:

- Existing roadway width and right-of-way – Roadway width and available right-of-way determined the type of facility
- Public input – Public input on needs and recommendations guided proposed facilities and programs
- Traffic volumes and travel speeds – Traffic volume and travel speeds guided proposed alignments and facilities
- Need of all user groups – Facilities were developed with consideration for needs of all user groups
- Existing bicycling patterns – The bikeway network was developed with consideration for preferred bicycling patterns, identified by the community in public workshops, a public survey, and County staff
- Connectivity – Bikeways were developed to provide connections to incorporated cities, unincorporated towns, land uses, and bikeways in neighboring counties

6.2.1. Unincorporated County Considerations

Bikeway networks in rural and agricultural communities require special consideration for farm vehicle equipment and narrow bridge crossings. Farm vehicle equipments' legal right to share the roadway with bicycle facilities raised concern by the community and County staff. The unincorporated county is primarily agricultural and slow moving farm vehicles often use the roadway shoulder for travel. San Joaquin County's minimum standard for paved roadway shoulders is six feet on rural arterials and eight feet on urban arterials. In general, motor vehicles are not permitted in designated Class II bicycle lanes. Due to San Joaquin County's predominant agricultural economy, considerations for the shared use of roadway shoulder areas by farm equipment was of primary importance in developing the bikeway network, which consists almost entirely of Class III bike routes.

San Joaquin County has many rivers, creeks, and irrigation canals with narrow bridges. These bridges/crossings typically have minimal to no shoulders, which require motorists and bicyclists to share the available travel lane. Widening these bridges and crossings or constructing a separate bicycle crossing is typically financially prohibitive. Consequently, Share the Road signage should be placed on all bridge approaches on the bikeway network where accommodations for bicyclists cannot be constructed.

6.2.2. Recommended Facilities

In San Joaquin County, there are many opportunities for community connections between incorporated cities and the unincorporated towns. **Figures 6-8** through **6-18** show the recommended bikeway network for unincorporated San Joaquin County. The system of bikeways is classified into the standard Caltrans Class I, II, and III categories and is described below. **Figures 6-5** through **6-7** show the minimum standards for each bikeway class.

- 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 pedestrians or motor vehicle traffic and is identified only by signing.

The recommended Class III bikeway standards are based on Caltrans standards but developed specifically for San Joaquin County. The recommended system and segments may change over time because of changing bicycling patterns and implementation constraints and opportunities.

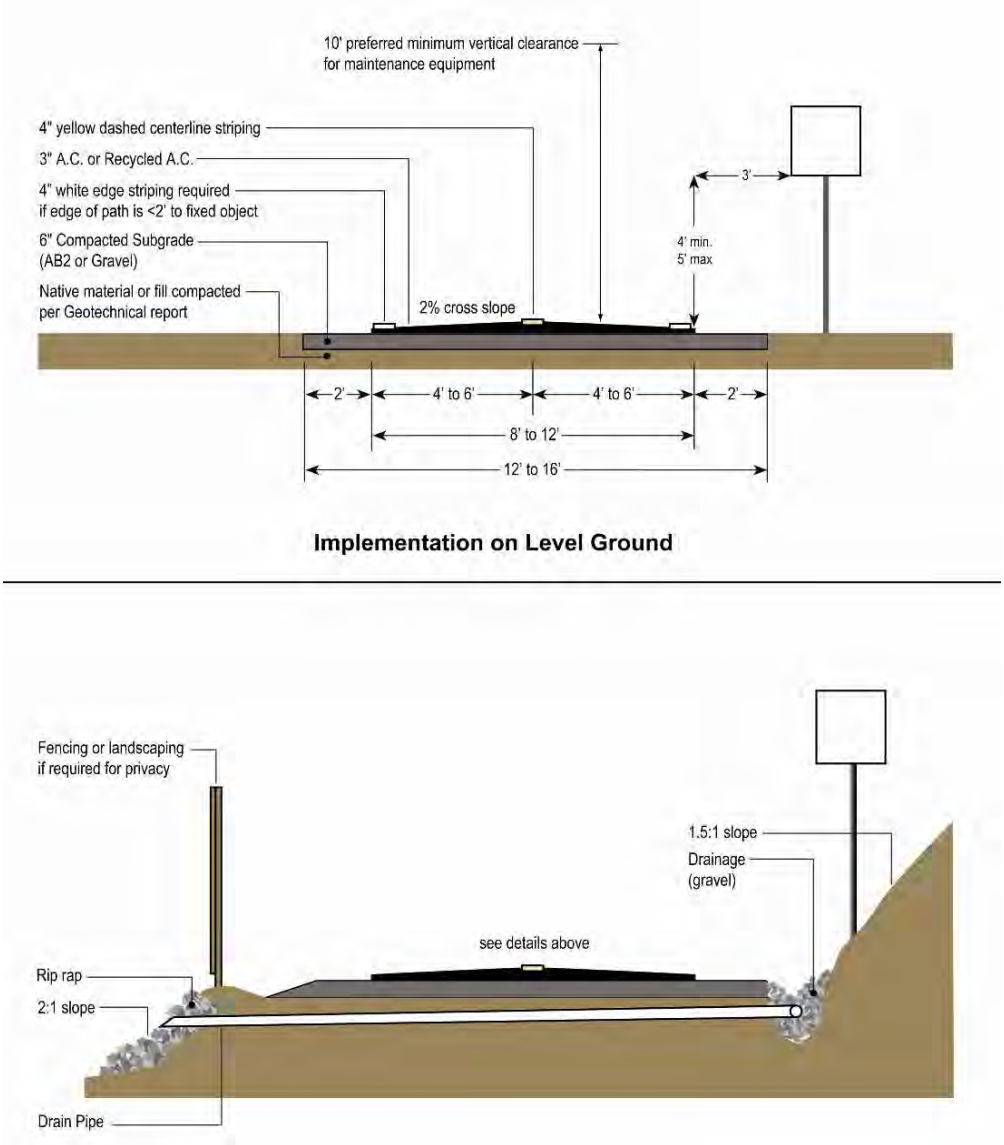


Figure 6-5: Class I Bike Path Minimum Standards

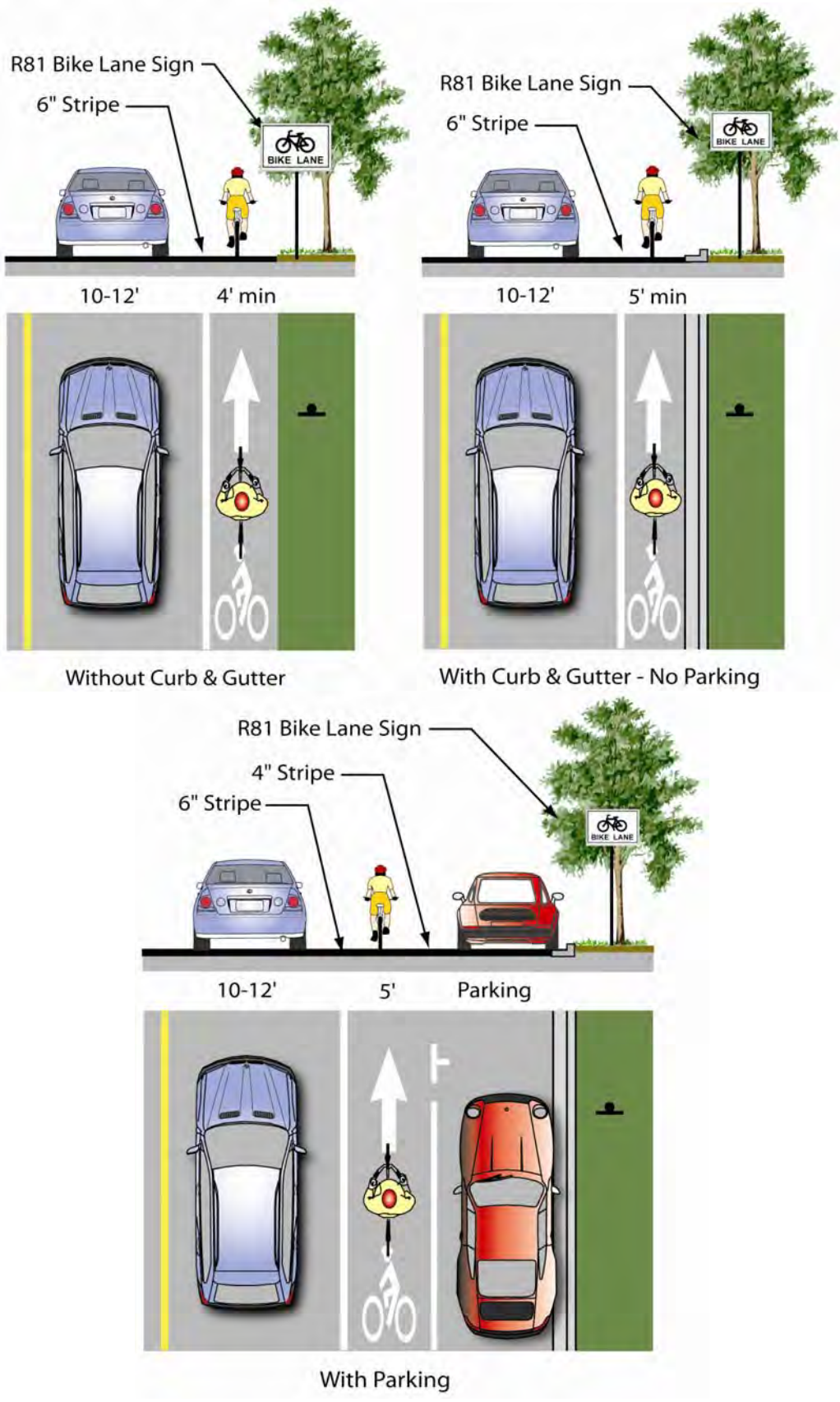


Figure 6-6: Class II Bike Lane Minimum Standards

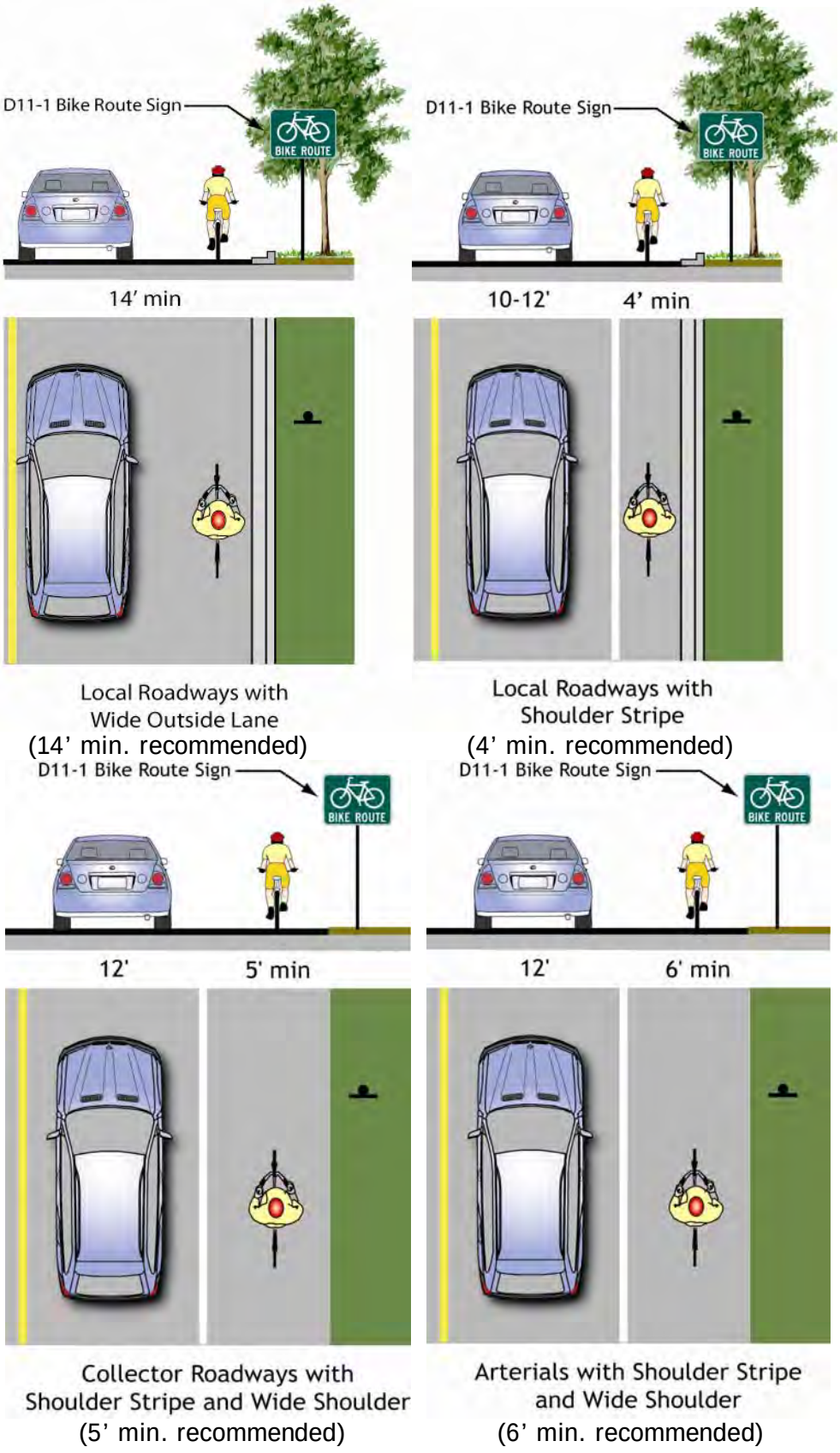


Figure 6-7: Class III Bike Route Minimum Standards

The recommended Class III bikeway minimum standards are based on Caltrans standards but developed specifically for San Joaquin County's rural environment. These shoulder bikeways permit both bicycle as well as farm equipment use. The recommended shoulder width was developed with consideration for automobile volumes and speeds as well as County standards. County shoulder width standards for rural arterials is six feet and eight feet for urban arterials.

Table 6-1 lists the recommended Class I Bike Path Projects in San Joaquin County. A bike path provides for bicycle travel on a paved right-of-way completely separated from streets or highways. These recommended facilities can be popular for recreational bicycling as well as for commuting.

The recommended Class I facilities include recreational and commuter routes. The Frontage Road Rail Trail provides a connection between Ripon and Manteca. This facility can serve recreation and commuting needs. Recommendations also include a short Class I facility connecting Manthey Road to Toleri Road where there is an unmaintained Class I path. Caltrans owns the right-of-way and development of this facility would need to be coordinated with that agency.

Table 6-1: Class I Bike Path Projects

Class	Name	Start	End	Miles
I	Duck Creek	B St	SR 99	1.23
I	Frontage Rd Rail Trail	Austin Rd	Ripon City Limits	1.76
I	Toleri/Manthey Multi-Use Connector	Toleri Rd	Manthey Rd	0.77
I	Wilson Way	SR N 99 Frontage Rd	SR 99	0.37
			Total	**4.13**

Table 6-2 outlines the recommended Class II Bike Lanes for San Joaquin County. Bike lanes provide a signed, striped, and stenciled lane for one-way travel on both sides of a street or highway. Class II bikeways are typically recommended where traffic volumes require channelization of motorized and non-motorized users in order to achieve safer operation. The recommended bike lanes are located in the urban areas of the County, and either continue existing facilities or support proposed facilities.

Table 6-2: Class II Bike Lane Projects

Class	Name	Start	End	Miles
II	Lower Sacramento Rd	Mokelumne St	Lodi City Limits	0.25
II	Mokelumne St	Chestnut St	Lower Sacramento Rd	0.32
II	Mountain House Pky	Interstate 205	Interstate 580	1.64
II	Schulte Rd	Hansen Rd	Mountain House Pky	1.03
II	Wilson Way	Stockton City Limits	SR N 99 Frontage Rd	1.98
II	Woodbridge Rd	Windwood Dr	Chestnut St	0.66
			Total	**5.88**

Table 6-3 includes recommended Class III Bike Routes for San Joaquin County. These recommended Class III facilities include bikeway improvements listed in the 2007 Regional Transportation Plan. Class III facilities are appropriate where there is insufficient right-of-way for a dedicated lane, but the route is an integral part of the bicycle network.

Class III facilities should be designed according to the roadway type, while taking into consideration automobile volumes and speeds. Bike routes proposed for local streets, which generally have the least amount of traffic and lower speeds, should be designed with a minimum four-foot striped shoulder. Bike routes on collector streets should be designed with a minimum five-foot shoulder. Bike routes on arterial roadways, which generally have the highest traffic volumes and speeds, should be designed with a minimum six-foot shoulder to give bicyclists sufficient room to comfortably travel. (The County requires new arterials to have an eight-foot shoulder.) Recommended bicycle route designs and shoulder widths are described in further detail in **Appendix A**.

The recommended bike routes provide connections to the County's cities and towns on the most direct, feasible route. Also included are connections to existing and proposed bikeways in neighboring counties. All proposed Class III segments should be signed at minimum with Caltrans standard D11-1 Bicycle Route signs at decision points.

Table 6-3: Class III Bike Route Projects

Class	Name	Start	End	Miles
III	Airport Way	Kasson Rd	Manteca City Llimits	8.20
III	Airport Way	Manteca City Limits	Stockton City Limits	4.48
III	Alexandria Pl	Benjamin Holt Dr	Stockton City Limits	0.46
III	Alpine Ave	Rainer Ave	Mission Rd	1.64
III	Armstrong Rd	Lower Sacramento Rd	Davis Rd	1.27
III	Ash St	El Dorado St	French Camp Rd	0.38
III	Austin Rd S	Louise Ave	Manteca City Limits	0.26
III	Austin Rd S	Manteca City Limits	Caswell State Park	5.68
III	Austin Rd S	Manteca City Limits	SR 120	0.28
III	Balboa Ave	Cortez Ave	Hammer Ln	0.39
III	Beckman Rd	Kettleman Ln	Harney Ln	1.10
III	Berry Ave	Canal Blvd	Grant Line Rd	1.04
III	Blossom Rd	Walnut Grove Rd	Peltier Rd	2.72
III	Brandt Rd	Tully Rd	SR 12/88	1.40
III	Canal Blvd	Toleri Rd	Berry Ave	0.30
III	Cardinal Ave	SPRR	Fremont St	0.51
III	Cardinal Ave	Main St	SPRR	0.86
III	Chrisman Rd	California Aqueduct Path	Eleventh St	6.02
III	Comstock Rd	Duncan Rd	Waterloo Rd/SR 88	4.68
III	Copperopolis Rd	Alpine Rd	Hewitt Rd	7.99
III	Copperopolis Rd	Hewitt Rd	Escalon-Bellota Rd	2.28
III	Corral Hollow Rd	Lammers Rd	Larch Rd West	1.72
III	Corral Hollow Rd	Larch Rd West	Tracy City Limits	0.52
III	Corral Hollow Rd	Tracy City Limits	County Line	6.28
III	Cortez Ave	Balboa Ave	Thornton Rd	0.24

Class	Name	Start	End	Miles
III	Davis Rd	SR 12	Eight Mile Rd	4.89
III	Dodds Rd	Escalon-Bellota Rd	County Line	4.01
III	Duncan Rd	Comstock Rd	N/O Front St	1.50
III	Duncan Rd	N/O Front St	SR 26	0.39
III	Duncan Rd	SR 26	Copperopolis Rd	3.15
III	Durham Ferry Rd	Kasson Rd	Chrisman Rd	6.95
III	Eight Mile Rd	SR 99	Jack Tone Rd	5.91
III	Eighth St	B St	D St	0.21
III	El Dorado Ave	Mathews Rd	Stockton City Limits	1.02
III	Escalon-Bellota Rd	Copperopolis Rd	SR 4	3.01
III	Escalon-Bellota Rd	SR 4	Escalon City Limits	8.44
III	French Camp Rd	El Dorado St	SR 120	10.17
III	Grant Line Rd	Eleventh St	Tracy City Limits	1.78
III	Hammond St	Jack Tone Rd	Tully Rd	0.10
III	Hansen Rd	Schulte Rd	End of County Maintained Road	0.80
III	Harney Ln	Beckman Rd	Lodi City Limits	0.16
III	Howard Rd	Tracy Blvd	Mathews Rd	9.98
III	Jack Tone Rd	Jack Tone Bypass Rd	Hammond St	0.48
III	Jack Tone Rd	Ripon City Limits	Jack Tone Bypass Rd	27.17
III	Kasson Rd	Critchett Rd	Eleventh St	3.53
III	Kasson Rd	Durham Ferry Rd	Linne Rd	1.06
III	Kasson Rd	Linne Rd	Critchett Rd	2.16
III	Kile Rd	Ray Rd	Thornton Rd	3.23
III	Lammers Rd	Tracy City Limits (Schulte Rd)	Tracy City Limits (S. of the Delta Mendota Canal)	1.41
III	Lathrop Rd	Cottage Ave	Austin Rd S	0.75
III	Lathrop Rd	SR 99	Cottage Ave	0.89
III	Live Oak Rd	SR 88	Jack Tone Rd	1.86
III	Live Oak Rd	SR N 99 Frontage Rd E	SR 88	4.09
III	Locke Rd (One Way)	Tretheway Rd	SR 12/88	1.67
III	Lower Sacramento Rd	Harney Ln	Stockton City Limits	3.11
III	Lower Sacramento Rd	Sacramento CO	Mokelumne St	6.03
III	Main St	Stockton City Limits	Alpine Rd	2.90
III	Manthey Rd	Lathrop City Limits	Briggs Rd	0.20
III	Manthey Rd	South End	Lathrop City Limits	0.36
III	Mariposa Rd	Escalon-Bellota Rd	Stockton City Limits	12.07
III	Mathews Rd	Howard Rd	El Dorado St	1.03
III	McHenry Ave	County Line	Escalon City Limits	0.89
III	Micke Grove Rd	Eight Mile Rd	Armstrong Rd	2.02
III	Murphy Rd	River Rd	Ripon City Limits	1.02
III	New Hope Rd	Thornton Rd	County Line	0.83
III	Patterson Pass Rd	Mountain House Pky	County Line	1.70

Class	Name	Start	End	Miles
III	Peltier Rd	Blossom Rd	Rond Rd	2.10
III	Peltier Rd	Rond Rd	Thornton Rd	0.30
III	Ray Rd	Turner Rd	Kile Rd	4.08
III	River Rd	Murphy Rd	Santa Fe Rd	8.44
III	Santa Fe Rd	County Line	Escalon City Limits	4.08
III	Swain Rd	Stockton City Limits (West of Harrisburg Pl)	Stockton City Limits (Plymouth Rd)	0.89
III	Thornton Rd	County Line	Turner Rd	8.23
III	Thornton Rd	Stockton City Limits	Devries Rd	1.06
III	Toleri Rd	Canal Blvd	East End	0.28
III	Tracy Blvd	Lammers Rd	Howard Rd	6.27
III	Tretheway Rd (One Way)	Locke Rd	SR 12	0.52
III	Tully Rd	Brandt Rd	SR 12/88	1.45
III	Turner Rd	Thornton Rd	Lodi City Limits	5.20
III	Von Sosten Rd	Byron Rd	Currier Dr	1.23
III	Walnut Grove Rd	Thornton Rd	County Line	4.45
III	West Ln	Eight Mile Rd	Lodi City Limits	3.43
III	West Ripon Rd	Airport Way	Manteca Rd	2.06
III	West Ripon Rd	Manteca Rd	Ripon City Limits	3.87
III	Wolfe Rd	Howard Rd	French Camp Rd	1.27
III	Woodbridge Rd	Lucas Rd	Windwood Dr	0.05
III	Woodbridge Rd	Ray Rd	Lucas Rd	2.91
			Total	**270.24**

6.3. Bikeways for Coordination with Caltrans

San Joaquin County has a number of state maintained roadways that provide critical transportation connections to its cities and neighboring counties. These connections are as critical for bicyclists as they are for automobile drivers because these State Routes often provide the most direct and logical connections. Caltrans, California's Department of Transportation, has jurisdiction over the State Routes in San Joaquin County. Since this plan includes bikeway recommendations for some State Routes, it is recommended that San Joaquin County coordinate with Caltrans on the development of these facilities. **Table 6-4** lists the recommended bikeways on State Routes.

Table 6-4: Recommended Bikeways on State Routes

Class	Name	Start	End	Miles
III	SR 12	Lodi City Limits	Tretheway Rd	3.10
III	SR 12	Davis Rd	Lodi City Limits	1.00
III	SR 12	Highway 88	County Line	4.52
III	SR 12 (One Way)	Tretheway Rd	SR 12/88 (Victor Rd)	0.86
III	SR 12/88 (One Way)	SR 12 (Victor Rd)	Locke Rd	1.51
III	SR 12/88	Locke Rd	SR 88	5.43
III	SR 120	Manteca City Limits	Escalon City Limits	8.81

Class	Name	Start	End	Miles
III	SR 26	Stockton City Limits	N Flood Rd	10.30
III	SR 4	Stockton City Limits	Escalon-Bellota Rd	12.51
III	SR 88	Eight Mile Rd	SR 99	6.37
III	SR N 99 Frontage Rd E	Proposed Wilson Way Class I	Harney Ln	6.85
			Total	**61.26**

Because San Joaquin County does not have jurisdiction on State Routes, these recommended bikeways are not included in the cost estimates and project prioritization outlined in **Chapter 8**.

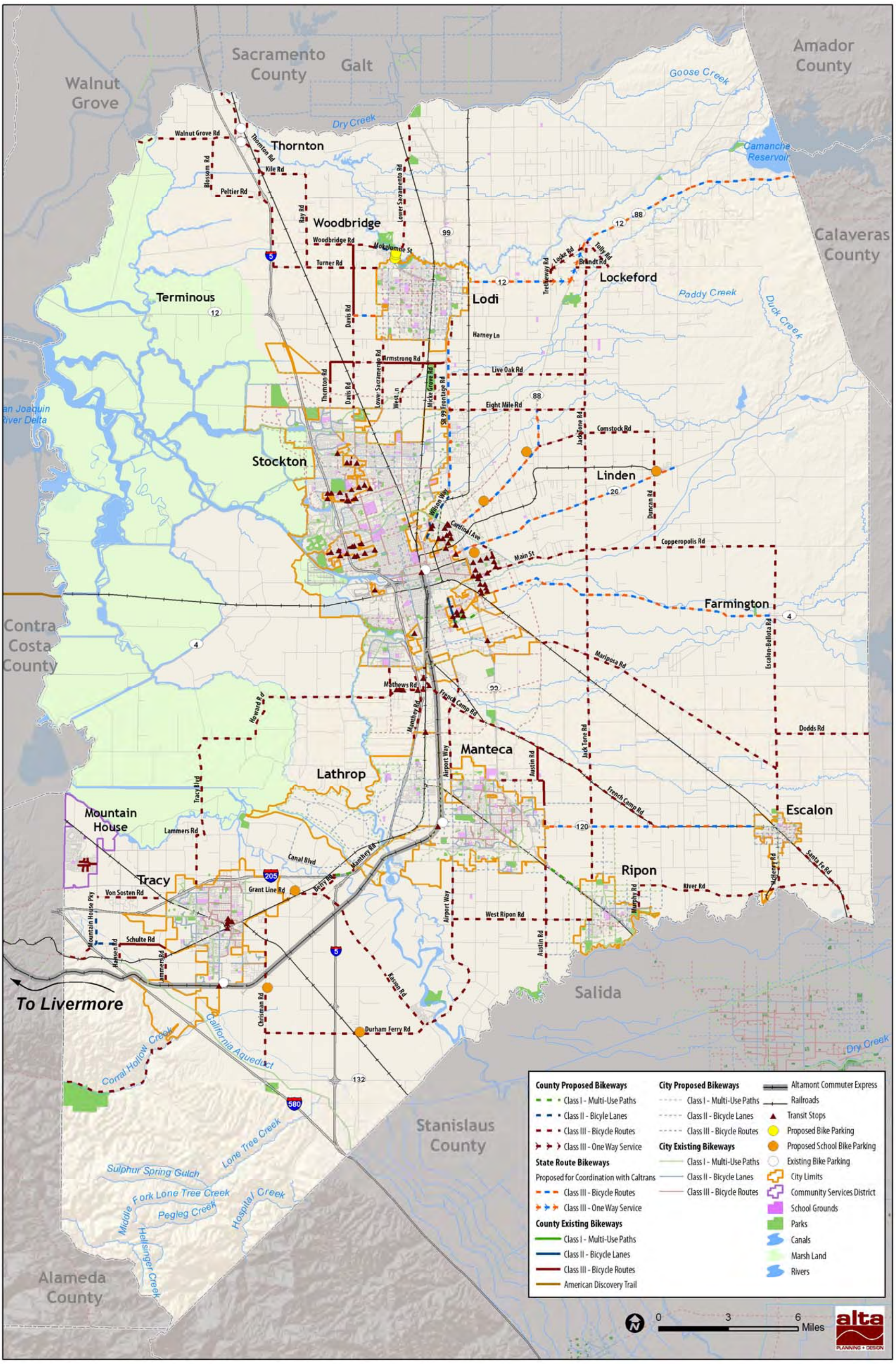


Figure 6-8: San Joaquin County Existing and Proposed Bikeways

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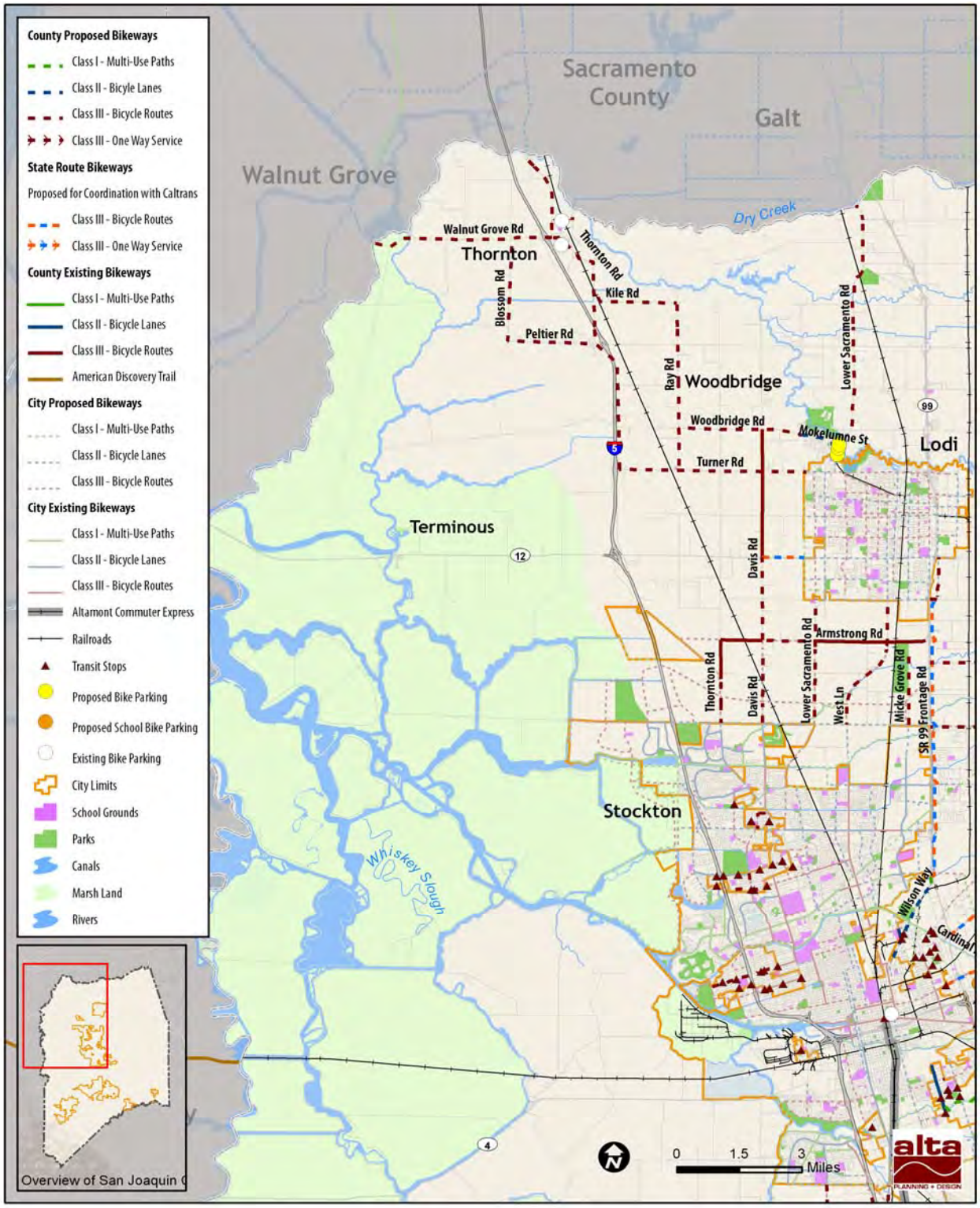

Figure 6-9: NW San Joaquin County Existing and Proposed Bikeways

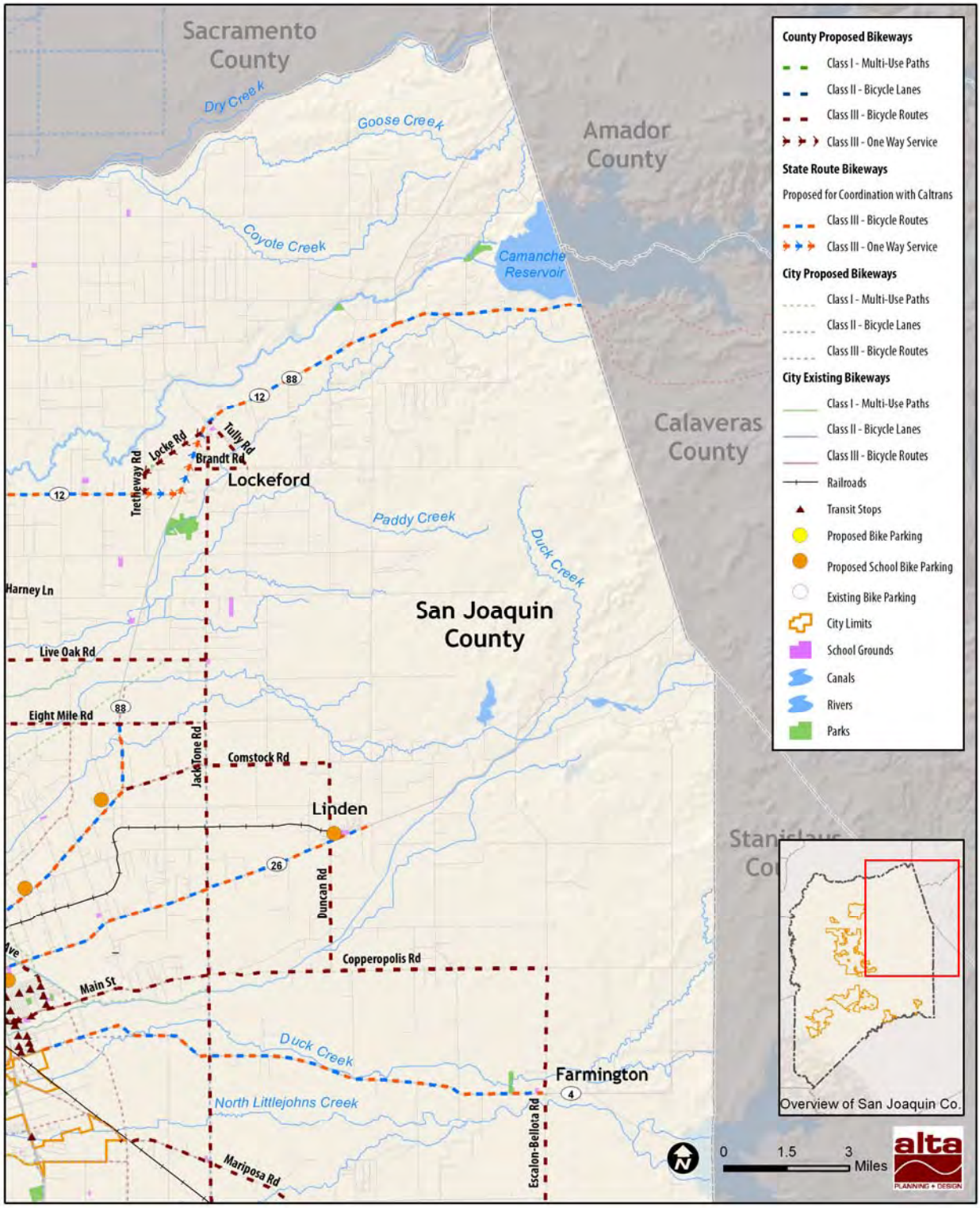

Figure 6-10: NE San Joaquin County Existing and Proposed Bikeways

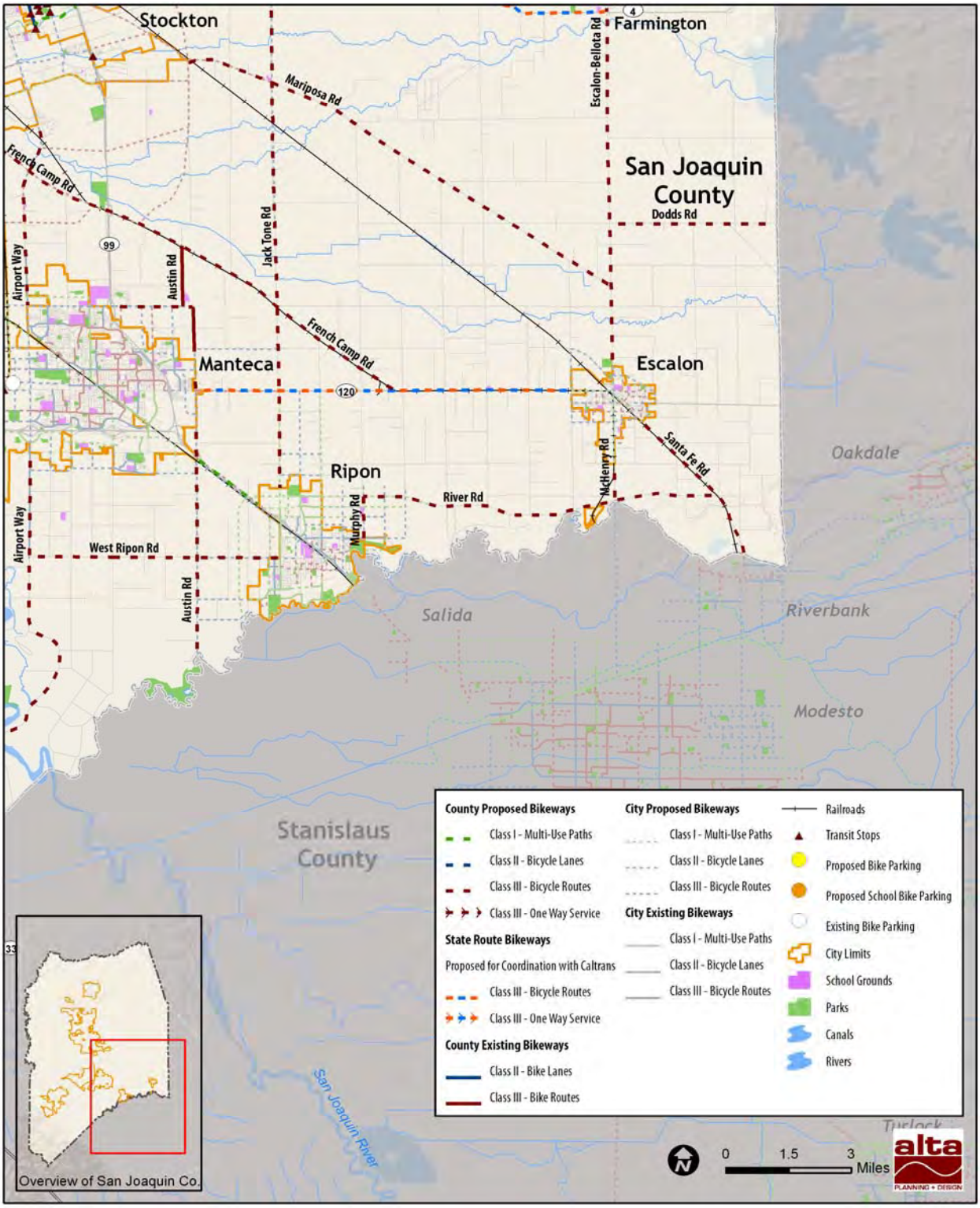

Figure 6-11: SE San Joaquin County Existing and Proposed Bikeways

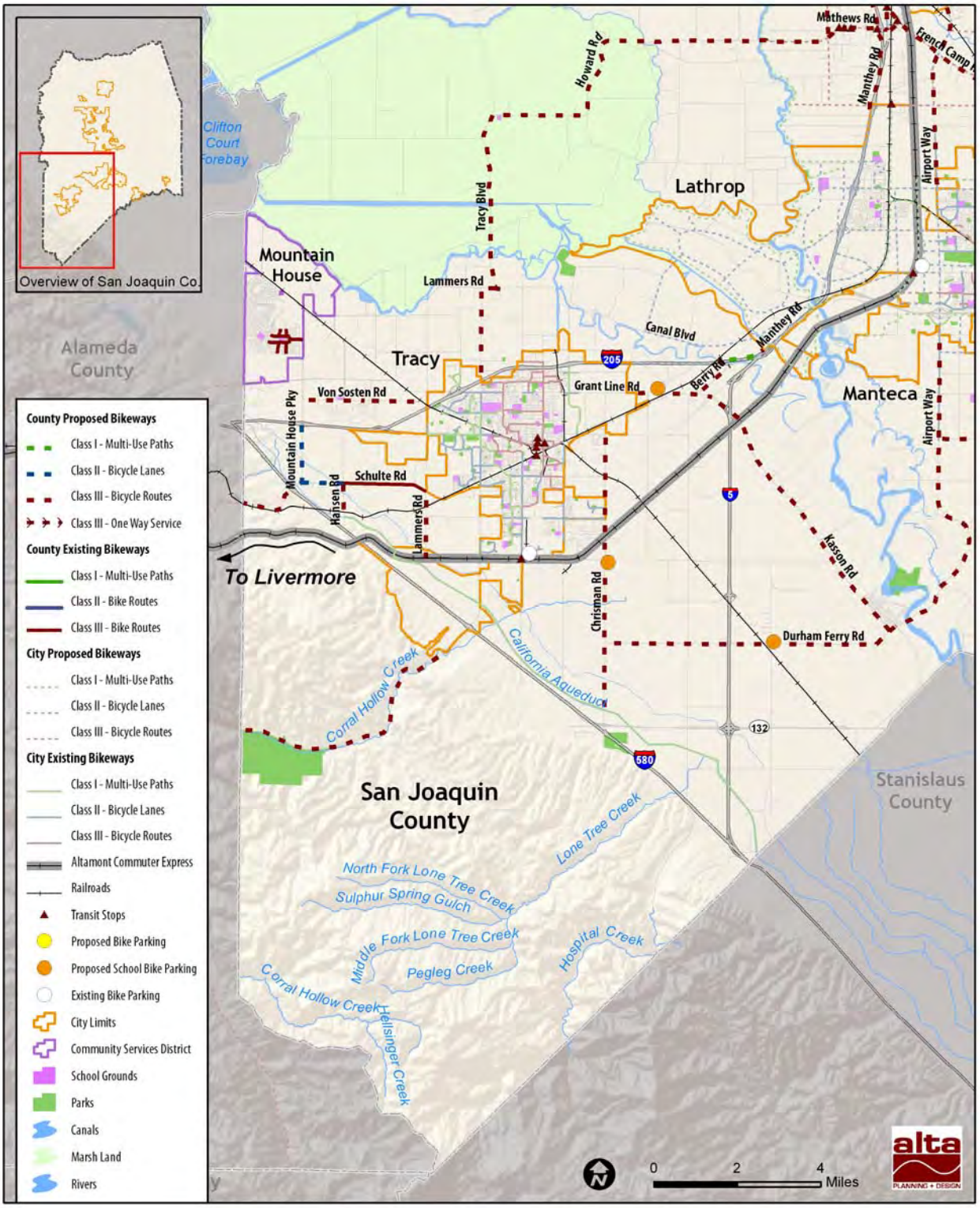

Figure 6-12: SW San Joaquin County Existing and Proposed Bikeways

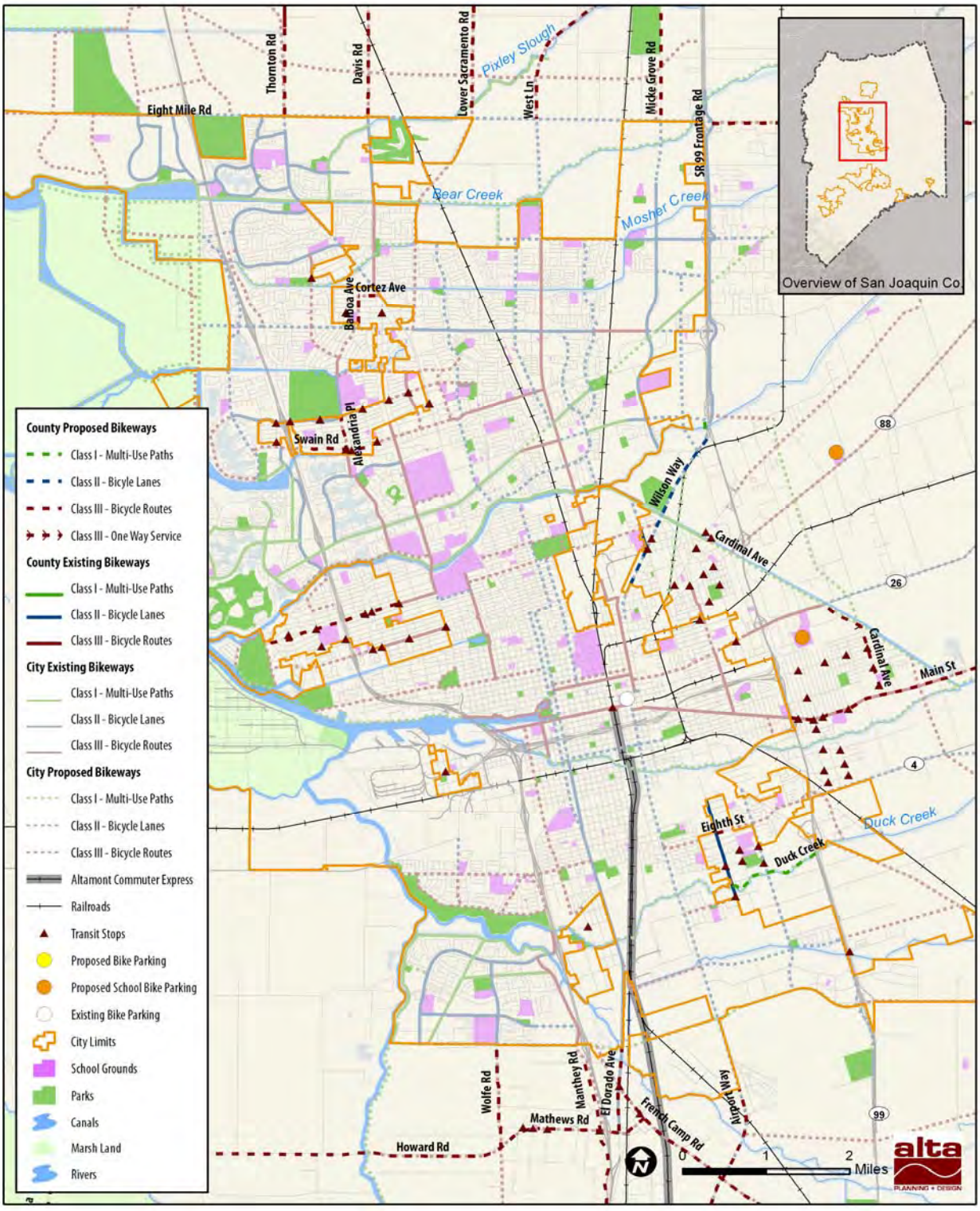

Figure 6-13: Central San Joaquin County Existing and Proposed Bikeways

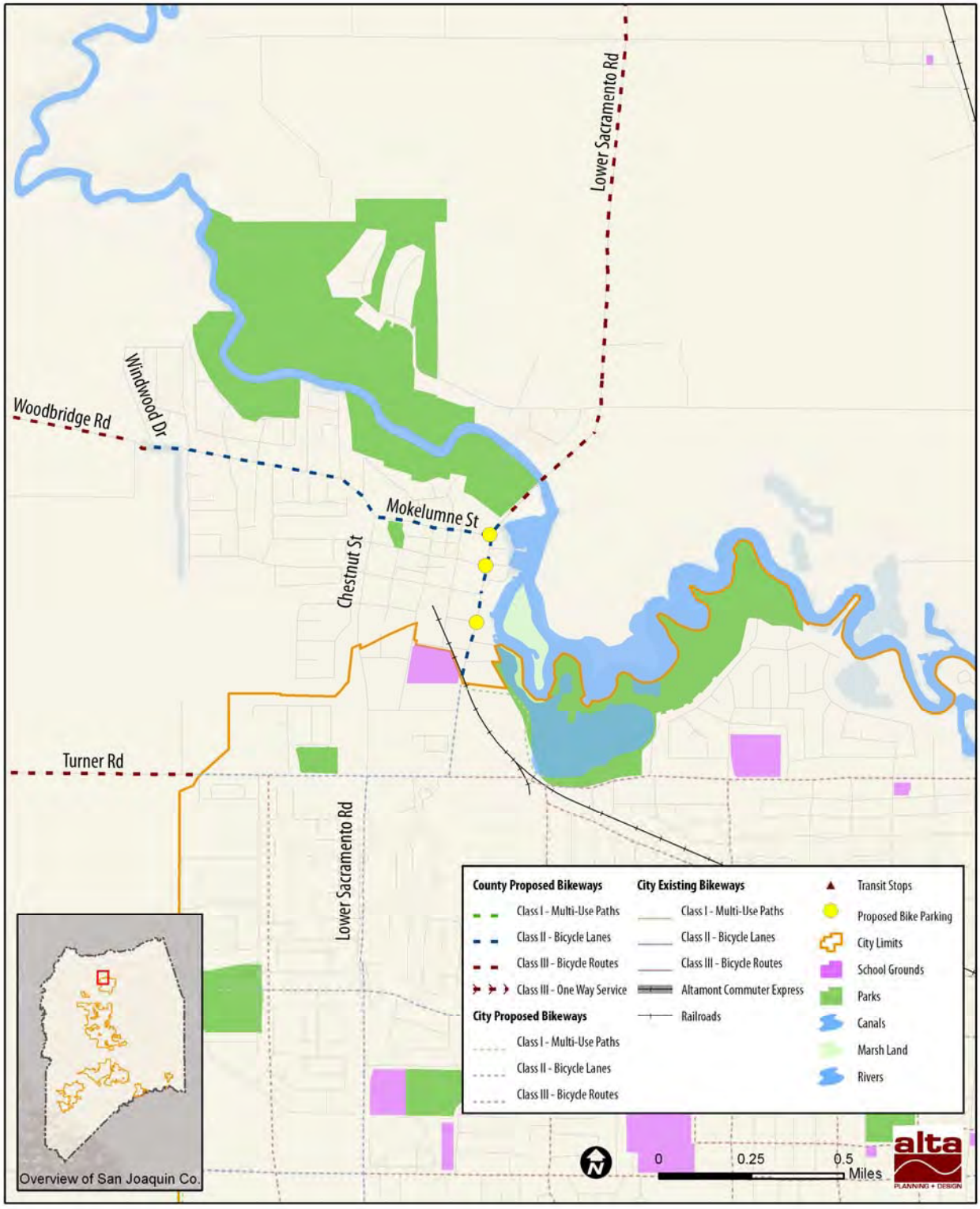

Figure 6-14: Woodbridge Community Existing and Proposed Bikeways

Figure 6-15 Wilson Way to SR 99 Frontage Road, Stockton Area

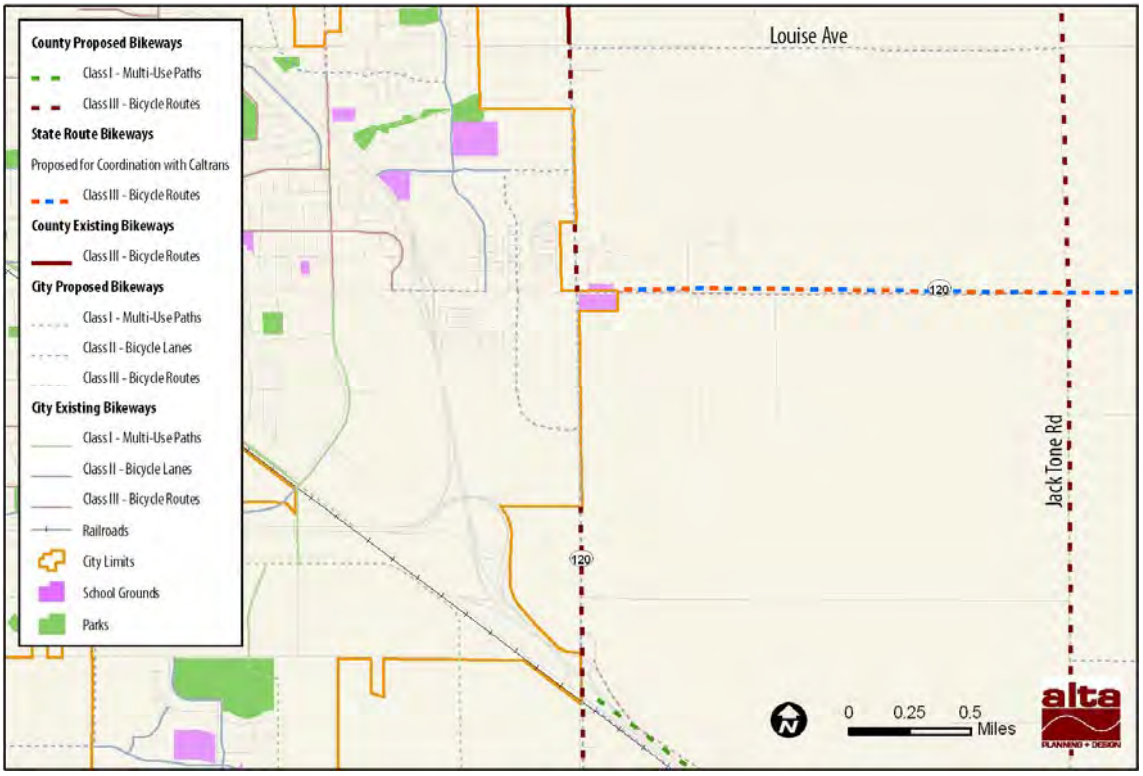

Figure 6-16: Austin Road(S), Manteca Area

Figure 6-17: Harney Lane/Beckman Road, Lodi Area

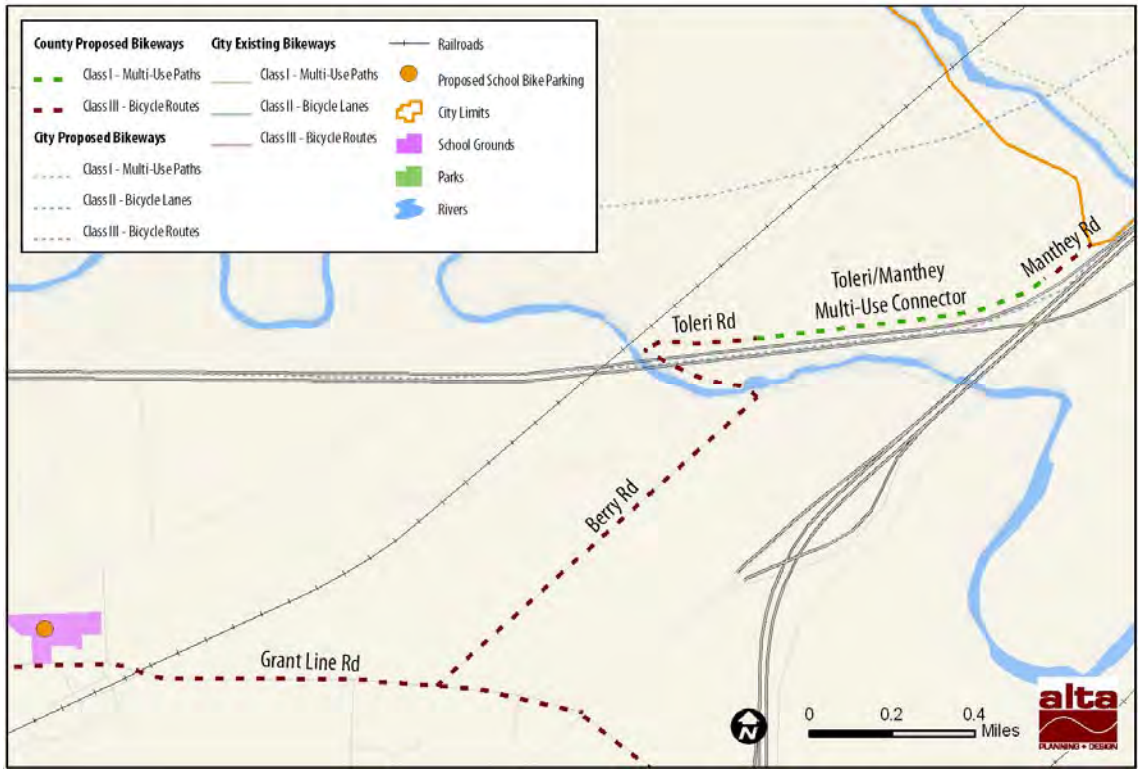

Figure 6-18: Toleri Road/Manthey Road, Lathrop-Tracy Area

7. Recommended Policies and Programs

This chapter discusses recommended bicycle policies and programs best suited for San Joaquin County and its bicycle system. Bicycle policies and programs can enhance the bicycling experience by supporting physical facilities. Programs are organized into four categories: education, encouragement, enforcement, and evaluation.

7.1. Policies

7.1.1. Establish Bicycle Advisory Committee

A Bicycle Advisory Committee (BAC) can inform the County of bicyclist needs and concerns while facilitating the exchange of ideas. Community members could be selected from each of the five County districts and appointed by the Board of Supervisors. The BAC would advise San Joaquin County staff and the County Board of Supervisors on bicycle-related issues. The development of a San Joaquin County BAC would also support thorough public involvement in bicycle-related projects. San Joaquin County should explore and consider pursing the formation of a Bicycle Advisory Committee.

7.1.2. Fund a County Bicycle Program Coordinator

To take full advantage of bicycle planning efforts in San Joaquin County and to assist with implementation of the many projects and programs recommended in this Plan, the County should consider hiring or designating a Bicycle Program Coordinator. This position could be a new full or part-time staff person. The duties of a bicycle coordinator could also be assigned to an existing staff person on a part-time basis. The job duties for this staff person may include:

- Monitoring the design and construction of bikeways and trails
- Ensuring bicycle facilities identified in new developments, specific plans and as mitigation measures are designed appropriately, constructed expediently and implemented
- Coordinating the implementation of the recommended projects and programs listed in this Plan
- Identifying new projects
- Creating/Coordinating a bicycle advisory committee

7.1.3. Require Bicycle Facilities in New Subdivisions

The Community Development Element of the San Joaquin County General Plan includes a requirement for adequate bicycle access in new developments. It is recommended that new subdivision projects provide adequate access with multi-use paths, bike lanes or bike routes to connect residential development to educational facilities, civic centers, retail, employment centers, and existing bikeways. Proposed facilities should be reviewed by the appropriate staff. Once developed, bikeway locations should be submitted to the San Joaquin County Public Works Department for final approval.

7.2. Education Programs

Education is important to increasing bicycling while also improving safety and awareness. Proper education of youth and adult cyclists, as well as motorists, is key to improving bicycling conditions. Recommended programs include Safe Routes to School, youth bicycle education programs, a bicycle website, and a share the road outreach program.

7.2.1. 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 and improving traffic safety around school areas through education, incentives, increased law enforcement, and engineering measures. SR2S funding is awarded through a statewide, competitive funding process and is described in **Chapter 9**. SR2S programs typically involve partnerships among municipalities, school districts, community and parent volunteers, and law enforcement agencies. The recommended San Joaquin County SR2S efforts will facilitate the implementation and funding for specific improvements, help increase bicycle and pedestrian safety, and encourage fewer automobile trips. The County should consider implementing a SR2S program with emphasis on bicycle/pedestrian safety education, encouragement, engineering improvements, and enforcement of traffic laws.

Figure 7-1: Student Bicycle Training

7.2.2. Youth Bicycle Education Programs

Youth bicycle education programs teach children about bicycling rights, responsibilities and safety (**Figure 7-1**). San Joaquin County should consider coordinating with local schools to develop a youth bicycle education program for children over eight years old. For elementary school children, it is suggested that bicycle safety education include both students and their parents. It is recommended that qualified staff work with the County to develop bicycle safety curricula for all schools. The League of American Bicyclists, the Federal Highway Administration's Bicycle Safety Education Resource Center and best practices from other jurisdictions should all be considered when developing these classes.

7.2.3. One-Stop Bicycle Website

A one-stop bicycle website is a relatively easy and inexpensive education program. The County should consider developing a website dedicated to bicycling in San Joaquin County. The website could be updated regularly to include events such as Bike to Work Day and other events. It could provide bicyclists with information, such as:

- A list of all bicycling groups, including clubs, racing teams and advocacy groups
- Current projects and how to get involved (e.g., public meetings, comment periods)
- Maps and brochures (links to online maps and brochures)
- Links to laws and statutes related to bicycling

- Links to all relevant local jurisdictions and their bicycling-related information
- Bicycling events (rides, classes, volunteer opportunities)
- A list of local bike shops including addresses and phone numbers
- Relevant phone numbers (hotlines for pothole repair, parking enforcement, bike rack installation requests, etc.).

7.2.4. Share the Road Outreach Program

A Share the Road Outreach Program is intended to educate motorists, bicyclists and pedestrians about their legal rights and responsibilities on the road, and the need to increase courtesy and cooperation to improve safety. The program targets not just youth, but all residents and visitors to a community.

It is recommended that the County develop a Share the Road outreach program to benefit both motorists and cyclists. The Share the Road program could be a partnership between local bicycling groups and the San Joaquin County Sheriff's Department. The County could seek annual funding to develop the elements of the Share the Road Program, implemented in a phased approach. All bicycle and motorist educational program materials should be developed in both English and Spanish at a minimum, and other languages as appropriate.

7.3. Encouragement Programs

Strategies for community involvement in bicycle improvements will be important to ensure broad-based support to help secure financial resources. Raising awareness for the benefits of bicycling can range from small incremental activities by non-profit groups, to efforts by the largest employers in the County. Local bicycle shops can also participate in encouragement programs by hosting group rides and similar programs. Targeting these encouragement programs to specific user groups improves their effectiveness. Specific recommended programs include a bikeway user map and bike to work/school day (**Figure 7-2**).

Figure 7-2: Stockton Bike to Work Day 2009
Source: Downtown Stockton Alliance

7.3.1. Bikeway User Map

Bikeway user maps identify existing bikeway routes and often identify proposed bikeway routes. They encourage bicycling, create greater awareness of the bicycle network, and provide wayfinding assistance for bicyclists. It is recommended that San Joaquin County provide a regularly updated and printable Bikeway User Map on the recommended bicycle website and the County website.

Figure 7-3: Bike to School Day

7.3.2. Bike to Work/ School Day

Bike to Work Day is usually the third Thursday in May - Bike to Work month. San Joaquin County Bike Week takes place every year in May, and is sponsored by SJCOG's Commute Connection Program. The County, possibly in conjunction with local cycling groups, should consider working with local jurisdictions to promote local bike to work weeks.

Bike to School Day is another way to encourage bicycling. It is recommended that the County encourage schools to develop Bike to School Day programs and events (**Figure 7-3**).

7.4. Enforcement Programs

Enforcement programs work to bring awareness to bicyclists and pedestrians through the increased efforts of law enforcement, and even the public. Enforcement measures may target specific locations or larger areas. The following suggestions represent possible ways for San Joaquin County to interact with the California Highway Patrol, San Joaquin County Sheriff's Department and the local police departments to prioritize enforcement activities, and receive valuable statistics regarding collisions that help determine targets for future education and encouragement programs. In addition to these programs, it is suggested that San Joaquin County work with law enforcement to highlight the importance of understanding and enforcing bicycling-related California Vehicle Codes as part of their regular law enforcement-training curriculum.

7.4.1. Continue to Enforce All Traffic Laws

It is recommended that the Sheriff's Department and the local police departments continue to perform enforcement of applicable laws on all bikeway facilities. Specifically, this could occur at historically high-collision areas. Spot enforcement should be highly visible, and publicly advertised. It may take the form of handing out informational sheets to motorists and bicyclists, or enforcing speed limits and right-of-way at shared-use path/roadway intersections.

Citations issued for moving violations are possible bicycle-safety education opportunities. While proactive measures are best, the County should consider developing classes in partnership with law enforcement to correct errant roadway behavior, which could be offered at traffic school when deemed appropriate. It is recommended that San Joaquin County's curriculum focus primarily on bicycling skills, including: bicycling in traffic, share the road concepts, and rights and responsibilities of both the bicyclist and the motorist. As an alternative to a fine for a bicycle-related violation, offenders might be given the option of enrolling in a traffic school program with an emphasis on bicycle issues. Such a program could also be an option for non-bicycle related traffic infractions, such as failure to yield, speeding, and disregarding traffic signals.

7.5. Evaluation Programs

Many jurisdictions do not perform regular bicycle user counts. As a result, they do not have a mechanism for tracking ridership trends and pedestrian activity over time, or for evaluating the impact of projects, policies, and programs. It is recommended that the County perform or supervise biannual counts of bicyclists and pedestrians according to national practices. The National Bicycle and Pedestrian Documentation Project (www.bikepeddocumentation.org) has developed a recommended methodology, with survey, count and reporting forms that can be modified to serve the needs and interests of individual jurisdictions. The counts and surveys can be conducted by either staff or volunteers.

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

- Including before-and-after bicycle/pedestrian/vehicle data collection on priority roadway projects.
- Requiring counting of bicyclists/pedestrians in all traffic studies
- Purchasing the National Household Travel Survey add-on.

Results of this program are an excellent resource for grants, reporting to the public, and validating bicycle expenditures.

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8. Implementation

This chapter presents an implementation plan for recommended facilities, including an overview of the ranking process, bikeway cost estimates and maintenance costs. Also included is a list of projects prioritized for construction; however, these recommendations may change over time.

8.1. Implementation Process

The steps required to implement individual projects identified in this Plan will vary. Many projects are exempt from the California Environmental Quality Act (CEQA) requirements because they do not result in significant impacts and are categorically exempt from environmental review. More complex projects with potential environmental impacts, like the proposed Class I multi-use paths, typically include the following steps:

- Preparation of a Feasibility Study involving a conceptual design (with consideration of possible alternatives and environmental issues) and cost estimates for individual projects, as needed
- Securement, as necessary, of outside funding and any applicable environmental approvals
- Approval of the project by the local government
- Completion of final plans, specifications and estimates, advertising for bids, receipt of bids and award of contract(s)
- Construction of Project.

Projects exempt from CEQA can be implemented as funding becomes available, and in conjunction with other infrastructure improvements, such as repaving, overlay and curb and gutter projects.

8.2. Ranking Process

The intent of the ranking process is to create a prioritized list of projects for implementation. The project list and ranking are flexible concepts that serve as guidelines. The list may change over time because of changing bicycling patterns, implementation opportunities and constraints, and the development of other transportation system facilities. The County should review the project list at regular intervals to ensure it reflects the most current priorities, need, and opportunities for implementing the bicycle network in a logical and efficient manner.

The proposed bikeway projects, defined in collaboration with County staff, were ranked using criteria presented in **Table 8-1**. The criteria include safety, public input, feasibility, local connections, and regional connections.

The maximum potential score for each criterion is 10. The point range was developed to give each criterion equal weight. Based on the nature of the criterion, the project score is either a range from 0 to

10 or a 0 *or* 10. For example, collision scores range by the number of collisions per mile. The point range for collision reflects this with a scoring range from 0 to 10. By contrast, connectivity to local or regional bikeways is either "yes" or "no" and therefore receives a 0 or 10 score.

The maximum potential score for each project is fifty (50), which is the sum of the maximum potential scores of all project criteria.

Table 8-1: Project Ranking Criteria

Criteria	Description	Point Range
Collisions/ Safety	This ranking is based on SWITRS data identifying corridors with a high number of bicycle collisions within a quarter mile buffer. The greater the number of collisions per mile, the greater the assumed need to provide safety improvements. Numbers of collisions per project mile ranged from 0 to 55.56. The formula [(# of collisions per mile/55.56)*10] was used to create a 0 to 10 scale. Projects are scored on a scaled ranking from 0 to 10 based on the number of collisions per mile. Projects with the highest number of collisions are scored with a 10.	0 to 10
Public Input	Projects identified by the public as important at public meetings and by communications with the County have higher scores. Projects are scored by either a yes or no. Projects identified by the public are scored with 10.	Yes=10 No=0
Project Feasibility	Project Cost: Project cost affects the ability of the County to construct the bikeway. Projects that are lower cost have higher scores. Projects are scored in five cost ranges. $0-$15,000 $15,001-$125,000 $125,001-$400,000 $400,001-$1,000,000 Greater than $1,000,000	A=5 B=4 C=3 D=2 E=1
	Available Right-of-Way: Available right-of-way affects the ability of the County to construct the bikeway. Projects are scored on a scaled ranking from zero to five based on the need for right-of-way purchase. Projects with variation in existing right-of-way have been sub-segmented by right-of-way width. Each sub-segment is scored with either a zero or five. A zero indicates the sub-segment does not have sufficient right-of-way. A five indicates the sub-segment has sufficient right-of-way. A project score is the average of the sub-segment scores.	0 to 5
Local Connections	Projects that connect to existing or proposed bikeways in San Joaquin County cities and towns receive higher scores. Projects are scored by either a yes or no. Projects that connect to local bikeways are scored with 10.	Yes=10 No=0
Regional Connections	Projects that connect to existing or proposed neighboring county bikeways or regional multi-use paths will score higher. Projects are scored by either a yes or no. Projects that connect to regional bikeways are scored with 10.	Yes=10 No=0
	Maximum Potential Overall Score:	50

Based on overall project score and relative equal distribution of number of projects among the three tiers, recommended projects are grouped in Tier 1, Tier 2, and Tier 3 categories. **Table 8-2** shows the three tier categories with descriptions of the score range and recommended implementation timeline.

Table 8-2: Tier Categories

Tier	Score Range	Description and Recommended Timeline
Tier 1	> 27.0 points	Tier 1 projects have the highest potential and are intended for implementation within 1-5 years.
Tier 2	16.2 – 27.0 points	Tier 2 projects are intended for implementation within 6-10 years.
Tier 3	<16.2 points	Tier 3 projects are projects not currently ready to be implemented, but will be included as long-term potential projects over the next 11-20 years.

Table 8-3 is a list of projects prioritized into the three tiers. The table also identifies the project cost estimate, individual criteria scores, and project total score. Due to rounding, the individual criteria scores presented in the table may not add up to the project total score.

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Table 8-3: Projects by Rank and Tier

Tier	Rank	Class	Name	From	To	Miles	Project Cost Estimate	Collision Score	Public Input Score	Feasibility: Cost Estimate Score	Feasibility: ROW Score	Local Connection Score	Regional Connection Score	TOTAL SCORE
1	1	III	River Rd	Murphy Rd	Santa Fe Rd	8.44	$625,000	0.1	10	2	5.0	10	10	37.1
1	2	III	Santa Fe Rd	County Line	Escalon City Limits	4.08	$553,900	0.0	10	2	5.0	10	10	37.0
1	3	III	Corral Hollow Rd	Tracy City Limits	County Line	6.28	$1,455,600	0.0	10	1	5.0	10	10	36.0
1	4	III	Chrisman Rd	California Aqueduct Path	Eleventh St	6.02	$649,600	0.0	10	2	0.0	10	10	32.0
1	5	III	Mathews Rd	Howard Rd	El Dorado St	1.03	$90,800	1.5	10	4	3.3	10	0	28.8
1	6	III	Walnut Grove Rd	Thornton Rd	County Line	4.45	$329,500	0.1	10	3	5.0	0	10	28.1
1	7	III	Eight Mile Rd	SR 99	Jack Tone Rd	5.91	$369,900	0.1	10	3	5.0	10	0	28.1
1	8	III	Mariposa Rd	Escalon-Bellota Rd	Stockton City Limits	12.07	$351,900	0.0	10	3	5.0	10	0	28.0
1	9	III	Patterson Pass Rd	Mountain House Pky	County Line	1.70	$267,900	0.0	10	3	5.0	0	10	28.0
1	10	III	Escalon-Bellota Rd	SR 4	Escalon City Limits	8.44	$670,800	0.1	10	2	5.0	10	0	27.1
2	11	II	Mountain House Pky	Interstate 205	Interstate 580	1.64	$409,000	0.0	10	2	5.0	10	0	27.0
2	12	III	Alexandria Pl	Benjamin Holt Dr	Stockton City Limits	0.46	$500	6.5	0	5	5.0	10	0	26.5
2	13	III	Davis Rd	SR 12	Eight Mile Rd	4.89	$1,120,000	0.1	10	1	5.0	10	0	26.1
2	14	III	Howard Rd	Tracy Blvd	Mathews Rd	9.98	$902,200	0.1	10	2	4.0	10	0	26.1
2	15	III	Airport Way	Kasson Rd	Manteca City Llimits	8.20	$2,000,500	0.0	10	1	5.0	10	0	26.0
2	16	III	Austin Rd S	Manteca City Limits	Caswell State Park	5.68	$1,291,400	0.0	0	1	5.0	10	10	26.0
2	17	III	Thornton Rd	County Line	Turner Rd	8.23	$1,880,500	0.1	10	1	4.3	0	10	25.4

Tier	Rank	Class	Name	From	To	Miles	Project Cost Estimate	Collision Score	Public Input Score	Feasibility: Cost Estimate Score	Feasibility: ROW Score	Local Connection Score	Regional Connection Score	TOTAL SCORE
2	18	III	Lower Sacramento Rd	Sacramento CO	Mokelumne St	6.03	$542,200	0.2	10	2	3.0	0	10	25.2
2	19	III	Balboa Ave	Cortez Ave	Hammer Ln	0.39	$500	5.1	0	5	5.0	10	0	25.1
2	20	III	Swain Rd	Stockton City Limits (West of Harrisburg Pl)	Stockton City Limits (Plymouth Rd)	0.89	$7,500	5.1	0	5	5.0	10	0	25.1
2	21	III	Woodbridge Rd	Lucas Rd	Windwood Dr	0.05	$100	10.0	10	5	0.0	0	0	25.0
2	22	III	Jack Tone Rd	Ripon City Limits	Jack Tone Bypass Rd	27.17	$2,436,200	0.0	10	1	3.9	10	0	24.9
2	23	III	Airport Way	Manteca City Limits	Stockton City Limits	4.48	$364,200	0.1	10	3	1.3	10	0	24.4
2	24	III	Manthey Rd	Lathrop City Limits	Briggs Rd	0.20	$26,800	0.0	10	4	0.0	10	0	24.0
2	25	III	Manthey Rd	South End	Lathrop City Limits	0.36	$47,600	0.0	10	4	0.0	10	0	24.0
2	26	III	McHenry Ave	County Line	Escalon City Limits	0.89	$115,400	0.0	0	4	0.0	10	10	24.0
2	27	III	French Camp Rd	El Dorado St	SR 120	10.17	$809,900	0.0	10	2	1.3	10	0	23.3
2	28	III	Eighth St	B St	D St	0.21	$300	2.4	0	5	5.0	10	0	22.4
2	29	III	Cortez Ave	Balboa Ave	Thornton Rd	0.24	$18,100	8.2	0	4	0.0	10	0	22.2
2	30	III	Alpine Ave	Rainer Ave	Mission Rd	1.64	$2,000	2.1	0	5	5.0	10	0	22.1
2	31	III	Beckman Rd	Kettleman Ln	Harney Ln	1.10	$1,300	1.8	0	5	5.0	10	0	21.8
2	32	II	Wilson Way	Stockton City Limits	SR N 99 Frontage Rd	1.98	$44,200	2.0	0	4	5.0	10	0	21.0
2	33	I	Frontage Rd Rail Trail	Austin Rd	Ripon City Limits	1.76	$2,000,500	0.0	10	1	0.0	10	0	21.0
2	34	III	El Dorado Ave	Mathews Rd	Stockton City Limits	1.02	$1,200	1.0	0	5	5.0	10	0	21.0
2	35	III	Ash St	El Dorado St	French Camp Rd	0.38	$27,800	1.3	0	4	5.0	10	0	20.3

Tier	Rank	Class	Name	From	To	Miles	Project Cost Estimate	Collision Score	Public Input Score	Feasibility: Cost Estimate Score	Feasibility: ROW Score	Local Connection Score	Regional Connection Score	TOTAL SCORE
2	36	III	West Ln	Eight Mile Rd	Lodi City Limits	3.43	$4,100	0.3	0	5	5.0	10	0	20.3
2	37	II	Lower Sacramento Rd	Mokelumne St	Lodi City Limits	0.25	$46,500	6.0	0	4	0.0	10	0	20.0
2	38	III	Thornton Rd	Stockton City Limits	Devries Rd	1.06	$78,200	0.9	0	4	5.0	10	0	19.9
2	39	III	Manthey Rd	Briggs Rd	French Camp Rd	2.84	$69,400	0.4	0	4	5.0	10	0	19.4
2	40	III	Austin Rd S	Louise Ave	Manteca City Limits	0.26	$19,300	0.0	0	4	5.0	10	0	19.0
2	41	III	Austin Rd S	Manteca City Limits	SR 120	0.28	$42,800	0.0	0	4	5.0	10	0	19.0
2	42	III	Grant Line Rd	Eleventh St	Tracy City Limits	1.78	$46,400	0.0	10	4	5.0	0	0	19.0
2	43	III	Toleri Rd	Canal Blvd	East End	0.28	$30,900	0.0	10	4	5.0	0	0	19.0
2	44	III	Tretheway Rd (One Way)	Locke Rd	SR 12	0.52	$31,600	0.0	10	4	5.0	0	0	19.0
2	45	III	Wolfe Rd	Howard Rd	French Camp Rd	1.27	$239,300	0.4	0	3	5.0	10	0	18.4
2	46	III	New Hope Rd	Thornton Rd	County Line	0.83	$220,400	0.0	0	3	5.0	0	10	18.0
2	47	III	Lower Sacramento Rd	Harney Ln	Stockton City Limits	3.11	$469,100	0.2	0	2	5.0	10	0	17.2
2	48	III	Blossom Rd	Walnut Grove Rd	Peltier Rd	2.72	$779,500	0.0	10	2	5.0	0	0	17.0
2	49	III	Live Oak Rd	SR 88	Jack Tone Rd	1.86	$493,200	0.0	10	2	5.0	0	0	17.0
2	50	III	Tully Rd	Brandt Rd	SR 12/88	1.45	$293,300	0.7	10	3	2.5	0	0	16.2
2	51	III	Main St	Stockton City Limits	Alpine Rd	2.90	$199,100	2.2	0	3	0.9	10	0	16.2
3	52	III	Comstock Rd	Duncan Rd	Waterloo Rd/SR 88	4.68	$1,063,700	0.0	10	1	5.0	0	0	16.0
3	53	III	Live Oak Rd	SR N 99 Frontage Rd E	SR 88	4.09	$829,700	0.0	10	2	3.3	0	0	15.3
3	54	III	Kile Rd	Ray Rd	Thornton Rd	3.23	$858,200	0.0	10	2	2.5	0	0	14.5

Tier	Rank	Class	Name	From	To	Miles	Project Cost Estimate	Collision Score	Public Input Score	Feasibility: Cost Estimate Score	Feasibility: ROW Score	Local Connection Score	Regional Connection Score	TOTAL SCORE
3	55	III	Ray Rd	Turner Rd	Kile Rd	4.08	$1,005,500	0.1	10	1	3.3	0	0	14.5
3	56	III	Duncan Rd	N/O Front St	SR 26	0.39	$39,000	0.0	10	4	0.0	0	0	14.0
3	57	III	Hammond St	Jack Tone Rd	Tully Rd	0.10	$22,800	5.0	0	4	5.0	0	0	14.0
3	58	III	Harney Ln	Beckman Rd	Lodi City Limits	0.16	$42,600	0.0	0	4	0.0	10	0	14.0
3	59	III	Lathrop Rd	Cottage Ave	Austin Rd S	0.75	$55,300	0.0	0	4	0.0	10	0	14.0
3	60	III	Peltier Rd	Rond Rd	Thornton Rd	0.30	$62,700	0.0	10	4	0.0	0	0	14.0
3	61	III	Locke Rd (One Way)	Tretheway Rd	SR 12/88	1.67	$296,800	0.3	10	3	0.0	0	0	13.3
3	62	III	Tracy Blvd	Lammers Rd	Howard Rd	6.27	$664,300	0.0	10	2	1.3	0	0	13.3
3	63	III	Micke Grove Rd	Eight Mile Rd	Armstrong Rd	2.02	$388,000	0.2	0	3	0.0	10	0	13.2
3	64	II	Mokelumne St	Chestnut St	Lower Sacramento Rd	0.32	$7,100	3.1	0	1	5.0	0	0	9.1
3	65	III	Duncan Rd	Comstock Rd	N/O Front St	1.50	$341,500	0.0	10	3	0.0	0	0	13.0
3	66	III	Hansen Rd	Schulte Rd	End of County Maintained Road	0.80	$213,600	0.0	0	3	0.0	0	10	13.0
3	67	III	Lathrop Rd	SR 99	Cottage Ave	0.89	$203,300	0.0	0	3	0.0	10	0	13.0
3	68	III	Murphy Rd	River Rd	Ripon City Limits	1.02	$272,100	0.0	0	3	0.0	10	0	13.0
3	69	I	Wilson Way	SR N 99 Frontage Rd	SR 99	0.37	$370,400	0.0	0	3	0.0	10	0	13.0
3	70	III	Duncan Rd	SR 26	Copperopolis Rd	3.15	$770,900	0.0	10	2	0.0	0	0	12.0
3	71	III	Peltier Rd	Blossom Rd	Rond Rd	2.10	$638,000	0.0	10	2	0.0	0	0	12.0

Tier	Rank	Class	Name	From	To	Miles	Project Cost Estimate	Collision Score	Public Input Score	Feasibility: Cost Estimate Score	Feasibility: ROW Score	Local Connection Score	Regional Connection Score	TOTAL SCORE
3	72	I	Toleri/Manthey Multi-Use Connector	Toleri Rd	Manthey Rd	0.77	$762,200	0.0	10	2	0.0	0	0	12.0
3	73	III	West Ripon Rd	Manteca Rd	Ripon City Limits	3.87	$434,500	0.0	0	2	0.0	10	0	12.0
3	74	III	Woodbridge Rd	Ray Rd	Lucas Rd	2.91	$550,000	0.0	10	2	0.0	0	0	12.0
3	75	I	Duck Creek	B St	SR 99	1.23	$1,391,200	0.4	0	1	0.0	10	0	11.4
3	76	III	Cardinal Ave	Main St	SPRR	0.86	$1,000	2.9	0	5	3.3	0	0	11.2
3	77	III	Turner Rd	Thornton Rd	Lodi City Limits	5.20	$1,243,800	0.2	0	1	0.0	10	0	11.2
3	78	III	Durham Ferry Rd	Kasson Rd	Chrisman Rd	6.95	$1,744,100	0.0	10	1	0.0	0	0	11.0
3	79	III	Jack Tone Rd	Jack Tone Bypass Rd	Hammond St	0.48	$108,400	1.0	0	4	5.0	0	0	10.0
3	80	III	Canal Blvd	Toleri Rd	Berry Ave	0.30	$86,700	0.0	0	4	5.0	0	0	9.0
3	81	II	Schulte Rd	Hansen Rd	Mountain House Pky	1.03	$62,700	0.0	0	4	5.0	0	0	9.0
3	82	III	Kasson Rd	Durham Ferry Rd	Linne Rd	1.06	$201,200	0.5	0	3	5.0	0	0	8.5
3	83	III	Berry Ave	Canal Blvd	Grant Line Rd	1.04	$277,300	0.0	0	3	5.0	0	0	8.0
3	84	III	Brandt Rd	Tully Rd	SR 12/88	1.40	$301,500	0.0	0	3	5.0	0	0	8.0
3	85	III	Von Sosten Rd	Byron Rd	Currier Dr	1.23	$278,600	0.0	0	3	5.0	0	0	8.0
3	86	II	Woodbridge Rd	Windwood Dr	Chestnut St	0.66	$14,400	1.5	0	5	1.3	0	0	7.8
3	87	III	Armstrong Rd	Lower Sacramento Rd	Davis Rd	1.27	$410,500	0.4	0	2	5.0	0	0	7.4
3	88	III	Kasson Rd	Linne Rd	Critchett Rd	2.16	$490,900	0.2	0	2	5.0	0	0	7.2
3	89	III	Copperopolis Rd	Alpine Rd	Hewitt Rd	7.99	$648,800	0.1	0	2	5.0	0	0	7.1
3	90	III	Copperopolis Rd	Hewitt Rd	Escalon-Bellota Rd	2.28	$605,900	0.0	0	2	5.0	0	0	7.0
3	91	III	Dodds Rd	Escalon-Bellota Rd	County Line	4.01	$912,500	0.0	0	2	5.0	0	0	7.0

Tier	Rank	Class	Name	From	To	Miles	Project Cost Estimate	Collision Score	Public Input Score	Feasibility: Cost Estimate Score	Feasibility: ROW Score	Local Connection Score	Regional Connection Score	TOTAL SCORE
3	92	III	Kasson Rd	Critchett Rd	Eleventh St	3.53	$667,400	0.0	0	2	5.0	0	0	7.0
3	93	III	West Ripon Rd	Airport Way	Manteca Rd	2.06	$547,300	0.0	0	2	5.0	0	0	7.0
3	94	III	Von Sosten Rd	Currier Dr	Mountain House Pky	1.58	$47,900	0.0	0	4	1.7	0	0	5.7
3	95	III	Lammers Rd	Tracy City Limits (Schulte Rd)	Tracy City Limits (S. of the Delta Mendota Canal)	1.41	$345,400	0.0	0	3	2.5	0	0	5.5
3	96	III	Corral Hollow Rd	Larch Rd West	Tracy City Limits	0.52	$108,800	1.0	0	4	0.0	0	0	5.0
3	97	III	Cardinal Ave	SPRR	Fremont St	0.51	$96,700	0.0	0	4	0.0	0	0	4.0
3	98	III	Corral Hollow Rd	Lammers Rd	Larch Rd West	1.72	$457,900	0.0	0	2	0.0	0	0	2.0
3	99	III	Escalon-Bellota Rd	Copperopolis Rd	SR 4	3.01	$683,400	0.0	0	2	0.0	0	0	2.0

8.3. Bikeway Cost Estimates

This section describes the cost estimate methodology and presents the cost estimates for the recommended bikeway projects. The proposed San Joaquin County bikeway network is comprised of approximately 300 miles of recommended facilities requiring an efficient cost estimating methodology. After developing the proposed bicycle network, cost estimates were developed for the projects based on the assumptions outlined below.

Cost estimates include assumptions for Class I, II and III bikeways. This Plan assumes Class I multi-use paths will be 10-feet of paved surface bound on either side with 2-foot shoulders. Signage will comply with the CA MUTCD (California Manual of Uniform Traffic Control Devices) and AASHTO (American Association of State Highway and Transportation Officials) Guide for the Development of Bicycle Facilities. Class II bike lane cost estimates reflect the minimum Caltrans Class II standards.

Class III bikeway cost estimates are based on County roadway classifications and roadway characteristics. It is important for this Plan to clarify what is recommended for each facility based on roadway classification, and to present appropriate guidelines for each roadway classification identifying minimum shoulder width. Cost estimates assume roadway or shoulder widening on all rural roadways where existing paved width is insufficient to provide the desired widths. Cost estimates for Class III bicycle routes are based on the following minimum shoulder widths:

1) Minimum four-foot clear shoulder width for the following roadway classifications:
   a) Urban Local
   b) Rural Local
2) Minimum five-foot shoulder width for the following roadway classifications:
   a) Urban Major Collector
   b) Rural Major Collector
   c) Rural Minor Collector
3) Minimum six-foot shoulder width for the following roadway classifications:
   a) Urban Principal Arterial – Interstate
   b) Urban Principal Arterial – Other Freeways or Expressways
   c) Urban Other Principal Arterial
   d) Urban Minor Arterial
   e) Rural Principal Arterial – Interstate
   f) Rural Other Principal Arterial
   g) Rural Minor Arterial

Table 8-4 outlines the estimated unit costs for developing bicycle facilities in San Joaquin County. **Appendix B** includes a detailed description of unit and project cost estimates. Unit costs presented are planning level cost estimates based on typical or average costs. Planning level cost estimates do not reflect project specific factors, such as intensive grading, landscaping, intersection modifications, and right-of-way acquisition, which may increase the actual cost of construction. These project specific cost factors are not included for any project specific cost estimates, resulting in an unknown margin of error. Project costs for some segments may be significantly greater.

Table 8-4: Estimated Bicycle Facility Unit Costs

Item	Unit	Unit Cost
Excavation	Cubic Yard	$40
Asphalt Concrete	Ton	$80
Aggregate Base	Cubic Yard	$55
Striping	Foot	$2
Pavement Marking	Each	$90
Signs	Each	$150
Bridge Railing	Foot	$125

Before constructing recommended facilities, additional fieldwork will be required to verify conditions. These include but are not limited to: roadway widths, right-of-way, travel lanes, bicycle and motor vehicle travel patterns and conflicts, signal timing and actuation, and pavement conditions. Final bikeway treatments should be selected based on verified conditions.

Based on unit costs, existing roadway paved width, anticipated required roadway expansion, striping, pavement marking, signage and other related items needed to construct the recommended bikeway facilities, the build out of the entire system is estimated to cost approximately $63,400,400. **Table 8-5** outlines estimated costs by facility type for the entire recommended network. Because of the high number of bridges on Class III facilities, the average cost per mile is higher than for typical bike routes.

Table 8-5: Estimated Cost Summary by Bikeway Type

Bikeway Class	Miles	Cost Estimate	Average Cost per Mile
Class I	4.13	$4,524,300	$1,095,500
Class II	5.88	$583,900	$99,200
Class III	270.24	$38,996,200	$144,300
Utility Allowance and Contingency	---	$19,295,800	**---**
Totals	**280.25**	**$63,400,200**	**---**

Build-out of the recommended system will result in approximately 280 new miles of bicycle facilities in San Joaquin County. Of these facilities, approximately four miles are proposed multi-use paths, while the remaining 276 miles are on-street facilities. Approximately six miles of the on-street facilities are proposed bike lanes in urbanized areas, and the rest are proposed bike routes. A summary of estimated costs for the recommended bicycle network provided by this plan is presented in **Table 8-6** below. The cost of the Tier 1 potential projects, which have the highest recommendation, is estimated to be $5,364,900. The estimated cost of the Tier 2 projects, intended for implementation in the next 6-10 years, is $17,113,000. The estimated cost of the Tier 3 long-term projects is $21,626,500. These costs estimates do not reflect project specific factors that may increase the actual cost of construction, such as intensive grading, landscaping, intersection modifications, and right-of-way acquisition.

Table 8-6: Estimated Cost Summary by Tier

Tier	Number of Projects	Cost Estimate
Tier 1	10	$5,364,900
Tier 2	41	$17,113,000
Tier 3	48	$21,626,500
Total	**98**	**$44,104,400**

8.4. Bikeway Maintenance Cost Estimates

Bikeways require regular maintenance and repair. On-street bikeways are maintained as part of normal roadway maintenance programs. Emphasis should be put on keeping the bike lanes and shoulders clear of debris and vegetation overgrowth from blocking visibility. The high cost of maintaining Class I facilities may be shared among various agencies or departments. The typical maintenance costs for bikeway facilities and an annual maintenance cost estimate for San Joaquin County is shown in **Table 8-7**.

It is estimated that the maintenance of the entire recommended bikeway network, as well as the existing facilities, would cost approximately $317,000 annually (rounded to the nearest thousand).

Table 8-7: Bikeway Maintenance Cost Estimates

Facility Type	Unit Cost	Description	Length (Miles)	Annual Cost	Notes
Class I	$8,500	Miles/Year	4.13	$35,000	Lighting and removal of debris/vegetation overgrowth.
Class II	$2,000	Miles/Year	5.88	$12,000	Repainting lanes and stencils, sign replacement as needed.
Class III	$1,000	Miles/Year	270.22	$270,000	Sign and stencil replacement as needed.
			Annual Cost	$317,000	

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9. Funding Sources

Funding for bicycle projects, programs, and plans comes from a variety of different sources. This chapter covers Federal, State, regional and local sources of bicycle funding, as well as some non-traditional funding sources used by local agencies to fund bicycle infrastructure and programs.

Funding Glossary

CTC
California Transportation Commission

FHWA
Federal Highway Administration

MPO
Metropolitan Planning Organization

RTIP
Regional Transportation Improvement Program

RTP
Regional Transportation Plan

RTPA
Regional Transportation Planning Agency

SAFETEA-LU
Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users

STIP
State Transportation Improvement Program

9.1. Federal Funding Sources

The primary federal source of surface transportation funding—including bicycle facilities—is SAFETEA-LU, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users. SAFETEA-LU is the fourth iteration of the transportation vision established by Congress in 1991 with the Intermodal Surface Transportation Efficiency Act (ISTEA), and renewed in 1998 and 2003 through the Transportation Equity Act for the 21st Century (TEA-21) and the Safe, Accountable, Flexible, and Efficient Transportation Equity Act of 2003 (SAFETEA). Also known as the federal transportation bill, the $286.5 billion SAFETEA-LU bill was passed in 2005 and authorizes Federal surface transportation programs for the five-year period between 2005 and 2009. Existing funding has been extended during the reauthorization process.

SAFETEA-LU 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 inter-modal connections. SAFETEA-LU funding is intended for capital improvements, as well as safety and education programs. Projects must relate to the surface transportation system and require a local match of 11.47 percent.

Specific funding programs under SAFETEA-LU include, but are not limited to:

- Congestion Mitigation and Air Quality (CMAQ) – Funding for projects likely to contribute to the attainment of national ambient air quality standards.
- Transportation, Community and System Preservation Program—$270 million nationally over five years
- Recreational Trails Program—$370 million nationally through 2009 for non-motorized trail projects
- Federal Lands Highway Funds—Approximately $4.5 billion dollars nationally through 2009
- Safe Routes to School Program—$612 million nationally through 2009.

Specific funding programs under SAFETEA-LU are discussed below. When available, the program website address is listed following the discussion.

9.1.1. Congestion Mitigation and Air Quality Improvement Program

Congestion Mitigation and Air Quality Improvement Program (CMAQ) funds are directed to transportation projects and programs that contribute to the attainment or maintenance of National Ambient Air Quality Standards in non-attainment or air quality maintenance areas for ozone, carbon monoxide, or particulate matter under provision in the Federal Clean Air Act. The fund is administered by Caltrans. Bicycle and pedestrian projects and programs are eligible for funding. About $1.7 Billion dollars are available nationwide per year. Estimated annual program level for California is $360 Million. Federal share payable is up to 100 percent for 2008/09.

http://www.dot.ca.gov/hq/LocalPrograms/lam/Transportation_Funding_Guidebook.pdf

9.1.2. Transportation, Community and System Preservation Program

The Transportation, Community and System Preservation (TCSP) 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. This program provides communities with the resources to explore the integration of their transportation system with community preservation and environmental activities. TCSP Program funds require a 20 percent match.

9.1.3. Regional Surface Transportation Program

The Regional Surface Transportation Program (RSTP) is a block grant program that provides funding for bicycle projects, among many other transportation projects. Under the RSTP, Metropolitan Planning Organizations (MPOs), such as the SJCOG, prioritize and approve projects that will receive RSTP funds. The MPO distributes the RSTP funds to local jurisdictions. MPOs can transfer funding from other federal transportation sources to the RSTP program to gain more flexibility with the way the monies are allocated. In California, 62.5 percent of RSTP funds are allocated according to population. The remaining 37.5 percent is available statewide.

9.1.4. Regional Transportation Improvement Program

The Regional Transportation Improvement Program (RTIP) is a derivative of the STIP program, and identifies projects which are needed to improve regional transportation. Such projects may include bicycle facilities, safety projects and grade separations, among many others. RTIP project planning, programming and monitoring may be funded with up to 5 percent of total RTIP funds in urbanized regions. The MPO prepares the RTIP, consisting of projects to be funded through STIP, and helps to prioritize projects. Funded projects must be identified in the Regional Transportation Plan.

9.1.5. Recreational Trails Program

The Recreational Trails Program of SAFETEA-LU provides funding for states to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. Examples of trail uses include hiking, bicycling, in-line skating, equestrian use, and other motorized uses. In California, the funds are administered by the California Department of Parks and Recreation. Six million dollars was available in 2008. RTP projects must be ADA compliant, and may be used for the following:

- 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)
- Operation of educational programs to promote safety and environmental protection related to trails (limited to five percent of a State's funds).

www.fhwa.dot.gov/environmnet/rectrails/index.htm

9.1.6. Land and Water Conservation Fund

Land and Water Conservation Fund is a federally funded program that provides grants for planning and acquiring outdoor recreation areas and facilities, including trails. 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. Applicants must fund the entire project, and are reimbursed for 50 percent of costs. Property acquired or developed under the program must be retained in perpetuity for public recreational use. The grant process for local agencies is competitive, and 40 percent of grants are reserved for Northern California.

9.1.7. Rivers, Trails and Conservation Assistance Program

The Rivers, Trails and Conservation Assistance Program (RTCA) is a National Parks Service program that provides technical assistance, via direct staff involvement, to establish and restore greenways, rivers, trails, watersheds and open space. The RTCA program provides only for planning assistance—there are no implementation monies available. Projects are prioritized for assistance based upon criteria which include conserving significant community resources, fostering cooperation between agencies, serving a large number of users, encouraging public involvement in planning and implementation and focusing on lasting accomplishments.

9.1.8. Conservation Grant Block Program

The U.S. Department of Energy Conservation Grant Block program funds are available to assist state, local, territorial and tribal governments in implementing strategies to reduce fossil fuel emissions, energy use, and improve energy efficiency. Eligible programs include bike lanes and multi-use paths.

9.1.9. Federal Lands Highway Funds

Federal Lands Highway Funds may be used to build bicycle 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 MPO (Metropolitan Transportation Commission). Federal Lands Highway Funds may be used for planning and construction.

9.2. Statewide Funding Sources

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

9.2.1. Bicycle Transportation Account

The Bicycle Transportation Account (BTA) provides state funding for local projects that improve the safety and convenience of bicycling for transportation. Because of its focus on transportation, BTA projects, including trails, must provide a transportation link. Funds are available for both planning and construction. To be eligible for funding, cities and counties must have an adopted Bicycle Transportation Plan that is approved by Caltrans, who administers the funds.. Bicycle Transportation Plans must be approved by Caltrans. Out of $5 million available statewide, the maximum amount available for individual projects is $1.2 million.

http://www.dot.ca.gov/hq/LocalPrograms/bta/btawebPage.htm

9.2.2. Transportation Development Act Article 3

This state program specifies that one quarter cent of the gasoline tax is returned to the county of origin, where the money will fund transportation improvements that primarily benefit bicyclists and pedestrians.

http://www.dot.ca.gov/hq/MassTrans/State-TDA.html

9.2.3. Wildlife Conservation Board's Public Access Program

This program provides funding for the acquisition of lands or improvements that preserve wildlife habitat, or provide recreational access for hunting, fishing or other wildlife-oriented activities. Up to $250,000 dollars is available per project, and applications are accepted quarterly. Projects eligible for funding include interpretive trails, river accesses, and trailhead parking areas. The State of California must have a proprietary interest in the project, but local agencies are generally responsible for the planning and engineering phases of each project.

http://www.wcb.ca.gov/

9.2.4. California Conservation Corps

The California Conservation Corps (CCC) is a public service program which occasionally provides assistance on construction projects. The CCC may be written into grant applications as a project partner. In order to utilize CCC labor, project sites must be public land or publicly accessible. CCC labor cannot be used to perform regular maintenance; however, they will perform annual maintenance, such as the opening of trails in the spring.

http://www.ccc.ca.gov/

9.2.5. Federal Safe Routes to School and California Safe Routes to School

Caltrans administers funding for Safe Routes to School projects through two separate and distinct programs: the state-legislated program (SR2S) and the federally-legislated program (SRTS). Both programs competitively award reimbursement grants with the goal of increasing the number of children who walk or bicycle to school. However, the programs differ in some important respects.

The California Safe Routes to School Program expires January 1, 2013, requires a 10 percent local match, targets children in grades K-12 and is eligible to both cities and counties. The fund is primarily for construction, but up to 10 percent of the program funds can be used for education, encouragement, enforcement and evaluation activities. Forty-eight million dollars were available for Cycle 8 (FY 08/09 and 09/10).

The Federal Safe Routes to School Program reimburses 100 percent, targets children in grades K-8, and is eligible to cities, counties, school districts, non-profits, and tribal organizations. Program funds can be used for construction or for education, encouragement, enforcement and evaluation activities. Construction must be within 2 miles of a grade school or middle school. Forty-six million dollars are available for Cycle 2 (FY 08/09 and 09/10). Although the program expired September 20, 2009, it is currently working under a continuing resolution.

http://www.dot.ca.gov/hq/LocalPrograms/saferoutes/saferoutes.htm

9.2.6. Environmental Justice: Context Sensitive Planning Grants

The Caltrans administered Environmental Justice: Context Sensitive Planning Grants promotes context sensitive planning in diverse communities. It also funds planning activities that assist low-income, minority and Native American communities to become active participants in transportation planning and project development. Grants are available to transit districts, cities, counties and tribal governments. This State Highway Account funds $1.5 million annually. The cap for statewide grants is $250,000.

http://www.dot.ca.gov/hq/tpp/grants.html

9.2.7. Office of Traffic Safety Grants

The California Office of Traffic Safety distributes federal funding apportioned to California under the National Highway Safety Act and SAFETEA-LU. Grants are used to establish new traffic safety programs, expand ongoing programs or address deficiencies in current programs. Bicycle safety is included in the list of traffic safety priority areas. Eligible grantees are: governmental agencies, state colleges and universities, school districts, fire departments, and public emergency services providers. Grant funding cannot replace existing program expenditures, nor can traffic safety funds be used for program maintenance, research, rehabilitation or construction. Grants are awarded on a competitive basis, and priority is given to agencies with the greatest need. Evaluation criteria to assess needs include: potential traffic safety impact, collision statistics and rankings, seriousness of problems, and performance on previous OTS grants. OTS awarded $82 million in funding statewide for FY 2009/10.

http://www.ots.ca.gov/Grants/default.asp

9.2.8. 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, MPO's and RPTA's. A 20 percent local match is required, and projects must demonstrate a transportation component or objective. There are three million dollars available annually statewide.

http://www.dot.ca.gov/hq/tpp/grants.html

9.3. Regional Funding Sources

9.3.1. San Joaquin Council of Governments Measure K Funding

The San Joaquin Council of Governments administers a ½-cent sales tax dedicated to transportation projects. Priority is given to bicycle commute projects on a separate right-of-way. Since its inception, four percent of funds have been used for bicycle facilities.

9.4. Non-Traditional Funding Sources

9.4.1. Community Development Block Grants

The Community Development Block Grants (CDBG) program provides money for streetscape revitalization. Federal Community Development Block Grant grantees may "use CDBG 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 CDBG funds; provide public services for youths, seniors, or the disabled; and initiatives such as neighborhood watch programs." $39 million in CDBG funds were distributed statewide in 2008.

www.hud.gov/offices/cpd/communitydevelopment/programs/index.cfm

9.4.2. Requirements for New Developments

With the increasing support for "routine accommodation" and "complete streets," requirements for new development, road widening and new commercial development provide opportunities to efficiently construct bicycle facilities.

9.4.3. Impact Fees

One potential local source of funding is developer impact fees, typically tied to trip generation rates and traffic impacts produced by a proposed project. A developer may attempt to reduce the number of trips (hence, impacts and cost) by paying for on- and off-site bicycle improvements designed to encourage residents, employees and visitors to the new development to bike rather than drive. Establishing a clear nexus, or connection, between the impact fee and the project's impacts is critical to ensure legal soundness.

9.4.4. Mello-Roos Community Facilities Act

The Mello-Roos Community Facilities Act was passed by the Legislature in 1982 in response to reduced funding opportunities brought about by the passage of Proposition 13. The Mello-Roos Act allows any county, city, special district, school district or joint powers of authority to establish a Community Facility Districts (CFD) for the purpose of selling tax-exempt bonds to fund public improvements within that district. CFDs must be approved by a two-thirds margin of qualified voters in the district. Property owners within the district are responsible for paying back the bonds.

http://mello-roos.com/pdf/mrpdf.pdf

9.4.5. Volunteer and Public-Private Partnerships

Volunteer programs may substantially reduce the cost of implementing some of the proposed pathways. Use of groups, such as the California Conservation Corp (who offers low cost assistance), will be effective at reducing project costs. Local schools or community groups may use the bikeway projects as a project for the year, possibly working with a local designer or engineer. Work parties may be formed to help clear the right-of-way where needed. A local construction company may donate or discount services. A challenge grant program with local businesses may also be a good source of local funding, where corporations 'adopt' a bikeway, helping construct and maintain the facility.

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A. Appendix A. Bicycle Design Guidelines

The design guidelines presented in this appendix are a combination of minimum standards outlined by the California Highway Design Manual's Chapter 1000, recommended standards prescribed by the American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities, the CA MUTCD, and design recommendations developed specifically for San Joaquin County. The minimum standards and guidelines presented by Chapter 1000 and AASHTO provide basic information about the design of bicycle network infrastructure, such as bicycle lane dimensions, striping requirements and recommended signage and pavement markings. Guidelines addressing more complicated bicycle facility design issues provide solutions for safely accommodating bicyclists through major arterial intersections, freeway interchanges, at transit stops and in other situations.

The minimum standards for bicycle facilities used in combination with the design recommendations for specific San Joaquin County bicycle facility issues should provide the foundation for a safe, functional and inviting bicycle network.

A.1. Caltrans Bikeway Classification Overview

Description

Caltrans has defined three types of bikeways in Chapter 1000 of the Highway Design Manual: Class I, Class II, and Class III. Minimum standards for each of these bikeway classifications are shown below.

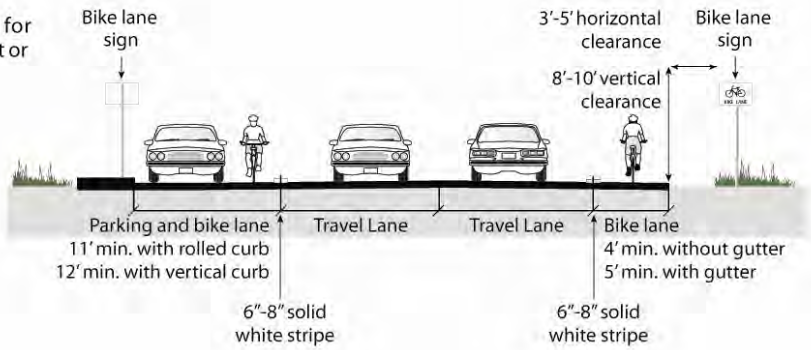
Graphic

CLASS I
Bikeway

Provides a completely separated right of way for the exclusive use of bicycles and pedestrians with crossflow minimized.

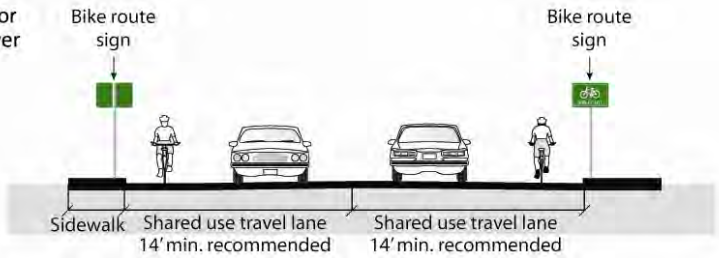
CLASS II
Bike Lane

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



CLASS III
Bike Route
Signed Shared Roadway

Provides for shared use with pedestrian or motor vehicle traffic, typically on lower volume roadways.

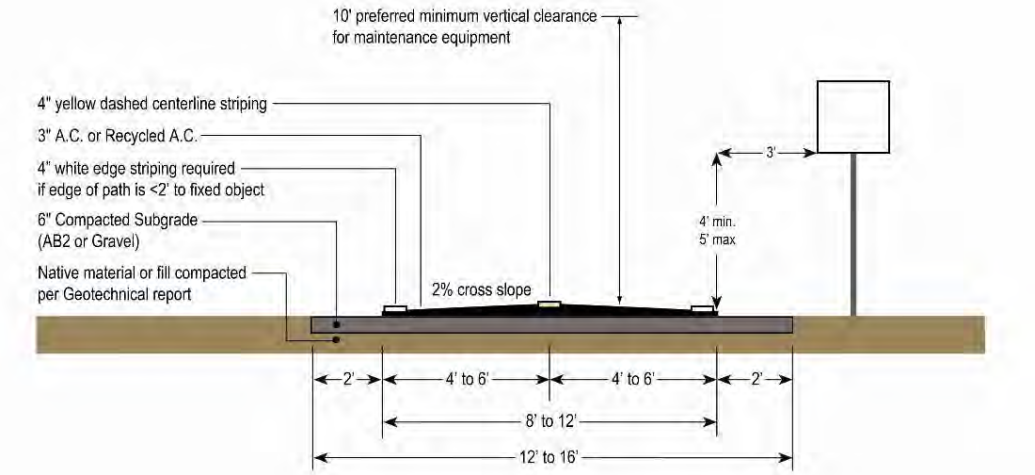


A.2. Class I Bike Path Minimum Standards

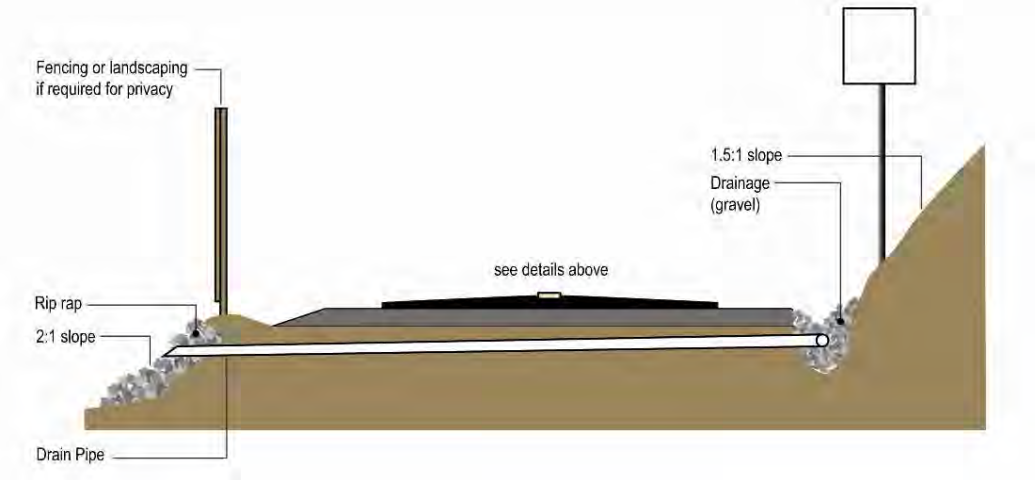
Description

In order to accommodate both bicyclists and pedestrians, Class I paths should be designed to the minimum Caltrans standards shown below. In locations with high use, or on curves with limited sight distance, a yellow centerline should be used to separate travel in opposite directions. High use areas of the pathway should also provide additional width (up to 12 feet) as recommended below. Lighting should be provided in locations where evening use is anticipated, or where paths cross below structures.

Graphic



Implementation on Level Ground



Summary of Standards

- Eight-feet (2.4 meters) is the minimum width for Class I facilities.
- Eight-feet (2.4 meters) may be used for short neighborhood connector paths (generally less than one mile in length) due to low anticipated volumes of use.
- Ten-feet (3.0 meters) is the recommended minimum width for a typical two-way bicycle path.
- Twelve-feet (3.6 meters) 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.
- A minimum 2-foot (0.6 meter) wide graded area must be provided adjacent to the path to provide clearance from trees, poles, walls, guardrails, etc. A 2% cross slope is optimum. On facilities with expected heavy use, a yellow centerline stripe is recommended to separate travel in opposite directions.
- Paths should be constructed with adequate subgrade compaction to minimize cracking and sinking, and should be designed to accommodate appropriate loadings, including emergency vehicles.
- A 2% cross slope shall be provided to ensure proper drainage.
- Stopping sight distance should conform to the California Highway Design Manual.

Additional Considerations

Multi-use path facilities that serve primarily a recreation rather than a transportation function, and will not be funded with federal transportation dollars, may not be required to be designed to Caltrans standards. However, state and national guidelines have been created with user safety in mind, and should be followed. Wherever any multi-use pathway intersects with a street, roadway, or railway, standard traffic controls should always be used.

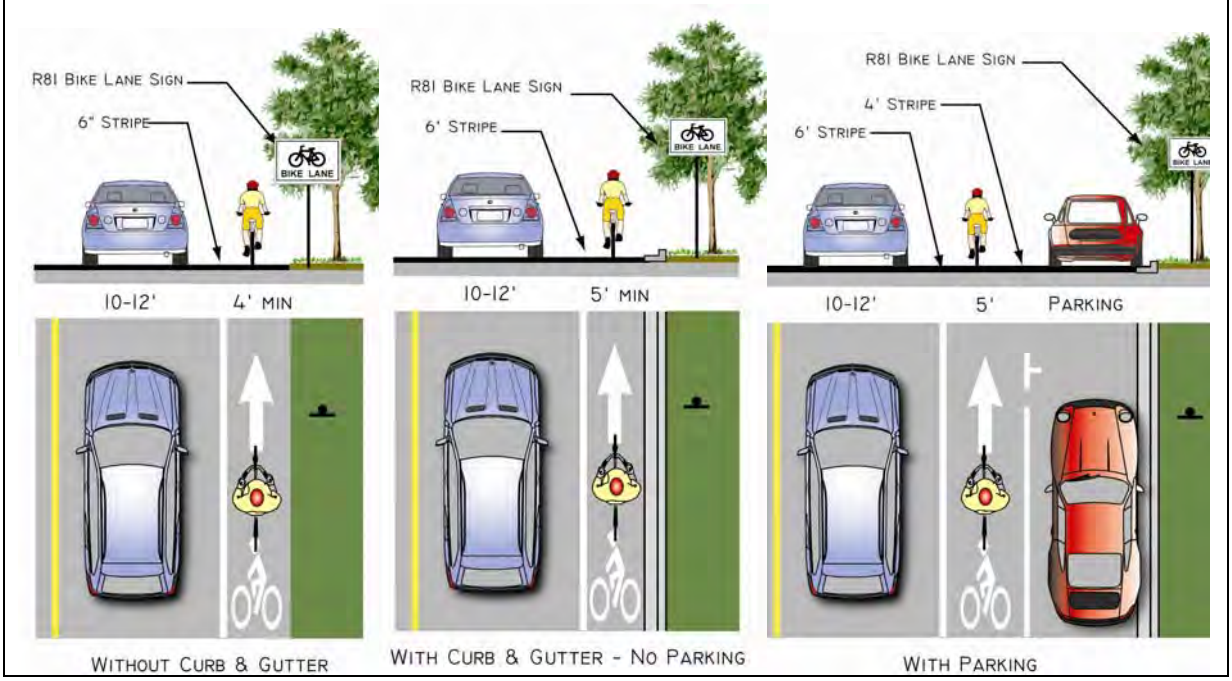
- Class I bike path crossings of roadways require preliminary design review. Generally, bike paths that cross roadways with average daily trips (ADTs) over 20,000 vehicles will require signalization or grade separation. Consider using bicycle signal heads at locations where paths meet signalized intersections.
- Landscaping should generally be low-water-consuming native vegetation and should have minimum debris.
- Lighting should be provided where commuters will use the bike path during hours of darkness. Illumination should be no less than 0.17-foot candle average maintained. Lighting should be spaced at a maximum of every 100 feet.
- Barriers at pathway entrances should be clearly marked with reflectors and ADA accessible (minimum five feet clearance).
- Bike path construction should take into account impacts of maintenance and emergency vehicles on shoulders, as well as vertical and structural requirements. Paths should be constructed with adequate subgrade compaction to minimize cracking and sinking.
- The width of structures should be the same as the approaching pathway width, plus minimum two-foot wide clear areas.
- Where feasible, provide two-foot wide unpaved shoulders for pedestrians/runners, or a separate treadway.
- Direct pedestrians to the right side of the pathway with signing and/or stenciling.

A.3. Class II Bike Lane Minimum Standards

Description

Chapter 1000 of the Caltrans Highway Design Manual provides standards for bicycle facilities planning and design. These standards outline minimum dimensions, proper pavement markings, signage and other design treatments for bicycle facilities.

Graphic



Summary of Standards

- Bicycle lanes shall be one-way facilities, running with the direction of traffic.
- Where on-street parking is allowed, bicycle lanes must be striped between the parking area and the travel lanes.
- Width of bicycle lane:
    1. Without an existing gutter, bicycle lanes must be a minimum of four-feet wide.
    2. With an existing gutter, bicycle lanes must be a minimum of five-feet wide measured from the curb face (within the bike lane, a minimum width of three feet must be provided outside the gutter).
    3. Where on-street parking stalls are marked and bicycle lanes are striped adjacent to on-street parking, bicycle lanes must be a minimum of five-feet wide.
    4. Where on-street parking is allowed but stalls are not striped, bicycle lanes must be a minimum of 12-feet wide measured from the curb face. Depending on the type and frequency of traffic, wider bicycle lanes may be recommended.
- Bicycle lane striping standards:
    1. Bicycle lanes shall be comprised of a six-inch solid white stripe on the outside of

the lane, and a four-inch solid white stripe on the inside of the lane.
2. Bicycle lanes must never be delineated with raised barriers.
3. The inside four-inch stripe of the bicycle lane should be dropped 200 feet prior to any intersection where right turns are permitted, and the outside six-inch stripe should be dashed in this location. Bicycle lanes are generally not marked through intersections.
4. Bicycle lanes shall never be striped to the right of a right-hand turn lane

- Bicycle lane signage standards:
  1. The R81 (CA) bicycle lane (shown on page A-12) sign shall be placed at the beginning of all bicycle lanes, on the far side of arterial street intersections, at all changes in direction and at a maximum of 0.6-mile intervals.
  2. Standard signage is shown in Chapter 9 of the 2006 California MUTCD.

Additional Considerations

Class II Bikeway - Additional Design Recommendations:

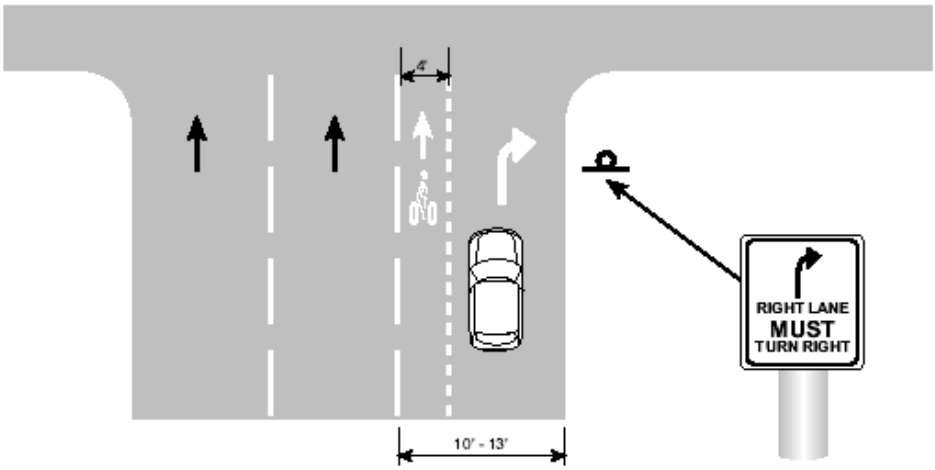
- Intersection and interchange treatment – Caltrans provides recommended intersection treatments in Chapter 1000 including bike lane "pockets" and signal loop detectors. The County should develop a protocol for the application of these recommendations, so that improvements can be funded and made as part of regular improvement projects.
- Bike lane pockets (min. four-feet wide) between right turn lanes and through lanes should be provided wherever available width allows, and right turn volumes exceed 150 motor vehicles/hour.
- Word and symbol pavement stencils should be used to identify bicycle lanes, as per Caltrans and MUTCD specifications.
- Bicycle lanes constructed on roadway shoulders that share use with slow moving agricultural equipment should be constructed with three-inch asphalt concrete over six-inches of aggregate base rock.

A.4. Shared Bicycle Right Turn Pocket

Description

This treatment places standard-width bicycle lane striping within left side of a dedicated right-hand turn lane when there is not enough room for both to be placed side-by-side. A dashed stripe delineates the space for bicyclists and motorists within the right-hand turn lane. Signs should be installed to instruct bicyclists and motorists of the usage of this facility. This is an experimental treatment not specified in Chapter 1000 of the Caltrans Highway Design Manual.

Graphic



Potential Applications

- At intersections along bicycle network streets where there is not enough space to implement a standard-width bicycle lane and a standard-width dedicated right-turn lane.
- At intersections along bicycle network streets with low speeds, low volumes of truck traffic (or other vehicles requiring large turning radii), and dedicated right-turn lanes.

Guidelines

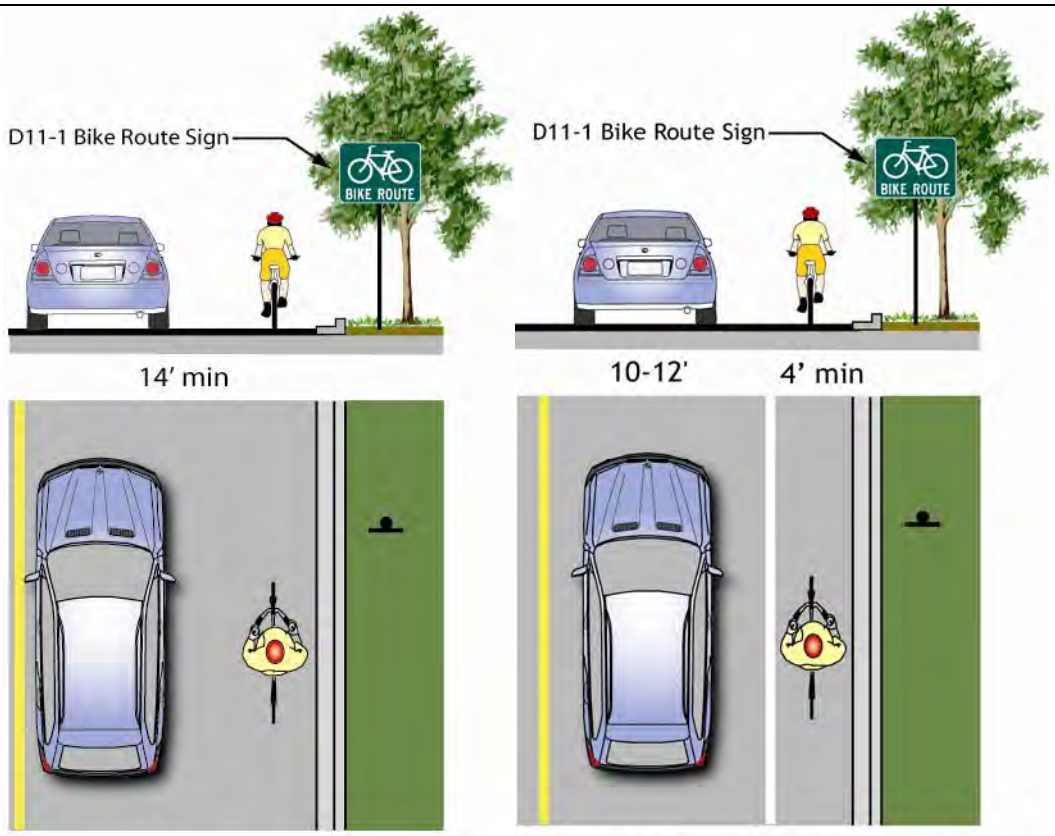
1. Dashed striping on the inside of the bicycle lane should be initiated 90-180 feet before the intersection, in accordance with the requirements of Chapter 1000.
2. Appropriate signage should be used to warn bicyclists and motorists of the shared lane treatment.

A.5. Class III Bike Route Minimum Standards

Description

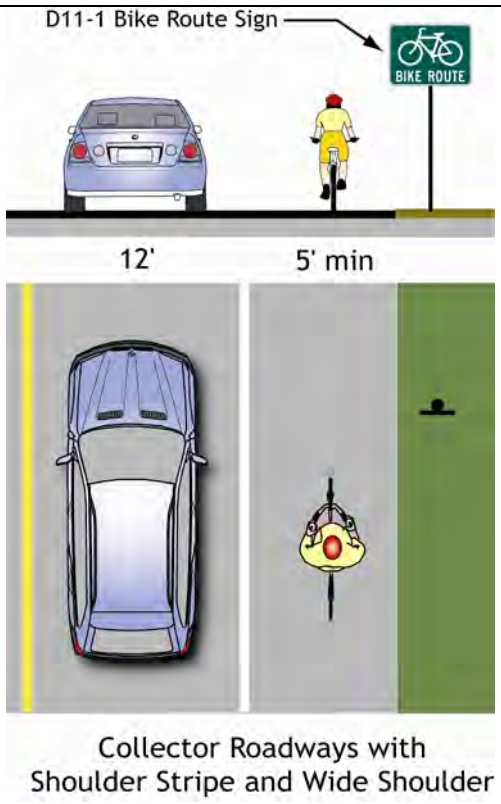
Chapter 1000 of the Caltrans Highway Design Manual provides standards for bicycle facilities planning and design. These standards outline minimum dimensions, proper pavement markings, signage and other design treatments for bicycle facilities. The following standards are guided by and meet Caltrans minimum requirements, however these standards are designed specifically for San Joaquin County.

Graphic

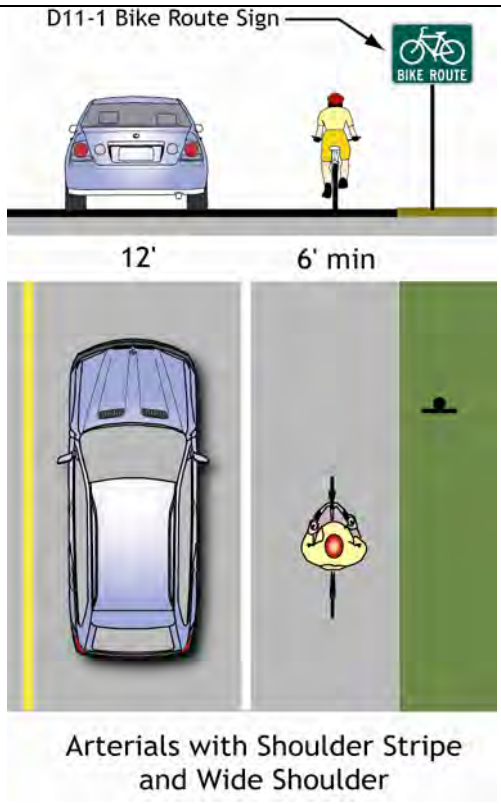


Local Roadways with Wide Outside Lane (14' min. recommended)

Local Roadways with Shoulder Stripe (4' min. recommended)



Collector Roadways with Shoulder Stripe and Wide Shoulder
(5' min. recommended)



Arterials with Shoulder Stripe and Wide Shoulder
(6' min. recommended)

Summary of Standards

- Class III bikeways provide routes through areas not served by Class I or II facilities or provide connections between discontinuous segments of Class I or II bikeways.
- Class III facilities can be shared with either motorists on roadways or pedestrians on a sidewalk (not advisable).
- Width of roadway:
    1. 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.
    2. 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
- Width of shoulder:
    1. A minimum four-foot clear shoulder width is recommended for the following roadway classifications:
        - Urban Local
        - Rural Local
    2. A minimum five-foot shoulder width is preferable for all collectors, especially for new roadways or when an existing roadway is rehabilitated. Four-foot shoulder widths are acceptable for collectors, especially where the existing roadway is 32-feet wide. Collectors include the following roadway classifications:
        - Urban Major Collector
        - Rural Major Collector
        - Rural Minor Collector
    3. A minimum six-foot shoulder width is recommended for the following roadway

classifications:

- Urban Principal Arterial – Interstate
- Urban Principal Arterial – Other Freeways or Expressways
- Urban Other Principal Arterial
- Urban Minor Arterial
- Rural Principal Arterial – Interstate
- Rural Other Principal Arterial
- Rural Minor Arterial

Four-foot shoulder widths are acceptable for arterials, especially where the existing roadway is 32-feet wide.

- Bicycle route signage standards:
  1. The D11-1 (CA) bicycle route sign shall be placed along the roadways at decision points, where users can turn onto or off the bikeway.
  2. Standard signage is shown in Chapter 9 of the 2006 California MUTCD.

Additional Considerations

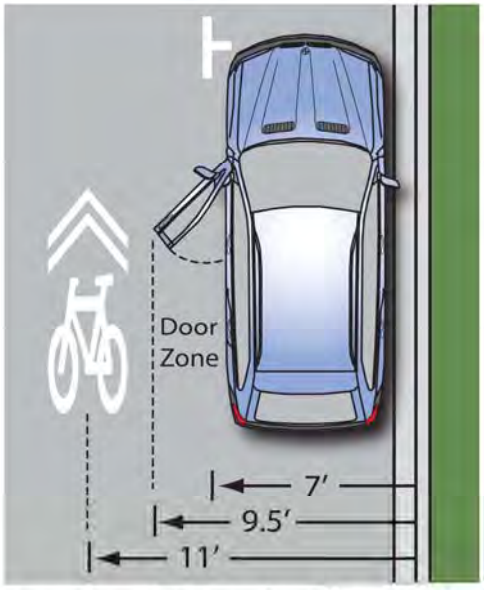
Bicycle routes on roadway shoulders that share use with slow moving agricultural equipment should be constructed with three-inch asphalt concrete over six-inches of aggregate base rock.

A.6. Shared Lane Marking

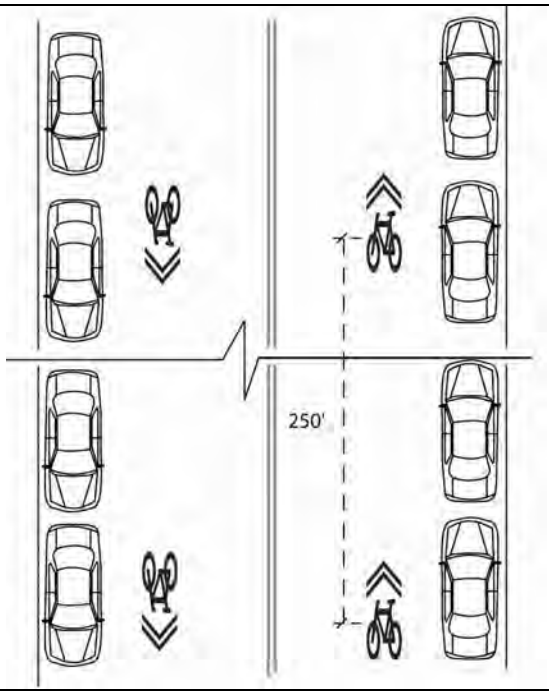
Description

The primary purpose of this shared use arrow is to provide positional guidance to bicyclists on roadways that are too narrow to be striped with bicycle lanes. Markings may be placed on the street to inform motorists about the presence of cyclists, and also to inform cyclists how to position themselves with respect to parked cars and the travel lane. The Shared Lane Arrow has been approved by Caltrans for use in California jurisdictions on streets with on-street parallel parking.

Graphic



Shared Lane Marking should be placed 11 feet minimum from curb.



Potential Applications

- Bicycle network streets that are too narrow for standard striped bicycle lanes.
- Bicycle network streets that have moderate to high parking turnover.
- Areas that experience a high level of "wrong-way" riding

Guidelines

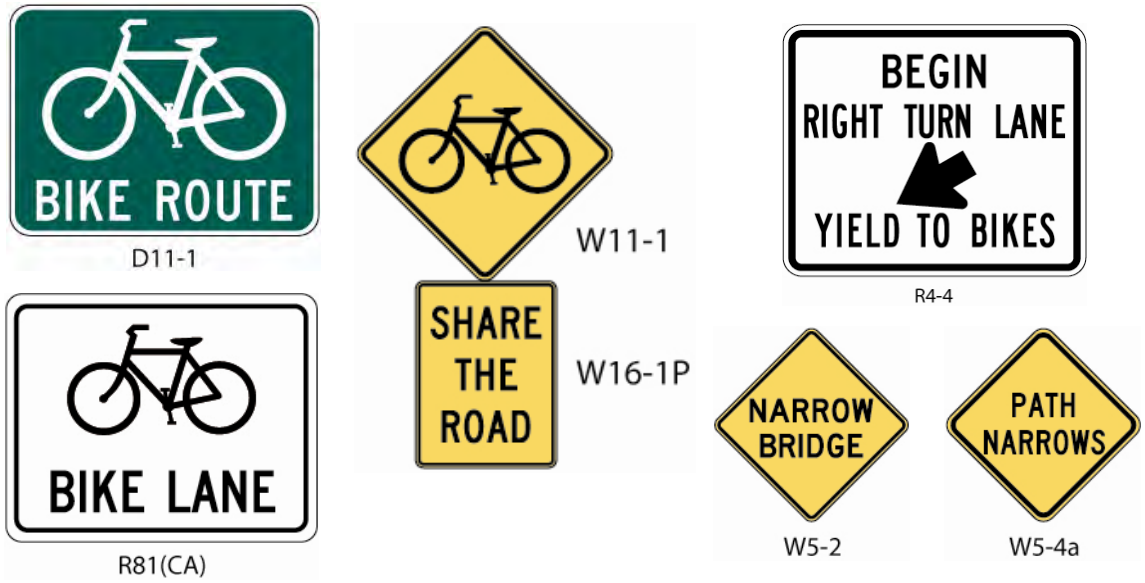
1. Shared lane markings should be installed in conjunction with “share the road” signs
2. Shared lane markings should be spaced approximately 250 feet center to center, with the first arrow on each block or roadway segment placed no further than 100 feet from the nearest intersection.

A.7. On-Street Bikeway Regulatory & Warning Signage

Description

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. The CA MUTCD provides further guidance on bikeway signage.

Graphic



Figures are from Chapter 9 of the 2010 MUTCD, California Supplement.

Potential Applications

- Various situations, specific to each site.
- The County should install SHARE THE ROAD signs along all Class III Bike Routes in addition to standard BIKE ROUTE signage.
- SHARE THE ROAD signs may be installed at one-half mile intervals along the designated route.

Guidelines

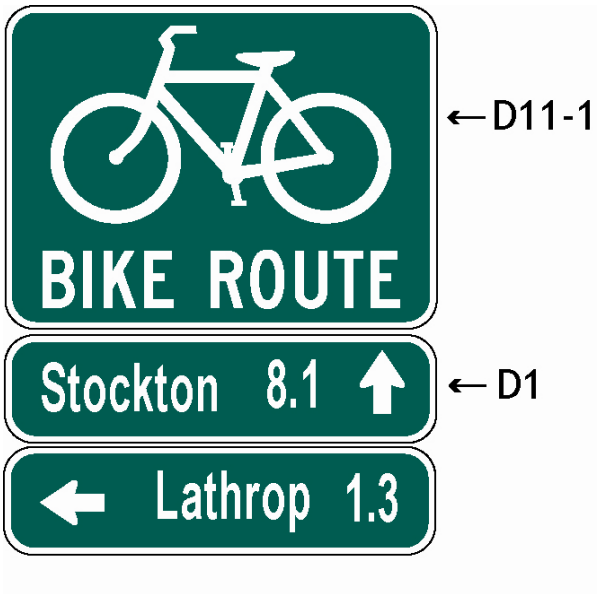
1. Signage should be installed on existing signposts if possible, reducing visual clutter along the path or roadway.
2. Bike route and bike lane signs should be placed at decision points.
3. Where there is significant distance between decision points, bike route and bike lane signs should be repeated at regular intervals to confirm the route.

A.8. Wayfinding Signage

Description

Wayfinding signage acts as a "map on the street" for bicyclists and is an important component of a bikeway network. Caltrans D11-1 and D-1 signage should be used on all designated bikeways at decision points, where users can turn onto or off the bikeway such as at an intersection.

Graphic



Potential Applications

- On all bikeways at decision points to inform bicyclists of route direction.

Guidelines

1. Wayfinding signage should be place at all intersections on the bikeway network, at minimum.
2. Signage should be installed on existing signposts if possible, reducing visual clutter along the path or roadway.
3. Where there is significant distance between decision points, wayfinding signage should be located at intervals of one-mile
4. Each sign should have a maximum of three destinations.
5. Signage should be focused on major destinations such as cities and counties; transit stations; and community centers such as parks, schools and recreation centers.

A.9. Bicycle Detection at Actuated Traffic Signals

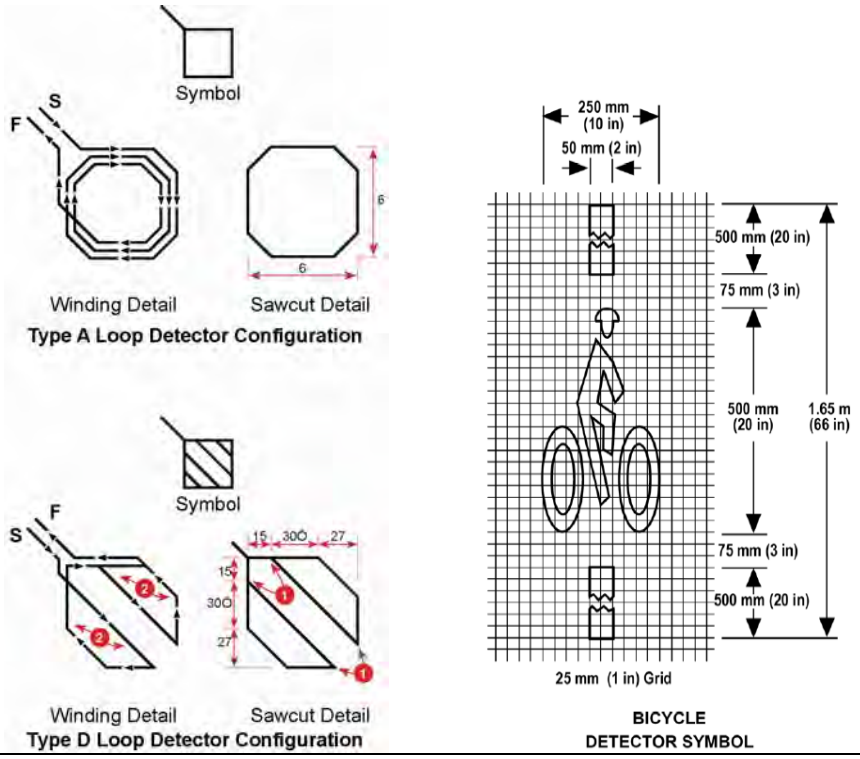
Description

Bicycle loop detectors activate traffic signals at intersections, similar to standard loop detectors used for auto traffic. Where bicycle loop detectors are not present, bicyclists are forced to wait for a motor vehicle to trigger a signal; where motor vehicle traffic is infrequent, they may cross against a red signal. Type A, C, or D loop detectors best detect bicyclists. Bicycle loop detectors should be identified with pavement markings that show cyclists where to position themselves to trigger the traffic signal.

Traffic Operations Policy Directive 09-06, issued August 27, 2009 modified MUTCD 4D.105 (CA) to require bicyclists to be detected at all traffic-actuated signals on public and private roads and driveways. The Policy Directive requires a limit line detection zone in which a bicycle rider must be detected with 95% accuracy. If more than 50% of the limit line detectors need to be replaced at a signalized intersection, then the entire intersection should be upgraded so that every line has a limit line detection zone.

Bicycle detection must be confirmed when a new detection system is installed or when the detection system is modified. Where limit line detection zones are provided, minimum bicycle timing should be 14.7 feet per second, plus a 6-second start-up time. Table 4D-109(CA) provides the minimum bicyclist phase length for intersections of different lengths.

Graphic



Potential Applications

- At actuated signalized intersections along bicycle network streets.

Guidelines

1. Type A, C, or D loop detectors should be used.
2. Pavement markings should identify proper cyclist position above the loop detector.
3. Loop detectors should provide adequate time for cyclists to cross the intersection, keeping in mind the slower travel speed (10-15 mph) of bicyclists.
4. Bicycles must be detected with 95% accuracy within the 6-foot by 6-foot Limit Line Detection Zone.
5. Where Limit Line Detection Zones are provided, minimum bicycle timing should be 14.7 feet per second, plus a 6-second start-up time

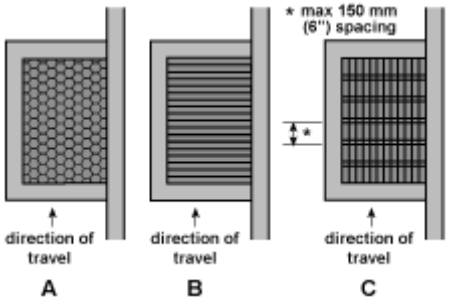
A.10. Drainage Grates and Utility Covers

Description

Improper drainage grates, slot drains, and utility covers can catch bicycle tires and cause bicyclists to lose control. Because of this, cyclists may veer into traffic lanes to avoid them. Properly designed slot drains, grates and utility covers allow cyclists to maintain their direction of travel without catching tires or being forced into travel lanes.

Graphic

Bicycle unfriendly slot drain



Bicycle friendly drainage grates

Potential Applications

- Wherever slot drains, drainage grates or utility covers are located along bicycle network streets.
- Construction or street maintenance zones along bicycle network streets.

Guidelines

1. Grates must feature crossbars or a grid that prevents bicycle tires from catching or slipping through, as shown above.
2. Metal covers used in construction zones must have a non-slip coating.
3. The transition between the pavement and drainage grates or utility covers should be smooth.
4. Slot drains should be covered or oriented so they are perpendicular to all bicycle traffic.

A.11. Bicycle Parking

Description

Secure bicycle parking is an essential element of a functional bicycle network. Bicycle racks are a common form of short-term secure bicycle parking and can be installed in various locations, including sites adjacent to retail such as parking lots, as well as in the public right of way in the furnishings zone of the sidewalk. Racks are appropriate for locations where there is demand for short-term bicycle storage. Bicycle lockers provide secure and sheltered bicycle parking and are recommended in locations where long-term bicycle storage is needed, such as transit stations.

Graphic

Example of Inverted U-Rack

Example of Bicycle Lockers

Potential Applications

- Bicycle parking should be installed throughout San Joaquin County, with priority given to significant destinations such as parks, schools, shopping centers, transit hubs and job centers.

Guidelines

1. Bicycle parking should be a design that is intuitive and easy to use.
2. Bicycle parking should be securely anchored to a surface or structure.
3. Bicycle parking spaces should be at least six feet long and two-and-a-half feet wide. Overhead clearance should be at least seven feet.
4. The rack element (part of the rack that supports the bicycle) should keep the bicycle upright by supporting the frame in two places without the bicycle frame touching the rack. The rack should allow one or both wheels to be secured.
5. A standard inverted-U style rack (shown above) is a simple and functional design that takes up minimal space on the sidewalk and is easily understood buy users. Avoid use of multiple-capacity "wave" style racks. Users commonly misunderstand how to correctly park at wave racks, placing their bikes parallel to the rack and limiting capacity to one or two bikes.
6. Position racks so there is enough room between parked bicycles. If it becomes too difficult for a bicyclist to easily lock their bicycle, they may park it elsewhere. Racks should be situated on 36-inch minimum centers.
7. A five-foot aisle for bicycle maneuvering should be provided and maintained beside or between

each row of bicycle parking

8. Empty racks should not pose a tripping hazard for visually impaired pedestrians. Position racks out of the walkway's clear zone.
9. Racks should be located close to a main building entrance, in a lighted, high-visibility, covered area protected from the elements. Long-term parking should always be protected.

Additional Considerations

All bicycle parking should be in a safe, secure area visible to passersby. Commuter locations should provide secure indoor parking, covered bicycle corrals, or bicycle lockers. Short term bicycle parking facilities, such as bicycle racks, are best used to accommodate visitors, customers, messengers and others expected to depart within two hours. They are usually located at schools, commercial locations, and activity centers such as parks, libraries, retail locations, and civic centers. Bicycle parking on sidewalks in commercial areas should be provided according to specific design criteria, reviewed by merchants and the public, and installed as demand warrants. The table below provides recommended guidelines for bicycle parking locations and quantities.

Recommended Guidelines for Bicycle Parking Location and Quantities

Land Use or Location	Physical Location	Quantity
Park	Adjacent to restrooms, picnic areas, fields, and other attractions	8 bicycle parking spaces per acre
Schools	Near office and main entrance with good visibility	8 bicycle parking spaces per 40 students
Public Facilities (libraries, community centers)	Near main entrance with good visibility	8 bicycle parking spaces per location
Commercial, retail and industrial developments over 10,000 square feet	Near main entrance with good visibility	1 bicycle parking space per 15 employees or 8 bicycles per 10,000 square feet
Shopping Centers over 10,000 square feet	Near main entrance with good visibility	8 bicycle parking spaces per 10,000 square feet
Transit Stations	Near platform, security or ticket booth	1 bicycle parking space or locker per 30 automobile parking spaces

B. Appendix B. Cost Estimates

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DKS Associates
TRANSPORTATION SOLUTIONS
1000 Broadway, Suite 450
Oakland, CA 94607
(510)763-2061

Date Revised: September 2010

San Joaquin Proposed Bikeways
Preliminary Cost Estimate

Class	Name	From	To	Mileage (Mile)	Bridge Length (ft)	Current Width (ft)	Roadway Classification Code	Shoulder/Bike Lane Width Required Based on Roadway Classification Code (ft)	ROW	Actual Roadway Expansion Width Required (Both Sides of Roadway) (ft)	Unit Cost of Striping ($/Mile)	Total Cost of Striping ($)	Unit Cost of Signage ($/Mile)	Total Cost of Signage ($)	Unit Cost of Excavation ($/Mile)	Total Cost of Excavation ($)	Unit Cost of Asphalt Concrete ($/Mile)	Total Cost of Asphalt Concrete ($)	Unit Cost of Aggregate Base ($/Mile)	Total Cost of Aggregate Base ($)	Unit Cost of Drainage System ($/Mile)	Total Cost of Drainage System ($)	Unit Cost of Pavement Marking ($/Mile)	Total Cost of Pavement Marking ($)	Unit Cost of Bridge Railing ($/LF)	Total Cost of Bridge Railing ($)	Subtotal Cost for Each Roadway Segment ($)	Subtotal for Each Location ($)
I	Duck Creek	B St	SR 99	1.2254	0.00			10.00		10.00	$ 10,560.00	$ 12,940.08	$ 1,200.00	$ 1,470.46	$ 66,488.89	$ 81,474.57	$ 79,200.00	$ 97,050.59	$ 64,533.33	$ 79,078.26	$ 913,299.37	$ 1,119,144.46						$ 1,391,158	**$ 1,391,158**
I	Frontage Rd Rail Trail	Austin Rd	Ripon City Limits	1.7621	0.00			10.00		10.00	$ 10,560.00	$ 18,607.54	$ 1,200.00	$ 2,114.49	$ 66,488.89	$ 117,158.58	$ 79,200.00	$ 139,556.54	$ 64,533.33	$ 113,712.74	$ 913,299.37	$ 1,609,304.28						$ 2,000,454	**$ 2,000,454**
I	Toleri/Manthey Multi-Use Connector	Toleri Rd	Manthey Rd	0.7679	0.00			10.00		10.00	$ -	$ -	$ -	$ -	$ -	$ -	$ 79,200.00	$ 60,819.35	$ -	$ -	$ 913,299.37	$ 701,341.83						$ 762,161	**$ 762,161**
I	Wilson Way	SR N 99 Frontage Rd	SR 99	0.3732	0.00			10.00		10.00	$ -	$ -	$ -	$ -	$ -	$ -	$ 79,200.00	$ 29,557.29	$ -	$ -	$ 913,299.37	$ 340,841.58						$ 370,399	**$ 370,399**
II	Lower Sacramento Rd	Mokelumne St	Lodi City Limits	0.2462	0.00	28.00	MA 16	12.00	60.00	8.00	$ 21,120.00	$ 5,200.00	$ 1,200.00	$ 295.45	$ 46,933.33	$ 11,555.56	$ 63,360.00	$ 15,600.00	$ 43,022.22	$ 10,592.59	$ 13,413.33	$ 3,302.53						$ 46,546	**$ 46,546**
II	Mokelumne St	Chestnut St	Lower Sacramento Rd	0.3203	0.00	41.00	COL 17	10.00	60.00	0.00	$ 21,120.00	$ 6,763.82	$ 1,200.00	$ 384.31	$ -	$ -	$ -	$ -	$ -	$ -								$ 7,148	**$ 7,148**
II	Mountain House Pky	Interstate 205	Interstate 580	1.6449	228.00	24.00	MJC 07	10.00	60.00	10.00	$ 21,120.00	$ 34,740.29	$ 1,200.00	$ 1,973.88	$ 58,666.67	$ 96,500.80	$ 79,200.00	$ 130,276.08	$ 53,777.78	$ 88,459.07						$ 250.00	$ 57,000.00	$ 408,950	**$ 408,950**
II	Schulte Rd	Hansen Rd	Mountain House Pky	1.0299	159.00	83.00	MJC 07	10.00	83.00	0.00	$ 21,120.00	$ 21,750.96	$ 1,200.00	$ 1,235.85	$ -	$ -	$ -	$ -	$ -	$ -						$ 250.00	$ 39,750.00	$ 62,737	**$ 62,737**
II	Wilson Way	Stockton City Limits	SR N 99 Frontage Rd	1.9811	0.00																								$ 44,217
		Stockton City Limits	Stewart St	0.1894	0.00	72.00	OPA 14	12.00	100.00	0.00	$ 21,120.00	$ 4,000.00	$ 1,200.00	$ 227.27	$ -	$ -	$ -	$ -	$ -	$ -								$ 4,227	
		Stewart St	Diverting Canal	0.7576	0.00	64.00	OPA 14	12.00	100.00	0.00	$ 21,120.00	$ 16,000.00	$ 1,200.00	$ 909.09	$ -	$ -	$ -	$ -	$ -	$ -								$ 16,909	
		Diverting Canal	McAllen Rd	0.8163	0.00	76.00	OPA 14	12.00	100.00	0.00	$ 21,120.00	$ 17,240.00	$ 1,200.00	$ 979.55	$ -	$ -	$ -	$ -	$ -	$ -								$ 18,220	
		McAllen Rd	SR N 99 Frontage Rd	0.2178	0.00	76.00	OPA 14	12.00	100.00	0.00	$ 21,120.00	$ 4,600.00	$ 1,200.00	$ 261.36	$ -	$ -	$ -	$ -	$ -	$ -								$ 4,861	
Subtotal	**Wilson Way**																											**$ 44,217.27**	
II	Woodbridge Rd	Windwood Dr	Chestnut St	0.6602	0.00																								$ 14,449
		Windwood Dr	Benedict Dr	0.1000	0.00	42.00	COL 17	10.00	50.00	0.00	$ 21,120.00	$ 2,112.00	$ 1,200.00	$ 120.00	$ -	$ -	$ -	$ -	$ -	$ -								$ 2,232	
		Benedict Dr	Rio Verde St	0.11	0.00	42.00	COL 17	10.00	50.00	0.00	$ 21,120.00	$ 2,400.00	$ 1,200.00	$ 136.36	$ -	$ -	$ -	$ -	$ -	$ -								$ 2,536	
		Rio Verde St	490' E/O Rio Verde	0.09	0.00	66.00	COL 17	10.00	80.00	0.00	$ 21,120.00	$ 1,960.00	$ 1,200.00	$ 111.36	$ -	$ -	$ -	$ -	$ -	$ -								$ 2,071	
		490' E/O Rio Verde	Chestnut St	0.34	0.00	42.00	COL 17	10.00	50.00	0.00	$ 21,120.00	$ 7,200.00	$ 1,200.00	$ 409.09	$ -	$ -	$ -	$ -	$ -	$ -								$ 7,609	
Subtotal																												**$ 14,448.82**	
III	Airport Way	Manteca City Limits	Stockton City Limits	4.4782	0.00																								**$ 364,174**
		Manteca City Limits	Lovelace Rd	1.5019	0.00	32.00	OPA 14	12.00	80.00	4.00	$ 21,120.00	$ 31,720.00	$ 1,200.00	$ 1,802.27	$ 23,466.67	$ 35,244.44	$ 31,680.00	$ 47,580.00	$ 21,511.11	$ 32,307.41	$ 13,413.33	$ 20,145.40	$ 720.00	$ 1,081.36				$ 169,881	
		Lovelace Rd	900' S/O Roth Rd	0.3352	0.00	33.00	OPA 14	12.00	80.00	3.00	$ 21,120.00	$ 7,080.00	$ 1,200.00	$ 402.27	$ 17,600.00	$ 5,900.00	$ 23,760.00	$ 7,965.00	$ 16,133.33	$ 5,408.33	$ 13,413.33	$ 4,496.52	$ 720.00	$ 241.36				$ 31,493	
		900' S/O Roth Rd	Roth Rd	0.1705	0.00	33.00	OPA 14	12.00	80.00	3.00	$ 21,120.00	$ 3,600.00	$ 1,200.00	$ 204.55	$ 17,600.00	$ 3,000.00	$ 23,760.00	$ 4,050.00	$ 16,133.33	$ 2,750.00	$ 13,413.33	$ 2,286.36	$ 720.00	$ 122.73				$ 16,014	
		Roth Rd	900' N/O Roth Rd	0.1705	0.00	32.00	MA 06	12.00	80.00	4.00	$ 21,120.00	$ 3,600.00	$ 1,200.00	$ 204.55	$ 23,466.67	$ 4,000.00	$ 31,680.00	$ 5,400.00	$ 21,511.11	$ 3,666.67	$ 13,413.33	$ 2,286.36	$ 720.00	$ 122.73				$ 19,280	
		900' N/O Roth Rd	Fisk Rd	0.5019	0.00	32.00	MA 06	12.00	80.00	4.00	$ 21,120.00	$ 10,600.00	$ 1,200.00	$ 602.27	$ 23,466.67	$ 11,777.78	$ 31,680.00	$ 15,900.00	$ 21,511.11	$ 10,796.30	$ 13,413.33	$ 6,732.07	$ 720.00	$ 361.36				$ 56,770	
		Fisk Rd	French Camp Rd	0.6051	0.00	32.00	MA 06	12.00	80.00	4.00	$ 21,120.00	$ 12,780.00	$ 1,200.00	$ 726.14	$ 23,466.67	$ 14,200.00	$ 31,680.00	$ 19,170.00	$ 21,511.11	$ 13,016.67	$ 13,413.33	$ 8,116.59	$ 720.00	$ 435.68				$ 68,445	
		French Camp Rd	TSRR	0.8144	0.00	36.00	OPA 02	12.00	110.00	0.00	$ -	$ -	$ 1,200.00	$ 977.27	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 720.00	$ 586.36				$ 1,564	
		TSRR	Stockton City Limits	0.3788	0.00	36.00	OPA 14	12.00	110.00	0.00	$ -	$ -	$ 1,200.00	$ 454.55	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 720.00	$ 272.73				$ 727	
Subtotal																												**$ 364,174.08**	
III	Airport Way	Kasson Rd	Manteca City Llimits	8.1979	546.00	24.00	MJC 07	10.00	60.00	10.00	$ 21,120.00	$ 173,138.75	$ 1,200.00	$ 9,837.43	$ 58,666.67	$ 480,940.97	$ 79,200.00	$ 649,270.31	$ 53,777.78	$ 440,862.55	$ 13,413.33	$ 109,960.59					$ 250.00	$ 136,500.00	$ 2,000,511	**$ 2,000,511**
III	Alpine Ave	Rainer Ave	Mission Rd	1.6439																									**$ 1,973**
		Interstate 5	Kirk Ave	0.2992		54.00	COL 17	10.00	80.00	0.00	$ -	$ -	$ 1,200.00	$ 359.09	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -				$ 359	
		Kirk Ave	Wallace Ave	0.1951		52.00	COL 17	10.00	80.00	0.00	$ -	$ -	$ 1,200.00	$ 234.09	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -				$ 234	
		Wallace Ave	Clement Ave	0.2689		52.00	COL 17	10.00	80.00	0.00	$ -	$ -	$ 1,200.00	$ 322.73	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -				$ 323	
		Clement Ave	Rainer Ave	0.2027		52.00	COL 17	10.00	80.00	0.00	$ -	$ -	$ 1,200.00	$ 243.18	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -				$ 243	
		Franklin Ave	Mission Rd	0.3788		48.00	MA 16	12.00	80.00	0.00	$ -	$ -	$ 1,200.00	$ 454.55	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -				$ 455	
		Franklin Ave	Interstate 5	0.2992		53.00	MA 16	12.00	80.00	0.00	$ -	$ -	$ 1,200.00	$ 359.09	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -				$ 359	
Subtotal																												**$ 1,972.73**	
III	Alexandria Pl	Benjamin Holt Dr	Stockton City Limits	0.4564	0.00	35.00	COL 17	10.00	60.00	0.00	$ -	$ -	$ 1,200.00	$ 547.70	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 548	**$ 548**
III	Armstrong Rd	Lower Sacramento Rd	Davis Rd	1.2701	0.00	19.00	MNC 08	10.00	60.00	15.00	$ 21,120.00	$ 26,824.22	$ 1,200.00	$ 1,524.10	$ 88,000.00	$ 111,767.59	$ 118,800.00	$ 150,886.24	$ 80,666.67	$ 102,453.62	$ 13,413.33	$ 17,036.09						$ 410,492	**$ 410,492**
III	Ash St	El Dorado St	French Camp Rd	0.3757	0.00	32.00	COL 17	10.00	80.00	2.00	$ 21,120.00	$ 7,934.93	$ 1,200.00	$ 450.85	$ 11,733.33	$ 4,408.30	$ 15,840.00	$ 5,951.20	$ 10,755.56	$ 4,040.94	$ 13,413.33	$ 5,039.48						$ 27,826	**$ 27,826**
III	Austin Rd S	Manteca City Limits	Caswell State Park	5.6794	0.00																								$ 1,291,359
		Manteca City Limits	SR S 99 Frontage Rd E	0.6061	0.00	24.00	MNC 08	10.00	60.00	10.00	$ 21,120.00	$ 12,800.00	$ 1,200.00	$ 727.27	$ 58,666.67	$ 35,555.56	$ 79,200.00	$ 48,000.00	$ 53,777.78	$ 32,592.59	$ 13,413.33	$ 8,129.29						$ 137,805	
		SR 99	West Ripon Rd	2.4148	0.00	24.00	MNC 08	10.00	60.00	10.00	$ 21,120.00	$ 51,000.00	$ 1,200.00	$ 2,897.73	$ 58,666.67	$ 141,666.67	$ 79,200.00	$ 191,250.00	$ 53,777.78	$ 129,861.11	$ 13,413.33	$ 32,390.15						$ 549,066	
		West Ripon Rd	Caswell State Park	2.6585	0.00	24.00	MNC 08	10.00	60.00	10.00	$ 21,120.00	$ 56,148.00	$ 1,200.00	$ 3,190.23	$ 58,666.67	$ 155,966.67	$ 79,200.00	$ 210,555.00	$ 53,777.78	$ 142,969.44	$ 13,413.33	$ 35,659.65						$ 604,489	
Subtotal																												**$ 1,291,359.36**	
III	Austin Rd S	Louise Ave	Manteca City Limits	0.2612	0.00	32.00	MJC 07	10.00	60.00	2.00	$ 21,120.00	$ 5,515.81	$ 1,200.00	$ 313.40	$ 11,733.33	$ 3,064.34	$ 15,840.00	$ 4,136.86	$ 10,755.56	$ 2,808.98	$ 13,413.33	$ 3,503.10						$ 19,342	**$ 19,342**
III	Austin Rd S	Manteca City Limits	SR 120	0.2841	0.00	28.00	COL 17	10.00	60.00	6.00	$ 21,120.00	$ 6,000.00	$ 1,200.00	$ 340.91	$ 35,200.00	$ 10,000.00	$ 47,520.00	$ 13,500.00	$ 32,266.67	$ 9,166.67	$ 13,413.33	$ 3,810.61						$ 42,818	**$ 42,818**
III	Balboa Ave	Cortez Ave	Hammer Ln	0.3861	0.00	40.00	COL 17	10.00	60.00	0.00	$ -	$ -	$ 1,200.00	$ 463.37	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 463	**$ 463**
III	Beckman Rd	Kettleman Ln	Harney Ln	1.1016	0.00	32.00	LOC 09	8.00	56.00	0.00	$ -	$ -	$ 1,200.00	$ 1,321.91	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 1,322	**$ 1,322**
III	Berry Ave	Canal Blvd	Grant Line Rd	1.0435	0.00	22.00	MNC 08	10.00	60.00	12.00	$ 21,120.00	$ 22,038.87	$ 1,200.00	$ 1,252.21	$ 70,400.00	$ 73,462.89	$ 95,040.00	$ 99,174.91	$ 64,533.33	$ 67,340.99	$ 13,413.33	$ 13,996.91						$ 277,267	**$ 277,267**
III	Blossom Rd	Walnut Grove Rd	Peltier Rd	2.7152	0.00																								$ 779,508
		Walnut Grove Rd	Beaver Slough	1.5152	0.00	18.00	LOC 09	8.00	60.00	14.00	$ 21,120.00	$ 32,000.00	$ 1,200.00	$ 1,818.18	$ 82,133.33	$ 124,444.44	$ 110,880.00	$ 168,000.00	$ 75,288.89	$ 114,074.07	$ 13,413.33	$ 20,323.23						$ 460,660	
		Beaver Slough	Peltier Rd	1.2000	0.00	20.00	LOC 09	8.00	60.00	12.00	$ 21,120.00	$ 25,344.00	$ 1,200.00	$ 1,440.00	$ 70,400.00	$ 84,480.00	$ 95,040.00	$ 114,048.00	$ 64,533.33	$ 77,440.00	$ 13,413.33	$ 16,096.00						$ 318,848	
Subtotal																												**$ 779,507.93**	
III	Brandt Rd	Tully Rd	SR 12/88	1.4023	0.00																								$ 301,516
		Tully Rd	Jack Tone Rd	0.9500	0.00	24.00	MNC 08	10.00	60.00	10.00	$ 21,120.00	$ 20,064.00	$ 1,200.00	$ 1,140.00	$ 58,666.67	$ 55,733.33	$ 79,200.00	$ 75,240.00	$ 53,777.78	$ 51,088.89	$ 13,413.33	$ 12,742.67						$ 216,009	
		Jack Tone Rd	SR 12/88	0.4523	0.00	24.00	LOC 09	8.00	60.00	8.00	$ 21,120.00	$ 9,552.58	$ 1,200.00	$ 542.76	$ 46,933.33	$ 21,227.95	$ 63,360.00	$ 28,657.73	$ 43,022.22	$ 19,458.95	$ 13,413.33	$ 6,066.85						$ 85,507	
Subtotal																												**$ 301,515.70**	
III	Canal Blvd	Toleri Rd	Berry Ave	0.3043	0.00	21.00	MNC 08	10.00	80.00	13.00	$ 21,120.00	$ 6,427.56	$ 1,200.00	$ 365.20	$ 76,266.67	$ 23,210.63	$ 102,960.00	$ 31,334.36	$ 69,911.11	$ 21,276.42	$ 13,413.33	$ 4,082.15						$ 86,696	**$ 86,696**
III	Cardinal Ave	Main St	SPRR	0.8598	0.00																								$ 1,032
		Main St	Marsh St	0.3939	0.00	40.00	LOC 19	8.00	40.00	0.00	$ -	$ -	$ 1,200.00	$ 472.73	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 473	
		Marsh St	Washington St	0.1991	0.00	38.00	LOC 19	8.00	80.00	0.00	$ -	$ -	$ 1,200.00	$ 238.86	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 239	
		Washington St	SPRR	0.2669	0.00	40.00	LOC 19	8.00	80.00	0.00	$ -	$ -	$ 1,200.00	$ 320.23	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 320	
Subtotal																												**$ 1,031.82**	
III	Cardinal Ave	SPRR	Fremont St	0.5114	0.00	24.00	LOC 19	8.00	40.00	8.00	$ 21,120.00	$ 10,800.00	$ 1,200.00	$ 613.64	$ 46,933.33	$ 24,000.00	$ 63,360.00	$ 32,400.00	$ 43,022.22	$ 22,000.00	$ 13,413.33	$ 6,859.09						$ 96,673	**$ 96,673**
III	Chrisman Rd	California Aqueduct Path	Eleventh St	6.0188	115.00																								$ 649,608
		N/O I-580	Durham Ferry Rd	1.6201	115.00	32.00	MA 06	12.00	60.00	4.00	$ 21,120.00	$ 34,216.00	$ 1,200.00	$ 1,944.09	$ 23,466.67	$ 38,017.78	$ 31,680.00	$ 51,324.00	$ 21,511.11	$ 34,849.63	$ 13,413.33	$ 21,730.62					$ 250.00	$ 28,750.00	$ 210,832	
		Durham Ferry Rd	Linne Rd	1.9157	0.00	32.00	MA 06	12.00	60.00	4.00	$ 21,120.00	$ 40,460.00	$ 1,200.00	$ 2,298.86	$ 23,466.67	$ 44,955.56	$ 31,680.00	$ 60,690.00	$ 749.26	$ 41,209.26	$ 13,413.33	$ 25,696.19							$ 215,310	
		Linne Rd	Valpico Rd	0.9830	0.00	32.00	MA 16	12.00	60.00	4.00	$ 21,120.00	$ 20,760.00	$ 1,200.00	$ 1,179.55	$ 23,466.67	$ 23,066.67	$ 31,680.00	$ 31,140.00	$ 384.44	$ 21,144.44	$ 13,413.33	$ 13,184.70							$ 110,475	

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(510)763-2061

Date Revised: September 2010

San Joaquin Proposed Bikeways
Preliminary Cost Estimate

Class	Name	From	To	Mileage (Mile)	Bridge Length (ft)	Current Width (ft)	Roadway Classification Code	Shoulder/Bike Lane Width Required Based on Roadway Classification Code (ft)	ROW	Actual Roadway Expansion Width Required (Both Sides of Roadway) (ft)	Unit Cost of Striping ($/Mile)	Total Cost of Striping ($)	Unit Cost of Signage ($/Mile)	Total Cost of Signage ($)	Unit Cost of Excavation ($/Mile)	Total Cost of Excavation ($)	Unit Cost of Asphalt Concrete ($/Mile)	Total Cost of Asphalt Concrete ($)	Unit Cost of Aggregate Base ($/Mile)	Total Cost of Aggregate Base ($)	Unit Cost of Drainage System ($/Mile)	Total Cost of Drainage System ($)	Unit Cost of Pavement Marking ($/Mile)	Total Cost of Pavement Marking ($)	Unit Cost of Bridge Railing ($/LF)	Total Cost of Bridge Railing ($)	Subtotal Cost for Each Roadway Segment ($)	Subtotal for Each Location ($)
		Valpico Rd	Schulte Rd	0.5000	0.00	49.00	MA 16	12.00	80.00	0.00	$ -	$ -	$ 1,200.00	$ 600.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 600	
		Schulte Rd	Cabe Rd	0.7500	0.00	32.00	MA 16	12.00	40.00	4.00	$ 21,120.00	$ 15,840.00	$ 1,200.00	$ 900.00	$ 23,466.67	$ 17,600.00	$ 31,680.00	$ 23,760.00	$ 293.33	$ 16,133.33	$ 13,413.33	$ 10,060.00						$ 84,293	
		Cabe Rd	11 St	0.2500	0.00	32.00	MA 16	12.00	40.00	4.00	$ 21,120.00	$ 5,280.00	$ 1,200.00	$ 300.00	$ 23,466.67	$ 5,866.67	$ 31,680.00	$ 7,920.00	$ 97.78	$ 5,377.78	$ 13,413.33	$ 3,353.33						$ 28,098	
Subtotal																											**$ 649,608.44**	
III	Comstock Rd	Duncan Rd	Waterloo Rd/SR 88	4.6780	0.00																							$ 1,063,680
		Duncan Rd	Jack Tone Rd	2.5227	0.00	24.00	MJC 07	10.00	80.00	10.00	$ 21,120.00	$ 53,280.00	$ 1,200.00	$ 3,027.27	$ 58,666.67	$ 148,000.00	$ 79,200.00	$ 199,800.00	$ 53,777.78	$ 135,666.67	$ 13,413.33	$ 33,838.18						$ 573,612	
		Jack Tone Rd	Waterloo Rd/SR 88	2.1553	0.00	24.00	MJC 07	10.00	80.00	10.00	$ 21,120.00	$ 45,520.00	$ 1,200.00	$ 2,586.36	$ 58,666.67	$ 126,444.44	$ 79,200.00	$ 170,700.00	$ 53,777.78	$ 115,907.41	$ 13,413.33	$ 28,909.80						$ 490,068	
Subtotal																											**$ 1,063,680.13**	
III	Copperopolis Rd	Alpine Rd	Hewitt Rd	7.99	229.00																							$ 648,752
		Alpine Rd	Patrick Rd	0.7973	0.00	32.00	COL 17	10.00	80.00	2.00	$ 21,120.00	$ 16,840.00	$ 1,200.00	$ 956.82	$ 11,733.33	$ 9,355.56	$ 15,840.00	$ 12,630.00	$ 10,755.56	$ 8,575.93	$ 13,413.33	$ 10,695.10						$ 59,053	
		Patrick Rd	Sibley Ave	0.5299	0.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 11,192.00	$ 1,200.00	$ 635.91	$ 11,733.33	$ 6,217.78	$ 15,840.00	$ 8,394.00	$ 10,755.56	$ 5,699.63	$ 13,413.33	$ 7,108.05						$ 39,247	
		Sibley Ave	Jack Tone Rd	0.7502	0.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 15,844.00	$ 1,200.00	$ 900.23	$ 11,733.33	$ 8,802.22	$ 15,840.00	$ 11,883.00	$ 10,755.56	$ 8,068.70	$ 13,413.33	$ 10,062.54						$ 55,561	
		Jack Tone Rd	Duncan Rd	2.9508	162.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 62,320.00	$ 1,200.00	$ 3,540.91	$ 11,733.33	$ 34,622.22	$ 15,840.00	$ 46,740.00	$ 10,755.56	$ 31,737.04	$ 13,413.33	$ 39,579.49				$ 250.00	$ 40,500.00	$ 259,040	
		Duncan Rd	Drais Ave	0.5341	0.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 11,280.00	$ 1,200.00	$ 640.91	$ 11,733.33	$ 6,266.67	$ 15,840.00	$ 8,460.00	$ 10,755.56	$ 5,744.44	$ 13,413.33	$ 7,163.94						$ 39,556	
		Drais Ave	Hewitt Rd	2.4242	67.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 51,200.00	$ 1,200.00	$ 2,909.09	$ 11,733.33	$ 28,444.44	$ 15,840.00	$ 38,400.00	$ 10,755.56	$ 26,074.07	$ 13,413.33	$ 32,517.17				$ 250.00	$ 16,750.00	$ 196,295	
Subtotal																											**$ 648,751.87**	
III	Copperopolis Rd	Hewitt Rd	Escalon-Bellota Rd	2.2803	0.00	22.00	MJC 07	10.00	80.00	12.00	$ 21,120.00	$ 48,160.00	$ 1,200.00	$ 2,736.36	$ 70,400.00	$ 160,533.33	$ 95,040.00	$ 216,720.00	$ 64,533.33	$ 147,155.56	$ 13,413.33	$ 30,586.46						$ 605,892	**$ 605,892**
III	Corral Hollow Rd	Lammers Rd	Larch Rd West	1.7235	0.00	22.00	MJC 07	10.00	40.00	12.00	$ 21,120.00	$ 36,400.00	$ 1,200.00	$ 2,068.18	$ 70,400.00	$ 121,333.33	$ 95,040.00	$ 163,800.00	$ 64,533.33	$ 111,222.22	$ 13,413.33	$ 23,117.68						$ 457,941	**$ 457,941**
III	Corral Hollow Rd	Larch Rd West	Tracy City Limits	0.5227	0.00	25.00	COL 17	10.00	40.00	9.00	$ 21,120.00	$ 11,040.00	$ 1,200.00	$ 627.27	$ 52,800.00	$ 27,600.00	$ 71,280.00	$ 37,260.00	$ 48,400.00	$ 25,300.00	$ 13,413.33	$ 7,011.52						$ 108,839	**$ 108,839**
III	Corral Hollow Rd	Tracy City Limits	County Line	6.2785	112.00	24.00	MJC 07	10.00	60.00	10.00	$ 21,120.00	$ 132,601.46	$ 1,200.00	$ 7,534.17	$ 58,666.67	$ 368,337.39	$ 79,200.00	$ 497,255.47	$ 53,777.78	$ 337,642.61	$ 13,413.33	$ 84,215.32				$ 250.00	$ 28,000.00	$ 1,455,586	**$ 1,455,586**
III	Cortez Ave	Balboa Ave	Thornton Rd	0.2448	0.00	30.00	LOC 19	8.00	30.00	2.00	$ 21,120.00	$ 5,170.63	$ 1,200.00	$ 293.79	$ 11,733.33	$ 2,872.57	$ 15,840.00	$ 3,877.97	$ 10,755.56	$ 2,633.19	$ 13,413.33	$ 3,283.87						$ 18,132	**$ 18,132**
III	Davis Rd	SR 12	Eight Mile Rd	4.8939	29.00																							$ 1,120,023
		SR 12	Harney Ln	1.0000	0.00	24.00	MJC 07	10.00	80.00	10.00	$ 21,120.00	$ 21,120.00	$ 1,200.00	$ 1,200.00	$ 58,666.67	$ 58,666.67	$ 79,200.00	$ 79,200.00	$ 53,777.78	$ 53,777.78	$ 13,413.33	$ 13,413.33						$ 227,378	
		Harney Ln	Armstrong Rd	1.0000	0.00	24.00	MJC 07	10.00	80.00	10.00	$ 21,120.00	$ 21,120.00	$ 1,200.00	$ 1,200.00	$ 58,666.67	$ 58,666.67	$ 79,200.00	$ 79,200.00	$ 53,777.78	$ 53,777.78	$ 13,413.33	$ 13,413.33						$ 227,378	
		Armstrong Rd	UPRR	1.0000	29.00	24.00	MJC 07	10.00	80.00	10.00	$ 21,120.00	$ 21,120.00	$ 1,200.00	$ 1,200.00	$ 58,666.67	$ 58,666.67	$ 79,200.00	$ 79,200.00	$ 53,777.78	$ 53,777.78	$ 13,413.33	$ 13,413.33				$ 250.00	$ 7,250.00	$ 234,628	
		UPRR	Eight Mile Rd	1.8939	0.00	24.00	MJC 07	10.00	80.00	10.00	$ 21,120.00	$ 40,000.00	$ 1,200.00	$ 2,272.73	$ 58,666.67	$ 111,111.11	$ 79,200.00	$ 150,000.00	$ 53,777.78	$ 101,851.85	$ 13,413.33	$ 25,404.04						$ 430,640	
Subtotal																											**$ 1,120,023.06**	
III	Dodds Rd	Escalon-Bellota Rd	County Line	4.0133	0.00																							$ 912,526
		Escalon-Bellota Rd	Henry Rd	3.0038	0.00	24.00	MJC 07	10.00	60.00	10.00	$ 21,120.00	$ 63,440.00	$ 1,200.00	$ 3,604.55	$ 58,666.67	$ 176,222.22	$ 79,200.00	$ 237,900.00	$ 53,777.78	$ 161,537.04	$ 13,413.33	$ 40,290.81						$ 682,995	
		Henry Rd	Stanislaus CO	1.0095	0.00	24.00	MNC 08	10.00	60.00	10.00	$ 21,120.00	$ 21,320.00	$ 1,200.00	$ 1,211.36	$ 58,666.67	$ 59,222.22	$ 79,200.00	$ 79,950.00	$ 53,777.78	$ 54,287.04	$ 13,413.33	$ 13,540.35						$ 229,531	
Subtotal																											**$ 912,525.59**	
III	Duncan Rd	Comstock Rd	N/O Front St	1.5019	0.00	24.00	MNC 08	10.00	50.00	10.00	$ 21,120.00	$ 31,720.00	$ 1,200.00	$ 1,802.27	$ 58,666.67	$ 88,111.11	$ 79,200.00	$ 118,950.00	$ 53,777.78	$ 80,768.52	$ 13,413.33	$ 20,145.40						$ 341,497	**$ 341,497**
III	Duncan Rd	N/O Front St	SR 26	0.3920	0.00																							$ 38,981
		N/O Front St	Front St	0.1326	0.00	32.00	MNC 08	10.00	55.00	2.00	$ 21,120.00	$ 2,800.00	$ 1,200.00	$ 159.09	$ 11,733.33	$ 1,555.56	$ 15,840.00	$ 2,100.00	$ 10,755.56	$ 1,425.93	$ 13,413.33	$ 1,778.28						$ 9,819	
		Front St	SR 26	0.2595	0.00	30.00	MNC 08	10.00	55.00	4.00	$ 21,120.00	$ 5,480.00	$ 1,200.00	$ 311.36	$ 23,466.67	$ 6,088.89	$ 31,680.00	$ 8,220.00	$ 21,511.11	$ 5,581.48	$ 13,413.33	$ 3,480.35						$ 29,162	
Subtotal																											**$ 38,980.94**	
III	Duncan Rd	SR 26	Copperopolis Rd	3.1534	0.00																							$ 770,915
		SR 26	Milton Rd	2.2159	0.00	24.00	MNC 08	10.00	50.00	10.00	$ 21,120.00	$ 46,800.00	$ 1,200.00	$ 2,659.09	$ 58,666.67	$ 130,000.00	$ 79,200.00	$ 175,500.00	$ 53,777.78	$ 119,166.67	$ 13,413.33	$ 29,722.73						$ 503,848	
		Milton Rd	Copperopolis Rd	0.9375	0.00	21.00	MNC 08	10.00	40.00	13.00	$ 21,120.00	$ 19,800.00	$ 1,200.00	$ 1,125.00	$ 76,266.67	$ 71,500.00	$ 102,960.00	$ 96,525.00	$ 69,911.11	$ 65,541.67	$ 13,413.33	$ 12,575.00						$ 267,067	
Subtotal																											**$ 770,915.15**	
III	Durham Ferry Rd	Kasson Rd	Chrisman Rd	6.9517	0.00																							$ 1,744,069
		Kasson Rd	1.5 MI W/O Kasson Rd	1.5000	0.00	24.00	MJC 07	10.00	50.00	10.00	$ 21,120.00	$ 31,680.00	$ 1,200.00	$ 1,800.00	$ 58,666.67	$ 88,000.00	$ 79,200.00	$ 118,800.00	$ 53,777.78	$ 80,666.67	$ 13,413.33	$ 20,120.00						$ 341,067	
		1.5 MI W/O Kasson Rd	SR 33	1.6098	0.00	24.00	MJC 07	10.00	50.00	10.00	$ 21,120.00	$ 34,000.00	$ 1,200.00	$ 1,931.82	$ 58,666.67	$ 94,444.44	$ 79,200.00	$ 127,500.00	$ 53,777.78	$ 86,574.07	$ 13,413.33	$ 21,593.43						$ 366,044	
		SR 33	Interstate 5	0.8428	0.00	21.00	MNC 08	10.00	50.00	13.00	$ 21,120.00	$ 17,800.00	$ 1,200.00	$ 1,011.36	$ 76,266.67	$ 64,277.78	$ 102,960.00	$ 86,775.00	$ 69,911.11	$ 58,921.30	$ 13,413.33	$ 11,304.80						$ 240,090	
		Interstate 5	Bird Rd	1.0000	0.00	22.00	MNC 08	10.00	50.00	12.00	$ 21,120.00	$ 21,120.00	$ 1,200.00	$ 1,200.00	$ 70,400.00	$ 70,400.00	$ 95,040.00	$ 95,040.00	$ 64,533.33	$ 64,533.33	$ 13,413.33	$ 13,413.33						$ 265,707	
		Bird Rd	Chrisman Rd	1.9991	0.00	22.00	MNC 08	10.00	50.00	12.00	$ 21,120.00	$ 42,220.00	$ 1,200.00	$ 2,398.86	$ 70,400.00	$ 140,733.33	$ 95,040.00	$ 189,990.00	$ 64,533.33	$ 129,005.56	$ 13,413.33	$ 26,813.96						$ 531,162	
Subtotal																											**$ 1,744,069.06**	
III	Eight Mile Rd	SR 99	Jack Tone Rd	5.9129	0.00																							$ 369,889
		SR 99	CCTRR	0.9337	0.00	48.00	COL 17	10.00	80.00	0.00	$ -	$ -	$ 1,200.00	$ 1,120.45	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 1,120	
		CCTRR	Hildreth Ln	0.8759	0.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 18,500.00	$ 1,200.00	$ 1,051.14	$ 11,733.33	$ 10,277.78	$ 15,840.00	$ 13,875.00	$ 10,755.56	$ 9,421.30	$ 13,413.33	$ 11,749.37						$ 64,875	
		Hildreth Ln	Alpine Rd	0.8712	0.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 18,400.00	$ 1,200.00	$ 1,045.45	$ 11,733.33	$ 10,222.22	$ 15,840.00	$ 13,800.00	$ 10,755.56	$ 9,370.37	$ 13,413.33	$ 11,685.86						$ 64,524	
		Alpine Rd	SR 88	1.1714	0.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 24,740.00	$ 1,200.00	$ 1,405.68	$ 11,733.33	$ 13,744.44	$ 15,840.00	$ 18,555.00	$ 10,755.56	$ 12,599.07	$ 13,413.33	$ 15,712.40						$ 86,757	
		SR 88	Jack Tone Rd	2.0606	0.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 43,520.00	$ 1,200.00	$ 2,472.73	$ 11,733.33	$ 24,177.78	$ 15,840.00	$ 32,640.00	$ 10,755.56	$ 22,162.96	$ 13,413.33	$ 27,639.60						$ 152,613	
Subtotal																											**$ 369,888.60**	
III	Eighth St	B St	D St	0.21	0.00	46.00	COL 17	10.00	80.00	0.00	$ -	$ -	$ 1,200.00	$ 254.55	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 255	**$ 255**
III	El Dorado Ave	Mathews Rd	Stockton City Limits	1.0189	0.00																							$ 1,223
		Mathews Rd	Hospital Rd	0.2727	0.00	70.00	MA 16	12.00	100.00	0.00	$ -	$ -	$ 1,200.00	$ 327.27	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 327	
		Hospital Rd	French Camp Rd	0.2917	0.00	63.00	MA 16	12.00	100.00	0.00	$ -	$ -	$ 1,200.00	$ 350.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 350	
		French Camp Rd	Stockton City Limits	0.4545	0.00	63.00	MA 16	12.00	100.00	0.00	$ -	$ -	$ 1,200.00	$ 545.45	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 545	
Subtotal																											**$ 1,222.73**	
III	Escalon-Bellota Rd	Copperopolis Rd	SR 4	3.0057	0.00	24.00	MJC 07	10.00	60.00	10.00	$ 21,120.00	$ 63,480.00	$ 1,200.00	$ 3,606.82	$ 58,666.67	$ 176,333.33	$ 79,200.00	$ 238,050.00	$ 53,777.78	$ 161,638.89	$ 13,413.33	$ 40,316.21						$ 683,425	**$ 683,425**
III	Escalon-Bellota Rd	SR 4	Escalon City Limits	8.4422	182.00																							$ 670,751
		SR 4	Gawne Rd	2.5246	117.00	32.00	MJC 07	10.00	60.00	2.00	$ 21,120.00	$ 53,320.00	$ 1,200.00	$ 3,029.55	$ 11,733.33	$ 29,622.22	$ 15,840.00	$ 39,990.00	$ 10,755.56	$ 27,153.70	$ 13,413.33	$ 33,863.59				$ 250.00	$ 29,250.00	$ 216,229	
		Gawne Rd	Carter Rd	0.5009	0.00	32.00	MJC 07	10.00	60.00	2.00	$ 21,120.00	$ 10,580.00	$ 1,200.00	$ 601.14	$ 11,733.33	$ 5,877.78	$ 15,840.00	$ 7,935.00	$ 10,755.56	$ 5,387.96	$ 13,413.33	$ 6,719.37						$ 37,101	
		Carter Rd	Mariposa Rd	3.6174	65.00	32.00	MJC 07	10.00	60.00	2.00	$ 21,120.00	$ 76,400.00	$ 1,200.00	$ 4,340.91	$ 11,733.33	$ 42,444.44	$ 15,840.00	$ 57,300.00	$ 10,755.56	$ 38,907.41	$ 13,413.33	$ 48,521.72				$ 250.00	$ 16,250.00	$ 284,164	
		Mariposa Rd	Escalon City Limits	1.7992	0.00	32.00	MJC 07	10.00	60.00	2.00	$ 21,120.00	$ 38,000.00	$ 1,200.00	$ 2,159.09	$ 11,733.33	$ 21,111.11	$ 15,840.00	$ 28,500.00	$ 10,755.56	$ 19,351.85	$ 13,413.33	$ 24,133.84						$ 133,256	
Subtotal																											**$ 670,750.67**	
III	French Camp Rd	El Dorado St	SR 120	10.1676	0.00																							$ 809,891
		El Dorado St	Harlan Rd	0.1449	0.00	32.00	MA 06	12.00	80.00	4.00	$ 21,120.00	$ 3,060.00	$ 1,200.00	$ 173.86	$ 23,466.67	$ 3,400.00	$ 31,680.00	$ 4,590.00	$ 21,511.11	$ 3,116.67	$ 13,413.33	$ 1,943.41						$ 16,284	
		Harlan Rd	UPRR	0.6979	0.00	32.00	MA 16	12.00	80.00	4.00	$ 21,120.00	$ 14,740.00	$ 1,200.00	$ 837.50	$ 23,466.67	$ 16,377.78	$ 31,680.00	$ 22,110.00	$ 21,511.11	$ 15,012.96	$ 13,413.33	$ 9,361.39						$ 78,440	
		UPRR	Airport Way	0.8580	0.00	32.00	MA 16	12.00	80.00	4.00	$ 21,120.00	$ 18,120.00	$ 1,200.00	$ 1,029.55	$ 23,466.67	$ 20,133.33	$ 31,680.00	$ 27,180.00	$ 21,511.11	$ 18,455.56	$ 13,413.33	$ 11,508.03						$ 96,426	
		Airport Way	Union Rd	0.9280	0.00	32.00	MA 06	12.00	80.00	4.00	$ 21,120.00	$ 19,600.00	$ 1,200.00	$ 1,113.64	$ 23,466.67	$ 21,777.78	$ 31,680.00	$ 29,400.00	$ 21,511.11	$ 19,962.96	$ 13,413.33	$ 12,447.98						$ 104,302	

DKS Associates
TRANSPORTATION SOLUTIONS
1000 Broadway, Suite 450
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(510)763-2061

Date Revised: September 2010

San Joaquin Proposed Bikeways
Preliminary Cost Estimate

Class	Name	From	To	Mileage (Mile)	Bridge Length (ft)	Current Width (ft)	Roadway Classification Code	Shoulder/Bike Lane Width Required Based on Roadway Classification Code (ft)	ROW	Actual Roadway Expansion Width Required (Both Sides of Roadway) (ft)	Unit Cost of Striping ($/Mile)	Total Cost of Striping ($)	Unit Cost of Signage ($/Mile)	Total Cost of Signage ($)	Unit Cost of Excavation ($/Mile)	Total Cost of Excavation ($)	Unit Cost of Asphalt Concrete ($/Mile)	Total Cost of Asphalt Concrete ($)	Unit Cost of Aggregate Base ($/Mile)	Total Cost of Aggregate Base ($)	Unit Cost of Drainage System ($/Mile)	Total Cost of Drainage System ($)	Unit Cost of Pavement Marking ($/Mile)	Total Cost of Pavement Marking ($)	Unit Cost of Bridge Railing ($/LF)	Total Cost of Bridge Railing ($)	Subtotal Cost for Each Roadway Segment ($)	Subtotal for Each Location ($)
		Union Rd	W/O UPRR	0.4195	0.00	50.00	MA 16	12.00	80.00	0.00	$ -	$ -	$ 1,200.00	$ 503.41	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -							$ 503	
		W/O UPRR	UPRR	0.2462	0.00	56.00	MA 16	12.00	80.00	0.00	$ -	$ -	$ 1,200.00	$ 295.45	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -							$ 295	
		UPRR	W/O SR 99	0.3021	0.00	32.00	MA 06	12.00	80.00	4.00	$ 21,120.00	$ 6,380.00	$ 1,200.00	$ 362.50	$ 23,466.67	$ 7,088.89	$ 31,680.00	$ 9,570.00	$ 21,511.11	$ 6,498.15	$ 13,413.33	$ 4,051.94							$ 33,951	
		W/O SR 99	SR 99	0.1989	0.00	56.00	MA 06	12.00	80.00	0.00	$ -	$ -	$ 1,200.00	$ 238.64	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -							$ 239	
		SR 99	Austin Rd	0.1960	0.00	32.00	MA 06	12.00	80.00	4.00	$ 21,120.00	$ 4,140.00	$ 1,200.00	$ 235.23	$ 23,466.67	$ 4,600.00	$ 31,680.00	$ 6,210.00	$ 21,511.11	$ 4,216.67	$ 13,413.33	$ 2,629.32							$ 22,031	
		Austin Rd	Prescott Rd	1.2027	0.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 25,400.00	$ 1,200.00	$ 1,443.18	$ 11,733.33	$ 14,111.11	$ 15,840.00	$ 19,050.00	$ 10,755.56	$ 12,935.19	$ 13,413.33	$ 16,131.57							$ 89,071	
		Prescott Rd	Jack Tone Rd	1.5227	0.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 32,160.00	$ 1,200.00	$ 1,827.27	$ 11,733.33	$ 17,866.67	$ 15,840.00	$ 24,120.00	$ 10,755.56	$ 16,377.78	$ 13,413.33	$ 20,424.85							$ 112,777	
		Jack Tone Rd	SR 120	3.4508	0.00	32.00	MJC 07	10.00	60.00	2.00	$ 21,120.00	$ 72,880.00	$ 1,200.00	$ 4,140.91	$ 11,733.33	$ 40,488.89	$ 15,840.00	$ 54,660.00	$ 10,755.56	$ 37,114.81	$ 13,413.33	$ 46,286.16							$ 255,571	
Subtotal																												**$ 809,890.97**	
III	Grant Line Rd	Eleventh St	Tracy City Limits	1.7765	0.00																								$ 46,429
		Eleventh St	Bird Rd	0.5682	0.00	40.00	MJC 07	10.00	80.00	0.00	$ -	$ -	$ 1,200.00	$ 681.82	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -							$ 682	
		Bird Rd	El Rancho Rd	0.6080	0.00	32.00	MJC 07	10.00	60.00	2.00	$ 21,120.00	$ 12,840.00	$ 1,200.00	$ 729.55	$ 11,733.33	$ 7,133.33	$ 15,840.00	$ 9,630.00	$ 10,755.56	$ 6,538.89	$ 13,413.33	$ 8,154.70							$ 45,026	
		El Rancho Rd	Tracy City Limits	0.6004	0.00	34.00	MJC 07	10.00	60.00	0.00	$ -	$ -	$ 1,200.00	$ 720.45	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -							$ 720	
Subtotal																												**$ 46,428.74**	
III	Hammond St	Jack Tone Rd	Tully Rd	0.1002	0.00	24.00	MJC 07	10.00	62.00	10.00	$ 21,120.00	$ 2,115.94	$ 1,200.00	$ 120.22	$ 58,666.67	$ 5,877.61	$ 79,200.00	$ 7,934.77	$ 53,777.78	$ 5,387.81	$ 13,413.33	$ 1,343.83							$ 22,780	**$ 22,780**
III	Hansen Rd	Schulte Rd	End of County Maintained Road	0.8041	0.00	20.00	LOC 09	8.00	40.00	12.00	$ 21,120.00	$ 16,981.70	$ 1,200.00	$ 964.87	$ 70,400.00	$ 56,605.68	$ 95,040.00	$ 76,417.67	$ 64,533.33	$ 51,888.54	$ 13,413.33	$ 10,785.10							$ 213,644	**$ 213,644**
III	Harney Ln	Beckman Rd	Lodi City Limits	0.1605	0.00	24.00	MA 16	12.00	50.00	12.00	$ 21,120.00	$ 3,389.04	$ 1,200.00	$ 192.56	$ 70,400.00	$ 11,296.81	$ 95,040.00	$ 15,250.70	$ 64,533.33	$ 10,355.41	$ 13,413.33	$ 2,152.39							$ 42,637	**$ 42,637**
III	Howard Rd	Tracy Blvd	Mathews Rd	9.9750	588.00																								$ 902,249
		Tracy Blvd	Undine Rd	2.2538	0.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 47,600.00	$ 1,200.00	$ 2,704.55	$ 11,733.33	$ 26,444.44	$ 15,840.00	$ 35,700.00	$ 10,755.56	$ 24,240.74	$ 13,413.33	$ 30,230.81							$ 166,921	
		Undine Rd	Middle River	2.7803	226.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 58,720.00	$ 1,200.00	$ 3,336.36	$ 11,733.33	$ 32,622.22	$ 15,840.00	$ 44,040.00	$ 10,755.56	$ 29,903.70	$ 13,413.33	$ 37,293.13					$ 250.00	$ 56,500.00	$ 262,415	
		Middle River	Roberts Rd	2.2348	0.00	32.00	MJC 07	10.00	60.00	2.00	$ 21,120.00	$ 47,200.00	$ 1,200.00	$ 2,681.82	$ 11,733.33	$ 26,222.22	$ 15,840.00	$ 35,400.00	$ 10,755.56	$ 24,037.04	$ 13,413.33	$ 29,976.77							$ 165,518	
		Roberts Rd	San Joaquin River	0.6061	362.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 12,800.00	$ 1,200.00	$ 727.27	$ 11,733.33	$ 7,111.11	$ 15,840.00	$ 9,600.00	$ 10,755.56	$ 6,518.52	$ 13,413.33	$ 8,129.29					$ 250.00	$ 90,500.00	$ 135,386	
		San Joaquin River	Wolfe Rd	1.6701	0.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 35,272.00	$ 1,200.00	$ 2,004.09	$ 11,733.33	$ 19,595.56	$ 15,840.00	$ 26,454.00	$ 10,755.56	$ 17,962.59	$ 13,413.33	$ 22,401.28							$ 123,690	
		Wolfe Rd	Mathews Rd	0.4299	0.00	32.00	MA 16	12.00	80.00	4.00	$ 21,120.00	$ 9,080.00	$ 1,200.00	$ 515.91	$ 23,466.67	$ 10,088.89	$ 31,680.00	$ 13,620.00	$ 21,511.11	$ 9,248.15	$ 13,413.33	$ 5,766.72							$ 48,320	
Subtotal																												**$ 902,249.19**	
III	Jack Tone Rd	Ripon City Limits	Jack Tone Bypass Rd	27.1667	1074.00																								$ 2,436,184
		Ripon City Limits	Clinton South Ave	0.3125	0.00	32.00	MA 16	12.00	60.00	4.00	$ 21,120.00	$ 6,600.00	$ 1,200.00	$ 375.00	$ 23,466.67	$ 7,333.33	$ 31,680.00	$ 9,900.00	$ 21,511.11	$ 6,722.22	$ 13,413.33	$ 4,191.67							$ 35,122	
		Clinton South Ave	SR 120	2.0085	0.00	32.00	MA 16	12.00	80.00	4.00	$ 21,120.00	$ 42,420.00	$ 1,200.00	$ 2,410.23	$ 23,466.67	$ 47,133.33	$ 31,680.00	$ 63,630.00	$ 21,511.11	$ 43,205.56	$ 13,413.33	$ 26,940.98							$ 225,740	
		SR 120	French Camp Rd	2.0076	0.00	32.00	MA 16	12.00	80.00	4.00	$ 21,120.00	$ 42,400.00	$ 1,200.00	$ 2,409.09	$ 23,466.67	$ 47,111.11	$ 31,680.00	$ 63,600.00	$ 21,511.11	$ 43,185.19	$ 13,413.33	$ 26,928.28							$ 225,634	
		French Camp Rd	Wildwood Rd	2.4356	142.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 51,440.00	$ 1,200.00	$ 2,922.73	$ 11,733.33	$ 28,577.78	$ 15,840.00	$ 38,580.00	$ 10,755.56	$ 26,196.30	$ 13,413.33	$ 32,669.60					$ 250.00	$ 35,500.00	$ 215,886	
		Wildwood Rd	Mariposa Rd	2.9536	41.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 62,380.00	$ 1,200.00	$ 3,544.32	$ 11,733.33	$ 34,655.56	$ 15,840.00	$ 46,785.00	$ 10,755.56	$ 31,767.59	$ 13,413.33	$ 39,617.60							$ 218,750	
		Mariposa Rd	SR 4	2.5777	114.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 54,440.00	$ 1,200.00	$ 3,093.18	$ 11,733.33	$ 30,244.44	$ 15,840.00	$ 40,830.00	$ 10,755.56	$ 27,724.07	$ 13,413.33	$ 34,574.90					$ 250.00	$ 28,500.00	$ 219,407	
		SR 4	Mormon Slough	1.5644	146.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 33,040.00	$ 1,200.00	$ 1,877.27	$ 11,733.33	$ 18,355.56	$ 15,840.00	$ 24,780.00	$ 10,755.56	$ 16,825.93	$ 13,413.33	$ 20,983.74					$ 250.00	$ 36,500.00	$ 152,362	
		Mormon Slough	Copperopolis Rd	0.3920	138.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 8,280.00	$ 1,200.00	$ 470.45	$ 11,733.33	$ 4,600.00	$ 15,840.00	$ 6,210.00	$ 10,755.56	$ 4,216.67	$ 13,413.33	$ 5,258.64					$ 250.00	$ 34,500.00	$ 63,536	
		Copperopolis Rd	SR 26	2.0947	0.00	32.00	MJC 07	10.00	60.00	2.00	$ 21,120.00	$ 44,240.00	$ 1,200.00	$ 2,513.64	$ 11,733.33	$ 24,577.78	$ 15,840.00	$ 33,180.00	$ 10,755.56	$ 22,529.63	$ 13,413.33	$ 28,096.87							$ 155,138	
		SR 26	Baker Rd	2.0038	0.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 42,320.00	$ 1,200.00	$ 2,404.55	$ 11,733.33	$ 23,511.11	$ 15,840.00	$ 31,740.00	$ 10,755.56	$ 21,551.85	$ 13,413.33	$ 26,877.47							$ 148,405	
		Baker Rd	Comstock Rd	1.0227	0.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 21,600.00	$ 1,200.00	$ 1,227.27	$ 11,733.33	$ 12,000.00	$ 15,840.00	$ 16,200.00	$ 10,755.56	$ 11,000.00	$ 13,413.33	$ 13,718.18							$ 75,745	
		Comstock Rd	Eight Mile Rd	0.9943	0.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 21,000.00	$ 1,200.00	$ 1,193.18	$ 11,733.33	$ 11,666.67	$ 15,840.00	$ 15,750.00	$ 10,755.56	$ 10,694.44	$ 13,413.33	$ 13,337.12							$ 73,641	
		Eight Mile Rd	Harney Ln	3.2008	214.00	32.00	MJC 07	10.00	60.00	2.00	$ 21,120.00	$ 67,600.00	$ 1,200.00	$ 3,840.91	$ 11,733.33	$ 37,555.56	$ 15,840.00	$ 50,700.00	$ 10,755.56	$ 34,425.93	$ 13,413.33	$ 42,932.83					$ 250.00	$ 53,500.00	$ 290,555	
		Harney Ln	Jack Tone Bypass Rd	3.5985	279.00	32.00	MJC 07	10.00	60.00	2.00	$ 21,120.00	$ 76,000.00	$ 1,200.00	$ 4,318.18	$ 11,733.33	$ 42,222.22	$ 15,840.00	$ 57,000.00	$ 10,755.56	$ 38,703.70	$ 13,413.33	$ 48,267.68					$ 250.00	$ 69,750.00	$ 336,262	
Subtotal																												**$ 2,436,184.07**	
III	Jack Tone Rd	Jack Tone Bypass Rd	Hammond St	0.4769	0.00	24.00	MJC 07	10.00	60.00	10.00	$ 21,120.00	$ 10,072.00	$ 1,200.00	$ 572.27	$ 58,666.67	$ 27,977.78	$ 79,200.00	$ 37,770.00	$ 53,777.78	$ 25,646.30	$ 13,413.33	$ 6,396.74							$ 108,435	**$ 108,435**
III	Kasson Rd	Durham Ferry Rd	Linne Rd	1.0644	0.00	26.00	MJC 07	10.00	80.00	8.00	$ 21,120.00	$ 22,480.00	$ 1,200.00	$ 1,277.27	$ 46,933.33	$ 49,955.56	$ 63,360.00	$ 67,440.00	$ 43,022.22	$ 45,792.59	$ 13,413.33	$ 14,277.07							$ 201,222	**$ 201,222**
III	Kasson Rd	Linne Rd	Critchett Rd	2.1591	0.00	24.00	MJC 07	10.00	80.00	10.00	$ 21,120.00	$ 45,600.00	$ 1,200.00	$ 2,590.91	$ 58,666.67	$ 126,666.67	$ 79,200.00	$ 171,000.00	$ 53,777.78	$ 116,111.11	$ 13,413.33	$ 28,960.61							$ 490,929	**$ 490,929**
III	Kasson Rd	Critchett Rd	Eleventh St	3.5303	0.00																								$ 667,400
		Critchett Rd	Lorenzen Rd	1.4848	0.00	26.00	MJC 07	10.00	80.00	8.00	$ 21,120.00	$ 31,360.00	$ 1,200.00	$ 1,781.82	$ 46,933.33	$ 69,688.89	$ 63,360.00	$ 94,080.00	$ 43,022.22	$ 63,881.48	$ 13,413.33	$ 19,916.77							$ 280,709	
		Lorenzen Rd	E-Ramp/Nancuso	1.7045	0.00	26.00	MJC 07	10.00	80.00	8.00	$ 21,120.00	$ 36,000.00	$ 1,200.00	$ 2,045.45	$ 46,933.33	$ 80,000.00	$ 63,360.00	$ 108,000.00	$ 43,022.22	$ 73,333.33	$ 13,413.33	$ 22,863.64							$ 322,242	
		W /Ramp I-5	Eleventh St	0.3409	0.00	26.00	MJC 07	10.00	80.00	8.00	$ 21,120.00	$ 7,200.00	$ 1,200.00	$ 409.09	$ 46,933.33	$ 16,000.00	$ 63,360.00	$ 21,600.00	$ 43,022.22	$ 14,666.67	$ 13,413.33	$ 4,572.73							$ 64,448	
Subtotal																												**$ 667,399.87**	
III	Kile Rd	Ray Rd	Thornton Rd	3.2299	0.00																								$ 858,212
		Ray Rd	E/O Thornton Rd	2.7299	0.00	20.00	LOC 09	8.00	40.00	12.00	$ 21,120.00	$ 57,656.00	$ 1,200.00	$ 3,275.91	$ 70,400.00	$ 192,186.67	$ 95,040.00	$ 259,452.00	$ 64,533.33	$ 176,171.11	$ 13,413.33	$ 36,617.38							$ 725,359	
		E/O Thornton Rd	Thornton Rd	0.5000	0.00	20.00	LOC 09	8.00	60.00	12.00	$ 21,120.00	$ 10,560.00	$ 1,200.00	$ 600.00	$ 70,400.00	$ 35,200.00	$ 95,040.00	$ 47,520.00	$ 64,533.33	$ 32,266.67	$ 13,413.33	$ 6,706.67							$ 132,853	
Subtotal																												**$ 858,212.40**	
III	Lammers Rd	Tracy City Limits (Schulte Rd)	Tracy City Limits (S. of the Delta Mendota Canal)	1.4148	0.00																								$ 345,353
		Tracy City Limits	Valpico Rd	0.7973	0.00	22.00	LOC 09	8.00	50.00	10.00	$ 21,120.00	$ 16,840.00	$ 1,200.00	$ 956.82	$ 58,666.67	$ 46,777.78	$ 79,200.00	$ 63,150.00	$ 53,777.78	$ 42,879.63	$ 13,413.33	$ 10,695.10							$ 181,299	
		Valpico Rd	Tracy City Limits	0.6174	0.00	22.00	MJC 07	10.00	50.00	12.00	$ 21,120.00	$ 13,040.00	$ 1,200.00	$ 740.91	$ 70,400.00	$ 43,466.67	$ 95,040.00	$ 58,680.00	$ 64,533.33	$ 39,844.44	$ 13,413.33	$ 8,281.72							$ 164,054	
Subtotal																												**$ 345,353.06**	
III	Lathrop Rd	SR 99	Cottage Ave	0.8939	0.00	24.00	MJC 07	10.00	40.00	10.00	$ 21,120.00	$ 18,880.00	$ 1,200.00	$ 1,072.73	$ 58,666.67	$ 52,444.44	$ 79,200.00	$ 70,800.00	$ 53,777.78	$ 48,074.07	$ 13,413.33	$ 11,990.71							$ 203,262	**$ 203,262**
III	Lathrop Rd	Cottage Ave	Austin Rd S	0.7472	0.00	32.00	MJC 07	10.00	40.00	2.00	$ 21,120.00	$ 15,780.00	$ 1,200.00	$ 896.59	$ 11,733.33	$ 8,766.67	$ 15,840.00	$ 11,835.00	$ 10,755.56	$ 8,036.11	$ 13,413.33	$ 10,021.89							$ 55,336	**$ 55,336**
III	Live Oak Rd	SR N 99 Frontage Rd E	SR 88	4.0909	35.00																								$ 829,680
		SR N 99 Frontage Rd E	CCT CO RR	0.9356	35.00	23.00	LOC 09	8.00	80.00	9.00	$ 21,120.00	$ 19,760.00	$ 1,200.00	$ 1,122.73	$ 52,800.00	$ 49,400.00	$ 71,280.00	$ 66,690.00	$ 48,400.00	$ 45,283.33	$ 13,413.33	$ 12,549.60					$ 250.00	$ 8,750.00	$ 203,556	
		CCT CO RR	Alpine Rd	1.5455	0.00	23.00	LOC 09	8.00	60.00	9.00	$ 21,120.00	$ 32,640.00	$ 1,200.00	$ 1,854.55	$ 52,800.00	$ 81,600.00	$ 71,280.00	$ 110,160.00	$ 48,400.00	$ 74,800.00	$ 13,413.33	$ 20,729.70							$ 321,784	
		Alpine Rd	SR 88	1.6098	0.00	24.00	LOC 09	8.00	40.00	8.00	$ 21,120.00	$ 34,000.00	$ 1,200.00	$ 1,931.82	$ 46,933.33	$ 75,555.56	$ 63,360.00	$ 102,000.00	$ 43,022.22	$ 69,259.26	$ 13,413.33	$ 21,593.43							$ 304,340	
Subtotal																												**$ 829,679.97**	
III	Live Oak Rd	SR 88	Jack Tone Rd	1.8561	0.00	20.00	LOC 09	8.00	60.00	12.00	$ 21,120.00	$ 39,200.00	$ 1,200.00	$ 2,227.27	$ 70,400.00	$ 130,666.67	$ 95,040.00	$ 176,400.00	$ 64,533.33	$ 119,777.78	$ 13,413.33	$ 24,895.96							$ 493,168	**$ 493,168**
III	Locke Rd (One Way)	Tretheway Rd	SR 12/88	1.6712	0.00	20.00	LOC 09	4.00	40.00	8.00	$ 10,560.00	$ 17,648.04	$ 600.00	$ 501.36	$ 46,933.33	$ 78,435.73	$ 63,360.00	$ 105,888.23	$ 43,022.22	$ 71,899.42	$ 13,413.33	$ 22,416.57							$ 296,789	**$ 296,789**
III	Lower Sacramento Rd	Sacramento CO	Mokelumne St	6.0256	376.07																								$ 542,244
		Sacramento CO	SPRR	1.7917	37.07	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 37,840.00	$ 1,200.00	$ 2,150.00	$ 11,733.33	$ 21,022.22	$ 15,840.00	$ 28,380.00	$ 10,755.56	$ 19,270.37	$ 13,413.33	$ 24,032.22					$ 250.00	$ 9,267.50	$ 141,962	
		SPRR	Jahant Rd	0.9375	0.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 19,800.00	$ 1,200.00	$ 1,125.00	$ 11,733.33	$ 11,000.00	$ 15,840.00	$ 14,850.00	$ 10,755.56	$ 10,083.33	$ 13,413.33	$ 12,575.00							$ 69,433	
		Jahant Rd	Acampo Rd	1.8352	0.00	33.00	MJC 07	10.00	80.00	1.00	$ 21,120.00	$ 38,760.00	$ 1,200.00	$ 2,202.27	$ 5,866.67	$ 10,766.67	$ 7,920.00	$ 14,535.00	$ 5,377.78	$ 9,869.44	$ 13,413.33	$ 24,616.52							$ 100,750	
		Acampo Rd	Woodbridge Rd	0.9848	0.00	33.00	MA 16	12.00	80.00	3.00	$ 21,120.00	$ 20,800.00	$ 1,200.00	$ 1,181.82	$ 17,600.00	$ 17,333.33	$ 23,760.00	$ 23,400.00	$ 16,133.33	$ 15,888.89	$ 13,413.33	$ 13,210.10							$ 91,814	
		Woodbridge Rd	Mokelumne St	0.4763	339.00	32.00	MA 16	12.00	80.00	4.00	$ 21,120.00	$ 10,060.00	$ 1,200.00	$ 571.59	$ 23,466.67	$ 11,177.78	$ 31,680.00	$ 15,090.00	$ 21,511.11	$ 10,246.30	$ 13,413.33	$ 6,389.12					$ 250.00	$ 84,750.00	$ 138,285	
Subtotal																												**$ 542,244.47**	
III	Lower Sacramento Rd	Harney Ln	Stockton City Limits	3.1127	0.00																								$ 469,145

DKS Associates
TRANSPORTATION SOLUTIONS
1000 Broadway, Suite 450
Oakland, CA 94607
(510)763-2061

Date Revised: September 2010

San Joaquin Proposed Bikeways
Preliminary Cost Estimate

Class	Name	From	To	Mileage (Mile)	Bridge Length (ft)	Current Width (ft)	Roadway Classification Code	Shoulder/Bike Lane Width Required Based on Roadway Classification Code (ft)	ROW	Actual Roadway Expansion Width Required (Both Sides of Roadway) (ft)	Unit Cost of Striping ($/Mile)	Total Cost of Striping ($)	Unit Cost of Signage ($/Mile)	Total Cost of Signage ($)	Unit Cost of Excavation ($/Mile)	Total Cost of Excavation ($)	Unit Cost of Asphalt Concrete ($/Mile)	Total Cost of Asphalt Concrete ($)	Unit Cost of Aggregate Base ($/Mile)	Total Cost of Aggregate Base ($)	Unit Cost of Drainage System ($/Mile)	Total Cost of Drainage System ($)	Unit Cost of Pavement Marking ($/Mile)	Total Cost of Pavement Marking ($)	Unit Cost of Bridge Railing ($/LF)	Total Cost of Bridge Railing ($)	Subtotal Cost for Each Roadway Segment ($)	Subtotal for Each Location ($)
		Harney Ln	Armstrong Rd	1.1051	0.00	28.00	COL 17	10.00	80.00	6.00	$ 21,120.00	$ 23,340.00	$ 1,200.00	$ 1,326.14	$ 35,200.00	$ 38,900.00	$ 47,520.00	$ 52,515.00	$ 32,266.67	$ 35,658.33	$ 13,413.33	$ 14,823.26						$ 166,563	
		Armstrong Rd	Mettler Rd	0.7576	0.00	28.00	COL 17	10.00	80.00	6.00	$ 21,120.00	$ 16,000.00	$ 1,200.00	$ 909.09	$ 35,200.00	$ 26,666.67	$ 47,520.00	$ 36,000.00	$ 32,266.67	$ 24,444.44	$ 13,413.33	$ 10,161.62						$ 114,182	
		Mettler Rd	Stockton City Limits	1.2500	0.00	28.00	COL 17	10.00	80.00	6.00	$ 21,120.00	$ 26,400.00	$ 1,200.00	$ 1,500.00	$ 35,200.00	$ 44,000.00	$ 47,520.00	$ 59,400.00	$ 32,266.67	$ 40,333.33	$ 13,413.33	$ 16,766.67						$ 188,400	
Subtotal																												**$ 469,144.55**	
III	Main St	Stockton City Limits	Alpine Rd	2.9030	0.00																								$ 199,065
		Stockton City Limits	Anteros Ave	0.0896	0.00	55.00	LOC 19	8.00	80.00	0.00	$ -	$ -	$ 1,200.00	$ 107.50	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 108	
		Anteros Ave	Oro Ave	0.2169	0.00	60.00	MA 16	12.00	80.00	0.00	$ -	$ -	$ 1,200.00	$ 260.23	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 260	
		Oro Ave	Coolidge Ave	0.2227	0.00	60.00	MA 16	12.00	80.00	0.00	$ -	$ -	$ 1,200.00	$ 267.27	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 267	
		Coolidge Ave	Dawes Ave	0.1089	0.00	58.00	MA 16	12.00	80.00	0.00	$ -	$ -	$ 1,200.00	$ 130.68	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 131	
		Dawes Ave	Del Mar Ave	0.1061	0.00	57.00	MA 16	12.00	80.00	0.00	$ -	$ -	$ 1,200.00	$ 127.27	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 127	
		Del Mar Ave	Walker Ln	0.2475	0.00	32.00	MA 16	12.00	80.00	4.00	$ 21,120.00	$ 5,228.00	$ 1,200.00	$ 297.05	$ 23,466.67	$ 5,808.89	$ 31,680.00	$ 7,842.00	$ 21,511.11	$ 5,324.81	$ 13,413.33	$ 3,320.31						$ 27,821	
		Walker Ln	W/O Cardinal Ave	0.1146	0.00	32.00	MA 16	12.00	80.00	4.00	$ 21,120.00	$ 2,420.00	$ 1,200.00	$ 137.50	$ 23,466.67	$ 2,688.89	$ 31,680.00	$ 3,630.00	$ 21,511.11	$ 2,464.81	$ 13,413.33	$ 1,536.94						$ 12,878	
		W/O Cardinal Ave	Cardinal Ave	0.0748	0.00	57.00	MA 16	12.00	80.00	0.00	$ -	$ -	$ 1,200.00	$ 89.77	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 90	
		Cardinal Ave	Bird Ave	0.2121	0.00	32.00	MA 16	12.00	80.00	4.00	$ 21,120.00	$ 4,480.00	$ 1,200.00	$ 254.55	$ 23,466.67	$ 4,977.78	$ 31,680.00	$ 6,720.00	$ 21,511.11	$ 4,562.96	$ 13,413.33	$ 2,845.25						$ 23,841	
		Bird Ave	Diverting Canal	0.5667	0.00	32.00	MA 16	12.00	80.00	4.00	$ 21,120.00	$ 11,968.00	$ 1,200.00	$ 680.00	$ 23,466.67	$ 13,297.78	$ 31,680.00	$ 17,952.00	$ 21,511.11	$ 12,189.63	$ 13,413.33	$ 7,600.89						$ 63,688	
		Diverting Canal	Alpine Rd	0.9432	0.00	32.00	COL 17	10.00	80.00	2.00	$ 21,120.00	$ 19,920.00	$ 1,200.00	$ 1,131.82	$ 11,733.33	$ 11,066.67	$ 15,840.00	$ 14,940.00	$ 10,755.56	$ 10,144.44	$ 13,413.33	$ 12,651.21						$ 69,854	
Subtotal																												**$ 199,064.91**	
III	Manthey Rd	Lathrop City Limits	Briggs Rd	0.2038	0.00	31.00	MA 16	12.00	52.00	5.00	$ 21,120.00	$ 4,304.00	$ 1,200.00	$ 244.55	$ 29,333.33	$ 5,977.78	$ 39,600.00	$ 8,070.00	$ 26,888.89	$ 5,479.63	$ 13,413.33	$ 2,733.47						$ 26,809	**$ 26,809**
III	Manthey Rd	Briggs Rd	French Camp Rd	2.8422	0.00																								$ 69,352
		Briggs Rd	Bowman Rd	0.5799	0.00	32.00	LOC 19	8.00	60.00	0.00	$ -	$ -	$ 1,200.00	$ 695.91	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 696	
		Bowman Rd	Matthews Rd	1.1695	0.00	32.00	LOC 19	8.00	60.00	0.00	$ -	$ -	$ 1,200.00	$ 1,403.41	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 1,403	
		Matthews Rd	N/O Matthews Rd	0.0947	0.00	40.00	COL 17	10.00	60.00	0.00	$ -	$ -	$ 1,200.00	$ 113.64	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 114	
		N/O Matthews Rd	S/O Yettner Rd	0.4580	0.00	30.00	COL 17	10.00	60.00	4.00	$ 21,120.00	$ 9,672.00	$ 1,200.00	$ 549.55	$ 23,466.67	$ 10,746.67	$ 31,680.00	$ 14,508.00	$ 21,511.11	$ 9,851.11	$ 13,413.33	$ 6,142.70						$ 51,470	
		S/O Yettner Rd	Yettner Rd	0.2797	0.00	33.00	COL 17	10.00	60.00	1.00	$ 21,120.00	$ 5,908.00	$ 1,200.00	$ 335.68	$ 5,866.67	$ 1,641.11	$ 7,920.00	$ 2,215.50	$ 5,377.78	$ 1,504.35	$ 13,413.33	$ 3,752.18						$ 15,357	
		Yettner Rd	French Camp Rd	0.2604	0.00	41.00	COL 17	10.00	60.00	0.00	$ -	$ -	$ 1,200.00	$ 312.50	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 313	
Subtotal																												**$ 69,352.30**	
III	Manthey Rd	South End	Lathrop City Limits	0.3617	0.00	31.00	MA 16	12.00	80.00	5.00	$ 21,120.00	$ 7,638.96	$ 1,200.00	$ 434.03	$ 29,333.33	$ 10,609.66	$ 39,600.00	$ 14,323.04	$ 26,888.89	$ 9,725.52	$ 13,413.33	$ 4,851.51						$ 47,583	**$ 47,583**
III	Mariposa Rd	Escalon-Bellota Rd	Stockton City Limits	12.0667	0.00																								$ 351,909
		Escalon-Bellota Rd	Van Allen Rd	3.6790	0.00	36.00	MJC 07	10.00	80.00	0.00	$ -	$ -	$ 1,200.00	$ 4,414.77	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 4,415	
		Van Allen Rd	Gawne Rd	3.7566	0.00	36.00	MJC 07	10.00	80.00	0.00	$ -	$ -	$ 1,200.00	$ 4,507.95	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 4,508	
		Gawne Rd	Jack Tone Rd	2.3583	0.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 49,808.00	$ 1,200.00	$ 2,830.00	$ 11,733.33	$ 27,671.11	$ 15,840.00	$ 37,356.00	$ 10,755.56	$ 25,365.19	$ 13,413.33	$ 31,633.11						$ 174,663	
		Jack Tone Rd	Stockton City Limits	2.2727	0.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 48,000.00	$ 1,200.00	$ 2,727.27	$ 11,733.33	$ 26,666.67	$ 15,840.00	$ 36,000.00	$ 10,755.56	$ 24,444.44	$ 13,413.33	$ 30,484.85						$ 168,323	
Subtotal																												**$ 351,909.37**	
III	Mathews Rd	Howard Rd	El Dorado St	1.0275	0.00																								$ 90,839
		Howard Rd	Manthey Rd	0.8059	0.00	32.00	MA 16	12.00	60.00	4.00	$ 21,120.00	$ 17,020.00	$ 1,200.00	$ 967.05	$ 23,466.67	$ 18,911.11	$ 31,680.00	$ 25,530.00	$ 21,511.11	$ 17,335.19	$ 13,413.33	$ 10,809.42						$ 90,573	
		Manthey Rd	Interstate 5	0.1100	0.00	61.00	COL 17	10.00	80.00	0.00	$ -	$ -	$ 1,200.00	$ 132.05	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 132	
		Interstate 5	El Dorado St	0.1116	0.00	61.00	COL 17	10.00	80.00	0.00	$ -	$ -	$ 1,200.00	$ 133.86	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 134	
Subtotal																												**$ 90,838.67**	
III	McHenry Ave	County Line	Escalon City Limits	0.8913	61.00	32.00	MA 06	12.00	60.00	4.00	$ 21,120.00	$ 18,824.16	$ 1,200.00	$ 1,069.55	$ 23,466.67	$ 20,915.73	$ 31,680.00	$ 28,236.24	$ 21,511.11	$ 19,172.76	$ 13,413.33	$ 11,955.24			$ 250.00	$ 15,250.00			$ 115,424	**$ 115,424**
III	Micke Grove Rd	Eight Mile Rd	Armstrong Rd	2.0179	26.00	24.00	LOC 19	8.00	40.00	8.00	$ 21,120.00	$ 42,617.40	$ 1,200.00	$ 2,421.44	$ 46,933.33	$ 94,705.34	$ 63,360.00	$ 127,852.21	$ 43,022.22	$ 86,813.23	$ 13,413.33	$ 27,066.36			$ 250.00	$ 6,500.00			$ 387,976	**$ 387,976**
III	Murphy Rd	River Rd	Ripon City Limits	1.0240	0.00	24.00	MA 16	12.00	60.00	12.00	$ 21,120.00	$ 21,626.70	$ 1,200.00	$ 1,228.79	$ 70,400.00	$ 72,089.00	$ 95,040.00	$ 97,320.15	$ 64,533.33	$ 66,081.58	$ 13,413.33	$ 13,735.14						$ 272,081	**$ 272,081**
III	New Hope Rd	Thornton Rd	County Line	0.8295	0.00																								$ 220,416
		Thornton Rd	Nowell Rd	0.5019	0.00	22.00	MJC 07	10.00	60.00	12.00	$ 21,120.00	$ 10,600.00	$ 1,200.00	$ 602.27	$ 70,400.00	$ 35,333.33	$ 95,040.00	$ 47,700.00	$ 64,533.33	$ 32,388.89	$ 13,413.33	$ 6,732.07						$ 133,357	
		Nowell Rd	Sacramento CO	0.3277	0.00	22.00	MJC 07	10.00	60.00	12.00	$ 21,120.00	$ 6,920.00	$ 1,200.00	$ 393.18	$ 70,400.00	$ 23,066.67	$ 95,040.00	$ 31,140.00	$ 64,533.33	$ 21,144.44	$ 13,413.33	$ 4,394.90						$ 87,059	
Subtotal																												**$ 220,415.76**	
III	Patterson Pass Rd	Mountain House Pky	County Line	1.7045																									**$ 267,934**
		Mountain House Pky	4120' E/O ALAMEDA CO	0.7803	0.00	32.00	MNC 08	10.00	60.00	2.00	$ 21,120.00	$ 16,480.00	$ 1,200.00	$ 936.36	$ 11,733.33	$ 9,155.56	$ 15,840.00	$ 12,360.00	$ 10,755.56	$ 8,392.59	$ 13,413.33	$ 10,466.46						$ 57,791	
		4120' E/O ALAMEDA CO	County Line	0.9242	0.00	24.00	MNC 08	10.00	60.00	10.00	$ 21,120.00	$ 19,519.10	$ 1,200.00	$ 1,109.04	$ 58,666.67	$ 54,219.73	$ 79,200.00	$ 73,196.64	$ 53,777.78	$ 49,701.42	$ 13,413.33	$ 12,396.60						$ 210,143	
Subtotal																												**$ 267,933.52**	
III	Peltier Rd	Blossom Rd	Rond Rd	2.0985	0.00	18.00	LOC 09	8.00	46.00	14.00	$ 21,120.00	$ 44,320.00	$ 1,200.00	$ 2,518.18	$ 82,133.33	$ 172,355.56	$ 110,880.00	$ 232,680.00	$ 75,288.89	$ 157,992.59	$ 13,413.33	$ 28,147.68						$ 638,014	**$ 638,014**
III	Peltier Rd	Rond Rd	Thornton Rd	0.3011	0.00	25.00	MJC 07	10.00	46.00	9.00	$ 21,120.00	$ 6,360.00	$ 1,200.00	$ 361.36	$ 52,800.00	$ 15,900.00	$ 71,280.00	$ 21,465.00	$ 48,400.00	$ 14,575.00	$ 13,413.33	$ 4,039.24						$ 62,701	**$ 62,701**
III	Ray Rd	Turner Rd	Kile Rd	4.0837	0.00																								$ 1,005,494
		Turner Rd	Woodbridge Rd	1.0199	0.00	22.00	LOC 09	8.00	50.00	10.00	$ 21,120.00	$ 21,540.00	$ 1,200.00	$ 1,223.86	$ 58,666.67	$ 59,833.33	$ 79,200.00	$ 80,775.00	$ 53,777.78	$ 54,847.22	$ 13,413.33	$ 13,680.08						$ 231,899	
		Woodbridge Rd	Peltier Rd	2.0600	0.00	22.00	LOC 09	8.00	50.00	10.00	$ 21,120.00	$ 43,508.00	$ 1,200.00	$ 2,472.05	$ 58,666.67	$ 120,855.56	$ 79,200.00	$ 163,155.00	$ 53,777.78	$ 110,784.26	$ 13,413.33	$ 27,631.97						$ 468,407	
		Peltier Rd	Kile Rd	1.0038	0.00	18.00	LOC 09	8.00	40.00	14.00	$ 21,120.00	$ 21,200.00	$ 1,200.00	$ 1,204.55	$ 82,133.33	$ 82,444.44	$ 110,880.00	$ 111,300.00	$ 75,288.89	$ 75,574.07	$ 13,413.33	$ 13,464.14						$ 305,187	
Subtotal																												**$ 1,005,493.54**	
III	River Rd	Murphy Rd	Santa Fe Rd	8.4394	0.00																								$ 625,040
		Murphy Rd	Carrolton Rd	2.0417	0.00	32.00	MJC 07	10.00	60.00	2.00	$ 21,120.00	$ 43,120.00	$ 1,200.00	$ 2,450.00	$ 11,733.33	$ 23,955.56	$ 15,840.00	$ 32,340.00	$ 10,755.56	$ 21,959.26	$ 13,413.33	$ 27,385.56						$ 151,210	
		Carrolton Rd	Mc Henry Ave	3.8977	0.00	32.00	MJC 07	10.00	60.00	2.00	$ 21,120.00	$ 82,320.00	$ 1,200.00	$ 4,677.27	$ 11,733.33	$ 45,733.33	$ 15,840.00	$ 61,740.00	$ 10,755.56	$ 41,922.22	$ 13,413.33	$ 52,281.52						$ 288,674	
		Mc Henry Ave	Santa Fe Rd	2.5000	0.00	32.00	MJC 07	10.00	60.00	2.00	$ 21,120.00	$ 52,800.00	$ 1,200.00	$ 3,000.00	$ 11,733.33	$ 29,333.33	$ 15,840.00	$ 39,600.00	$ 10,755.56	$ 26,888.89	$ 13,413.33	$ 33,533.33						$ 185,156	
Subtotal																												**$ 625,040.27**	
III	Santa Fe Rd	County Line	Escalon City Limits	4.0799	1007.00																								$ 553,918
		Stanislaus CO	River Rd	1.5799	1007.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 33,368.00	$ 1,200.00	$ 1,895.91	$ 11,733.33	$ 18,537.78	$ 15,840.00	$ 25,026.00	$ 10,755.56	$ 16,992.96	$ 13,413.33	$ 21,192.05			$ 250.00	$ 251,750.00			$ 368,763	
		River Rd	Escalon City Limits	2.5000	0.00	32.00	MJC 07	10.00	60.00	2.00	$ 21,120.00	$ 52,800.00	$ 1,200.00	$ 3,000.00	$ 11,733.33	$ 29,333.33	$ 15,840.00	$ 39,600.00	$ 10,755.56	$ 26,888.89	$ 13,413.33	$ 33,533.33						$ 185,156	
Subtotal																												**$ 553,918.26**	
III	Swain Rd	Stockton City Limits (West of Harrisburg Pl)	Stockton City Limits (Plymouth Rd)	0.8902	0.00																								$ 7,475
		Stockton City Limits (West of Harrisburg Pl)	Williamsburg	0.2008	0.00	44.00	COL 17	10.00	60.00	0.00	$ -	$ -	$ 1,200.00	$ 240.91	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 241	
		Williamsburg	Alexandria Pl	0.1193	0.00	33.00	COL 17	10.00	60.00	1.00	$ 21,120.00	$ 2,520.00	$ 1,200.00	$ 143.18	$ 5,866.67	$ 700.00	$ 7,920.00	$ 945.00	$ 5,377.78	$ 641.67	$ 13,413.33	$ 1,600.45						$ 6,550	
		Alexandria Pl	Belmont Pl	0.2576	0.00	34.00	COL 17	10.00	60.00	0.00	$ -	$ -	$ 1,200.00	$ 309.09	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 309	
		Belmont Pl	Stockton City Limits (Plymouth Rd)	0.3125	0.00	40.00	COL 17	10.00	60.00	0.00	$ -	$ -	$ 1,200.00	$ 375.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 375	
Subtotal																												**$ 7,475.30**	

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Date Revised: September 2010

San Joaquin Proposed Bikeways
Preliminary Cost Estimate

Class	Name	From	To	Mileage (Mile)	Bridge Length (ft)	Current Width (ft)	Roadway Classification Code	Shoulder/Bike Lane Width Required Based on Roadway Classification Code (ft)	ROW	Actual Roadway Expansion Width Required (Both Sides of Roadway) (ft)	Unit Cost of Striping ($/Mile)	Total Cost of Striping ($)	Unit Cost of Signage ($/Mile)	Total Cost of Signage ($)	Unit Cost of Excavation ($/Mile)	Total Cost of Excavation ($)	Unit Cost of Asphalt Concrete ($/Mile)	Total Cost of Asphalt Concrete ($)	Unit Cost of Aggregate Base ($/Mile)	Total Cost of Aggregate Base ($)	Unit Cost of Drainage System ($/Mile)	Total Cost of Drainage System ($)	Unit Cost of Pavement Marking ($/Mile)	Total Cost of Pavement Marking ($)	Unit Cost of Bridge Railing ($/LF)	Total Cost of Bridge Railing ($)	Subtotal Cost for Each Roadway Segment ($)	Subtotal for Each Location ($)
III	Thornton Rd	County Line	Turner Rd	8.2265	40.00																								$ 1,880,527
		Sacramento CO	New Hope Rd	1.8750	0.00	24.00	MJC 07	10.00	50.00	10.00	$ 21,120.00	$ 39,600.00	$ 1,200.00	$ 2,250.00	$ 58,666.67	$ 110,000.00	$ 79,200.00	$ 148,500.00	$ 53,777.78	$ 100,833.33	$ 13,413.33	$ 25,150.00						$ 426,333	
		New Hope Rd	Walnut Grove rd	0.3977	0.00	24.00	MJC 07	10.00	75.00	10.00	$ 21,120.00	$ 8,400.00	$ 1,200.00	$ 477.27	$ 58,666.67	$ 23,333.33	$ 79,200.00	$ 31,500.00	$ 53,777.78	$ 21,388.89	$ 13,413.33	$ 5,334.85						$ 90,434	
		Walnut Grove Rd	Kile Rd	0.8000	40.00	24.00	MNC 08	10.00	80.00	10.00	$ 21,120.00	$ 16,896.00	$ 1,200.00	$ 960.00	$ 58,666.67	$ 46,933.33	$ 79,200.00	$ 63,360.00	$ 53,777.78	$ 43,022.22	$ 13,413.33	$ 10,730.67			$ 250.00	$ 10,000.00		$ 191,902	
		Kile Rd	Peltier Rd	2.1000	0.00	24.00	MNC 08	10.00	80.00	10.00	$ 21,120.00	$ 44,352.00	$ 1,200.00	$ 2,520.00	$ 58,666.67	$ 123,200.00	$ 79,200.00	$ 166,320.00	$ 53,777.78	$ 112,933.33	$ 13,413.33	$ 28,168.00						$ 477,493	
		Peltier Rd	Acampo Rd	1.0500	0.00	24.00	MNC 08	10.00	80.00	10.00	$ 21,120.00	$ 22,176.00	$ 1,200.00	$ 1,260.00	$ 58,666.67	$ 61,600.00	$ 79,200.00	$ 83,160.00	$ 53,777.78	$ 56,466.67	$ 13,413.33	$ 14,084.00						$ 238,747	
		Acampo Rd	Woodbridge Rd	1.0000	0.00	24.00	MNC 08	10.00	80.00	10.00	$ 21,120.00	$ 21,120.00	$ 1,200.00	$ 1,200.00	$ 58,666.67	$ 58,666.67	$ 79,200.00	$ 79,200.00	$ 53,777.78	$ 53,777.78	$ 13,413.33	$ 13,413.33						$ 227,378	
		Woodbridge Rd	Turner Rd	1.0038	0.00	24.00	MNC 08	10.00	80.00	10.00	$ 21,120.00	$ 21,200.00	$ 1,200.00	$ 1,204.55	$ 58,666.67	$ 58,888.89	$ 79,200.00	$ 79,500.00	$ 53,777.78	$ 53,981.48	$ 13,413.33	$ 13,464.14						$ 228,239	
Subtotal																											**$ 1,880,526.73**	
III	Thornton Rd	Stockton City Limits	Devries Rd	1.0552	0.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 22,286.85	$ 1,200.00	$ 1,266.30	$ 11,733.33	$ 12,381.58	$ 15,840.00	$ 16,715.13	$ 10,755.56	$ 11,349.78	$ 13,413.33	$ 14,154.40						$ 78,154	**$ 78,154**
III	Toleri Rd	Canal Blvd	East End	0.2753	0.00	28.00	LOC 09	8.00	50.00	4.00	$ 21,120.00	$ 5,815.14	$ 1,200.00	$ 330.41	$ 23,466.67	$ 6,461.27	$ 31,680.00	$ 8,722.71	$ 21,511.11	$ 5,922.83	$ 13,413.33	$ 3,693.20						$ 30,946	**$ 30,946**
III	Tracy Blvd	Lammers Rd	Howard Rd	6.2652	801.00																								$ 664,261
		Lammers Rd	Platti Rd	2.6326	0.00	32.00	MJC 07	10.00	50.00	2.00	$ 21,120.00	$ 55,600.00	$ 1,200.00	$ 3,159.09	$ 11,733.33	$ 30,888.89	$ 15,840.00	$ 41,700.00	$ 10,755.56	$ 28,314.81	$ 13,413.33	$ 35,311.62						$ 194,974	
		Platti Rd	Old River	0.4773	330.00	32.00	MJC 07	10.00	50.00	2.00	$ 21,120.00	$ 10,080.00	$ 1,200.00	$ 572.73	$ 11,733.33	$ 5,600.00	$ 15,840.00	$ 7,560.00	$ 10,755.56	$ 5,133.33	$ 13,413.33	$ 6,401.82			$ 250.00	$ 82,500.00		$ 117,848	
		Old River	Grant Line Canal	1.0000	471.00	32.00	MJC 07	10.00	50.00	2.00	$ 21,120.00	$ 21,120.00	$ 1,200.00	$ 1,200.00	$ 11,733.33	$ 11,733.33	$ 15,840.00	$ 15,840.00	$ 10,755.56	$ 10,755.56	$ 13,413.33	$ 13,413.33			$ 250.00	$ 117,750.00		$ 191,812	
		Grant Line Canal	Howard Rd	2.1553	0.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 45,520.00	$ 1,200.00	$ 2,586.36	$ 11,733.33	$ 25,288.89	$ 15,840.00	$ 34,140.00	$ 10,755.56	$ 23,181.48	$ 13,413.33	$ 28,909.80						$ 159,627	
Subtotal																											**$ 664,261.04**	
III	Tretheway Rd (One Way)	Locke Rd	SR 12	0.5245	0.00	23.00	LOC 09	4.00	60.00	5.00	$ 10,560.00	$ 2,769.43	$ 600.00	$ 157.35	$ 29,333.33	$ 7,692.86	$ 39,600.00	$ 10,385.36	$ 26,888.89	$ 7,051.78	$ 13,413.33	$ 3,517.73						$ 31,575	**$ 31,575**
III	Tully Rd	Brandt Rd	SR 12/88	1.4459	80.00																								$ 293,346
		Brandt Rd	Hammond St	1.3847	80.00	24.00	LOC 09	8.00	40.00	8.00	$ 21,120.00	$ 29,244.80	$ 1,200.00	$ 1,661.64	$ 46,933.33	$ 64,988.44	$ 63,360.00	$ 87,734.40	$ 43,022.22	$ 59,572.74	$ 13,413.33	$ 18,573.40			$ 250.00	$ 20,000.00		$ 281,775	
		Hammond St	SR 12/88	0.0612	0.00	24.00	LOC 09	8.00	60.00	8.00	$ 21,120.00	$ 1,292.61	$ 1,200.00	$ 73.44	$ 46,933.33	$ 2,872.46	$ 63,360.00	$ 3,877.83	$ 43,022.22	$ 2,633.09	$ 13,413.33	$ 820.94						$ 11,570	
Subtotal																											**$ 293,345.79**	
III	Turner Rd	Thornton Rd	Lodi City Limits	5.1989	0.00																								$ 1,243,810
		Jacob Brack Rd	Ray Rd	1.6098	0.00	22.00	MJC 07	10.00	40.00	12.00	$ 21,120.00	$ 34,000.00	$ 1,200.00	$ 1,931.82	$ 70,400.00	$ 113,333.33	$ 95,040.00	$ 153,000.00	$ 64,533.33	$ 103,888.89	$ 13,413.33	$ 21,593.43						$ 427,747	
		Ray Rd	De Vries Rd	1.0303	0.00	24.00	MJC 07	10.00	40.00	10.00	$ 21,120.00	$ 21,760.00	$ 1,200.00	$ 1,236.36	$ 58,666.67	$ 60,444.44	$ 79,200.00	$ 81,600.00	$ 53,777.78	$ 55,407.41	$ 13,413.33	$ 13,819.80						$ 234,268	
		De Vries Rd	Davis Rd	1.0322	0.00	24.00	MJC 07	10.00	40.00	10.00	$ 21,120.00	$ 21,800.00	$ 1,200.00	$ 1,238.64	$ 58,666.67	$ 60,555.56	$ 79,200.00	$ 81,750.00	$ 53,777.78	$ 55,509.26	$ 13,413.33	$ 13,845.20						$ 234,699	
		Davis Rd	Lodi City Limits	1.5265	0.00	24.00	MJC 07	10.00	40.00	10.00	$ 21,120.00	$ 32,240.00	$ 1,200.00	$ 1,831.82	$ 58,666.67	$ 89,555.56	$ 79,200.00	$ 120,900.00	$ 53,777.78	$ 82,092.59	$ 13,413.33	$ 20,475.66						$ 347,096	
Subtotal																											**$ 1,243,809.76**	
III	Von Sosten Rd	Byron Rd	Currier Dr	1.2254	0.00	22.00	LOC 09	8.00	60.00	10.00	$ 21,120.00	$ 25,880.00	$ 1,200.00	$ 1,470.45	$ 58,666.67	$ 71,888.89	$ 79,200.00	$ 97,050.00	$ 53,777.78	$ 65,898.15	$ 13,413.33	$ 16,436.41						$ 278,624	**$ 278,624**
III	Von Sosten Rd	Currier Dr	Mountain House Pky	1.5833	0.00																								$ 47,853
		Currier Dr	Hansen Rd	0.6307	0.00	30.00	LOC 09	8.00	60.00	2.00	$ 21,120.00	$ 13,320.00	$ 1,200.00	$ 756.82	$ 11,733.33	$ 7,400.00	$ 15,840.00	$ 9,990.00	$ 10,755.56	$ 6,783.33	$ 13,413.33	$ 8,459.55						$ 46,710	
		Hansen Rd	Von Sosten Ct	0.6061	0.00	32.00	LOC 09	8.00	40.00	0.00	$ -	$ -	$ 1,200.00	$ 727.27	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 727	
		Von Sosten Ct	Mountain House Pky	0.3466	0.00	40.00	LOC 09	8.00	40.00	0.00	$ -	$ -	$ 1,200.00	$ 415.91	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 416	
Subtotal																											**$ 47,852.88**	
III	**Walnut Grove Rd**	**Thornton Rd**	**County Line**	**4.4489**	**0.00**																								$ 329,493
		Thornton Rd	Blossom Rd	1.0076	0.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 21,280.00	$ 1,200.00	$ 1,209.09	$ 11,733.33	$ 11,822.22	$ 15,840.00	$ 15,960.00	$ 10,755.56	$ 10,837.04	$ 13,413.33	$ 13,514.95						$ 74,623	
		Blossom Rd	Lamb Rd	1.5814	0.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 33,400.00	$ 1,200.00	$ 1,897.73	$ 11,733.33	$ 18,555.56	$ 15,840.00	$ 25,050.00	$ 10,755.56	$ 17,009.26	$ 13,413.33	$ 21,212.37						$ 117,125	
		Lamb Rd	New Hope Bridge	0.9129	0.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 19,280.00	$ 1,200.00	$ 1,095.45	$ 11,733.33	$ 10,711.11	$ 15,840.00	$ 14,460.00	$ 10,755.56	$ 9,818.52	$ 13,413.33	$ 12,244.75						$ 67,610	
		New Hope Bridge	Sacramento CO	0.9470	0.00	32.00	MJC 07	10.00	80.00	2.00	$ 21,120.00	$ 20,000.00	$ 1,200.00	$ 1,136.36	$ 11,733.33	$ 11,111.11	$ 15,840.00	$ 15,000.00	$ 10,755.56	$ 10,185.19	$ 13,413.33	$ 12,702.02						$ 70,135	
Subtotal																											**$ 329,492.73**	
III	West Ln	Eight Mile Rd	Lodi City Limits	3.4280	0.00																								$ 4,114
		Eight Mile Rd	Armstrong Rd	2.4280	0.00	64.00	OPA 02	12.00	110.00	0.00	$ -	$ -	$ 1,200.00	$ 2,913.64	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 2,914	
		Armstrong Rd	Lodi City Limits	1.0000	0.00	66.00	OPA 02	12.00	110.00	0.00	$ -	$ -	$ 1,200.00	$ 1,200.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 1,200	
Subtotal																											**$ 4,113.64**	
III	West Ripon Rd	Airport Way	Manteca Rd	2.0598	0.00																								$ 547,315
		Airport Way	Union Rd	1.0000	0.00	22.00	MJC 07	10.00	60.00	12.00	$ 21,120.00	$ 21,120.00	$ 1,200.00	$ 1,200.00	$ 70,400.00	$ 70,400.00	$ 95,040.00	$ 95,040.00	$ 64,533.33	$ 64,533.33	$ 13,413.33	$ 13,413.33						$ 265,707	
		Union Rd	Manteca Rd	1.0598	0.00	22.00	MJC 07	10.00	60.00	12.00	$ 21,120.00	$ 22,384.00	$ 1,200.00	$ 1,271.82	$ 70,400.00	$ 74,613.33	$ 95,040.00	$ 100,728.00	$ 64,533.33	$ 68,395.56	$ 13,413.33	$ 14,216.10						$ 281,609	
Subtotal																											**$ 547,315.47**	
III	West Ripon Rd	Manteca Rd	Ripon City Limits	3.8655	0.00																								$ 434,451
		Manteca Rd	Austin Rd	2.0076	0.00	32.00	MA 16	12.00	60.00	4.00	$ 21,120.00	$ 42,400.00	$ 1,200.00	$ 2,409.09	$ 23,466.67	$ 47,111.11	$ 31,680.00	$ 63,600.00	$ 21,511.11	$ 43,185.19	$ 13,413.33	$ 26,928.28						$ 225,634	
		Austin Rd	Ripon City Limits	1.8580	0.00	32.00	MA 16	12.00	60.00	4.00	$ 21,120.00	$ 39,240.00	$ 1,200.00	$ 2,229.55	$ 23,466.67	$ 43,600.00	$ 31,680.00	$ 58,860.00	$ 21,511.11	$ 39,966.67	$ 13,413.33	$ 24,921.36						$ 208,818	
Subtotal																											**$ 434,451.25**	
III	Wolfe Rd	Howard Rd	French Camp Rd	1.2660	0.00	24.00	LOC 09	8.00	60.00	8.00	$ 21,120.00	$ 26,737.73	$ 1,200.00	$ 1,519.19	$ 46,933.33	$ 59,417.17	$ 63,360.00	$ 80,213.18	$ 43,022.22	$ 54,465.74	$ 13,413.33	$ 16,981.16						$ 239,334	**$ 239,334**
III	Woodbridge Rd	Lucas Rd	Windwood Dr	0.0515	0.00	42.00	COL 17	10.00	50.00	0.00	$ -	$ -	$ 1,200.00	$ 61.82	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -						$ 62	**$ 62**
III	Woodbridge Rd	Ray Rd	Lucas Rd	2.9091	0.00																								$ 549,960
		Ray Rd	De Vries Rd	1.0000	0.00	26.00	MNC 08	10.00	40.00	8.00	$ 21,120.00	$ 21,120.00	$ 1,200.00	$ 1,200.00	$ 46,933.33	$ 46,933.33	$ 63,360.00	$ 63,360.00	$ 43,022.22	$ 43,022.22	$ 13,413.33	$ 13,413.33						$ 189,049	
		De Vries Rd	Davis Rd	1.0000	0.00	26.00	MNC 08	10.00	40.00	8.00	$ 21,120.00	$ 21,120.00	$ 1,200.00	$ 1,200.00	$ 46,933.33	$ 46,933.33	$ 63,360.00	$ 63,360.00	$ 43,022.22	$ 43,022.22	$ 13,413.33	$ 13,413.33						$ 189,049	
		Davis Rd	Lucas Rd	0.9091	0.00	26.00	COL 17	10.00	40.00	8.00	$ 21,120.00	$ 19,200.00	$ 1,200.00	$ 1,090.91	$ 46,933.33	$ 42,666.67	$ 63,360.00	$ 57,600.00	$ 43,022.22	$ 39,111.11	$ 13,413.33	$ 12,193.94						$ 171,863	
Subtotal																											**$ 549,960.40**	
																											Roadwork Subtotal	**$ 44,104,600**
																											Utility Allowance (15%)	**$ 6,615,700**
																											Contingency 25%	**$ 12,680,100**
																											Grand Total	**$ 63,400,400**

Roadway Classification Codes and Corresponding Shoulder Widths Requirement

Code	Description	Required Shoulder Width (both sides) (ft)
MA	Minor Arterial	12.00
MJC	Rural Major Collector	10.00
MNC	Rural Minor Collector	10.00

Assumptions:
1. Two sets of bicycle detector loops per intersection
2. Four culverts per mile of bikeway improvement.

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San Joaquin Proposed Bikeways
Preliminary Cost Estimate

Class	Name	From	To	Mileage (Mile)	Bridge Length (ft)	Current Width (ft)	Roadway Classification Code	Shoulder/Bike Lane Width Required Based on Roadway Classification Code (ft)	ROW	Actual Roadway Expansion Width Required (Both Sides of Roadway) (ft)	Unit Cost of Striping ($/Mile)	Total Cost of Striping ($)	Unit Cost of Signage ($/Mile)	Total Cost of Signage ($)	Unit Cost of Excavation ($/Mile)	Total Cost of Excavation ($)	Unit Cost of Asphalt Concrete ($/Mile)	Total Cost of Asphalt Concrete ($)	Unit Cost of Aggregate Base ($/Mile)	Total Cost of Aggregate Base ($)	Unit Cost of Drainage System ($/Mile)	Total Cost of Drainage System ($)	Unit Cost of Pavement Marking ($/Mile)	Total Cost of Pavement Marking ($)	Unit Cost of Bridge Railing ($/LF)	Total Cost of Bridge Railing ($)	Subtotal Cost for Each Roadway Segment ($)	Subtotal for Each Location ($)
LOC	Rural Local	8.00																											
COL	Rural Major Collector	10.00																											
OPA	Rural Other Principal Arterial	12.00																											

3. Structural section of roadway shoulder is 3" asphalt concrete above 6" of aggregate base.
4. Structural section of Class I bikeway is 2" asphalt concrete above 6" aggregate base.

5. Four sets of signs per mile of new bikeway, each set of signs has two signs and sign posts.

Item	Unit	Unit Cost ($)
Excavation	CY	$ 40.00
AC	Ton	$ 80.00
AB	CY	$ 55.00
Striping	ft	$ 2.00
Pavement M	EA	$ 90.00
Sign	EA	$ 150.00
Bridge	LF	$ 250.00

C. Appendix C. Community Survey

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Figure C-1: Survey Form (English)

San Joaquin County Bicycle Master Plan Update Survey

Help us plan for the future of San Joaquin County! The San Joaquin County Public Works Department and Alta Planning + Design are working together on a bicycle master plan update for San Joaquin County. Your responses to this survey will help us create a plan that fits the community's needs.

1. What area of the County do you live in?

- ○ Escalon
- ○ Lathrop
- ○ Lodi
- ○ Manteca
- ○ Ripon
- ○ Stockton
- ○ Tracy
- ○ Other (please specify)

_____

2. What is the average distance of your bicycle rides? (one-way)

- ○ 0 (I don't bike)
- ○ 1-2 miles
- ○ 3-5 miles
- ○ 6-10 miles
- ○ 11-24 miles
- ○ 25 miles and above

3. What modes of transportation do you bicycle to?

- ○ Amtrak
- ○ Metro Bus
- ○ RDT Intercity Routes
- ○ San Joaquin Commuter
- ○ Other (please specify)

_____

4. Why do you bike? (check all that apply)

- ○ For exercise/health reasons
- ○ For pleasure
- ○ For shopping/errands
- ○ To get to work
- ○ To get to school
- ○ To get to transit
- ○ I don't bike
- ○ Other (please specify)

_____

5. How many days per week do you ride your bicycle?

- ○ 0
- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5
- ○ 6
- ○ 7

6. What prevents you from biking more often? (check all that apply)

- ○ Destinations are too far away
- ○ Too many cars/cars drive too fast
- ○ I have to carry things
- ○ I travel with small children
- ○ No bikeways
- ○ Not enough time
- ○ Insufficient lighting
- ○ Bikeways/roads in poor condition
- ○ Weather
- ○ Other (please specify)_____

7. Please rank your preference for bicycle facilities.

	Desirable	Somewhat Desirable	Somewhat Undesirable	Undesirable
Off-street paved bike paths	○	○	○	○
On-street striped bike lanes	○	○	○	○
Unstriped Bike routes	○	○	○	○
Unpaved trails or dirt paths	○	○	○	○

8. Where are your favorite places or routes to bike? Please be specific.

9. Where are the most difficult places for you to bike and why? Where would you ride if you could and what prevents you from riding there?

10. What can be done to encourage you to bicycle more in San Joaquin County?

- ○ Better lighting
- ○ More bike parking
- ○ More bikeways
- ○ Better connections to civic uses such as parks, libraries, and schools
- ○ Other: _____

Please continue to next page ➔

San Joaquin County Bicycle Master Plan Update Survey

Thank you for your time!

Send Surveys

Complete Online:
www.sanjoaquinbikeplan.com

or Mail: Alta Planning + Design
Attn: SJ Survey
2560 9th Street, Suite 212
Berkeley, CA 94710

Figure C-2: Survey Form (Spanish)

Encuesta sobre el Plan Maestro de Modernización para el Ciclismo en el Condado de San Joaquín

Ayúdenos a planear el futuro del condado de San Joaquín. El departamento de obras públicas del condado de San Joaquin junto con Alta Planning + Design están trabajando para modernizar un plan maestro de ciclismo en el condado. Sus respuestas nos ayudarán a crear un plan adecuado para las necesidades de la comunidad.

1. ¿En qué área del condado vive usted?

- ○ Escalon
- ○ Lathrop
- ○ Lodi
- ○ Manteca
- ○ Ripon
- ○ Stockton
- ○ Tracy
- ○ Otro (especifique por favor)

_____

2. ¿Qué promedio de distancia viaja con su bicicleta? (una sola vía)

- ○ 0 (No manejo bicicleta)
- ○ 1-2 millas
- ○ 3-5 millas
- ○ 6-10 millas
- ○ 11-24 millas
- ○ 25 millas y más

3. ¿A qué lugar viaja con su bicicleta para usar los siguientes medios de transporte?

- ○ Amtrak
- ○ Metro Bus
- ○ RDT Rutas dentro de la ciudad
- ○ San Joaquin Commuter
- ○ Otro (especifique por favor)

_____

4. ¿Porqué viaja en bicicleta? (marque todas las que aplican)

- ○ Para hacer ejercicios/por razones de salud
- ○ Por placer
- ○ Para ir de compras/hacer mandados
- ○ Para ir a trabajar
- ○ Para ir a la escuela
- ○ Para tomar transporte público
- ○ Otro (especifique por favor)

_____

5. ¿Cuántas veces a la semana viaja en su bicicleta?

- ○ 0
- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5
- ○ 6
- ○ 7

6. ¿Qué le impide viajar con más frecuencia con su bicicleta? (marque todas las que aplican)

- ○ Los rumbos están muy lejos
- ○ Demasiados coches/los coches van muy rápido
- ○ Tengo que acarrear cosas
- ○ Viajo con niños pequeños
- ○ No existen senderos para los ciclistas
- ○ No hay bastante tiempo
- ○ Iluminación insuficiente
- ○ Los senderos/caminos están en malas condiciones
- ○ Condiciones metereológicas
- ○ Otro (especifique por favor)_____

7. Favor de clasificar los medios para viajar en bicicleta de acuerdo a su preferencia.

	Deseable	Un tanto deseable	Un tanto indeseable	Indeseable
Senderos pavimentados fuera de la calle para bicicletas	○	○	○	○
Carriles derivados sobre la calle para bicicletas	○	○	○	○
Rutas no derivadas para bicicletas	○	○	○	○
Senderos sin pavimentar o de tierra	○	○	○	○

8. ¿Dónde están sus lugares o rutas favoritas para viajar en bicicleta? Favor de especificar.

9. ¿Dónde están los lugares más difíciles para viajar en bicicleta y porqué? ¿Dónde iría si podría y que le impide viajar en bicicleta hacia allí?

10. ¿Qué se puede hacer para alentarle a viajar más en bicicleta en el condado de San Joaquin?

- ○ Mejor iluminación
- ○ Más estacionamiento
- ○ Más senderos para bicicletas
- ○ Mejores conexiones para el uso del público, como parques, bibliotecas y escuelas
- ○ Otro: _____

Continúe en la página siguiente ➔

Encuesta sobre el Plan Maestro de Modernización para el Ciclismo en el Condado de San Joaquín

¡Gracias por su tiempo!

Envíe las Encuestas

Llénelas en línea (online)*:*
www.sanjoaquinbikeplan.com

o por correo a: Alta Planning + Design
Attn: SJ Survey
2560 9th Street, Suite 212
Berkeley, CA 94710

D. Appendix D. Environmental Documentation: Initial Study / Mitigated Negative Delcaration

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Placeholder for final Environmental Document.

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E. Appendix E. Project Sheets

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E.1. Project: Airport Way Class III Bike Route

Description

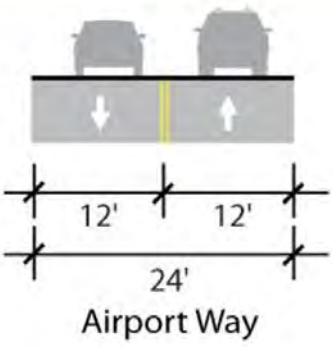
Airport Way Class III Bicycle Route is a proposed 8.20-mile bikeway connecting the City of Manteca to three proposed bikeways (West Ripon Road, Kasson Road, and Durham Ferry Road) in the southern portion of the County. The route will improve connections for bicyclist between the cities of Tracy and Ripon, and the California Aqueduct Trail.

This project received high scores for public input, local connections, and right-of-way availability.

Connecting Bikeway Segments:

- Proposed Class III West Ripon Road
- Proposed Class III Kasson Road
- Proposed Class III Durham Ferry Road
- City of Stockton Proposed Class II Airport Way

See **Figure 6-11** for area map.



EXISTING TYPICAL SECTION

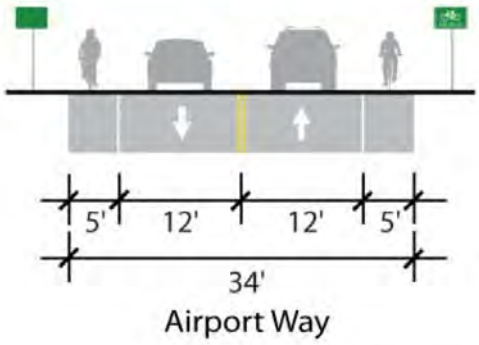
Proposed Facility

The Airport Road Bicycle Route is described below in one segment. The segmentation is based on numerous characteristics including current paved width, roadway classification, available right-of-way, and related factors.

Class	From	To	Bikeway Mileage (Mile)	Bridge Upgrades (Number/ Total Linear Feet)		Minor Structures (Number/ Total Linear Feet)		Roadway Classification Code		Recommended Shoulder Width Based on Roadway Classification Code (ft)	Current Total Width (ft)	Roadway Expansion Required (Both Sides of Roadway) (ft)	Existing ROW	ROW Needed (Purchase)
III	Kasson Rd	Manteca City Limits	8.198	1	770	227	789	MJC	07	5' each * 2 = 10.00	24.00	10.00	60.00	0

Design Details

- Install Caltrans D11-1 Bike Route Signage
- Widen paved roadway 10 feet (both sides)
- Number of Minor Structures = 227



PROPOSED TYPICAL SECTION

Estimated Construction Cost

$2,000,500

E.2. Project: Austin Road South Class III Bike Route

Description

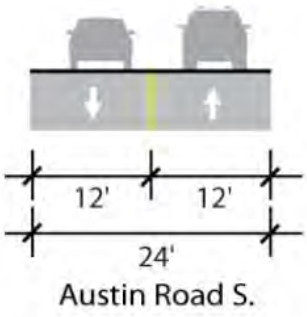
Austin Road South Class III Bicycle Route is a proposed 5.68-mile bikeway connecting the City of Manteca to Caswell State Park on the San Joaquin-Stanislaus County border. The route connects with two proposed bikeways (SR 99 Frontage Road East and West Ripon Road) in the southern portion of the County. The route will improve connections for bicyclists between the City of Ripon and Caswell State Park, and allow for connections to the City of Tracy and the California Aqueduct Trail.

This project received high scores for regional and local connections and available right-of-way.

Connecting Bikeway Segments:

- Proposed Class III West Ripon Road
- Proposed Class I Frontage Road Rail Trail
- City of Manteca Proposed Class II Austin Road

See **Figure 6-11** for area map.



EXISTING TYPICAL SECTION

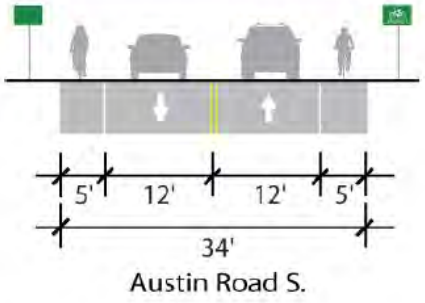
Proposed Facility

The Austin Road South Bicycle Route is described below in three segments. The segmentation is based on numerous characteristics including current paved width, roadway classification, available right-of-way, and related factors.

Class	From	To	Bikeway Mileage (Mile)	Bridge Upgrades (Number/ Total Linear Feet)		Minor Structures (Number/ Total Linear Feet)		Roadway Classification Code		Recommended Shoulder Width Based on Roadway Classification Code (ft)	Current Total Width (ft)	Roadway Expansion Required (Both Sides of Roadway) (ft)	Existing ROW	ROW Needed (Purchase)
III	Manteca City Limits	SR S 99 Frontage Rd E	0.606	0	0	0	0	MNC	08	5' each * 2 = 10.00	24.00	10.00	60.00	0
III	SR 99	West Ripon Rd	2.415	1	780	5	31	MNC	08	5' each * 2 = 10.00	24.00	10.00	60.00	0
III	West Ripon Rd	Caswell State Park	2.659	0	0	1	5	MNC	08	5' each * 2 = 10.00	24.00	10.00	60.00	0

Design Details

- Install Caltrans D11-1 Bike Route Signage
- Widen paved roadway 10 feet (both sides)
- Number of Minor Structures = 6



PROPOSED TYPICAL SECTION

Estimated Construction Cost

$1,291,400

E.3. Project: Blossom road Class III Bike Route

Description

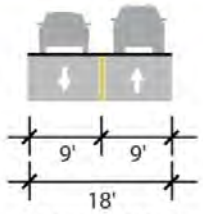
Blossom Road Class III Bicycle Route is a proposed 2.72-mile bikeway allowing for connections between the City of Lodi and the communities of New Hope and Walnut Grove. The route connects with two proposed bikeways (Walnut Grove Road and Peltier Road). The route will improve bicyclist connections in northwestern San Joaquin County.

This project received high scores for public input and available right-of-way.

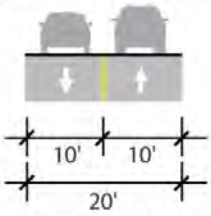
Connecting Bikeway Segments:

- Proposed Class III Walnut Grove Road
- Proposed Class III Peltier Road

See **Figure 6-11** for area map.



Blossom Road
(Walnut Grove Road to Beaver Slough)



Blossom Road
(Beaver Slough to Peltier Road)

EXISTING TYPICAL SECTION

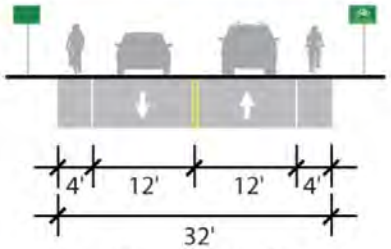
Proposed Facility

The Blossom Road Bicycle Route is described below in two segments. The segmentation is based on numerous characteristics including current paved width, roadway classification, available right-of-way, and related factors.

Class	From	To	Bikeway Mileage (Mile)	Bridge Upgrades (Number/ Total Linear Feet)		Minor Structures (Number/ Total Linear Feet))		Roadway Classification Code		Recommended Shoulder Width Based on Roadway Classification Code (ft)	Current Total Width (ft)	Roadway Expansion Required (Both Sides of Roadway) (ft)	Existing ROW	ROW Needed (Purchase)
III	Walnut Grove Rd	Beaver Slough	1.515	0	0	7	36	LOL	09	4' each * 2 = 8.00	18.00	14.00	60.00	0
III	Beaver Slough	Peltier Rd	1.200	1	230	2	N/A	LOL	09	4' each * 2 = 8.00	20.00	12.00	60.00	0

Design Details

- Install Caltrans D11-1 Bike Route Signage
- Widen paved roadway 8 feet (both sides)
- Number of Minor Structures = 9



Blossom Road

PROPOSED TYPICAL SECTION

Estimated Construction Cost

$779,500

E.4. Project: Comstock Road Class III Bike Route

Description

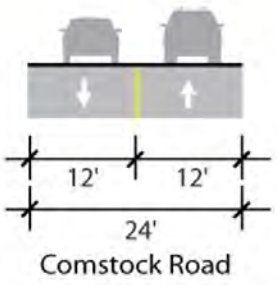
Comstock Road Class III Bicycle Route is a proposed 4.68-mile bikeway allowing for connections between the City of Stockton and the communities of Linden and Lockeford in northeastern San Joaquin County. The route connects with three proposed bikeways (Duncan Road, Jack Tone Road, and Waterloo Road/SR 88).

This project received high scores for public input and available right-of-way.

Connecting Bikeway Segments:

- Proposed Class III Duncan Road
- Proposed Class III Jack Tone Road
- Proposed Class III Waterloo Road/SR 88

See **Figure 6-11** for area map.



EXISTING TYPICAL SECTION

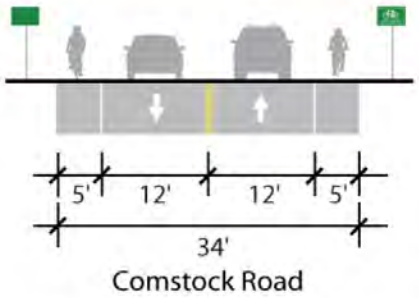
Proposed Facility

The River Road Bicycle Route is described below in two segments. The segmentation is based on numerous characteristics including current paved width, roadway classification, available right-of-way, and related factors.

Class	From	To	Bikeway Mileage (Mile)	Bridge Upgrades (Number/ Total Linear Feet)		Minor Structures (Number/ Total Linear Feet)		Roadway Classification Code		Recommended Shoulder Width Based on Roadway Classification Code (ft)	Current Total Width (ft)	Roadway Expansion Required (Both Sides of Roadway) (ft)	Existing ROW	ROW Needed (Purchase)
III	Duncan Rd	Jack Tone Rd	2.523	0	0	0	0	MJC	07	5' each * 2 = 10.00	24.00	10.00	80.00	0
III	Jack Tone Rd	Waterloo Rd/SR88	2.155	0	0	1	10	MJC	07	5' each * 2 = 10.00	24.00	10.00	80.00	0

Design Details

- Install Caltrans D11-1 Bike Route Signage
- Widen paved roadway 10 feet (both sides)
- Number of Minor Structures = 1



PROPOSED TYPICAL SECTION

Estimated Construction Cost

$1,063,700

E.5. Project: Corral Hollow Road Class III Bike Route

Description

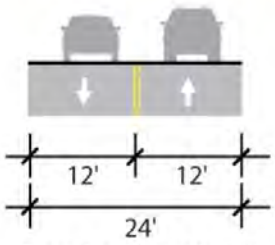
Corral Hollow Road Class III Bicycle Route is a proposed 6.28-mile bikeway connecting the City of Tracey to the Alameda-San Joaquin County border. The route connects with one proposed bikeway (Corral Hollow Road in Alameda County). The route will improve connections for bicyclist between the City of Tracy and eastern Alameda County, and allow for connections with the California Aqueduct Trail.

This project received high scores for public input, regional and local connections, and available right-of-way.

Connecting Bikeway Segments:

- City Proposed Class III Corral Hollow Road

See **Figure 6-11** for area map.



Corral Hollow Road

EXISTING TYPICAL SECTION

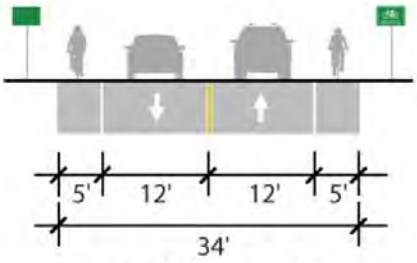
Proposed Facility

The Corral Hollow Road Bicycle Route is described below in one segment. The segmentation is based on numerous characteristics including current paved width, roadway classification, available right-of-way, and related factors.

Class	From	To	Bikeway Mileage (Mile)	Bridge Upgrades (Number/ Total Linear Feet)		Minor Structures (Number/ Total Linear Feet))		Roadway Classification Code		Recommended Shoulder Width Based on Roadway Classification Code (ft)	Current Total Width (ft)	Roadway Expansion Required (Both Sides of Roadway) (ft)	Existing ROW	ROW Needed (Purchase)
III	Tracey City Limit	County Line	6.279	6	1200	6	27	MJC	07	5' each * 2 = 10.00	24.00	10.00	60.00	0

Design Details

- Install Caltrans D11-1 Bike Route Signage
- Widen paved roadway 10 feet (both sides)
- Number of Minor Structures = 6



Corral Hollow Road

PROPOSED TYPICAL SECTION

Estimated Construction Cost

$1,455,600

E.6. Project: Davis Road Class III Bike Route

Description

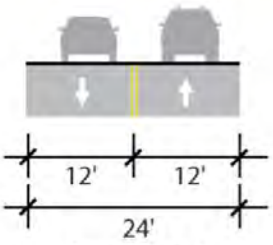
The Davis Road Class III Bicycle Route is a proposed 4.89-mile bikeway connecting the State Route (SR) 12 with Eight Mile Road in the northern portion of the County. The route connects with three proposed bikeways (SR 12, Armstrong Road east of Davis Road, and Eight Mile Road) and three existing bikeways (Davis Road north of SR 12, Armstrong Road east of Davis Road, and Davis Road south of Eight Mile Road). The route will improve bicycle connections between the cities of Stockton and Lodi.

This project received high scores for public input, local connections, and available right-of-way.

Connecting Bikeway Segments:

- Existing Class III Davis Road north of SR 12
- Proposed Class III SR 12
- Proposed Class III Armstrong Road east of Davis Road
- Existing Class III Armstrong Road west of Davis Road
- City of Stockton Proposed Class II Eight Mile Road
- City of Stockton Existing Class II Davis Road south of Eight Mile Road

See **Figure 6-11** for area map.



EXISTING TYPICAL SECTION

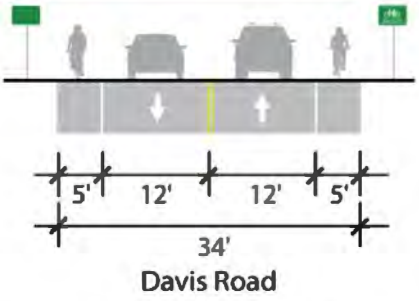
Proposed Facility

The Davis Road Bicycle Route is described below in four segments. The segmentation is based on numerous characteristics including current paved width, roadway classification, available right-of-way, and related factors.

Class	From	To	Bikeway Mileage (Mile)	Bridge Upgrades (Number/ Total Linear Feet)		Minor Structures (Number/ Total Linear Feet))		Roadway Classification Code		Recommended Shoulder Width Based on Roadway Classification Code (ft)	Current Total Width (ft)	Roadway Expansion Required (Both Sides of Roadway) (ft)	Existing ROW	ROW Needed (Purchase)
III	SR 12	Harney Ln	1.000	0	0	0	0	MJC	07	5' each * 2 = 10.00	24.00	10.00	80.00	0
III	Harney Ln	Armstrong Rd	1.000	0	0	0	0	MJC	07	5' each * 2 = 10.00	24.00	10.00	80.00	0
III	Armstrong Rd	UPRR	1.000	0	0	26	772	MJC	07	5' each * 2 = 10.00	24.00	10.00	80.00	0
III	UPRR	Eight Mile Rd	1.894	1	55	14	411	MJC	07	5' each * 2 = 10.00	24.00	10.00	80.00	0

Design Details

- Install Caltrans D11-1 Bike Route Signage
- Widen paved roadway 10 feet (both sides)
- Number of Minor Structures = 40



Davis Road

PROPOSED TYPICAL SECTION

Estimated Construction Cost

$1,120,000

E.7. Project: New Hope Road Class III Bike Route

Description

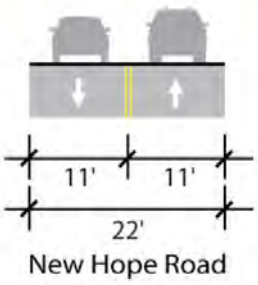
The New Hope Road Class III Bicycle Route is a proposed 0.83-mile bikeway connecting Thornton Road in the New Hope Community to the Sacramento-San Joaquin County border. The route connects with one proposed bikeway (Thornton Road) in the northern portion of San Joaquin County. The route will improve connections for bicyclists between the New Hope community in San Joaquin County and the Walnut Grove community and the City of Galt, both in Sacramento County.

This project received high scores for regional connections and available right-of-way.

Connecting Bikeway Segments:

- Proposed Class III Thornton Road

See **Figure 6-11** for area map.



EXISTING TYPICAL SECTION

Proposed Facility

The New Hope Road Bicycle Route is described below in two segments. The segmentation is based on numerous characteristics including current paved width, roadway classification, available right-of-way, and related factors.

Class	From	To	Bikeway Mileage (Mile)	Bridge Upgrades (Number/ Total Linear Feet)		Minor Structures (Number/ Total Linear Feet)		Roadway Classification Code		Recommended Shoulder Width Based on Roadway Classification Code (ft)	Current Total Width (ft)	Roadway Expansion Required (Both Sides of Roadway) (ft)	Existing ROW	ROW Needed (Purchase)
III	Thornton Rd	Nowell Rd	0.502	0	0	3	14	MJC	07	5' each * 2 = 10.00	22.00	12.00	60.00	0
III	Nowell Rd	Sacramento CO	0.328	1	200	0	0	MJC	07	5' each * 2 = 10.00	22.00	12.00	60.00	0

Design Details

- Install Caltrans D11-1 Bike Route Signage
- Widen paved roadway 10 feet (both sides)
- Number of Minor Structures = 3

PROPOSED TYPICAL SECTION

Estimated Construction Cost

$220,400

E.8. Project: Patterson Pass Road Class III Bike Route

Description

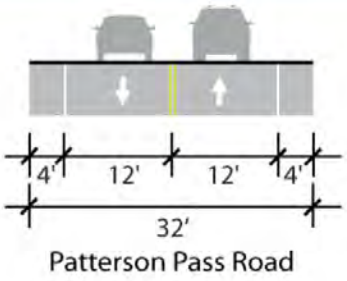
The Patterson Pass Road Class III Bicycle Route is a proposed 1.70-mile bikeway connecting Mountain House Parkway to the Alameda/San Joaquin County border. The route connects with two proposed bikeways (Mountain House Parkway and W. Schulte Road) in the southern portion of San Joaquin County. The route will improve connections for bicyclists between the City of Tracy and eastern Alameda County.

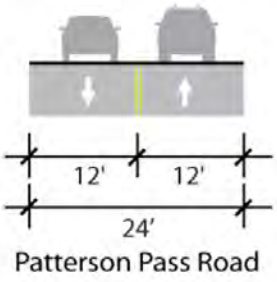
This project received high scores for public input, regional connections, and available right-of-way and estimated cost.

Connecting Bikeway Segments:

- Proposed Class III Mountain House Parkway
- Proposed Class III W. Schulte Road

See **Figure 6-11** for area map.





EXISTING TYPICAL SECTION

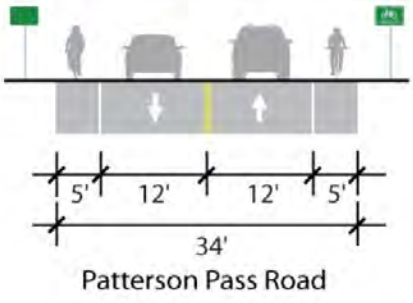
Proposed Facility

The River Road Bicycle Route is described below in two segments. The segmentation is based on numerous characteristics including current paved width, roadway classification, available right-of-way, and related factors.

Class	From	To	Bikeway Mileage (Mile)	Bridge Upgrades (Number/ Total Linear Feet)		Minor Structures (Number/ Total Linear Feet)		Roadway Classification Code		Recommended Shoulder Width Based on Roadway Classification Code (ft)	Current Total Width (ft)	Roadway Expansion Required (Both Sides of Roadway) (ft)	Existing ROW	ROW Needed (Purchase)
III	Mountain House Pkwy	4120' E/O Alameda CO	0.780	3	3000	2	49	MNC	08	5' each * 2 = 10.00	32.00	2.00	60.00	0
III	4120' E/O Alameda CO	County Line	0.924	0	0	0	0	MNC	08	5' each * 2 = 10.00	24.00	10.00	60.00	0

Design Details

- Install Caltrans D11-1 Bike Route Signage
- Widen paved roadway 10 feet (both sides)
- Number of Minor Structures = 2



PROPOSED TYPICAL SECTION

Estimated Construction Cost

$267,900

E.9. Project: Thornton Road Class III Bike Route

Description

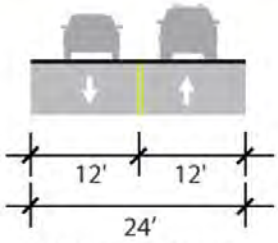
The Thornton Road Class III Bicycle Route is a proposed 8.23-mile bikeway connecting the Sacramento-San Joaquin County border to the community of New Hope and a proposed bikeway on Turner Road. The route connects with five proposed bikeways (New Hope Road, Walnut Grove Road, Kile Road, Peltier Road, and Turner Road). The route will provide for bicycle connections between the New Hope community, the City of Lodi and southern Sacramento County.

This project received high scores for public input, regional connections, and available right-of-way.

Connecting Bikeway Segments:

- City Proposed Class III Thornton Road north of the County Line
- Proposed Class III New Hope Road
- Proposed Class III Walnut Grove Road
- Proposed Class III Kile Road
- Proposed Class III Peltier Road
- Proposed Class III Turner Road

See **Figure 6-11** for area map.



EXISTING TYPICAL SECTION

Proposed Facility

The Thornton Road Bicycle Route is described below in seven segments. The segmentation is based on numerous characteristics including current paved width, roadway classification, available right-of-way, and related factors.

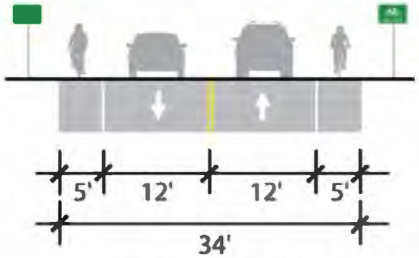
Class	From	To	Bikeway Mileage (Mile)	Bridge Upgrades (Number/ Total Linear Feet)		Minor Structures (Number/ Total Linear Feet)		Roadway Classification Code		Recommended Shoulder Width Based on Roadway Classification Code (ft)	Current Total Width (ft)	Roadway Expansion Required (Both Sides of Roadway) (ft)	Existing ROW	ROW Needed (Purchase)
III	Sacramento CO	New Hope Rd	1.875	1	900	1	6	MJC	07	5' each * 2 = 10.00	24.00	10.00	50.00	0
III	New Hope Rd	Walnut Grove Rd	0.398	0	0	0	0	MJC	07	5' each * 2 = 10.00	24.00	10.00	75.00	0
III	Walnut Grove Rd	Kile Rd	0.800	0	0	2	6	MNC	08	5' each * 2 = 10.00	24.00	10.00	80.00	0
III	Kile Rd	Peltier Rd	2.100	2	240	0	0	MNC	08	5' each * 2 = 10.00	24.00	10.00	80.00	0
III	Peltier Rd	Acampo Rd	1.050	0	0	1	7	MNC	08	5' each * 2 = 10.00	24.00	10.00	80.00	0
III	Acampo Rd	Woodbridge Rd	1.000	0	0	1	8	MNC	08	5' each * 2 = 10.00	24.00	10.00	80.00	0
III	Woodbridge Rd	Turner Rd	1.004	0	0	3	50	MNC	08	5' each * 2 = 10.00	24.00	10.00	80.00	0

Design Details

- Install Caltrans D11-1 Bike Route Signage
- Widen paved roadway 10 feet (both sides)
- Number of Minor Structures = 8

Estimated Construction Cost

$1,880,500



Thornton Road

PROPOSED TYPICAL SECTION

E.10. Project: Tully Road Class III Bike Route

Description

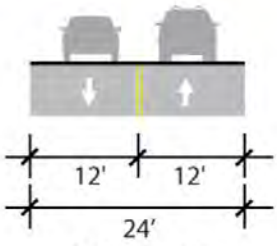
The Tully Road Class III Bicycle Route is a proposed 1.45-mile bikeway connecting downtown Lockeford with a proposed bikeway on Brandt Road in northeastern San Joaquin County. The route connects with two proposed bikeways (SR 12/SR 88 and Brandt Road).

This project received high scores for public input and medium scores for available right-of-way and estimated cost.

Connecting Bikeway Segments:

- Proposed Class III Main Street/SR 12/ SR 88
- Proposed Class III Brandt Road

See **Figure 6-11** for area map.



EXISTING TYPICAL SECTION

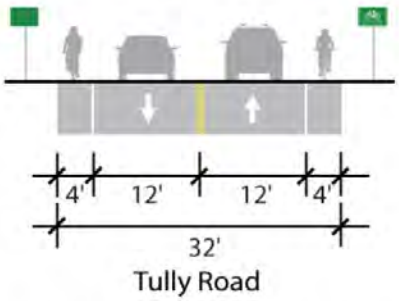
Proposed Facility

The River Road Bicycle Route is described below in two segments. The segmentation is based on numerous characteristics including current paved width, roadway classification, available right-of-way, and related factors.

Class	From	To	Bikeway Mileage (Mile)	Bridge Upgrades Number. (Number/ Total Linear Feet)		Minor Structures (Number/ Total Linear Feet))		Roadway Classification Code		Recommended Shoulder Width Based on Roadway Classification Code (ft)	Current Total Width (ft)	Roadway Expansion Required (Both Sides of Roadway) (ft)	Existing ROW	ROW Needed (Purchase)
III	Brandt Rd	Hammond St	1.385	1	230	2	16	LOC	09	4' each * 2 = 8.00	24.00	8.00	40.00	0
III	Hammond St	SR 12/88	0.061	0	0	0	0	LOC	09	4' each * 2 = 8.00	24.00	8.00	60.00	0

Design Details

- Install Caltrans D11-1 Bike Route Signage
- Widen paved roadway 8 feet (both sides)
- Number of Minor Structures = 2



PROPOSED TYPICAL SECTION

Estimated Construction Cost

$293,300