Solano Transportation Authority

SOLANO COUNTYWIDE BICYCLE TRANSPORTATION PLAN

The Future of Cycling | Active Travel | 2012

Solano Transportation Authority

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Preface

A New Era of Transportation

A key factor in bicycle and pedestrian-friendly communities throughout the country and world is the mutual respect between motorists and people on bicycle or foot. While Solano County prides itself on having smaller sized livable communities, there are many opportunities to improve the education and understanding between all users of the road. Public comments that were received through the development of this Plan noted the lack of respect between motorists and bicyclists. A common concern noted in one public forum was how few people stop their cars at crosswalks to allow people—even children—to cross. Many bicyclists told stories of aggression toward them from motorists. Conversely, it is not uncommon to see bicyclists running stop signs or riding two or three abreast on narrow roads, which are frustrating activities for motorists.

At times, planning and street design can play a prominent role in the opportunities for bicyclists and pedestrians to safely travel from place to place within their communities of residence or as guests. Complete Streets Policies designed to provide direction to Planning and Public Works departments throughout California and the Northern California Region have been developed in recent years. These policies have been an essential addition to the stewardship of accommodating bicycle travel. Complete Streets policies provide required guidelines for planning and implementation of street design with a specialized emphasis on bicycle and pedestrian transportation, which can be referenced in Chapter 4.

This Plan calls for a new era of mutual awareness and understanding between all people using public right-of-ways. It calls on bicyclists and pedestrians to police themselves and spread the word on the importance of obeying the rules-of-the-road. For example, in communities such as the City of Davis in neighboring Yolo County, bicyclists are widely accepted as having a right to use the roadways, while at the same time bicyclists adhere to established rules of the road as well. The Plan identifies several strategies to educate the general public on the rights of bicyclists and on the importance of sharing the road and deferring to bicyclists and pedestrians when needed. With education of the public as well as the improved requirements for planning and design, the Plan aims to improve the link between this level of respect and the overall quality of life in Solano County for everyone.

Introduction

Purpose

The Solano Countywide Bicycle Plan (hereafter referred to as "Bicycle Plan") is a planning tool for the countywide bikeway network in Solano County. It serves as a guide to planning and engineering professionals in Solano County's jurisdictions. It also serves as a platform that interested members of the public can utilize to engage their city's planning and public works staff for the betterment of the community in which they live.

The main purpose of the Solano Countywide Bicycle Plan is to encourage the development of a unified bicycle system throughout Solano County. The system consists of the physical bikeway routes, wayfinding signage, and associated amenities such as bicycle lockers, showers, etc. The Plan focuses on a bikeway network that will provide origin and destination connections in Solano County as well as to surrounding counties. Additionally, it contains policies that are designed to support and encourage bicycle transportation; design standards for use in implementation efforts; and promotional strategies. This Plan strives to identify regional bikeway facilities that are consistent with the local facilities planned in each of the STA's member agency's jurisdiction, and regional facilities in neighboring counties.

The Solano Countywide Bicycle Plan is a component of the Solano Comprehensive Transportation Plan (CTP), which has a long-range overall planning horizon to the year 2035. Projects shown on the Proposed System map Figure 3-5B will be given priority for various state and federal funding sources programmed though the Solano Transportation Authority (STA). Each member jurisdiction of the STA is encouraged incorporate the Plan's recommendations into their local planning policies and road standards. The STA, with the Plan as the basis, will assist local agencies seek various funding sources as suggested in the Plan to implement the projects at the local level. It is expected that through individual and combined efforts; many of the proposed projects contained within, or major portions of them, will be implemented over time.

Bicycle Plan Vision Statement:
Complete and maintain a countywide bikeway network that will service the transportation needs of bicyclists in Solano County.

Bicycle Plan Purpose Statement:
"To facilitate and provide safe and efficient bicycle travelling as an everyday means of transportation in Solano County"

History

The first Solano Countywide Bicycle Plan was adopted in 1995 and has been used successfully to develop regional bikeway segments and secure regional, state, and federal funding. The 1999 South County Bicycle Plan Update incorporated the 1988 Vallejo Trails Master Plan and the 1999 City of Benicia General Plan Update. The South County Bicycle Plan focused on bicycle issues in southern Solano County. In the 2004 Update, the South County Bicycle Plan was incorporated as part of one countywide document. This 2012 Countywide Bicycle Plan replaces all prior Countywide Bicycle Plan Updates. This latest Plan is expanded to incorporate the many changes that have occurred since the 2004 Update, the South County Bicycle Plan, and the 1998 Solano Travel Safety Plan.

The Bicycle Advisory Committee meets regularly over the year to assist in the bicycle planning process in Solano County.

Problem Statement

Safety, access, quality of life, and effective implementation are imperative elements for a complete transportation system and Solano County's success as a bicycle-friendly county.

Safety

Safety is the number one concern of citizens, whether they are avid or casual recreational cyclists or bicycle commuters. A consistent bicycle network with either bike lanes or wider curb lanes and signing is generally lacking in the county. In some instances design decisions may have been made to increase vehicular traffic and/or parking capacity and speeds at the expense of bicyclists and pedestrians. The Plan intends to help reduce the accident and fatality rate for bicyclists through design standards and guidelines, education, and enforcement.

Access

Access for bicyclists to recreation, school, shopping, work, and other destinations is hampered in some instances by the long distances between major destinations. In others, the barriers posed by the numerous highway corridors in the county (such as SR 12, SR 37, I-80, I-505, I-780, and I-680) present bicyclists with problems, as facilities are fragmented by numerous and difficult interchange crossings. Facilities and services are a part of accessibility, demand, and increased use of bicycles as a means of travel around the county. With a goal of increasing bicycling, the bicycle commute share would increase from 1,187 adult commuters (2000 U.S.

census)—about one percent mode share—to 2,375 adult commuters. Factoring in the potential for children bicycling to school, bicycle-to-transit trips, and other utilitarian trips, Solano County has the potential to increase the bicycle mode share to close to four percent by 2030, which is above the national average.

Quality of Life

This plan urges the STA and its member jurisdictions to take measurable steps toward the goal of improving every citizen's quality of life, improving public health, creating a more sustainable environment, reducing traffic congestion, vehicle exhaust emissions, noise, and energy consumption. The importance of developing a bicycle system that is safe, attractive and inviting is a key element in preserving Solano County as a place where people want to live, work, and visit. This is increasingly important as Solano County considers higher density in existing areas and builds housing, businesses, and roads in the future. The attractiveness of the environment not only invites bicyclists to explore Solano County's beautiful rural scenery, hills, and waterways, but more importantly, a beautiful environment helps to improve everyone's positive feelings about the quality of life in Solano County.

Effective Implementation

Education, enforcement, engineering, and funding are the basic components of an effective implementation program for this Bicycle Plan. Education must be targeted towards the bicyclists as well as to the motorist regarding the rights and responsibilities of the bicyclist and automobile driver. Comprehensive enforcement of existing traffic and parking laws, coupled with the implementation of sound design and engineering principles for bike corridors is also critical. This plan also encourages systematic review by STA member agency staff and the BAC of all new development projects, including public works efforts to assure compliance with planning and building codes and the principles of this Bicycle Plan. Finally, this plan proposes an aggressive strategy for obtaining grants and competing for other funding sources in order to realize the physical improvements identified as the highest priorities. This Plan intends to equip the STA and its members to successfully compete for state and federal funding, by meeting the requirements of the California Bicycle Transportation Act, Completes Streets Policies (see chapter 4), the Federal Transportation Bill funding, and future state and federal funding sources.

Local Adoption Procedure

Caltrans has not developed a standard policy about how County Bike Plans can be used by local jurisdictions to meet Bicycle Transportation Account (BTA) requirements. However, the Caltrans Bicycle Facilities Unit (BFU) has been fairly consistent in their approach to this matter. There are three (3) options for a local agency (including a county, town, or city) to qualify for BTA funding:

1. Agency can complete own local plan
2. Use the County Plan provided to each agency on CD to create a local Bicycle Master Plan
3. Adopt the County Plan with specific caveats and additional information to make it relevant to that community (Caltrans supports this position as it relates to using County Plans for cities and towns)

How to Use the Plan

This plan is a guide to anyone interested in improving the local transportation and air quality standards in their community. It is important to note that each city and the County can adopt this Plan and meet the state and federal requirements for grant funding sources to develop the projects contained within. However, each jurisdiction can also develop and approve its own bicycle plan, or use some portion of this Plan to do so. This Plan has incorporated existing local plans and priorities as part of its recommendations to eliminate that need. Local projects not specifically included in this Plan can be adopted and funded by each community as well.

For STA Bicycle Advisory Committee (BAC) and members of the public, it is essential to note that each person can contact their local bicycle planning staff to make comments or provide suggestions. Please contact STA staff with comments for the current contact information for the local bikeway facilities coordinator in your city.

Major Recommendations of the Countywide Bicycle Transportation Plan Update

The Countywide Bicycle Transportation Plan recommends the completion of a comprehensive bikeway network and support facilities, along with new educational and promotional programs to improve conditions for bicyclists in Solano County. The primary countywide system calls for the implementation of approximately 145 miles of bikeways connecting all of the member agencies at an estimated cost of approximately $80 million over the 25-year life of the plan. The priority projects identified for implementation in the short-term (next five years) include:

- Jepson Parkway Bikeway Phase I – planned cross-county route from SR 12 in Suisun City north to Leisure Town Road in Vacaville
- Dixon West B Street Bicycle-Pedestrian Undercrossing – a critical safety improvement and multi-modal connection to a future train station
- Vacaville-Dixon Bicycle Route (Hawkins Road)
- Vacaville Ulatis Creek Bicycle Facilities
- Bicycle and Pedestrian Wayfinding Signage - Countywide Plan

Overview of Plan Contents

The Solano Countywide Bicycle Plan highlights the priority projects and process to develop the County's network for the seven cities and the County (Benicia, Dixon, Fairfield, Rio Vista, Suisun City, Vacaville, Vallejo, and Solano County).

Chapter 1 – Existing Conditions
Chapter 1 is a review of the physical, social, economic, and environmental benefits of bicycling, and the opportunities presented by current federal and state policies and funding programs.

Chapter 2 – Purpose Statement, Goals, and Objectives
Included in this Chapter are the STA's goals and objectives for the Countywide Bicycle Plan and the planning process to meet these goals.

Chapter 3 – Proposed Countywide Bikeway System
Chapter 3 lists the Countywide Priority Bikeway Projects that are relevant to each jurisdiction in Solano County. The chapter provides a financially constrained list of priority projects that can be funded and constructed within the next 5-10 years as well as a list of longer-term projects that will take beyond 10 years to implement.

Chapter 4 – Policies and Programs
This Chapter provides references for regional policies such as Complete Streets and safety programs such as Safe Routes to School (SR2S) and Safe Routes to Transit (SR2T).

Chapter 5 – Cost Analysis and Implementation Strategy
This Chapter outlines the estimated costs for the projects identified in the plan and recommendations for efficient implementation of these projects. It also includes federal, state, and local sources for bikeway facilities funding. A matrix summarizing funding sources is provided at the end of the chapter.

Chapter 6 – Data Collection
This chapter provides an overview of sample methodology for bicycle counts as well as commuter transportation data.

Chapter 7 – Performance Measures and Evaluation
Chapter 7 is new to the Countywide Bicycle Plan and explains recommended measures for the progress of the implementation of the Countywide Bikeway Network.

CHAPTER 1

EXISTING CONDITIONS

This section addresses the following components of the Solano Countywide Bicycle Plan:

1.1 STUDY AREA

1.2 PLAN RELATIONSHIP TO EXISTING PLANS AND POLICIES

1.3 DESIGN STANDARDS

1.4 EXISTING BIKEWAYS

1.5 EXISTING SUPPORT FACILITIES

1.6 MULTI-MODAL CONNECTIONS

1.7 EVALUATION OF BICYCLE SAFETY AND EDUCATION

The information presented in this chapter for each of these components is the result of the data collection efforts of the Solano Transportation Authority. As part of these efforts, field surveys were conducted to identify and evaluate bikeway facilities in Solano County. The information collected had been used to assist in the development of the project updates recommended in this Plan.

1.1 Study Area

Solano County is located in the northeastern edge of the nine-county San Francisco Bay Area, as shown on Figure 1-1a. The topography of Solano County varies from mountains and valleys to low flat marshes, broad valleys, and sloughs, as shown on Figure 1-1a. Most of the eastern portion of the county is flat and used for a variety of agricultural uses. The eastern part of the county also includes portions of the Sacramento River Delta of the county and Suisun Bay. Much of the northern county near the City of Dixon and east of Interstate 80 (I-80) is also relatively flat agricultural land. On the other side of I-80, however, the coastal mountain range separating Solano County from Napa County rises up to elevations near 3,000 feet at the county line. In the southwest part of the county, sharp topographic contrasts occur as the rolling foothills of the coastal mountain range taper to the tidal flats of San Pablo Bay and Southampton Bay. From a bicyclist's perspective, each part of Solano County offers some unique riding opportunities. At the same time, it poses serious challenges to riders because of topography, climate, and limited facilities in some areas.

BTA REQUIREMENT #2

A map and description of existing and proposed land use and settlement patterns.

FIGURE 1-1A:

Study Area Solano County Regional Map

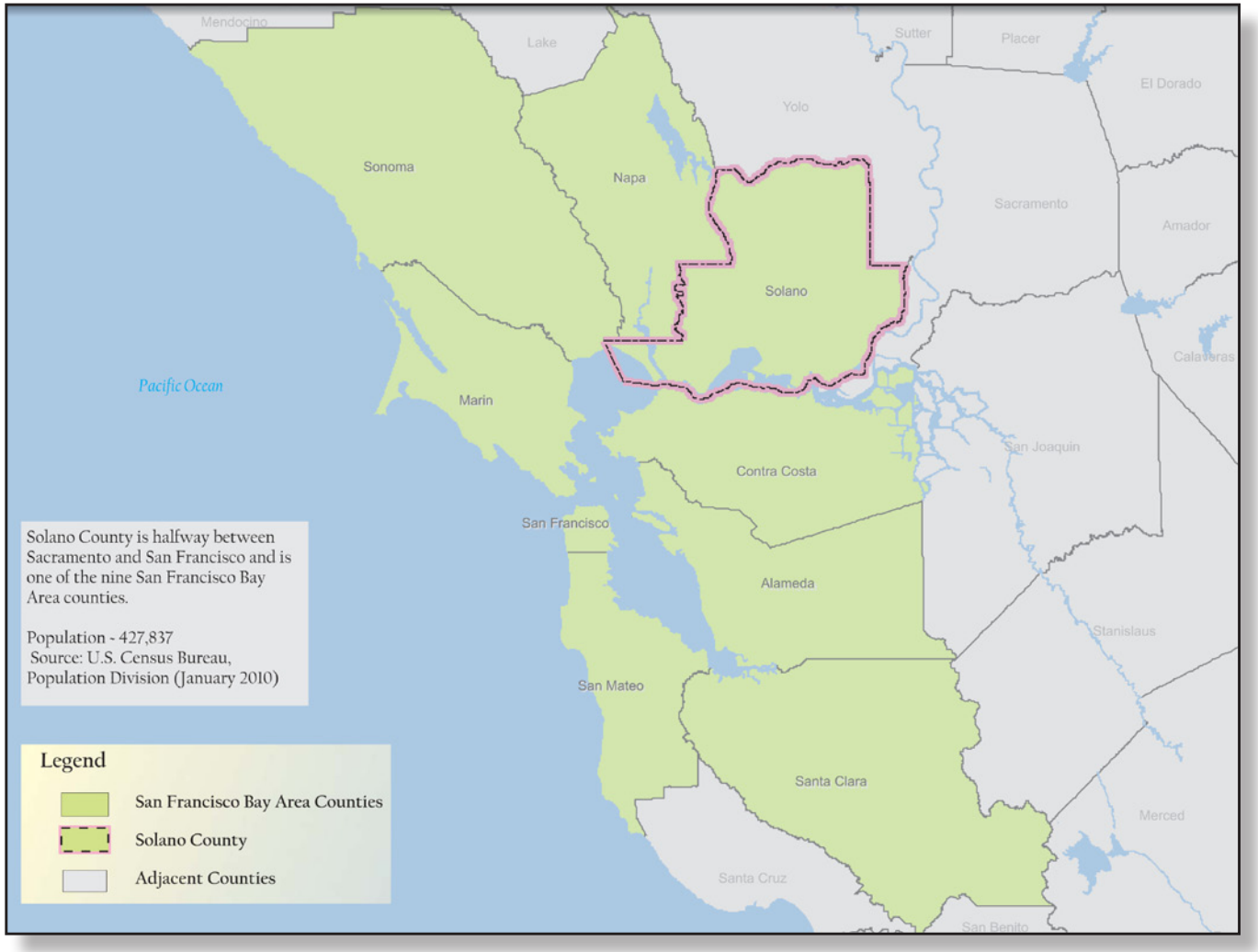
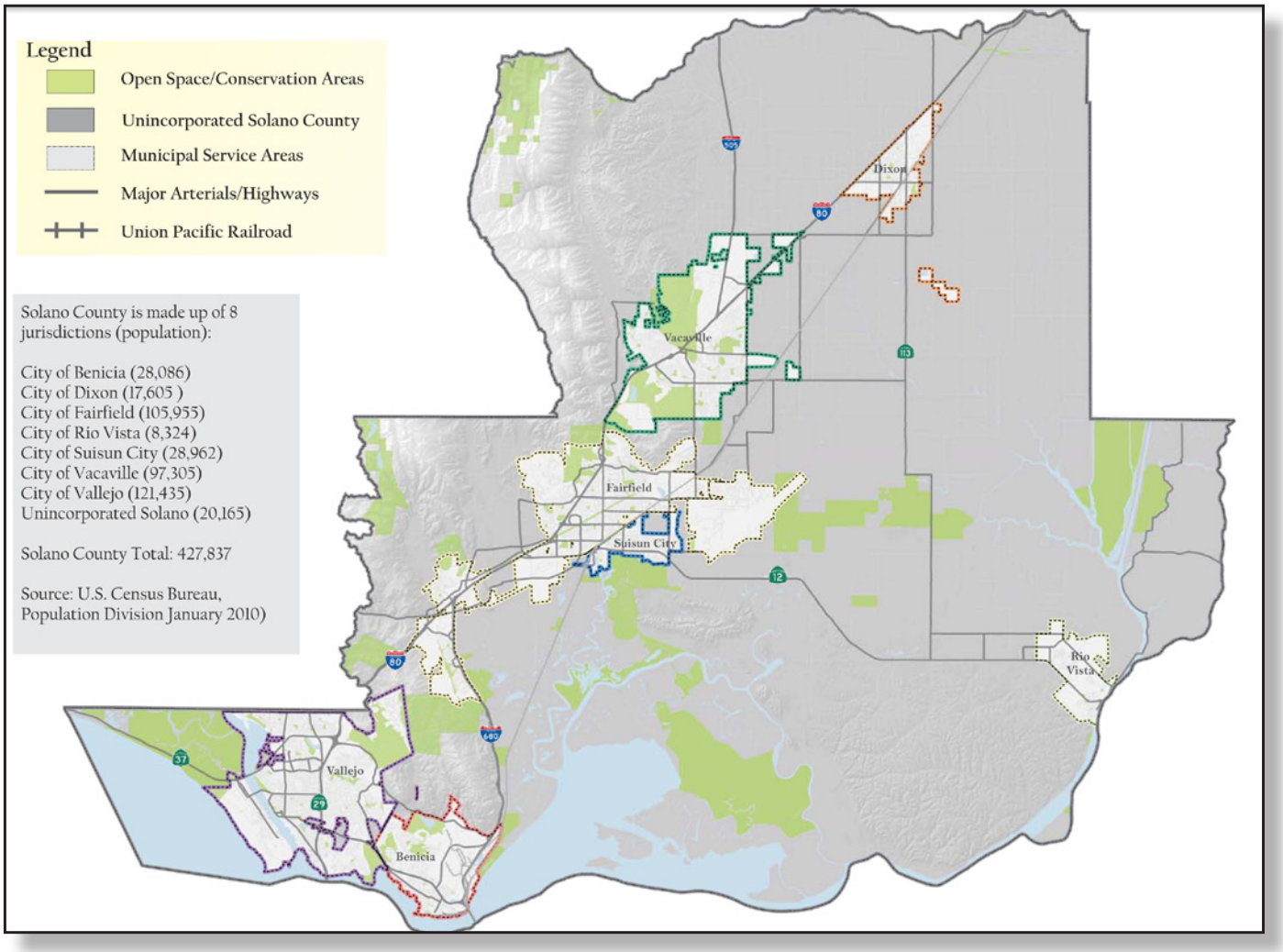


FIGURE 1-1B:

Study Area Solano County Local Map



1.2 Plan Relationship to Existing Plans and Policies

The Solano Countywide Bicycle Plan is coordinated with other local and regional transportation and air quality plans. In general, Table 1-1 shows that most of the communities in Solano County are addressing bicycle planning through various planning documents. To support the planning expansion of interested agencies, this Plan has been developed to serve as a foundation in bikeway planning for local agencies in Solano County.

TABLE 1-1: Existing Bicycle Planning Efforts in Solano County

Type of Plan	Solano County	Benicia	Dixon	Fairfield	Rio Vista	Suisun City	Vacaville	Vallejo
Bicycle Plan								
Plan	Yes	No	Yes	No	No	Yes	Yes	No
Policies	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Funding	No	No	No	No	No	No	No	No
General Plan/Transportation Plan/Open Space or Parks Master Plan								
Plan	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Policies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Funding	No	No	No	No	No	No	No	No
Agency Has Adopted Solano Countywide Bicycle Transportation Plan								
Plan	Yes		Yes			Yes	Yes	
Policies	Yes		Yes			Yes	Yes	

This plan can serve as the local Bicycle Plan for each jurisdiction if adopted by their Board or Council. The following sections discuss the Solano Countywide Bicycle Plan relationship to the various levels of existing plans and policies in further detail at the local, regional, and state/federal level.

Role of Caltrans Compliance

Bikeway facilities and planned projects must be consistent with the Caltrans Highway Design Manual Chapter 1000. In addition to the required elements listed in the preface, Caltrans' Highway Design Manual contains specific design guidelines that must be adhered to in California. "Chapter 1000: Bikeway Planning and Design" of the Manual sets the basic design parameters for the development of on-street and off-street bicycle facilities (see Appendix G).

Local and Regional Plans

Local Plans

The Solano Countywide Bicycle Plan has been prepared to be consistent with available local agency bikeway planning goals. Local agencies that have developed an independent bikeway plan are considered to be demonstrating a greater level of commitment towards bicycle use as an integral component of their transportation system.

Previous countywide bicycle plans have continuously evolved over time. This Plan updates the following Solano County bikeway planning efforts:

- Solano Countywide Bicycle Plan Update, 2004;
- Solano Countywide Bicycle Plan Update, 2001;
- Solano Countywide Bicycle Plan Update, 1999;
- Solano Countywide Bicycle Plan Update, 1997;
- Solano Countywide Bicycle Plan Update, 1995;
- Solano Countywide Bicycle Plan Update, 1982; and
- Solano County Transportation Plan, 1979

State and Regional Plans

In the process of updating this Plan, local and regional transportation plans and projects were reviewed for consistency with relevant information folded into this planning effort. Some include:

- MTC Regional Bicycle Plan (2009)
- Solano Travel Safety Plan (1998)
- Solano Countywide Pedestrian Plan
- Solano Safe Routes to School Plan (2008)
- Solano Transportation and Land Use Tool Kit (2003)
- I-80/I-680/SR 12 Interchange and North Connector Projects (2004)
- Solano Bikeway Extension Feasibility Study (2003)
- Bay Trail Plan (1989)
- Bay Area Ridge Trail
- Sonoma County Bikeways Plan (1996)
- County of Yolo Bikeway Plan (1999)
- Napa Countywide Bicycle Plan (2003)
- Contra Costa Countywide Bicycle and Pedestrian Plan (2003)
- Cross State Bike Route Study – Tahoe to Bay Area (2004)
- North Bay Corridor Study (1998)
- Solano BikeLinks Map

Note: For a description of each of these plans and studies, see Appendix G.

Policies

Local and Regional Policies

MTC Complete Streets Checklist – In June 2006, the Bay Area's regional transportation planning and funding agency, Metropolitan Transportation Commission (MTC), adopted regional policies for the accommodation of non-motorized travelers. MTC Resolution No. 3765 called for creation and implementation of a checklist that promotes the routine accommodation of non-motorized travelers in project planning and design. Partner agencies will complete this checklist prior to submitting projects to MTC.

MTC's Complete Streets Checklist is intended for use on projects at their earliest conception or design phase so that any pedestrian or bicycle consideration can be included in the project budget. STA will ensure that project sponsors complete the checklist before projects are submitted to MTC. STA is required to make checklists available to their Bicycle and Pedestrian Advisory Committees for review.

STA Complete Streets Checklist Implementation – Per the MTC Complete Streets policy, STA includes both the Solano County Bicycle Advisory Committee and Solano County Pedestrian Advisory Committee. Upon dissemination of the complete streets checklist during plan development and project delivery, STA staff makes submitted checklists available to the committees for review and discussion of local priority projects identified by each group. (see Chapter 4 for more details)

State and Federal Policies

Caltrans Deputy Directive 64 Revision 1 (DD-64-R1) – This policy was updated in October 2008 and is titled "Complete Streets – Integrating the Transportation System." The policy is intended to provide for the needs of travelers of all ages and abilities in all planning, programming, design, construction, operations, and maintenance activities on the State highway system. Pursuant to DD-64-R1, Caltrans manuals and guidance will be updated and developed to outline statutory requirements, planning policy, and project delivery procedures to facilitate multimodal travel, which includes connectivity to transit for pedestrians and bicyclists.

Assembly Concurrent Resolution No. 211 (ACR 211) – ACR 211 (Nation) "Integrating Walking and Biking Into Transportation Infrastructure" became effective in August 2002. ACR 211 encourages all cities and counties to implement the policies of DD-64-R1 and the USDOT design guidance document when building local transportation infrastructure.

California Complete Streets Act of 2007 (AB1358) – The complete Streets Act of 2007 ensures that the transportation plans of California communities meet the needs of all users of the roadway including pedestrians, bicyclists, users of public transit, motorists, children, the elderly, and the disabled. It requires the legislative body of a city or county, upon revision of the circulation element of their general plan, to identify how the jurisdiction will provide for the standard accommodation of all users of the roadway. This policy aims to encourage healthy physical activity, aid in the strategic efforts to reduce greenhouse gas emissions, and reduce long-term costs. Beginning January 2011, cities and counties must plan for the development of multimodal transportation networks upon the next update of their circulation element.

1.3 Design Standards

The most commonly used bikeway design standards in California are contained in the Caltrans Highway Design Manual "Chapter 1000: Bikeway Planning and Design" (referred to as Chapter 1000, see Appendix J). The Caltrans bikeway standards are largely based on standards developed by the American Association of State Highway and Transportation Officials (AASHTO) in the Manual of Uniform Traffic Control Devices, published by the Federal Highway Administration. It contains standards for bikeway signing and stenciling. It is important to note, however, that bikeway design and planning standards are continually changing and expanding. Appendix C provides a more detailed set of design best practices and guidelines. At a minimum, local jurisdictions must adopt general Caltrans guidelines. Basic bicycle facility classifications and design guidelines are defined on the following page in Figure 1.3a.

In addition to the standard guidance provided by Caltrans Chapter 1000, a countywide technical design and best practices guide should is recommended for future development (see Appendix C for STA Technical Design and Best Practices Mini Guide Outline). According to data provided by the Solano County Transportation Department, nearly all County maintained roads are two lanes and most have pavement widths that are less than 32 feet. This was verified by the field survey that identified a number of roadways that were 20 to 26 feet wide. Given the pavement width constraints, it is understandable that unincorporated Solano County has very few roadways with sufficient width to accommodate bike lanes in the existing roadway, which is discussed in greater detail in Chapter 3 – Proposed Countywide System.

1.4 Existing Bikeways

This section presents the results of the existing conditions evaluation. To complete this evaluation, published data were reviewed, fieldwork was conducted, and the STA worked closely with the Bicycle Advisory Committee.

Recognizing that most trip-generating locations are already connected through the County's roadway system, previous versions of the Solano Countywide Bicycle Transportation Plan have proposed an extensive on-street network of bicycle facilities to serve the region. The on-street routes are supported by an off-street network of bike paths which were selected to take advantage of strategic opportunities, provide commute and recreational routes, and supplement the on-street system. This network was reviewed with the BAC to incorporate changing conditions, needs, and new opportunities that have developed since the 2004 Solano Countywide Bicycle Plan.

Although most of the incorporated cities in Solano County have existing bike lanes and multi-use paths, historically, the unincorporated County has not provided bikeway connections between cities. Furthermore, a number of the roadways connecting the cities do not have sufficient pavement width to accommodate dedicated bike lanes. Table 1-4 inventories this information. This is graphically shown in Figure 1-4, which is a map of the existing bikeway facilities inventory.

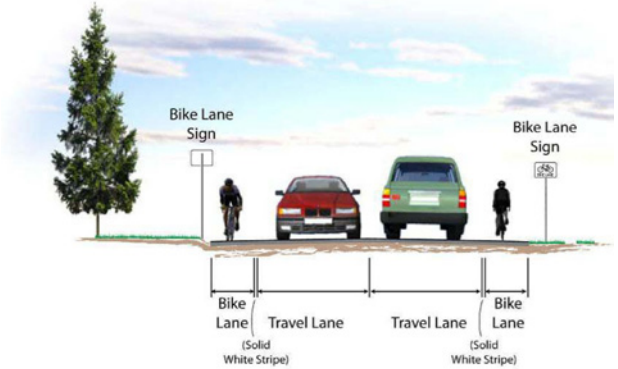
The on-street inventory conducted for this study identified approximately 470 miles (756 kilometers) of regional roadway that was either currently used for bikeway facilities or that could potentially be used for bikeway facilities. Of the 470 miles, about 78 miles (125 kilometers) were existing bike lanes, much of which was located in cities. In addition, about 37 miles (60 kilometers) of regionally significant off-street bike paths were identified during the field surveyor through the data review process. The bikeway inventory by segment is listed in Table 1-4.

FIGURE 1-3: *Caltrans Bikeway Classifications*

MUTCD R 44A (CA)

▲ Bike Path (Class I Bikeway)

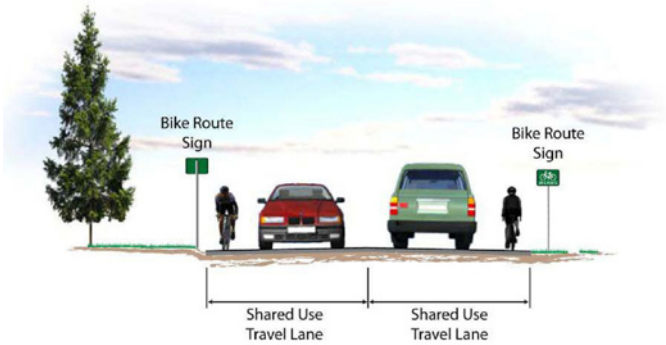
Off-street bike paths are facilities for use exclusively by bicycles and pedestrians, with minimal cross-flow by motor vehicles. They are often located in a separate right of way.



MUTCD D11-1

▲ Bike Route (Class III Bikeway)

Class III bikeways are on-street routes intended to provide continuity to the bikeway system. Bike routes are designated by signs or permanent markings and are shared by motorists. Many bike routes provide shoulders that can be used by bicycles or pedestrians.



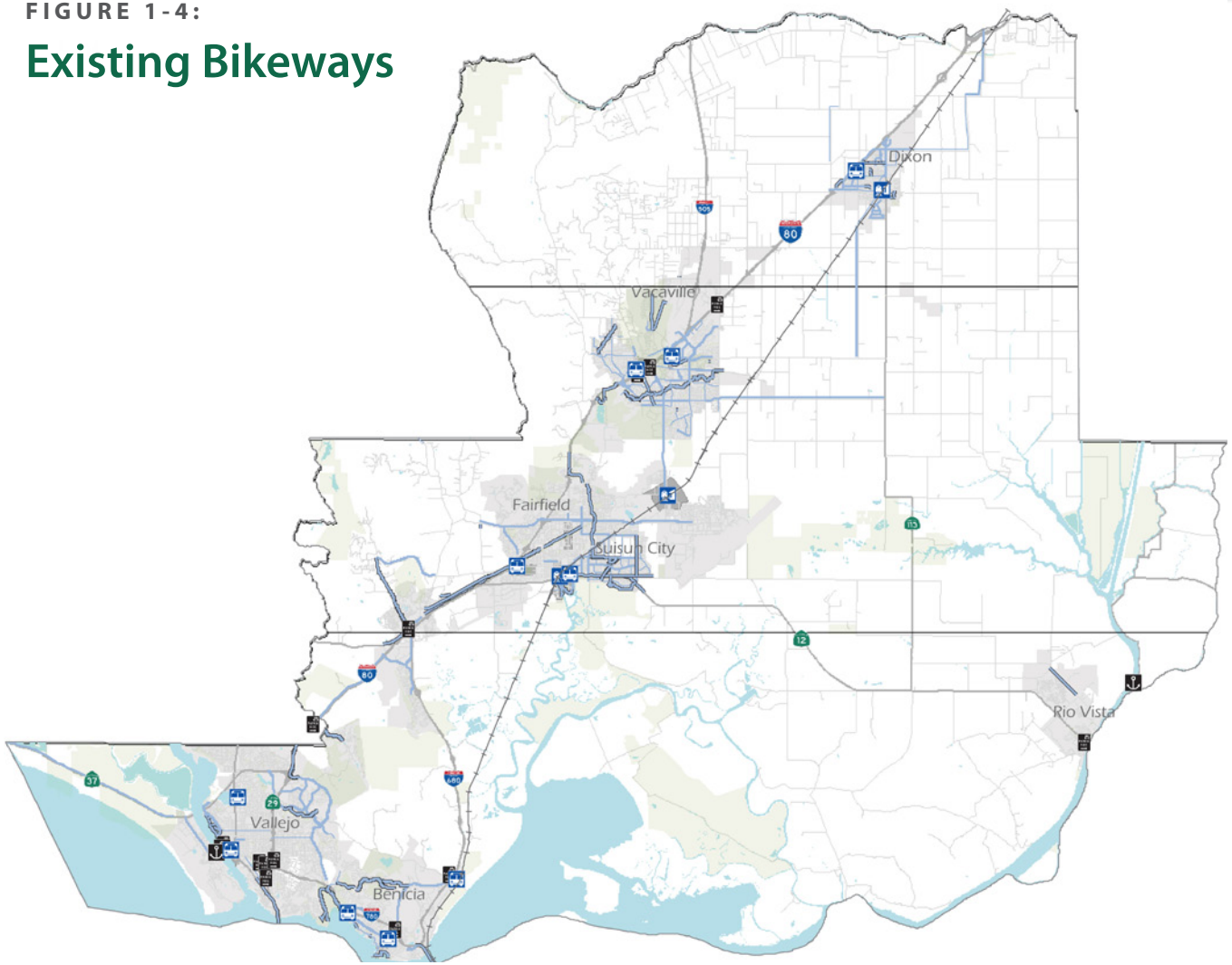
MUTCD R 81 (CA)

◀ Bike Lane (Class II Bikeway)

Bike lanes are areas within paved streets that are identified with striping, stencils, and signs for preferential (semi-exclusive) bicycle use.

FIGURE 1-4:

Existing Bikeways



Legend

General

- Open Space/Conservation Areas
- Unincorporated Solano County
- Municipal Service Areas
- Major Arterials/Highways
- Union Pacific Railroad

Existing Bicycle Facilities

- Class I Existing
- Class II Existing
- Class III Existing

Existing Bicycle Facilities

- Bus Stop
- Rail Station
- Ferry
- Park and Ride

TABLE 1-4: Existing Bikeways in Solano County

Jurisdiction	Street/Facility	From	To	Class	Length (miles)
Benicia	State Park Road	Rose Drive	Benicia SRA	I	0.1
Benicia	1st Street	Military West	East H Street	II	0.3
Benicia	Columbus Pkwy	Benicia Road	Rose Drive	II	0.2
Benicia	E. 2nd Street	Rose Drive	Hillcrest Ave	II	1.1
Dixon	Pitt School Road	Interstate 80	West A Street	I	1.0
Dixon	West A Street	Pitt School Road	N. Lincoln Street	I	0.3
Dixon	Valley Glen Drive	Parkway Boulevard	SR113	I	0.7
Dixon	Parkway Boulevard	Valley Glen Drive	SR113	I	0.5
Dixon	SR113	Parkway Boulevard	Country Fair Drive	I	0.5
Dixon	N. Lincoln Street	Stratford Avenue	Regency Parkway	I	1.1
Dixon	Legion Avenue	Folsom Fair Circle	Folsom Fair Circle	I	0.2
Dixon	Folsom Fair Circle	Valley Glen Drive	Valley Glen Drive	I	0.5
Dixon	Folsom Fair Circle Connection	Folsom Fair Circle	South Jackson Street	I	0.1
Dixon	1st Street/SR113	Dorset Drive	N. Adams Drive	II	1.0
Dixon	Dorset Drive	SR113	Auction Lane	II	0.3
Dixon	Auction Lane	Dorset Drive	End	II	0.1
Dixon	West H Street	Pitt School Road	N. Almond Street	II	0.5
Dixon	Evans Road	West H Street	West A Street	II	0.6
Dixon	N. 1st Street	Interstate 80	West H Street	II	1.4
Dixon	Vaughn Road	Lincoln Road	Union Pacific RR	II	1.3
Dixon	West A Street	Interstate 80	Pitt School Road	II	0.9

TABLE 1-4: Existing Bikeways in Solano County (Continued)

Jurisdiction	Street/Facility	From	To	Class	Length (miles)
Dixon	West H Street	Evans Road	N Lincoln Street	II	0.7
Dixon	Evans Road	West A Street	West H Street	II	0.6
Dixon	Regency Parkway	N. Lincoln Street	SR113	II	0.7
Dixon	Pembroke Way	Regency Parkway	Fountain Way	II	0.4
Dixon	Rehrman Drive	Evans Road	Pitt School Road	II	0.5
Dixon	Pheasant Run Drive	West A Street	West H Street	II	0.4
Dixon	West H Street	Evans Road	N. Lincoln Street	II	0.7
Dixon	Vaughn Road	Fitzgerald Way	Pedrick Road	II	0.6
Dixon	Fitzgerald Way	Vaughn Road	Industrial Way	III	0.6
Dixon	Industrial Way	SR113	Fitzgerald Way	III	0.4
Dixon	North Adams Street	West A Street	SR113	III	0.7
Dixon	Porter Road	Dixon City Limit	West A Street	III	0.6
Dixon	West H Street	N. Lincoln Street	N. Adams Street	III	0.6
Dixon	Pitt School Road	Stratford Avenue	West A Street	III	0.8
Dixon	Stratford Avenue	Pitt School Road	N. Lincoln Street	III	0.1
Dixon	Gateway Drive	West A Street	End	III	0.3
Fairfield	Air Base Parkway	Interstate 80	Peabody Road	I	4.4
Fairfield	Caltrans I-80 Pathway	Red Top Road	Green Valley Road	I	1.2
Fairfield	Linear Park	Caltrans I-80 Pathway	Tabor Avenue	I	2.2
Fairfield	Linear Park	Suisun Valley Road	Texas Street	I	6.0
Fairfield	Dover Avenue	Cement Hill Road	Tabor Avenue	II	1.0
Fairfield	Green Valley Road	Interstate 80	Cordelia Road	II	0.3

TABLE 1-4: Existing Bikeways in Solano County (Continued)

Jurisdiction	Street/Facility	From	To	Class	Length (miles)
Fairfield	Lopes Road	Cordelia Road	Gold Hill Road	II	2.1
Fairfield	McGary Road	Red Top Road	Fairfield City Limit	II	1.5
Fairfield	Nietzel Road	Green Valley Road	Suisun Valley Road	II	0.8
Fairfield	Oliver Road	Waterman Boulevard	Interstate 80	II	1.2
Fairfield	Red Top Road	Solano Bikeway	Lopes Road	II	0.9
Fairfield	Tabor Avenue	Dover Avenue	Walters Road	II	2.0
Fairfield	Utah Street	Pennsylvania Avenue	Union Avenue	II	0.5
Fairfield	Waterman Boulevard	Fairfield City Limit	Interstate 80	II	1.8
Suisun City	Central County Bikeway (SR12)	Main Street	Walters Road	I	2.7
Suisun City	Jepson Pkwy Bikeway (Walters Rd)	SR12	East Tabor Avenue	I	0.8
Suisun City	McCoy Creek Trail (Ph1: McCoy Creek)	SR12	Pintail Drive	I	0.4
Suisun City	Petersen Ranch Subdiv. Bikeway	Hickam Circle	Duluth Lane	I	0.5
Suisun City	McCoy Creek Dr	Anderson Drive	Grizzly Island Road	II	0.3
Suisun City	Sunset Avenue	SR12	Northerly City Limit	II	1.0
Suisun City	Railroad Avenue	Sunset Avenue	Marina Boulevard	II	0.8
Suisun City	Marina Boulevard	Railroad Avenue	Driftwood Drive	II	0.5
Suisun City	Driftwood Drive	Marina Boulevard	Josiah Drive	II	0.2
Suisun City	Walters Road	SR12	East Tabor Avenue	II	1.7
Suisun City	Charleston Street	Bella Vista Drive	East Tabor Avenue	II	0.9
Vacaville	Alamo Drive	Interstate 80	Leisure Town Road	II	3.8
Vacaville	Canal Path	Vaca Valley Parkway	Centennial Park	I	1.5
Vacaville	Alamo Creek Path	Alamo Drive	Elmira Road	I	3.3

TABLE 1-4: Existing Bikeways in Solano County (Continued)

Jurisdiction	Street/Facility	From	To	Class	Length (miles)
Vacaville	Caltrans I-80 Pathway	Lagoon Valley Road	Vacaville City Limit	I	0.7
Vacaville	Butcher Road Path	Alamo Creek	Lagoon Valley Road	I	2.0
Vacaville	Ulatis Creek Path	Gibson Canyon Road	Alamo Drive	I	1.4
Vacaville	Alamo Creek Path	Stevenson Street	Alamo Creek	I	1.1
Vacaville	Nut Tree Road	East Monte Vista Avenue	Elmira Road	II	1.5
Vacaville	Peabody Road	Alamo Drive	Foxboro Parkway	II	0.8
Vacaville	Ulatis Drive	Allison Drive	Leisure Town Road	II	1.7
Vacaville	Vaca Valley Parkway	End	Leisure Town Road	II	3.3
Vallejo	Bay Trail	Interstate 80	West K Street	I	4.2
Vallejo	Bay Trail	Wilson Avenue	Curtola Parkway	I	1.9
Vallejo	Pathway	Admiral Callaghan Lane	Ascot Parkway	I	1.2
Vallejo	Solano Bikeway	Napa County Line	Columbus Parkway	I	1.5
Vallejo	Ascot Parkway	Redwood Parkway	Columbus Parkway	II	0.9
Vallejo	Azuar Driveway	Acacia Avenue	13th Street	II	2.1
Vallejo	Columbus Parkway	Admiral Callaghan Lane	Benicia Road	II	4.9
Vallejo	Curtola Parkway	Mare Island Way	Sonoma Boulevard	II	0.2
Vallejo	Fairgrounds Drive	SR 37	Redwood Street	II	1.3
Vallejo	Hiddenbrooke Parkway	Solano-Napa County Line	Bennington Drive	II	0.7
Vallejo	Mare Island Way	Wichels Causeway	Curtola Parkway	II	1.1
Vallejo	McGary Road	Hiddenbrooke Pkwy	Vallejo City Limit	II	0.1
Vallejo	Redwood Parkway	Admiral Callaghan Lane	Ascot Parkway	II	1.2
Vallejo	Wilson Avenue	SR 37	Wichels Causeway	II	1.1
Vallejo	Tennessee Street	Mare Island Way	Interstate 80	III	1.9

TABLE 1-4: Existing Bikeways in Solano County (Continued)

Jurisdiction	Street/Facility	From	To	Class	Length (miles)
Solano County	Green Valley Path	Rockville Road	Reservoir Lane	I	1.9
Solano County	Suisun Parkway Path	Linear Park	Solano Community College	I	2.0
Solano County	Fry Road	Vacaville City Limit	State Route 113	II	6.1
Solano County	Rockville Road	Suisun Valley Road	Green Valley Road	II	2.6
Solano County	Peabody Road	Cement Hill Road	Vacaville City Limit	II	2.0
Solano County	Benicia Road	Interstate 80	Carquinez Cemetery	II	0.4
Solano County	Dixon-Davis Bikeway	Davis at Interstate 80	Dixon	II	6.9
Solano County	Vacaville-Dixon Bikeway (partial)	Dixon City Limit	Hawkins Road	II	4.9
Fairfield; Vallejo; Solano County	McGary Road	Red Top Road	Hiddenbrooke Parkway	II	3.6
				Total	**132.9**

Existing Constraints

Figure 1-4 illustrates the existing bikeway network, which contains some roads with narrow travel lanes that could not accommodate Class II bike lanes without widening. On routes that carry heavy volumes, the lack of a dedicated bike lane creates problems for bicyclists and drivers alike. Drivers can experience delay as a result of waiting for an opportunity to pass a slower moving bicyclist. Bicyclists, on the other hand, can be distracted from their riding and/or run off the road by passing cars especially in locations where narrow pavement cross-sections leave limited space for motor vehicles to pass bicyclists. Major routes where insufficient pavement width and high traffic volumes can be associated are briefly described on the following page.

Pleasants Valley Road/Putah Creek Road - The scenic quality along these roadways along with the fact that these roads provide connections to the cities of Winters, Davis, and Lake Berryessa has made Pleasants Valley Road and Putah Creek Road popular bikeways. As a result, they have been identified on maps such as the North San Francisco Bay/Sacramento Bicycle Touring Map produced by Krebs Cycle Products. Unfortunately, the pavement width for these two roadways is limited to about 22 feet in most sections. Further, there are about eight narrow bridges and box culverts on these two roadways between Laguna Creek and Winters Road. Most of these bridges have paved widths less than 24 feet. Nine other bridges on this route have been widened to accommodate Class II bike lanes as part of an ongoing effort to improve this route both for bicycles and motor vehicles.

State Routes 12, 29, 37, and 113 - These state routes are major roadways providing interregional connections to neighboring counties. Except for a few locations, these facilities are open to bicyclists. Unfortunately, these roadways carry high volumes at high speeds and in many cases they do not have sufficient shoulder width for a dedicated bike lane.

Miscellaneous Bridges - Solano County has 96 County maintained bridges. Along roadways such as Pleasants Valley Road and Suisun Valley Road, some bridges are less than 20 feet wide. These locations are a challenge to bicyclists because they do not provide sufficient width for two automobiles and a bicycle to pass.

Agricultural Spraying - Solano County has a number of agricultural land uses including orchards, vegetable crops, and grain crops where agricultural spraying is used to control insects and weeds. The spraying can deter bicyclists from these areas because of the perceived hazard of chemicals drifting across roads used as bikeways. Cycling events held within spray zones can potentially deter scheduled spraying. Solano Couty has adopted a Right to Farm Ordinance to address this issue.

The summary of constraints does not list a number of locations that would require major widening to accommodate a dedicated bike lane. These roadways were excluded because the average daily traffic (ADT) volumes are low enough that bicycles and automobiles can share the roadway. As a result, there is an opportunity on many of the County roadways to develop Class III bike routes.

Existing Opportunities

For on-street facilities, if traffic volumes are low (less than 2,000 ADT), as they are on many county roads, the lack of Class II standards is not a major concern because the lack of opposing traffic presents more opportunities for vehicles to pass slower moving bicyclists. For these facilities, Class III designations may be more appropriate until traffic volumes increase. In addition to lower volume County roadways, there are numerous natural and manmade corridors in the County that could potentially serve as locations for off-street bicycle paths (Class I facilities), these include:

Railroad Rights-of-Way - Former Southern Pacific and California Northern right-of-way in Solano County has the potential to be developed as bike paths. This concept has already been implemented in cities like Fairfield with its linear park located along the old Southern Pacific right-of-way and Vacaville with its Southside Bikeway.

Utility Corridors - Power transmission lines offer another opportunity for the location of bike paths. Vacaville is using a PG&E corridor in the northwest part of the city for a Class I bike path, which will be extended in the future.

Waterways - Irrigation canals and creeks run through much of Solano County. These waterways can offer potential locations for bike paths along their periphery. For example, Vacaville developed the Alamo Creek Bikeway and is working on the Ulatis Creek Bikeway.

Short Paths & Trails –In many locations, a short pathway or trail will work to provide connectivity between existing facilities or around obstacles.

These opportunities and constraints give the reader a general sense of the key issues considered when developing a countywide bikeway plan. In some cases, this Plan addresses existing constraints and in other cases it identifies existing opportunities that can be used as advantages.

1.5 Existing Support Facilities

Support facilities and programs are an important part of the planned Solano County bikeway transportation system. User surveys indicated that the lack of bicycle facilities was an important reason why some people did not ride bicycles to work. Bikeway support facilities can include a variety of services or physical infrastructure designed to accommodate or promote the use of bicycles. Figure 1-5 shows existing bikeway support facilities in Solano County, including:

- Multi-modal transit hubs
- Locations of bicycle shops
- Bicycle racks
- Bicycle lockers
- Facilities for changing and storing clothes
- Rest stops

BTA REQUIREMENT #6

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 (Figure 1-5).

Bicycle shops are important for bicyclists making trips between urban areas in the event they suffer an equipment failure and need repair parts or service. These types of shops are located in Benicia, Dixon, Fairfield, Vacaville, and Vallejo.

These are brief descriptions of the primary support facilities used by bicyclists:

Bicycle Parking

Bicycle parking, storage, and changing facilities must not be overlooked when planning a bikeway system. Safe and effective end-of-trip facilities such as sheltered parking or bicycle lockers are an integral component of bicycle use. They provide convenience and security for cyclists when they arrive at destinations. National bicycle surveys consistently find that inadequate end-of-trip facilities and the fear of theft are major deterrents to bicycle commuting. Effective bicycle parking requires properly designed racks, lockers, and shelters, which are sited appropriates for ease of use and convenience.

In California, bicycle parking facilities are classified as follows:

Class I Bicycle Parking – is considered long-term; it accommodates those who are expected to park more than two hours. Class I parking provides security and weather protection. Class I bicycle parking typically includes covered areas that offer a bicycle locker or lid, storage rooms, or a secure area like a "bike corral" that may be accessed only by bicyclists.

Class II Bicycle Parking – accommodates bicyclists who are expected to park for short stops, such as bicycle racks. The most effective rack designs are relatively low-cost devices that support the bicycle upright by its frame in two places, allow bicyclists to securely lock their frames and wheels, are secured to the

ground, and are located in highly visible areas as close to building entrances as possible to provide convenience. Some rack designs are unsuitable for use; these include rack designs that do not support a bicycles frame and as a result can cause damage to a bicycle. Ideally, a portion of Class II rack installments should be covered for protection from weather. Class II racks are typically located at schools, commercial locations, and activity centers such as parks, libraries, retail locations, and civic centers. Many locations throughout Solano County offer secure bicycle parking in the form of bicycle racks and bicycle lockers (please see Figure 1.4). For this study, bicycle racks and lockers were identified at major destinations such as the Solano Mall, Solano Community College, Suisun City Amtrak Station, Sports Complex, downtown areas, and park and ride lots. In general, bike racks are located in most cities and at most major shopping areas, schools, and parks.

Available data indicated that bike lockers existed at the following Caltrans operated park and ride lots and other locations in Solano County:

- Fairfield, I-80/Magellan Road - 16 lockers;
- Solano Community College - 20 lockers;
- Vacaville Regional Transit Center - 8 lockers;
- Curtola I-80 Park and Ride –12 lockers;
- Vacaville City Hall –12 lockers;
- Vallejo Ferry Terminal – 20 lockers; and
- Vallejo Library – 8 lockers.
- Suisun City - Fairfield Amtrak Station - 4 lockers

In many of the cities, the installation of secure bicycle parking is encouraged as part of local transportation system management plans to support the use of bicycles as an alternative to automobile use. See Chapter 6 – Cost Analysis and Implementation Strategy for recommendations for the Bicycle Parking Implementation Program.

Shower Facilities

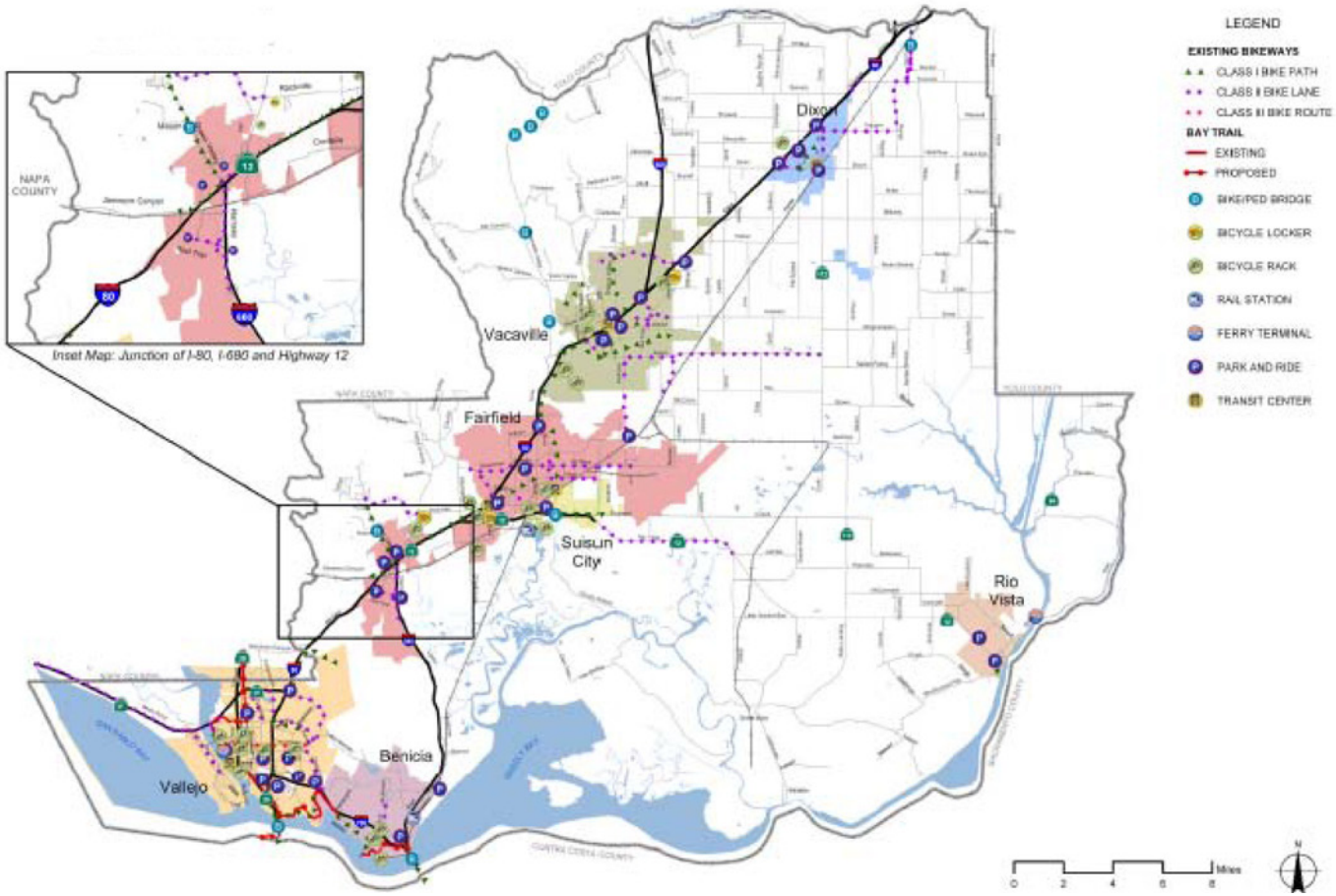
Access to shower facilities by bicycle commuters may help encourage people to leave their vehicles, particularly in the summer months. One option for providing shower facilities is to require their implementation as part of a transportation systems management (TSM) or transportation demand management (TDM) program that applies to major employers. Another option is to include provisions/recommendations for shower facilities as part of future updates to the local jurisdictions' circulation element pertaining to pedestrian and bicycle transportation. Currently, no formal shower/changing locations are known to exist in the county. However, it is likely that many commuters utilize local gyms and/or improvise at their place of employment.

BTA REQUIREMENT #4

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 (Figure 1-5).

FIGURE 1-5:

Existing Bikeway Support Facilities



1.6 Multi-Modal Connections

Well-integrated multi-modal connections are vital to bicyclists, as transit has the potential to extend trip ranges to all points of the county and beyond. This is especially important in Solano County when you consider some of the existing barriers to continuous bicycle travel such as access across the Sacramento River and gaps in the current bikeway system between urban areas. Both of these deterrents may cause some people to use other modes such as the automobile to transport their bicycle to selected riding locations.

Figure 1-6 shows the existing multi-modal connection facilities in Solano County, which include:

- Transportation centers
- Park and ride Lots
- Ferries that allow bicycles
- Train stations
- Bicycle shuttles
- Bus transfer stops

There are currently 14 existing park and ride lots in Solano County, nine of which have bicycle parking facilities. These facilities allow park and ride lot users to transfer between bicycle and other forms of travel such as carpools, vanpools, or buses while their bicycles are secured or taken with them. Table 1-6a contains a list of existing and proposed park and ride facilities.

Three ferries allow bicycles on board operate in Solano County, although two are used for short distances across sloughs in the Sacramento River Delta and the other for the relatively long trip between Vallejo and San Francisco. The Ryer Island Ferry, which transports passengers across Cache Slough north of Rio Vista, provides access for bicyclists to Ryer Island, which has become a popular recreational route for bicyclists.

This is also true for the Howard Landing Ferry that allows Ryer Island visitors to cross Steamboat Slough into Sacramento County. The Vallejo Baylink Ferry, experiences a high demand given the population of the Vallejo area and the fact that the ferry's destination is San Francisco, a popular commute and recreational destination for bicyclists.

BTA REQUIREMENT #5

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 (Figure 1-6).

TABLE 1-6a: Existing and Planned Park-and-Ride Facilities

City	Location	Transit	Existing Spaces	Planned Spaces	Bikes	Lighting
Benicia	East 2nd St and East "S" St at I-780	Benicia Bridge Bike Shuttle	15	15	No	Yes
Cordelia	Green Valley Rd at I-80 & I-680		65	65	No	Yes
Dixon	Market Lane & I-80 near Pitt School Rd	F/S	89	89	Yes	Yes
Dixon	B Street at Jackson/future Capitol Corridor Station		84	225	Yes	Yes
Fairfield	Magellan near West Texas at Beck St	F/S, VAL	400	600	Yes	Yes
Fairfield	K-Mart on North Texas near Air Base Pkwy	F/S	48	48	Yes	No
Suisun City	Main St at SR12	CC, F/S, VAL, RV	80	160	Yes	Yes
Vacaville	Cliffside at I-80		267	0	Yes	Yes
Vacaville	Davis St at I-80	F/S, VAL	250	250	Yes	Yes
Vallejo	Benicia Rd at I-80		13	13	No	No
Vallejo	Lemon Street at Curtola Pkwy & I-80 (NW)	BEN, VAL	379	379	Yes	Yes
Vallejo	Lemon Street at Curtola near I-80 (SW)	VAL	64	64	Yes	Yes
Vallejo	Magazine Street and Lincoln Road at I-80	VAL	21	21	No	Yes

TABLE 1-6a: Existing and Planned Park-and-Ride Facilities

Planned Park and Ride Lots						
City	**Location**	**Transit**	**Existing Spaces**	**Planned Spaces**	**Bikes**	**Lighting**
Benicia	Intermodal Rail Station at Lake Herman Road & I-680	BEN, CC	0	2700	Yes	Yes
Fairfield	Intermodal Rail Station at Peabody Road & Vanden Rd	F/S	0	600	Yes	Yes
Fairfield	Red Top Road & I-80	None	0	200	n/a	n/a
Vacaville	Bella Vista & I-80	None	0	200	n/a	n/a
Vacaville	Leisure Town Road & I-80	None	0	50	n/a	n/a
Rio Vista	Church Street & SR 12	None	0	50	n/a	n/a
Vallejo	Intermodal Ctr at Mare Island Way & Georgia Street	VAL, BEN	650	1400	Yes	Yes
Total Spaces						

TRANSIT ABBREVIATIONS: *BEN = Benicia Transit; CC = Capitol Corridor; F/S = Fairfield-Suisun Transit; RV = Rio Vista Delta Breeze; VAL = Vallejo Transit; Planned Projects in Green*

TABLE 1-6b: Solanolinks Bike-on-Bus Rules

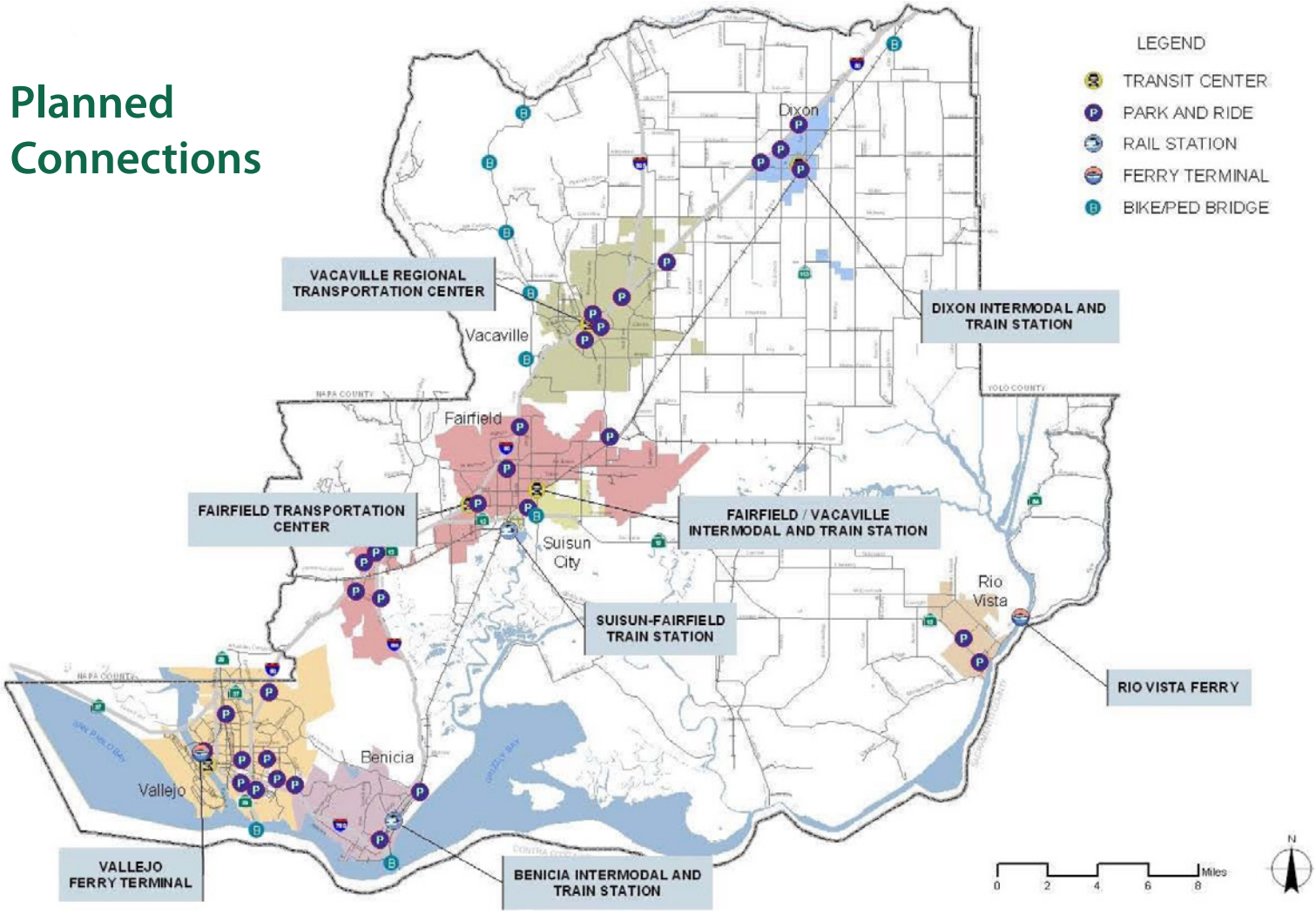
Benicia Transit	Some buses have external bike racks. If there's not a rack and space is available on board, bikes allowed inside
Fairfield-Suisun Transit	Routes 30 and 40 (Solano BART Express) have racks. Additional bikes can be brought on board if space is available.
Vacaville City Coach, Vallejo Transit, Napa Valley Transit, Napa VINE, and Bay Link	All buses equipped with bike racks. Additional bikes can be brought on board if space is available. Bay Link busses do not currently have bike racks
Yolobus	All large buses, including Route 220, have bike racks. No bikes allowed inside the bus
BayLink Ferry	Bicycles are allowed on board the ferry vessels, unless conditions or passenger loads preclude the safe transport of bicycles on Baylink. [The BAC has noted the need for improved bicycle storage conditions on BayLink Ferries. The existing storage options place bicycles on deck where they are subject sea spray and other elements.]

SolanoLinks routes are inter-city bus services operated by Solano transit operators. SolanoLinks transit routes connect to BART and Baylink Ferry services. Most Solano County bike routes have bike racks or allow you to take bikes onboard if there's room (please see Table 1-6b)

The proposed bikeway system provides direct connections through its primary network to multi-modal stations planned in Dixon, Fairfield/Vacaville, and Benicia. All three of these proposed stations would be served by a combination of Class I and II facilities as currently planned. It is the intent of this plan to ensure bicycle access to all future stations.

FIGURE 1-6:

Existing and Planned Multi-Modal Connections



1.7 Evaluation of Bicycle Safety and Education

Safety is a major concern of both existing and potential bicyclists. For those who ride, it is typically an on-going concern or even a distraction. For those who don't ride, it is one of the most compelling reasons not to ride. In discussing bicycle safety, it is important to separate out perceived dangers versus actual safety hazards.

Bicycle Accident Analysis

Bicycle riding on-street is commonly perceived as unsafe because of the exposure of a lightweight, two-wheeled vehicle to heavier and faster moving automobiles, trucks and buses. Actual accident statistics, however, show that bicyclists face only a marginally higher degree of sustaining an injury than a motorist based on numbers of users and miles traveled . Death rates are essentially the same with bicyclists as with motorists. Bicycle-vehicle accidents are much less likely to happen than bicycle-bicycle, bicycle-pedestrian, or accidents caused by physical conditions. And, the majority of reported bicycle accidents show the bicyclist to be at fault; generally, this involves younger bicyclists riding on the wrong side of the road or being hit broadside by a vehicle at an intersection or driveway. Collision data collected for the calendar years 2000, 2001, and 2002 in Solano County tend to support this observation. It is important to note that these accident figures reflect reported accidents only; they do not include unreported accidents and undercounted non-automobile-related accidents. Other studies have shown that the most common bicycle accident is a bicycle-bicycle or bicycle-pedestrian accident. These conflicts tend to be less severe and therefore under-reported. Bicycle accidents in Solano County are shown in Table 1-7.

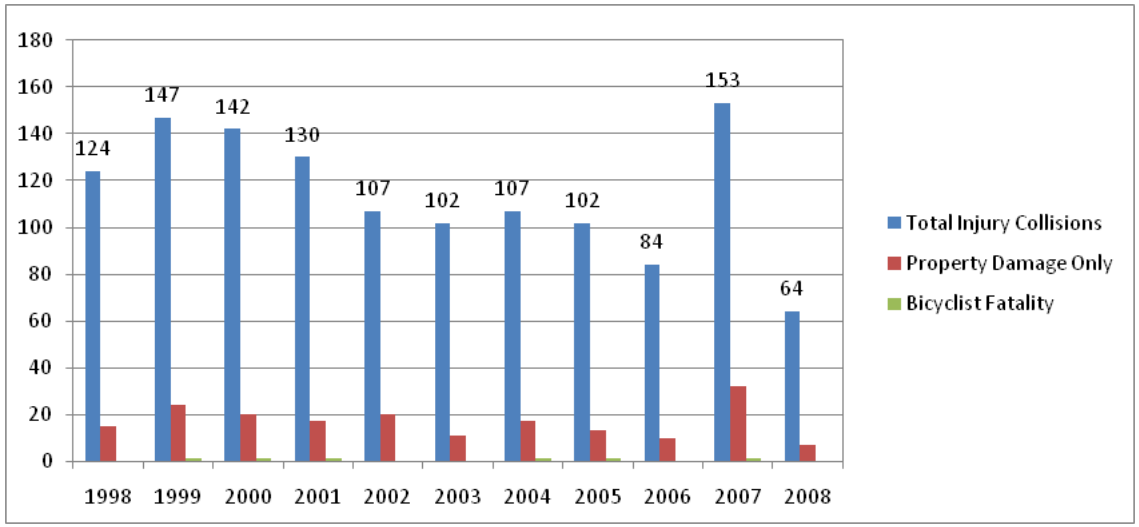
As shown in the tables below, Solano County has a relatively low number of bicycle injury and fatality accidents. The county ranked about in the middle of the 9-county Bay Area for accidents per 1,000 residents, and only Marin County had a lower accident rate when calculated by daily vehicle miles traveled. STA does not have data on bicycle accidents where motor vehicles are not involved.

TABLE 1-7: Bicycle Collisions in Solano County (1998-2008)

Year	Total Collisions	Total Injury Collisions	Property Damage Only Collisions	Fatal Collisions
1998	124	109	15	0
1999	147	122	24	1
2000	142	121	20	1
2001	130	112	17	1
2002	107	87	20	0
2003	102	91	11	0
2004	107	89	17	1
2005	102	88	13	1
2006	84	74	10	0
2007	153	120	32	1
2008	64	57	7	0

Source: California Highway Patrol

FIGURE 1-7: BICYCLE/VEHICLE COLLISIONS IN SOLANO COUNTY



According to available data, Solano County does not have a regular schedule of bicycle safety events or instruction. Park and recreation departments in the incorporated cities, bicycle clubs, local police departments, and various child related service groups, however, have put on bicycle rodeos and similar events to raise awareness for bicycle safety. Coordinated bicycle safety events can have a positive effect on bicycle ridership because they address and appease safety concerns of potential riders and teach good riding habits. Without these programs, a forum does not exist to address safety concerns that are real or perceived.

Educational Programs

Solano County's Unified School Districts, Police Departments, and the Departments of Public Works have a long history of trying to improve safety conditions for bicyclists. Despite these efforts, the lack of education for bicyclists, especially younger students, is a leading cause of accidents. For example, the most common type of reported bicycle accident in California involves a younger person (between eight and 16 years of age) riding on the wrong side of the road in the evening hours. Studies of accident locations around California consistently show the greatest concentration of accidents is directly adjacent to elementary, middle, and high schools. Motorist education on the rights of bicyclists is virtually nonexistent. Many motorists mistakenly believe, for example, that bicyclists do not have a right to ride in travel lanes and that they should be riding on sidewalks. Many motorists do not understand the concept of "sharing the road" with bicyclists, or why a bicyclist may need to ride in a travel lane if there is no shoulder.

Below are other transportation safety-related plans published by the STA.

Solano Travel Safety Plan

The 1998 Solano Travel Safety Plan identified high-accident intersections and freeway sections within Solano County. The plan will be updated in the future with recent
traffic and accident information to provide a new list of potential safety concerns. The Solano Travel Safety Plan - Phase 1 was adopted on July 13, 2005. Phase II of the Solano Travel Safety Plan is the Safe Routes to School Program. To view the Solano Travel Safety Plan, Phase I, please visit *http://www.sta.ca.gov/Content/10055/Countywide_Plans__Studies.html#travelsafety.*

Safe Routes to School (SR2S) Plan

This plan was developed in 2007 through a countywide grassroots planning effort. See Appendix E for a more detailed explanation of a SR2S Program-specific Implementation Strategy. The STA's Safe Routes to School (SR2S) Program is intended to improve the safety and increase the popularity of pedestrian and bicycle modes of student travel, by enhancing related infrastructure and programs.

The Plan identifies improvements to routes for children to walk or bicycle to school, which is one of the most cost effective means of reducing AM traffic congestion and addressing existing safety problems. Most effective school commute programs are joint efforts of the school district and City, with parent organizations adding an important element.

A toolbox of measures that can be implemented by the school district and cities or the County to address safety problems was developed. It includes maps of preferred school commute routes, warning signs, enhanced education, additional crossing guards, signal treatments (longer cycles, pedestrian activated buttons, etc.), enhanced visibility at key locations (lighting, landscaping abatement), crosswalks, bike lanes, and other measures. The following process is recommended for developing a Safe Routes to School Program in Solano County for school commuters:

School Safety Improvements

The Bicycle Plan Update reviewed existing school commute needs and yielded the following recommendations for "Safe Routes to School" programs and school zone improvements that can be implemented countywide. These recommendations are low cost solutions that can be implemented in the short

BTA REQUIREMENT #7

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 o accidents involving bicyclists

term. They are designed to improve safety for student commuters and motorists through education efforts and the use of high visibility school zone markings. It is important to note that the recommendations below are intended to meet the needs of student commuters in Solano County, whether they commute to school by bike or on foot.

Participate in STA Safe Routes to School Program

Safe Routes to School programs are growing in popularity nationwide. The National Highway Traffic Safety Administration recently completed a pilot program in cooperation with the Marin County Bicycle Coalition to develop a national model for Safe Routes to Schools programs. The program was designed to decrease traffic and pollution and increase the health of children and the community at large. The program promoted walking and bicycling to school through educational efforts and incentives that stressed safety and fun for the participants. The program also addressed the safety concerns of parents by encouraging greater enforcement of traffic laws, educating the public, and exploring ways to create safer streets. Additional information on this national pilot program can be found at *http://www.saferoutestoschools.org/. For the Solano SR2S Program, please visit http://solanosr2s.ca.gov/.*

The purpose of the proposed Safe Routes to School program is to identify and improve school commute routes, to increase the number of students who bicycle and/or walk to school in Solano County, to lessen traffic congestion, and to improve health. Identifying and improving routes for children to walk and bicycle to school is one of the most cost effective means of reducing AM traffic congestion.

The basic components of the program include:

Encouragement – school commute events and frequent commuter contests are used to encourage participation.

Education – students are taught safety skills.

Engineering – infrastructure improvements are constructed to improve the safety of school commute routes.

Enforcement – various techniques are employed to ensure traffic laws are obeyed.

Safe Routes to Transit (SR2T) Plan

This plan is new and is being developed based on a similar methodology and collaborative as the Safe Routes to School Plan. Although bicycling and walking are cost-effective and sustainable ways to get to regional transit stations, many commuters cite safety as the primary reason they drive instead. Safe Routes to Transit (SR2T) promotes bicycling and walking to transit stations by identifying projects and plans that make bicycling and walking trips to access the stations easier, faster, and safer. By improving the safety and convenience of bicycling and walking to regional transit, commuters are provided an alternative to driving a single-occupancy vehicle to work. The SR2T Plan is scheduled for completion at the end of 2011.

CHAPTER 2

PURPOSE STATEMENT GOALS, & OBJECTIVES

This section presents a series of recommended goals, objectives, and policies that will help guide future development of the regional bikeway system, and serve as a resource for local jurisdictions in forming their own policies and standards. These policies have been developed over the course of several plan updates to reflect the unique needs of Solano County.

The current goals and objectives update process involved public input, extensive research of peer reviewed articles, and review of existing bicycle plans around the world, including those from Bay Area. The goals and objectives were also developed based on previous updates to the plan, evolving to its present revision. In 2009, a subcommittee of the STA Bicycle Advisory Committee (BAC) was formed and met several times to define a set of goals and objectives that could be achieved while at the same challenge STA and its partner agencies to better serve the community.

Bicycle Plan Vision Statement:

Complete and maintain a countywide bikeway network that will service the transportation needs of bicyclists in Solano County.

Alternative Modes Element Purpose Statement: One County, Many Choices for Mobility ~ To establish program and facilities for the transition toward sustainable transit-oriented communities with integrated multimodal transportation choices for Solano's residents, workers, and visitors. This will be accomplished by incorporating alternative modes as a central part of travel to ensure accessible, convenient, healthy, safe, efficient and cost-effective travel options to enhance connectivity, and will be compatible with local land use planning.

Bicycle Plan Purpose Statement:

"To facilitate and provide safe and efficient bicycle travelling as an everyday means of transportation in Solano County"

Goals:

Goals are the milestones by which achievement of the Purpose Statement are measured. The Goals also represent the vision for Solano County's bicycle system in the future. In order to implement the Purpose of the Solano Countywide Bicycle Plan, the following goals are/will be established:

Bicycle Plan Goals:

1. Plan and maintain a current Countywide Bikeway Network.
2. Build the bicycle transportation network by planning, designing, constructing and managing transportation facilities that will meet the needs of the cycling public.
3. Improve bicyclist safety in Solano County.
4. Increase the use of bicycles as a viable alternative to the automobile.
5. Develop an integrated and coordinated transportation system that connects bicycling with other modes of transportation, which includes, but is not limited to, driving, walking, and taking public transportation.
6. Provide safe access for bicyclists to all points in Solano County.
7. Develop a bicycle network that connects to northern California's alternative modes system.
8. Develop the Countywide Bicycle Plan to serve as a bicycle master plan or a foundation for local agencies to use in the development of a local bicycle plan.
9. Develop a standard countywide wayfinding signage system to regionally direct bicyclists that can be adopted by local agencies.

Objectives: Objectives are the actions by which achievement of the Goals are measured.

Bicycle Plan Objectives

GOAL #1: Plan and maintain a current Countywide Bikeway Network.

Objective 1 - Establish Selection Criteria for the Countywide Bikeway Network to include (but not limited to) the following criteria:

a. Safety and Access (gap closures, accessibility, safety)

b. Quality of Life (health benefits, reduction of vehicle usage, best practices in design)

c. Implementation (community participation, long-term plans/policies, cost-benefit calculations, strategically funded project)

Objective 2 - Maintain the Countywide Bicycle Transportation Plan, which identifies existing and future needs, and provides specific recommendations for facilities and programs to be phased in over the next 25 years.

a. Update the Countywide Bicycle Plan every three to five years, or as necessary to maintain eligibility for state and federal funds.

b. Review the projects identified in the Countywide Bicycle Plan annually to identify projects that have been completed.

c. Ensure that the Countywide Bicycle Plan is consistent with all existing regional, state, and federal bicycle documents, and is consistent with current adopted local bikeway master plans.

d. Develop the Countywide Bicycle Plan as a resource and coordinating document for local jurisdictions while utilizing existing /planned local bikeway facilities to the extent possible

Objective 3 - Develop detailed and ranked improvements in the Countywide Bicycle Plan

a. Identify the top ten to twenty bikeway segments to be completed in the short-term (2010-2015), mid-term (2015-2020), and long-term (2020-2035), based on a variety of objective and subjective criteria, including (but not limited to) number of activity centers served, closure of critical gaps, immediate safety hazards, existing and potential bicycle use, support from the public and local jurisdictions, and availability of funding.

b. Develop detailed implementation information on each recommended segment, including length, classification, adjacent traffic volumes and speeds, proximity to activity centers, cost, and overall feasibility.

c. Develop education and maintenance programs that may be adopted by local jurisdictions.

GOAL #2: Build the bicycle transportation network by planning, designing, and maintaining transportation facilities that will meet the needs of the cycling public.

Objective 4 - Maximize the amount of state and federal funding for bikeway improvements that can be received by Solano County

a. Identify current regional, sate, and federal funding programs, along with specific funding requirements and deadlines

b. Encourage multi-jurisdictional funding applications of the regional bikeway system

c. Develop a prioritized list of countywide improvements along with detailed cost estimates, and identify appropriate funding sources for each proposal

d. Encourage the formation of reliable local, regional, and state funding sources which can be used to leverage federal funds

e. Encourage the local jurisdictions to identify and include countywide bikeway improvements in their Capital Improvement Plans

f. Develop education and maintenance programs that may be adopted by local jurisdictions

g. Update and maintain the Solano Bicycle Program (SBP) to strategically fund the construction of projects

Objective 5 - Build upon the existing bikeway facilities and programs in Solano County

a. Develop an implementation plan for the Solano Countywide Bicycle Transportation Plan

b. Inventory the existing system

c. Identify existing and proposed bike paths, lanes, and routes, and design regional system to maximize use to the extent feasible

d. Identify and implement gap closure projects

e. Include bicycle facilities in the development of all new road, and roadway improvement projects

f. Encourage the use of existing natural and manmade corridors such as creeks, railroad rights of way, and corridors for future bike path alignments

g. Identify existing bicycle education programs, and target future expansion as need warrants

h. Conduct before and after bicycle counts at specific locations and times to measure the relative effectiveness of various investments. Submit all data to the STA for review and storage

i. Ensure that new roadways, transportation projects, roadway improvement projects, and developments improve bicycle travel and system continuity

j. Work with local agencies to improve maintenance of existing bikeways and roadway shoulders

k. Identify guidelines for best practices in bicycle project planning that local agencies may adopt

l. Develop a Safe Routes to Transit (SR2T) plan

m. Maintain the Safe Routes to School (SR2S) plan and implementation of the program

Objective 6 - Encourage public participation and continuation of the Bicycle Advisory Committee (BAC)

a. Continue regular meetings of the BAC; BAC members should help member agencies develop local bikeway master plans and submit them for approval to local City Councils

b. Identify a Bicycle Coordinator in each jurisdiction who is a staff member whose responsibility is to (a) provide support to the BAC, (b) act as a liaison to the City, (c) complete funding applications, and (d) provide inter-departmental coordination

c. Public involvement in the planning process should be maximized through workshops and other means

GOAL #3: Improve bicyclist safety in Solano County.

Objective 7 - Improve bicycle safety conditions

a. Monitor and track bicycle-related collision levels through available data sources

b. Develop a system for reporting and responding to maintenance problems on the existing bikeway system

c. Incorporate bicycle safety curriculum into existing motorist education and training

d. Include lighting and emergency call boxes along Class I bike paths carrying high numbers of commuters as they are eligible for a variety of regional, state, and federal funding sources

e. Identify bicycle routes located in agricultural spraying zones, and warn bicyclists through signing about the potential hazard and the typical spraying periods

f. Incorporate provisions for safe bicycle travel and/or detours in traffic control plans and through construction zones

Objective 8 - Coordinate with other safety programs (i.e. Safe Routes to School (SR2S), Safe Routes to Transit (SR2T))

a. Develop a comprehensive bicycle education program with opportunities to be taught to all school children in Solano County

b. Develop a bicycle education program for adults in Solano County

GOAL #4: To increase the use of bicycles as a viable alternative to the automobile, with an emphasis on Safe Routes to School and Safe Routes to Transit programs.

Objective 9 - Develop a regional bikeway system which meets the needs of commuter and casual bicyclists, helps reduce vehicle trips, and links residential neighborhoods with regional destinations countywide

a. Develop a commuter bikeway system which provides direct routes between residential neighborhoods and regional employment areas, schools, and universities

b. Identify connections to lower volume streets, off-street bike paths, as well as regional and natural destinations countywide

c. Develop a countywide bikeway system which is connected to proposed local and regional bikeway systems, and which is a maximum of two (2) miles from any residential neighborhood in Solano County

d. Develop a bikeway network which balances the need for directness with concerns for safety and user convenience. Where needed, develop a dual system which serves both the experienced and inexperienced bicyclist

e. Strive to develop Class I (bike paths) and Class II (bike lanes) over Class III (bike routes)

Objective 10 - Develop a coordinated marketing strategy to encourage bicycling in Solano County.

a. Develop a series of promotional/marketing incentives to encourage employees to use bicycles to reach work. Quantify the estimated future benefits of bicycling in terms of air quality, congestion, and health

b. Encourage and expand the Solano Napa Commuter Information (SNCI) bicycle incentives program

c. Periodically update the BikeLinks map for public distribution to reflect new bicycle facilities and information

d. Sponsor and support annual bicycle events such as Bike to Work Week, countywide bicycle tours, and adult safety courses in conjunction with other congestion management efforts

e. Encourage the coordination of a bicycling advocacy groups, such as cycling clubs and coalitions

Goal #5: To develop an integrated and coordinated transportation system that connects bicycling with other modes of transportation, which includes, but is not limited to, driving, walking, and taking public transportation.

Objective 11 - Solicit input from bicyclists and pedestrians for all transportation projects

Objective 12 - Maximize the multi-modal connections to the Bikeway System

a. Ensure that the countywide bikeway system serves all multi-modal stations, ferry terminals, and park-and-ride lots in Solano County

b. Work with local and regional transit agencies to install bike lockers at terminals, bike racks on all buses, and designated storage areas on Capitol Corridor trains and ferries serving Solano County

c. Develop an intermodal transportation system that serves the transportation needs of Solano County's residents, workers, and visitors in a manner that is compatible with characteristics of natural, economic, and social resources

d. Encourage review of projects by the BAC

Objective 13 - Implement Caltrans Context-Sensitive Solutions and Metropolitan Transportation Commission's (MTC) Complete Streets policies as an approach to plan, design, construct, and operate a comprehensive multimodal transportation system

a. Refer to Caltrans Context Sensitive Solutions resources: *http://www.dot.ca.gov/hq/oppd/context/index.htm*

b. Fill out and submit a complete streets checklist with all applications for funds administered by STA: *http://www.mtc.ca.gov/planning/bicyclespedestrians/routine_accommodations.htm*

GOAL #6: Provide safe access for bicyclists to all points in Solano County

Objective 14 - Plan and implement a bikeway network that enables bicyclists to reach all areas in Solano County

Objective 15 - Inventory areas that are not safely accessible by bicycle

Goal #7: Develop a bicycle network that connects to northern California's alternative modes system

Objective 16 – Implement the projects identified in the 2004 California Cross State Bicycle Route Study that are within Solano County

Objective 17 - Maintain current policies that are consistent with MTC's regional bikeway network

a. Review Regional Bikeway Network projects

Objective 18 - Plan and implement inter-county bikeway connections (i.e. Yolo County, Napa County, Sacramento, other)

GOAL #8: Develop the Countywide Bicycle Plan to serve as a bicycle master plan or foundation for local agencies to use in the development of a local bicycle plan

Objective 19 - Encourage the City Council and Board of Supervisor adoption of the Countywide Bicycle Plan by all STA member agencies

Objective 20 - Make the Countywide Bicycle Plan available for adoption by local agencies that do not have a bicycle master plan

GOAL #9: Develop a standard countywide wayfinding signage system to regionally direct bicyclists that can be adopted by local agencies.

Implementation of these nine (9) goals is discussed in Chapter 5, Cost Analysis and Implementation Strategy.

CHAPTER 3

PROPOSED COUNTYWIDE **BIKEWAY SYSTEM**

The purpose of this chapter is to describe the proposed bikeway system for Solano County. This section is followed by a chapter on implementation, including information about costs, financing and other issues.

The process used to develop the proposed system involved a series of planning meetings with the Bicycle Advisory Committee (BAC) members and the planning and public works staff in each jurisdiction. Beginning with the development of criteria for the overall network, the BAC identified three (3) categories for routes that should be included as part of the countywide bikeway network. This was followed by refinement of the evaluation criteria applied in previous years to help rank the countywide bicycle priority projects. Ultimately, the proposed routes are products of these meetings. These are the components that made up this process:

3.1 PLANNING PROCESS

3.2 BIKEWAY FACILITY PLANNING CRITERIA

3.3 BIKEWAY CLASSIFICATIONS

3.4 PROJECT TIERS

3.5 BIKEWAY PROJECTS
- Figure 3-5A – Priority Bicycle Projects List
- Figure 3-5B – Countywide Bikeway Projects List
- Bikeway Project Maps

3.5 SUPPORT FACILITIES
- Bicycle Parking
- Wayfinding Signage

3.1 Planning Process

The planning process began in 2009 through coordinated meetings with each of Solano County's member agencies. STA staff met with planning and public works staff individually with the BAC and PAC representatives in attendance to discuss the regional bicycle transportation needs within their community. At these meetings, the BAC, PAC and Technical Advisory Committee (TAC) discussed the goals & objectives, planning criteria, evaluation criteria, and proposed projects for the Countywide Bikeway Network. STA staff also coordinated a tour of projects to familiarize the BAC members with the projects that project sponsors were proposing for implementation.

The first step was to identify planning criteria. Based on criteria used in past years as well as current standards being implemented by the Metropolitan Transportation Commission (MTC), the BAC and TAC developed a comprehensive update to the criteria for routes for the Countywide Bikeway System (see section 3.2). With these criteria, projects were identified by both the BAC members and project sponsors jointly. In addition, meetings and public workshops were held to solicit comments and opinions regarding the proposed bikeway system.

3.2 Bikeway Network Planning Criteria

The system should provide balanced access from all portions of Solano County's population centers for both commuting (primary) and recreation (secondary) routes. The difference between the two designations is to identify the definitive purpose of each route. Primary routes are designated high-priority projects that will serve as viable transportation routes linking all of the cities in Solano County. Secondary routes are connector and/or recreational routes which have been designated as longer term priorities. Each population center in Solano County should be connected by the primary routes in as direct a fashion as possible. The population centers should also have a number of secondary loops that are designed to provide for recreational riders and that avoid significant conflicts with vehicular traffic. These loops should also connect to primary routes that provide access to regional activity centers.

The criteria described below is based on the themes of Coverage and Connectivity.

Bikeway Network Planning Criteria

The countywide bikeway network is classified into three (3) types of routes based on criteria identified by the local planning process. The bikeway network criteria identify Countywide Connections (Primary Routes), Connectors to Primary Routes/Destinations (Secondary Routes), and Other Bicycle Routes:

I. Countywide Connections (Primary Routes)

II. Connectors to Primary Routes/Destinations (Secondary Routes)

III. Other Bicycle Routes

I. Countywide Connections (Primary Routes) – Primary routes serve as a viable transportation network linking all of the cities in Solano County or links Solano County to a neighboring county. Primary routes also address connections across barriers created by the regional transportation system (e.g. freeways, interchanges, railroads) and natural barriers (e.g. rivers, creeks, and bays). Links to the designated Priority Development Areas (PDAs) should also be included. Guidance:

1. Identify connections between each city in Solano County
2. Identify connections across barriers
3. Identify connections within current or planned Priority Development Areas (PDAs)
4. Identify gaps and needed improvements in the primary routes

II. Connectors to Primary Routes/Destinations (Secondary Routes) – Secondary routes serve as a connector between a regionally significant destination and a primary route, where an alternative is not present. Regionally significant trips provide connections to and through major activity centers and central business districts in Solano County. A bicycle trip to regional transit may appear local in nature, but the end destination of the trip is regional even though the mode has changed. A person may arrive via transit, but having accessed transit with a bicycle.

Guidance:

5. Identify connections to the countywide transit system – including transit centers, ferry terminals, bus rapid transit, airports, and rail stations (including Bay Area Rapid Transit (BART) stations, light rail stations, and commuter rail) – from all access points surrounding each station.
6. Identify access to and through major central business districts of Solano County or subareas of the county
7. Identify connections to regionally significant activity centers including commercial districts, employment centers, government centers, hospitals, regional parks, schools, shopping centers (malls), universities and community colleges, and other recreational venues.
8. Identify gaps and needed improvements in the secondary routes

III. Other Bicycle Routes – Despite being named a "countywide system," the Countywide Bikeway Network does not fully share a common class of bikeway or signage. A few regional systems (i.e. San Francisco Bay Trail) and local systems provide connections to and through Solano County. Completing these trails and providing safe and convenient access is important to link residential areas for bicycle trips. Many of these connections are local in nature, but the overall effect results in trips that are significant countywide

Guidance:

9. Identify spine and connectors of regional recreational routes (i.e. San Francisco Bay Trail, Bay Area Ridge Trail)
10. Identify other bicycle routes that serve multiple jurisdictions or connect to adjoining regions

Local participation played a large role in the development of the above criteria, including input from bicycle club members, bike shop owners, current riders, bicycle route maps sold in local bike shops, and the general public.

These criteria were applied during the planning process for the proposed bikeway system in Solano County. The next section describes in greater detail the specific steps that were taken during the development of the proposed system. Appendix A provides further information regarding the prioritization of the countywide bikeway network projects.

3.3 Bikeway Classifications

Based on the Planning and Evaluation Criteria illustrated in Sections 3.1, 3.2, and Appendix A, Table 3-5B shows the Proposed Solano County Bikeway System. The proposed bikeway system includes a total of 145 miles (233 kilometers) of bikeway facilities including about 140 existing miles (225 kilometers). Since the

2004 bicycle plan update, 23 additional miles of bikeway facilities have been completed. The system not only connects each city in Solano County but it provides regional connections to five other counties including Contra Costa County, Napa County, Sacramento County, Sonoma County, and Yolo County. Planning the bicycle system concentrated on consistency with local and regional bikeway plans to ensure that bikeway facilities were consistent through each city and with regional facilities such as the San Francisco Bay Trail and the Bay Area Ridge Trail.

After identifying the primary and secondary routes and priorities for the proposed system, the next step in the planning process was to identify the classification of each route according to the standards defined in "Chapter 1000: Bikeway Planning and Design" of the Highway Design Manual (California Department of Transportation, revised 02/01/2001) and then to determine the appropriate phasing for each route.

The Caltrans standards include the following three classifications, which are shown graphically in Chapter 1.

Class I Bikeway (Bike Path) — Separated Right-of-Way.

Section 3.5 starting on page 52 is a complete listing of the proposed Solano Countywide Bikeway Network based on this analysis.

Class II Bikeway (Bike Lane) – Striped On-Street

Class III (Bike Route) – Signed Only On-Street

3.4 Project Tiers

Evaluation criteria (Appendix A) were used to rank each priority bikeway segment to determine if it should be included in Tier 1 or Tier 2. The scoring of individual segments was based on a scale of 1-3, with a "1" representing the lowest score and a "3" representing the highest score. These criteria included:

Implementation

The system should be constructed as efficiently as possible. This criterion considers project readiness, additional local match/other funding availability, prior commitment/performance, federal mandates.

Accessibility and Safety

The system should provide access from all portions of Solano County's population centers for both commuting (primary) and recreation (secondary) routes. This criterion considers elimination of barriers, access to activity centers/schools/transit, safety improvement for all groups of bicyclists, and population served. Access to major regional activity centers such as parks, employment centers, and schools is considered an important criterion for evaluating a bikeway segment. Those segments that directly or indirectly serve a regional activity center are more likely to attract a high number of users.

Connectivity and Regional Significance

The system will serve the routes of regional significance and transit facilities of regional significance. This criterion considers countywide destinations, connectivity, and regional significance. Connectivity is defined as providing an important linkage within the system regardless of the activity centers or population served. Connectivity can be in the form of a linkage to an adjoining county or in terms of system continuity. Starting with the objective that the system should function as a unit that is built incrementally over time, rather than a series of disconnected pieces, one works outward from the "center" of the system attempting to provide the greatest benefit to potential users. For the Solano County bikeway system, the connections between Fairfield and Vacaville, with Davis in Yolo County, and between Benicia and Vallejo provide the most important linkages for bicyclists, followed by other segments directed at connecting the other urbanized areas. This plan recognizes the importance of taking advantage of opportunities to improve a bikeway even if it does not connect to other built segments at that time.

Quality of Life

The system should improve health and reduce vehicle usage. This criterion considers the health benefits of bicycling, reduction of vehicle usage by offering alternatives, and cost/benefit calculations.

Local Coordination

The proposed system should consider local information in the bicycle planning process. This criterion considers local plan adoption, community participation, long-term plans/policies, and design aspects. For these criteria, minutes of the BAC meetings and the public workshops were reviewed along with survey responses to identify those routes that were repeatedly recommended for inclusion in the plan. This criterion is typically used to reflect interests and needs that may not be reflected in quantifying activity centers or population. It should be noted that all segments that were repeatedly discussed in the public meetings received a score of three for this category. A detailed segment-by-segment breakdown of the system is presented in Chapter 4. This information is helpful for determining the ranking and phasing for each bikeway segment. Generally, Tier 1 segments ranked the highest although some segments were included in Phase 1 based on overwhelming public and BAC support for these segments.

Bicycle Wayfinding Signs

The Solano bicycle system will provide an adequate directional wayfinding signage system such as those incorporated on the roads/highway system. This criterion considers installation of a Solano County Bikeway sign and interest in a wayfinding sign plan.

Definition of Tier 1 Projects

Tier 1 projects are defined as projects that have met the bicycle network criteria identified in this Chapter, have scored well in the evaluation criteria (see Appendix A – Bicycle Projects Evaluation Criteria), and have been recognized as a priority by the BAC and TAC members. These projects place a strong emphasis on project readiness, regional connectivity, and improvement in safety conditions for users. These projects are anticipated to complete construction within the next 5-7 years and would receive preference for funding strategy development by STA staff. See Table 3-5A.

Definition of Tier 2 Projects

Tier 2 projects are defined as projects that local project sponsors have identified as priorities in their communities, however, have not been developed beyond a conceptual scope. Project sponsors should work to develop these concepts at the local level with the assistance of STA as needed. These projects are anticipated to complete construction within the next 7-15 years (see Table 3-5A).

Definition of Tier 3 Projects

Tier 3 projects are defined as projects that local project sponsors have identified in their communities with a planning and development schedule of beyond the next 15 years. These projects make up the majority of Table 3-5B.

3.5 Bikeway Projects List

The proposed system contains approximately 148 miles (238 kilometers) of bikeway facilities.

Table 3-5A is the priority projects list categorized by tier.

Project Status key:

Permitted and Ready to Construct – all permits and funding secured

Designed – greater than 35% PS&E and an approved environmental document

Preliminary Design – greater than 10% but less than 35% PS&E

Planned –less than 10% PS&E

** in CTP list*

TABLE 3-5A: Solano Transportation Authority Priority Bicycle Projects List

TIER 1 Bicycle Projects (in priority order)

ID	Agency	Project Name	From/ To	Description	Status/ Comments
1.	Dixon	West B Street Bicycle-Pedestrian Undercrossing (rail platform access tunnel)*	West B Street Union Pacific Railroad Crossing	Provide a 0.1 mile grade-separated bicycle-pedestrian undercrossing of the Union Pacific Railroad tracks to replace the existing at-grade crossing at West B Street adjacent to the Multi-modal Center (B Street Bicycle-Pedestrian Undercrossing Project). Tunnel undercrossing removes existing at-grade pedestrian crossing with 500 bicylist and pedestrian trips daily. Can also be incorporated into platform access to proposed future rail station.	Designed. $6,100,000 needed to complete construction. Env cleared. Construction-ready. Construction cannot be phased.
2.	Solano County	Vacaville-Dixon Bike Route: Hawkins Road*	Pitt School Road to Leisure Town Road	Construct 5.0 mile class II bicycle route connection from Vacaville to Dixon, along Hawkins Road and Pitt School Road. All four segments of the Pitt School Road Portion of the project have been constructed This project was also submitted by City of Dixon *This project is supported by the STA BAC as a priority long-term project	Env/Design funded in Cycle 1 through Regional Bicycle Program funds. $362,000 environmental clearance fully funded in 2010. $3,800,000 construction shortfall.

3.	Vacaville	Ulatis Creek Bicycle Facilities*	Phase 2: Allison Drive to I-80	Construct Class 1 off-street bicycle path, and Class 2 bicycle lanes at various locations along Ulatis Creek from Allison Drive to I-80. Various segments are either Planned or Preliminary Design (depending upon location). Phase 1: Ulatis Drive to Leisure Town Road (see recently completed tier 1 bicycle projects list) Phase 2: Allison Drive to I-80	Further design needed for env. clearance. Funding shortfall undefined
4.	STA	Solano County Wayfinding Sign Program	Various projects/routes/ locations	Fund and develop a Countywide Wayfinding Sign Plan and identify a program to fund a uniform bicycle and pedestrian wayfinding signage system.	Planned
TIER 2 Bicycle Projects (in alphabetical order by agency)					
1.	Benicia	East West Corridor Bicycle Connection: Military East Street/ East L Street/Adams Street	Park Road to First Street	Plan, design, and construct class II bicycle lanes and/or Bicycle Boulevard/sharrows in the East L Street/Military East/Adams Street corridor from Park Road to First Street to improve safety for cyclists entering the City from the Benicia Bridge.	Planned
2.	Dixon	Vaca-Dixon Bicycle Route: Porter Road	A Street to Pitt School Road	Phase 2: Road widening to add Class II path on Porter Road between A Street and Pitt School Road in both directions	Planned
3.	Rio Vista	Rio Vista Loop: Church Road	Airport Road to Harris Road (about 50 feet past Harris Road)	0.3 mile Class I off-street bicycle/pedestrian path on Church Road from Airport Road to Harris Road in both directions.	Planned
4.	Vallejo	Georgia Street Corridor Bicycle Improvements	Columbus Parkway to Mare Island Way	Identify alignment along the 3.4 mile Georgia Street corridor for class II bicycle lanes to provide a direct thru-route from Columbus Parkway to Mare Island Way in both directions.	Planned
5.	STA	Safe Routes to School Program Projects	Various Participating School Districts in Solano County	Support Safe Routes to School Program Projects	Planned

See Appendix A for Evaluation Criteria

Table 3-5B is the complete proposed Countywide Bikeway Network projects list.

Project Status key:

Permitted and Ready to Construct – all permits and funding secured

Designed – greater than 35% PS&E and an approved environmental document

Preliminary Design – greater than 10% but less than 35% PS&E

Planned –less than 10% PS&E

** in CTP list*

Proposed priorities of each agency are shaded in gray.

TABLE 3-5B: Proposed Solano County Bikeway Network

ID	Agency	Project/Segment	From/To	Description	Project Status
1.	Benicia	East West Corridor Bicycle Connection: Military East Street/ East L Street/Adams Street – Priority #1	Park Road to First Street	Plan, design, and construct class II bicycle lanes and/or Bicycle Boulevard/sharrows in the East L Street/Military East/Adams Street corridor from Park Road to First Street to improve safety for cyclists entering the City from the Benicia Bridge.	Planned
2.	Benicia	Park Road/Industrial Way Bicycle Route – Priority #2	Benicia Bridge Bikeway to Lake Herman Road	Phase I: Construct Class III Bicycle Route on Park Road from the Benicia Bridge Bikeway to Industrial Way. Phase II: Construct Class III Bicycle Route on Industrial Way from Park Road to Lake Herman Road.	Planned
3.	Benicia	East H Street Bicycle Connection to Benicia Historic Arsenal District – Priority #3	Second Street to Lower Arsenal	Plan, design, and install a Class III facility on East H Street from East Second Street to East Sixth Street, then to and along either East J Street or East K Street, and then into the Lower Arsenal as a Class I facility to Jackson Street. This project would improve overall accessibility of residents and visitors to the Arsenal District (as would a future route extending from East H Street directly into the Lower Arsenal).	Planned
4.	Benicia	Lake Herman Road	Industrial Way to Benicia City Limit	Construct a class II bicycle lanes on Lake Herman Road from Industrial Way to the Benicia City Limit . Note: This project is developer funded Note: This project is developer funded	Planned

TABLE 3-5B Proposed Solano County Bikeway Network (Continued)

ID	Agency	Project/Segment	From/To	Description	Project Status
5.	Benicia	Columbus Parkway	Benicia Road to Rose Drive	0.2 mile Class II bicycle lanes on Columbus Parkway from Benicia Road to Rose Drive	Planned
6.	Benicia	Bay Trail Completion	Various	Support completion of the Bay Trail and priority segments (below): • Bike lanes on Military East Street; Bay Trail Plan segments 6008.3 and 6008.4 • Bike lanes on East 5th Street; Bay Trail Plan segment 6006.1 • Bike lanes on K and I Street; Bay Trail Plan segment 6009 and 6012	Planned
7.	Dixon	Parkway Blvd – Priority #1*	Valley Glen Dr to Pitt School Rd	Construction of 0.5 mile Class II pathway as part of a roadway over-crossing extending Parkway Boulevard from Valley Glen Drive to Pitt School Road	Planned
8.	Dixon	Vaca-Dixon Bicycle Route: Porter Road – Priority #2	A Street to Pitt School Road SR 113 to Porter Road	Phase 2: Road widening to add Class II path on Porter Road between A Street and Pitt School Road Phase 1: Striping for a Class II pathway on Adams Street from SR 113 to Porter Road	Planned Completed
9.	Dixon	Pedrick Road Overcross-ing (OC)*	Pedrick Rd RR OC	Provide a grade separated over crossing of the Union Pacific Railroad tracks at Pedrick Road (Pedrick Road Over-Crossing Project). Proposed Over-Crossing Project includes 2 travel lanes in each direction plus Class I bicycle/ped facility.	Planned
10.	Dixon	Parkway Boulevard OC	Pitt School Road to existing Parkway Boulevard	Provide a grade separated over crossing of the Union Pacific Railroad tracks at Pitt School Road (Pitt School Road Over-Crossing Project). Proposed Over-Crossing Project includes 2 travel lanes in each direction plus Class II bicycle/ped facility.	Planned

TABLE 3-5B: Proposed Solano County Bikeway Network (Continued)

ID	Agency	Project/Segment	From/To	Description	Project Status
11.	Fairfield	Linear Park Path Alternative Route: Nightingale Drive – Priority #1	Dover Avenue to Air Base Parkway	Construction of 0.5 miles of Class II or Class III improvements on Nightingale Drive from Dover Avenue to Air Base Parkway Pedestrian Bridge (near Swan Way). The improvements would remain even if the Linear Park is extended. This project also includes other project components such as: including enhancements to the existing Laurel Creek multiuse trail, signage, lighting, and signage north of Airbase Parkway	Planned
12.	Fairfield	Specified North Connector Connections – Priority #2	Projects TBD	Construction of specified local connections to the STA North Connector project (projects to be determined)	Planned
13.	Fairfield*	Linear Park Path	Dover Avenue to Cement Hill Road	Complete a Class I bicycle/pedestrian pathway from Solano Community College to northeastern Fairfield. The section between Solano Community College and Dover Avenue has been largely completed.	Planned
14.	Fairfield*	Laurel & Ledgewood Creek Bicycle Paths	Rockville Road to SR12	Extension of the Ledgewood Creek multi-use pathway below Rockville Road to Highway 12 near east of Beck Avenue. Extension of the Laurel Creek trail south to Travis Boulevard with a Class 2 bicycle lanes along Sunset Avenue south into Suisun City.	Planned
15.	Fairfield	Red Top Road	Lopes to McGary	1 mile Class II bicycle lanes on McGary Road from Lopes Road to McGary Road .	Planned
16.	Fairfield	Dover Avenue	Paradise Valley Drive to Fairfield Linear Park	1.8 mile Class II bicycle lanes on Dover Avenue from Paradise Valley Drive to Fairfield Linear Park .	Planned
17.	Fairfield	Peabody Road	Vanden Road to Air Base Parkway	1 mile Class I bicycle/pedestrian path on Peabody Road from Vanden Road to Airbase Parkway .	Planned
18.	Fairfield	Walters Road	Cement Hill Road to Air Base Parkway	1.1 mile Class I bicycle/pedestrian path on Walters Road from Cement Hill Road to Air Base Parkway.	Planned

TABLE 3-5B Proposed Solano County Bikeway Network (Continued)

ID	Agency	Project/Segment	From/To	Description	Project Status
19.	Fairfield	Walters Road	Air Base Parkway to East Tabor Ave	0.5 Class II bicycle lanes on Walters Road from Air Base Parkway to East Tabor Avenue .	Planned
20.	Rio Vista	Rio Vista Loop: Church Road – Priority #1	Airport Road to Harris Road (about 50 feet past Harris Road)	0.3 mile Class I off-street bicycle/pedestrian path on Church Road from Airport Road to Harris Road .	Planned
21.	Rio Vista	Rio Vista Loop: Airport Road – Priority #2	Saint Francis Way to Church Road	1 mile Class I off-street bicycle/pedestrian path on Airport Road from Saint Francis Way to Church Road .	Planned
22.	Rio Vista	Rio Vista Loop: Liberty Island Road – Priority #3	Airport Road to Summerset Road	1.2 mile Class I off-street bicycle/pedestrian path on Liberty Island Road from Airport Road to Summerset Road .	Planned
23.	Rio Vista*	Sacramento River Waterfront	First Street to SR 12.	Construct a Class I bicycle/ped path along the Sacramento River from First Street to SR 12. Phase 1 completed.	Planned
24.	Rio Vista*	Citywide Trail System	Various Routes	Construct a looped bicycle trail system linking the waterfront, down-town and major residential areas, as identified in the Rio Vista general plan and the Countywide Bicycle Master Plan.	Planned
25.	Rio Vista	Rio Vista Loop: Gardiner Way	SR12 to Saint Francis Way	0.1 mile Class I off-street bicycle/pedestrian path on Gardiner Way from SR12 to Saint Francis Way .	Planned
26.	Rio Vista	Rio Vista Loop: Saint Francis Way	Gardiner Way to Airport Road	0.9 mile Class I off-street bicycle/pedestrian path on Saint Francis Way from Gardiner Way to Airport Road .	Planned
27.	Rio Vista	Rio Vista Loop: Summerset Road	SR12 to Liberty Island Road	400 feet Class II bicycle lanes on Summerset Road from SR 12 to Liberty Island Road .	Planned
28.	Rio Vista	Rio Vista Loop: Unnamed road	Saint Francis Way to River Road/SR84	0.3 mile Class I off-street bicycle/pedestrian path on Unknown road parallel to Poppy House Rd (south)	

TABLE 3-5B: Proposed Solano County Bikeway Network (Continued)

ID	Agency	Project/Segment	From/To	Description	Project Status
29.	Rio Vista	Suisun City to Rio Vista (Central County Bikeway): SR12	Azevedo Road to Rio Vista Bridge	3.2 mile Class I off-street bicycle/pedestrian path on SR12 from Azevedo Road to the Rio Vista Bridge .	Planned
30.	Rio Vista	Front Street	SR 84/River Road to California Street	0.5 mile class III bicycle route from SR 84/ River Road to California Street. Install signage and sharrow pavement markings.	Planned
31.	Rio Vista	California Street	Front Street to 2nd Street	420 feet class III bicycle route from South Front Street to South 2nd Street. Install bicycle route signage and sharrow pavement markings.	Planned
32.	Rio Vista	South 2nd Street	California Street to Montezuma Hills Road	0.4 mile class III bicycle route from California Street to Montezuma Hills Road. Install bicycle route signage and sharrow pavement markings.	Planned
33.	Suisun City*	Grizzly Island Trail – Priority #1	Grizzly Island Road to Marina Boulevard	Construct a safe route to school path system from Crescent Elementary School to Crystal Middle School. Path will include a Class I Path along the east side of Marina Boulevard from Driftwood Drive to SR12, then east along the south side of SR12 from Marina Boulevard to Grizzly Island Road, then south along the west side of Grizzly Island Road from SR12 to McCoy Creek Way.	Preliminary design
34.	Suisun City*	Petersen Road Bicycle Path – Priority #2	Walters Road to Suisun City sports Complex	Construct a Class I bikeway on Petersen Road from Walters Road to Suisun City Sports Complex. Part of Travis Air Force Base South Gate Project managed by Solano County. This is related to the fully-funded Travis AFB Southgate Access improvements. This is a Route of Regional Significance.	Planned
35.	Suisun City*	McCoy Creek Pedestrian/ Bicycle Path – Priority #3	Pintail Drive to Railroad Ave	Construct a Class 1 pedestrian path from Pintail Drive to Railroad Avenue along McCoy Creek. This is a multiphase project.	Planned

TABLE 3-5B: Proposed Solano County Bikeway Network (Continued)

ID	Agency	Project/Segment	From/To	Description	Project Status
36.	Suisun City	Grizzly Island Trail Extension I	Grizzly Island Road to Crescent Elementary School	Grizzly Island Road to Crescent Elementary School at the intersection of McCoy Creek Way and Anderson Drive. Construct a Class I bikeway along the south side of SR12 from Grizzly Island Road to McCoy Creek Way, then south along McCoy Creek Way to the intersection of McCoy Creek Way to the intersection of McCoy Creek Way and Anderson Drive.	Planned
37.	Suisun City	Grizzly Island Trail Extension II	McCoy Creek Way to McCoy Creek	Construct a Class I bikeway along the south side of SR12 from McCoy Creek Way to McCoy Creek, then south along the west side of McCoy Creek to Anderson Drive.	Planned
38.	Suisun City	Grizzly Island Trail Extension III	McCoy Creek to Walters Road	Construct a Class I bikeway along the east side of McCoy Creek from Anderson Drive to SR12, then east along the south side of SR12 to Walters Road.	Planned
39.	Suisun City	Lawler Ranch Subdivision Bikeway	Crescent Elementary School to the inter-section of SR12 and Walters Road	Complete the gap between the Grizzly Island Trail and the Central County Bikeway/Jepson Parkway Bikeway. Construct a Class I bikeway along the south side of the Lawler Ranch Subdivision, starting along the south side of Anderson Drive from Crescent Elementary School to Lawler Ranch Parkway, then east along the south side of Lawler Ranch Parkway from Anderson Drive to the intersection of SR12 and Walters Road.	Planned
40.	Suisun City	Walters Road Bikeway	SR12 to Petersen Road	Construct a Class I bikeway along the west side of Walters Road from SR12 to Petersen Road.	Planned
41.	Suisun City	Gap Closure: Central County Bikeway to McCoy Creek Trail	Central County Bikeway to McCoy Creek Trail	Construct a Class I bikeway along Bella Vista Drive.	Planned
42.	Suisun City	McCoy Creek Spur Trail	Pintail Drive to Bella Vista Drive	Construct a Class I bikeway along the west side of McCoy Creek from Pintail Drive to Bella Vista Drive.	Planned

TABLE 3-5B: Proposed Solano County Bikeway Network (Continued)

ID	Agency	Project/Segment	From/To	Description	Project Status
43.	Suisun City	Humphrey Drive Bikeway	McCoy Creek Way to Railroad Avenue (East)	Construct a Class I bikeway along the Humphrey Ditch (which is parallel to Humphrey Drive) from McCoy Creek to Railroad Avenue (East).	Planned
44.	Suisun City	Railroad Avenue (East) Bike Lanes	Sunset Avenue to Olive Road	Construct bike lanes on both sides of Railroad Avenue (East) from Sunset Avenue to E. Tabor Avenue.	Planned
45.	Suisun City	Lotz Way Bikeway Gap Closure	Marina Boulevard to Main Street	Fill in the gap system from the Grizzly Island Trail to the train station. Construct a Class I bikeway along Lotz Way from Marina Boulevard to Main Street.	Planned
46.	Suisun City	Marina Boulevard/Circle Bike Lanes	Driftwood Drive to point west of the intersection of Marina Circle and Whispering Bay Lane	Construct bike lanes on both side of Marina Boulevard and Marina Circle from Driftwood Drive to a point just west of the intersection of Marina Circle and Whispering Bay lanes.	Planned
47.	Suisun City	Suisun Slough Bikeway	Marina Circle to Civic Center Boulevard	Construct a Class I bikeway along the Suisun Slough (segment south of the Harbor Park Subdivision) from Marina Circle to Civic Center Boulevard.	Planned
48.	Suisun City	Railway Bikeway	Lotz Way to Cordelia Road	Construct a Class I bikeway along the westerly City limits along the railroad tracks from Lotz Way to Cordelia Road.	Planned
49.	Suisun City	Cordelia Road Bikeway	westerly City limit (at railroad tracks) to Pennsylvania Avenue	Construct a Class I bikeway along Cordelia Road from the westerly City limit (at railroad tracks) to Pennsylvania Avenue.	Planned

TABLE 3-5B: Proposed Solano County Bikeway Network (Continued)

ID	Agency	Project/Segment	From/To	Description	Project Status
50.	Vacaville*	Ulatis Creek Bicycle Facilities – Priority #1	Phase I: Ulatis Dr to Leisure Town Rd; Phase II: Allison Drive to I-80	Construct Class 1 off-street bicycle path, and Class 2 bicycle lanes at various locations along Ulatis Creek from Vaca Valley Rd to Leisure Town Rd. Various segments are either Planned or Preliminary Design (depending upon location). Phase 1: Ulatis Drive to Leisure Town Road Phase 2: Allison Drive to I-80.	Planned
51.	Vacaville*	Elmira Road Bicycle Path – Priority #2	Leisure Town Road to Edwin Dr	Construct Class 1 off-street bicycle path along the old SPRR right of way on the north side of Elmira Road from Leisure Town Road to Edwin Drive.	Planned
52.	Vacaville*	Alamo Creek Bicycle Facilities	TBD	Construct Class 1 off-street bicycle path, and Class 2 bicycle lanes at various locations along Alamo Creek from No. Alamo Dr. to Leisure Town Rd. Various segments are either Planned or Preliminary Design (depending upon location).	Planned
53.	Vacaville	Leisure Town Road (Jepson Parkway)	I-80 to Ulatis Creek	1.5 mile class I bicycle/ped path on Leisure Town Road from I-80 to Ulatis Creek .	Planned
54.	Vacaville	Leisure Town Road (Jepson Parkway)	Ulatis Creek to Alamo Drive	2 mile class I bicycle/ped path on Leisure Town Road from Ulatis Creek to Alamo Drive .	Planned
55.	Vallejo	McGary Road – Priority #1	Vallejo City Limit to Hiddenbrooke Parkway	0.25 mile class II bicycle lanes on McGary Road from Vallejo City Limit to Hiddenbrooke Parkway.	Completed
56.	Vallejo	Georgia Street Corridor Bicycle Improvements – Priority #2	Columbus Parkway to Mare Island Way	Identify alignment along the 3.4 mile Georgia Street corridor for class II bicycle lanes to provide a direct thru-route from Columbus Parkway to Mare Island Way .	Planned

TABLE 3-5B: Proposed Solano County Bikeway Network (Continued)

ID	Agency	Project/Segment	From/To	Description	Project Status
57.	Vallejo	SR 29 – Priority #3	Georgia Street to Carquinez Bridge	2.1 mile of class II bicycle lanes on SR 29 from Georgia Street to the Carquinez Bridge .	Planned
58.	Vallejo	Bay Trail Completion	Various	Support completion of the Bay Trail and priority segments (below): • Vallejo Bluff Trail; Bay Trail Plan segments 6020 and new segment paralleling Clearview Drive (short-term, unpaved) • Sonoma Blvd and Curtola Pkwy Bike Lanes; Bay Trail Plan segments 6023, 6023.1 and 6023.2 • Wilson Ave between White Slough multi-use path and beginning of path near Hwy 37 onramp; Bay Trail Plan Segment 6039	Planned
59.	Vallejo*	Blue Rock Springs Hans Park Pedestrian/Bicycle Path	Undefined	Construct a Class 1 bicycle/ped path along Blue Rock Springs Golf Course.	Planned
60.	Vallejo*	Columbus Parkway Pedestrian/Bicycle Path	I-80 to Georgia Street	Construct a Class 1 bicycle/ped path along Columbus Pkwy from I-80 to Georgia Street.	Planned
61.	Vallejo	Broadway Street	Alameda Street to Napa County Line	3.8 mile class II bicycle lanes on Broadway Street from Alameda Street to Napa County line.	Planned
62.	Vallejo	Sacramento Street	Valle Vista to SR 37	0.9 class II bicycle lanes on Sacramento Street from Valle Vista Street to SR 37.	Planned
63.	Vallejo	Mare Island Way	Vallejo Ferry Terminal to Curtola Parkway	0.4 class II bicycle lanes on Mare Island Way from Vallejo Ferry / Terminal to Curtola Parkway.	Planned
64.	Vallejo	Solano Avenue	Benicia Road to Sonoma Boulevard	0.5 class III bicycle route on Solano Avenue from Benicia Road to Sonoma Boulevard.	Planned
65.	Vallejo	Solano Avenue	Mariposa Street to Sonoma Boulevard	1 mile class II bicycle lanes on Solano Avenue from Mariposa Street to Sonoma Boulevard.	Planned

TABLE 3-5B: Proposed Solano County Bikeway Network (Continued)

ID	Agency	Project/Segment	From/To	Description	Project Status
66.	Vallejo	Mariposa Street	Redwood Boulevard to Solano Ave	1.1 class II bicycle lanes on Mariposa Street from Redwood Boulevard to Solano Avenue.	Planned
67.	Vallejo*	I-780 Pedestrian/Bicycle Grade Separation	I-780 OC	Replace existing structure	Planned
68.	Vallejo*	Fairgrounds Drive Pedestrian/Bicycle Path	Marine World Parkway to Redwood Street	Construct a Class 1 bicycle/ped path along Fairgrounds Drive from Marine World Parkway to Redwood Street.	Planned
69.	Vallejo	SR 29	Curtola Parkway to Maritime Academy Drive	2.3 mile class II bicycle lanes from SR 29 from Curtola Parkway to Maritime Academy Drive.	Planned
70.	Vallejo*	Broadway to 4 lanes and Pedestrian/Bicycle Path	Napa County Line to Curtola Parkway	Construct a bicycle/ped path along Broadway Street.	Planned
71.	Vallejo*	Mare Island Pedestrian & Bicycle System	Various	Construct a loop system of trails to connect the Mare Island Causeway with major employment and educational facilities on Mare Island.	Planned
72.	Vallejo	American Canyon Road	Hiddenbrooke Parkway to Solano-Napa County Limit	0.3 mile class II bicycle lanes on American Canyon Road from Hiddenbrooke Parkway to Solano-Napa County Limit.	Planned
73.	Solano County	Lake Herman Road	Benicia City Limit to Vallejo City Limit	Class II bicycle lanes on Lake Herman Road from Benicia City Limit to Vallejo City Limit. *This project is supported by the STA BAC as a priority long-term project	Planned
74..	Solano County; Fairfield	Lopes Road	Second Street (Benicia) to Mangels Blvd	9.8 mile class III bicycle route on Lopes Road from Second Street in City of Benicia to Mangels Boulevard.	Planned

TABLE 3-5B: Proposed Solano County Bikeway Network (Continued)

ID	Agency	Project/Segment	From/To	Description	Project Status
75.	Solano County	Marshview Road	Lopes Road to Goodyear Road	0.2 mile class III bicycle route on Marshview Road from Lopes Road (western limit) to Goodyear Road (eastern limit).	Planned
76.	Solano County	Goodyear Road	Marshview Road to Lake Herman Road	4.7 mile class III bicycle route on Marshview Road from Marshview Road (northern limit) to Lake Herman Road (southern limit).	Planned
77.	Solano County	Benicia Road	Interstate 80 to Beach Drive	0.5 mile class III bicycle lanes on Benicia Road from Interstate 80 to Beach Drive	Planned
78.	Solano County; Fairfield	Cordelia Road	I-680 to Suisun City Limit	5.3 mile class II bicycle lanes on Cordelia Road from Interstate 680 to Suisun City Limit	Planned
79.	Solano County; Caltrans	SR 113	First Street/Dixon City Limit to SR 12	18.5 miles of class III bicycle route from First Street/Dixon City Limit to SR 12.	Planned
80.	Solano County	Binghampton Road	SR 113 to Pedrick Road	1.0 mile of class III bicycle route from SR 113 to Pedrick Road.	Planned
81.	Solano County	Hawkins Road	Pitt School Road to SR 113	1.0 mile of class III bicycle route from Pitt School Road to SR 113.	Planned
82.	Solano County	Midway Road	Timm Road to Pedrick Road	9.0 mile class II bicycle lanes on Midway Road from Timm Road to Pedrick Road.	Planned
83.	Solano County	Midway Road	SR 113 to County Road 104/Hyde Road	7.0 miles of class III bicycle route from Pedrick Road to County Road 104 (Levee Road/Hyde Road) at Solano-Yolo County line.	Planned
84.	Solano County	Maine Prairie Road	SR 113 to Pedrick Road	1.0 mile class II bicycle lanes on Maine Prairie Road from SR 113 (west endpoint) to Pedrick Road (east endpoint).	Planned
85.	Solano County	Pedrick Road	Sievers Road to Maine Prairie Road	6.0 mile class II bicycle lanes on Pedrick Road from Sievers Road (northern endpoint) to Maine Prairie Road (south endpoint).	Planned

TABLE 3-5B: Proposed Solano County Bikeway Network (Continued)

ID	Agency	Project/Segment	From/To	Description	Project Status
86.	Solano County	Pedrick Road	Solano-Yolo County line to Sievers Road	2.5 miles of class III bicycle route from Solano-Yolo County line to Sievers Road.	Planned
87.	Solano County*	Dixon to Vacaville Bicycle Route: Hawkins Road	Pitt School Road to Leisure Town Road	Construct 5.0 mile class II bicycle route connection from Vacaville to Dixon, along Hawkins Road and Pitt School Road. All four segments of the Pitt School Road Portion of the project have been constructed This project was also submitted by City of Dixon. *This project is supported by the STA BAC as a priority long-term project	Planned
88.	Solano County	Pennsylvania Avenue	Cordelia Road to SR12	0.4 mile class II bicycle lanes on Pennsylvania Avenue from Cordelia Road to SR12.	Planned
89.	Solano County	Dixon Avenue West	I-80 to Meridian Road	3.0 miles of class III bicycle route from I-80 to Meridian Road.	Planned
90.	Solano County	Meridian Road North	Sweeney Road to Midway Road	3.5 miles of class III bicycle route from Sweeney Road to Midway Road.	Planned
91.	Solano County	Suisun Valley Road	Solano-Napa County Line to Mangels Boulevard	6.9 miles of Class II bicycle lanes on Suisun Valley Road from Mangels Boulevard to Napa County Line. *This project is supported by the STA BAC as a priority long term project	Planned
92.	Solano County*	Green Valley	Various locations	Construct bicycle, pedestrian, and landscaping improvements throughout the middle Green Valley area.	Planned
93.	Solano County	Abernathy/Mankas Corner Route: Mankas Corner Road	Suisun Valley Road to Abernathy Road	2.1 mile class II bicycle lanes on Mankas Corner Road from Suisun Valley Road to Abernathy Road.	Planned
94.	Solano County	Canon Road	Vanden Road to North Gate Road	0.8 mile class II bicycle lanes on Canon Road from Vanden Road to North Gate Road.	Planned

TABLE 3-5B: Proposed Solano County Bikeway Network (Continued)

ID	Agency	Project/Segment	From/To	Description	Project Status
95.	Solano County	Abernathy/Mankas Corner Route: Abernathy Road	Mankas Corner Road to Rockville Road	2.1 mile class II bicycle lanes on Abernathy Road from Mankas Corner Road to Suisun Parkway.	Planned
96.	Solano County	Pleasants Valley Road	Cherry Glen Road to Yolo County Line	13 mile class II bicycle lanes on Pleasants Valley Road from Cherry Glen Road to Yolo County Line.	Planned
97.	Solano County	North Gate Road	Canon Road to Travis AFB North Gate	1.0 mile class II bicycle lanes on North Gate Road from Canon Road to Travis Air Force Base (AFB) North Gate.	Planned
98.	Solano County; STA	North Connector (West End)	Red Top Road to Business Center Drive	0.8 mile class II bicycle lanes on North Connector including bicycle-pedestrian overcrossing over SR12.	
99.	Solano County; STA	Jameson Canyon Corridor Bicycle-Pedestrian Route: Support Class I improvements in Jameson Canyon Corridor	Red Top Road to Napa County Line	Support completion of further study for 3.0 miles class I bicycle-pedestrian path in Jameson Canyon Corridor from Red Top Road to Napa County Line. Note: the SR12 Jameson Canyon Corridor Bicycle and Pedestrian Connections Plan provides a collaborative evaluation of a Class I alignment alternatives between Solano County and Napa County.	Planned
100.	Solano County; STA	Jameson Canyon Road Bicycle Route – Class II Improvements (SR12)	Red Top Road to Napa County Line	Class II bicycle lanes included as part of SR12 Jameson Canyon Road Widening Project	Designed
101.	Solano County	Azevedo Road	Canright Road to SR 12	0.5 mile class II bicycle lanes on Azevedo Road from Canright Road to SR 12.	Planned
102.	Solano County	Canright Road	Azevedo Road to Liberty Island Road	1.0 mile class II bicycle lanes on Canright Road from Azevedo Road to Liberty Island Road.	Planned
103.	Solano County; STA	SR 12 Shoulder Improvements	Rio Vista Bridge/Sac County Line to Walters Road (various locations)	20 mile class II bicycle lanes or class III bicycle route	Planned

TABLE 3-5B: Proposed Solano County Bikeway Network (Continued)

ID	Agency	Project/Segment	From/To	Description	Project Status
104.	Solano County; Caltrans	Ryer Road	SR84 Bridge (north) to SR84 Ferry (south)	10.7 mile class III bicycle route on Ryer Road from SR 84 Bridge (northern limit) near Solano-Yolo County Line to SR 84 (southern limit) near Hidden Harbor Marina.	Planned
105.	Solano County; Caltrans	SR 84	Solano-Yolo County line to Ryer Road/ SR84 Ferry	11.0 mile class III bicycle route on SR 84 from Solano-Yolo County line to Ryer Road/SR 84 Ferry	Planned
106.	Solano County; Caltrans	SR 84 Ferry	SR 84 River Road to SR 84 Ryer Road	Coordinate the safe accommodation of bicyclists and pedestrians on the ferry from River Road to Ryer Road ferry ports.	Planned
107.	Solano County; Caltrans; Rio Vista	SR 84/River Road	SR 84/River Road Ferry to North Front Street	2.4 mile class III bicycle route from SR 84/River Road ferry to North Front Street.	Planned
108.	Solano County	Montezuma Hills Road	South 2nd Street to Montezuma Hills Road/ Toland Lane	5.1 mile class III bicycle route from South 2nd Street to Montezuma Hills Road/Toland Lane.	Planned
109.	Solano County	Montezuma Hills Road	Montezuma Hills Road/Toland Lane to Birds Landing Road	4.8 mile class III bicycle route from Montezuma Hills Road/Toland Lane to Birds Landing Road.	Planned
110.	Solano County	Birds Landing Road	Collinsville Road to SR 12	6.1 mile class III bicycle route from Collinsville Road to SR 12.	Planned
111.	Solano County	Collinsville Road	Shiloh Road to Birds Landing Road	0.8 mile class III bicycle route from Shiloh Road to Birds Landing Road.	Planned
112.	Solano County	Shiloh Road	SR 12 to Collinsville Road	6.3 mile class III bicycle route from SR 12 to Collinsville Road.	Planned

TABLE 3-5B: Proposed Solano County Bikeway Network (Continued)

ID	Agency	Project/Segment	From/To	Description	Project Status
113.	Solano County	Grizzly Island Road	SR 12 to end	16.2 miles of class III bicycle route from SR 12 to end. Note: road is gravel south of Van Sickle Road	Planned
114.	Solano County	Gibson Canyon Road/ Dobbins Street	Cantelow Road to Ulatis Creek Bridge	3.8 mile class II bicycle lanes on Gibson Canyon Road/Dobbins Street from Cantelow Road to Ulatis Creek Bridge.	Planned
115.	Solano County	Cherry Glen Road	Nelson Road to Pleasants Valley Road	1.1 mile class II bicycle lanes on Cherry Glen Road from Lyon Road to Pleasants Valley Road.	Planned
116.	Solano County	Nelson Road	Pena Adobe Road to Paradise Valley Road	2.1 mile class II bicycle-pedestrian path on Nelson Road from Cherry Glen Road to Fairfield City Limit.	Planned
117.	Solano County; Vacaville	Vanden Road	Alamo Drive to Leisure Town Road	1.3 mile class II bicycle lanes on Vanden Road from Alamo Drive to Leisure Town Road.	Planned
118.	Solano County	Vanden Road	Peabody Road to Leisure Town Road	3.8 mile class I bicycle path on Vanden Road from Peabody Road to Leisure Town Road.	Planned
119.	Solano County; Vacaville	Leisure Town Road (Jepson Parkway)	Vaca Valley Parkway to Vanden Road	5.4 mile class I bicycle path on Leisure Town Road from Vaca Valley Parkway to Vanden Road.	Planned
120.	Solano County	Sweeney Road	Halley Road to Meridian Road	0.4 miles of class III bicycle route from Halley road to Meridian Road.	Planned
121.	Solano County	Halley Road	Sievers Road to Sweeney Road	1.5 miles of class III bicycle route from Sievers Road to Sweeney Road.	Planned
122.	Solano County	Wolfskill Road	Winters Road to Halley Road	1.4 miles of class III bicycle route from Winters Road to Halley Road.	Planned

TABLE 3-5B: Proposed Solano County Bikeway Network (Continued)

ID	Agency	Project/Segment	From/To	Description	Project Status
123.	Solano County	Cantelow Road	Pleasants Valley Road to Timm Road	6.4 miles of class II bicycle lanes or III bicycle route from Pleasants Valley Road to Timm Road.	Planned
124.	Solano County	Weber Road	Lewis Road to Pitt School Road	3.0 miles of class III bicycle route from Lewis Road to Pitt School Road.	Planned
125.	Solano County	Lewis Road	Midway Road to Fry Road	5.6 miles of class III bicycle route from Midway Road to Fry Road.	Planned
126.	Solano County	Holdener Road and A Street	Elmira Road to Fry Road	0.6 miles of class III bicycle route from Elmira Road to Lewis Road (Holdener turns into A Street).	Planned
127.	Solano County	South A Street	Elmira Road to Fry Road	1.1 miles of class III bicycle route from Elmira Road to Fry Road.	Planned
128.	Solano County	Meridian Road	Fry Road to McCrory Road	2.0 miles of class III bicycle route from Fry Road to McCrory Road.	Planne
129.	Solano County	McCrory Road	North Gate Road to Meridian Road	1.0 mile of class III bicycle route from North Gate Road to Meridian Road.	Planned
130.	Solano County	North Gate Road	McCrory Road to Canon Road	0.5 mile of class III bicycle route from McCrory Road to Canon Road.	Planned
131.	Solano County	Green Valley Road	Green Valley Treat-ment Plant Gate to Rockville Road	1.6 miles of class III bicycle route from Green Valley Treatment Plant Gate (also entrance to Green Valley Falls) to Rockville Road.	Planned
132.	Solano County	Stevenson Bridge Road	County Road 95A to Sievers Road	3.5 mile class II bicycle lanes from County Road 95A/Solano County Limit (north limit; near Willow Canal) to Sievers Road (south limit).	Planned
133.	Solano County	Sievers Road	Halley Road to Pedrick Road	6.5 mile class II bicycle lanes from Halley Road to Pedrick Road.	Planned

TABLE 3-5B: Proposed Solano County Bikeway Network (Continued)

ID	Agency	Project/Segment	From/To	Description	Project Status
134.	Solano County	Halley Road	Wolfskill Road to Sievers Road	1.1 mile class II bicycle lanes from Wolfskill Road to Sievers Road.	Planned
135.	Solano County	Boyce Road	Putah Creek Road to Wolfskill Road	1.9 mile class II bicycle lanes from Putah Creek Road to Wolfskill Road.	Planned
136.	Solano County	Putah Creek Road	Pleasants Valley Road to Stevenson Bridge Road	12 mile class II bicycle lanes on Putah Creek Road from Pleasants Valley Road to Stevenson Bridge Road.	Planned
137.	Solano County	Vaca Valley Road	Pleasants Valley Road to Farrell Road	1.3 mile class II bicycle lanes on Vaca Valley Road from Pleasants Valley Road to North Orchard Avenue (Vaca Valley Road turns into Farrell Road).	Planned
138.	Solano County	Farrell Road	N. Orchard Avenue to Gibson Canyon Road	0.4 mile class II bicycle lanes from North Orchard Avenue to Gibson Canyon Road.	Planned
139.	Solano County	Tremont Road	Sparling Lane to Runge Road	0.4 mile class II bicycle lanes on Tremont Road from Sparling Lane to Runge Road.	Planned
140.	Solano County	Winters Road	Putah Creek Road to Wolfskill Road	1.7 mile class II bicycle lanes on Winters Road from Putah Creek Road to Wolfskill Road.	Planned
141.	Solano County	Rockville Road	Suisun Valley Road to Fairfield City Limits	2.8 mile class II bicycle lanes on Rockville Road from Suisun Valley Road to Fairfield City Limits.	Planned
142.	Solano County	Ledgewood Road	Suisun Valley Road to Mankas Corner Road	0.8 mile class III bicycle lanes on Ledgewood Road from Suisun Valley Road to Mankas Corner Road.	Planned
143.	Solano County*	Support addressing pedestrian and bicycle needs when Solano County bridges are replaced	Various bridge locations	Support bridge widening and handrails on bridge replacement projects to allow for safe bicycle and pedestrian use.	Existing Program

TABLE 3-5B Proposed Solano County Bikeway Network (Continued)

ID	Agency	Project/Segment	From/To	Description	Project Status
144.	Solano County	Support Ridge Trail Projects as consistent with Solano County network	Various	Support Ridge Trail Projects as consistent with Solano County network	Planned
145.	Solano County; Vacaville	Foothill Road	Pleasants Valley Road to Alamo Drive	0.7 mile class II bicycle lanes on Foothill Road to Pleasants Valley Road to Alamo Drive.	Planned
146.	Solano County	Winters Road	Allendale Road to Wolfskill Road	3.0 mile class II bicycle lanes on Winters Road from Allendale Road to Wolfskill Road.	Planned
147.	Solano County*	Support Cordelia Hills Sky Valley open space and trail project	Hiddenbrooke Parkway to regional open space	Connect open space to Hiddenbrooke Parkway or other segment of the regional bicycle network.	Planned
148.	1STA*	Solano Bicycle and Ped Wayfinding Signage	Various Locations TBD	Install common wayfinding signage on all existing and future segments of the Solano Bicycle network.	Permitted and Ready to Construct
149.	1STA*	Safe Routes to School Projects and Programs	Various Projects	Identify, design and construct individual projects per the STA's Safe Routes to Schools Plan. Develop and implement enforcement, education and encouragement programs.	5Planned
150.	1STA*	Safe Routes to Transit Plan	Various Projects To Be Identified	Conduct a study and develop a Solano Safe Routes to Transit Plan. This plan would identify connections/gaps in accessibility for cyclists to transit. Develop and implement a subsequent Safe Routes to Transit Program.	5Planned
151.	STA	North Connector Bicycle Connections	North of I-80 between SR 12 West to Abernathy Road and SR 12 East	Project involves roadway improvements needed to reduce congestion and improve mobility for local residents north of the Interstate 80 between State Route (SR) 12 West to Abernathy Road and SR 12 East. Improvements include bicycle/pedestrian path, streetscaping, landscaping, traffic calming and gateway signs.	Planned

TABLE 3-5B Proposed Solano County Bikeway Network (Continued)

ID	Agency	Project/Segment	From/To	Description	Project Status
152.	STA	Jepson Parkway Bicycle Segments	Jepson Parkway in Fairfield, Suisun City, Solano County and Vacaville	The Plan includes elements for: transit, with local and express bus and a future multi-modal rail station; bicycle and pedestrians, with a 10-foot wide bicycle path along most of the entire 12-mile length of the planned Parkway; a landscape element; a guide to transit-compatible land use and design, and roadway phasing and management.	Planned

See Appendix A for Evaluation Criteria;

Figures 3-5A and 3-5B show the priority projects and the proposed countywide bikeway network. The end of this chapter provides a map of the proposed bikeway network scaled for each community in Solano County in alphabetical order by agency as follows:

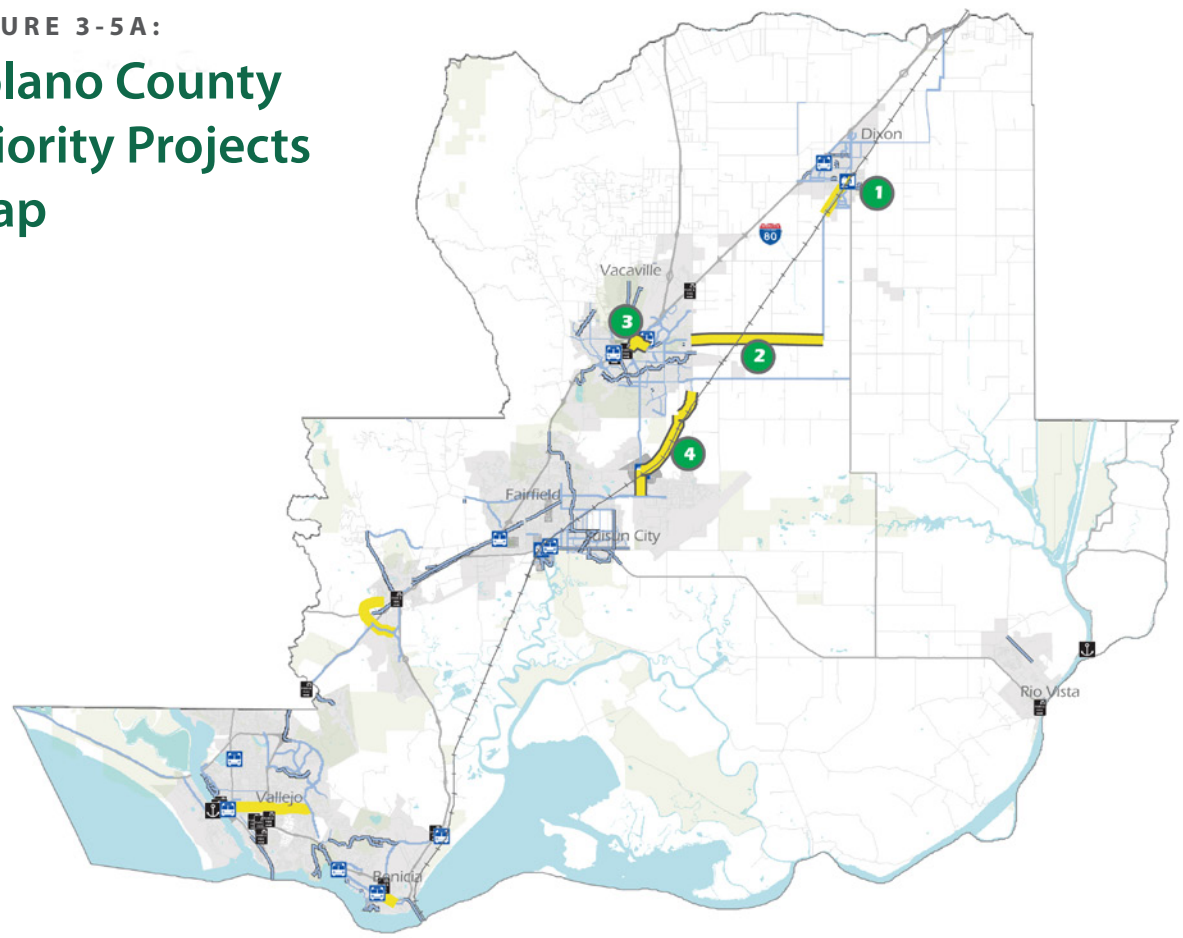
- Benicia
- Dixon
- Fairfield
- Rio Vista
- Vacaville
- Vallejo
- Solano County

BTA REQUIREMENT #3

A map and description of existing (see existing bikeways map, Figure 1-4) and proposed bikeways (see chapter 3 for map of proposed bikeways, Figure 3-5B)

FIGURE 3-5A:

Solano County Priority Projects Map



Proposed Countywide Priority Bicycle Projects:

1. West B Street Bicycle-Pedestrian Undercrossing
2. Vacaville-Dixon Bike Route: Hawkins Road
3. Ulatis Creek Bike Route: Allison Drive to I-80
4. Jepson Parkway

Legend

General

- Open Space/Conservation Areas
- Unincorporated Solano County
- Municipal Service Areas
- Major Arterials/Highways
- Union Pacific Railroad

Existing Bicycle Facilities

- Class I Existing
- Class II Existing
- Class III Existing

Project Tiers

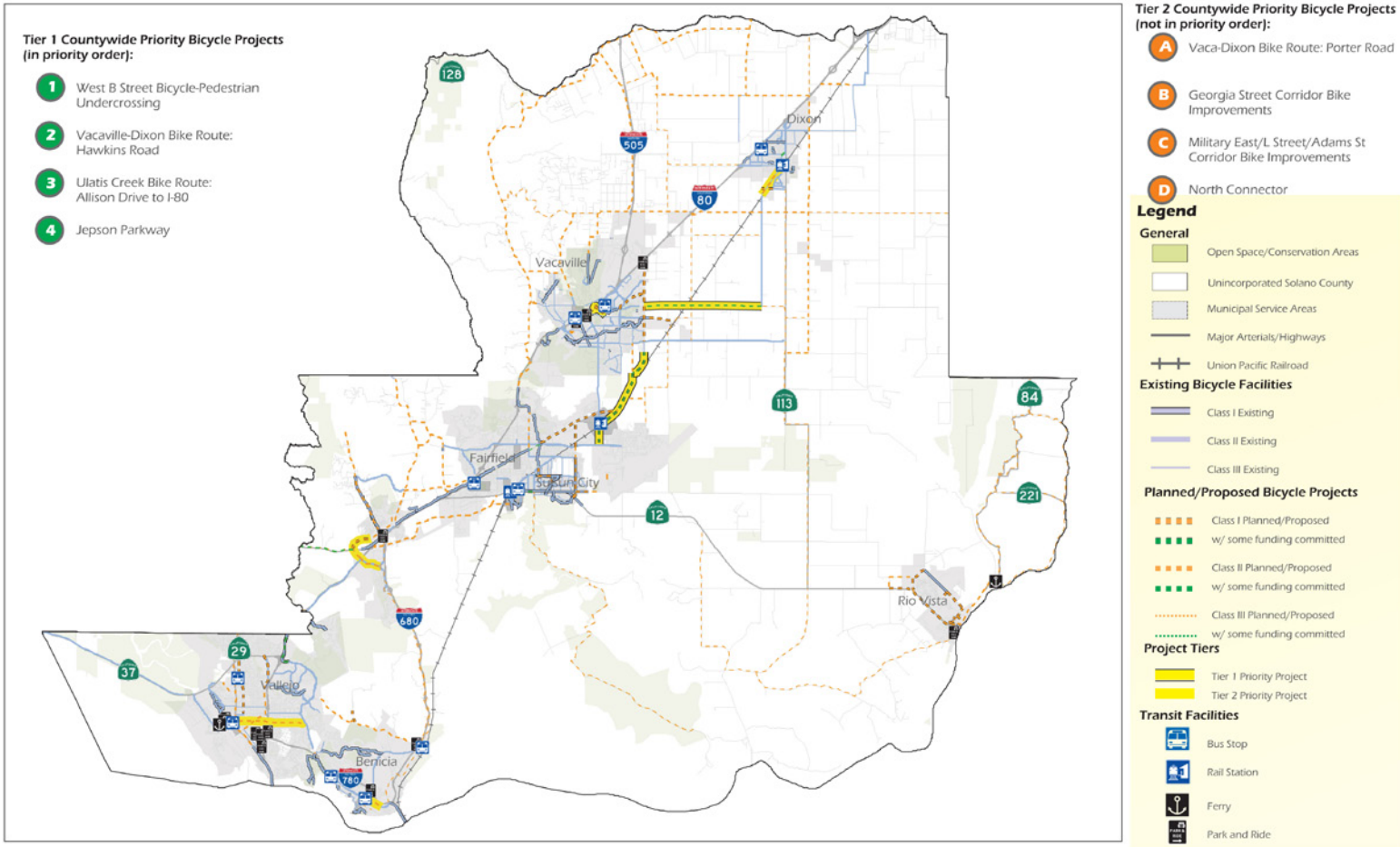
- Tier 1 Priority Project
- Tier 2 Priority Project

Transit Facilities

- Bus Stop
- Rail Station
- Ferry
- Park and Ride

FIGURE 3-5B:

Countywide Projects Map



City of Benicia Map

Benicia Proposed Priority Bicycle Projects:

1. East-West Corridor Bicycle Connection: Military East St/East L St/Adams St
2. Park Rd/Industrial Wy Bicycle Route
3. East H St Bicycle Connection to Benicia Historic Arsenal District

Legend

General

- Open Space/Conservation Areas
- Unincorporated Solano County
- Municipal Service Areas
- Major Arterials/Highways
- Union Pacific Railroad

Existing Bicycle Facilities

- Class I Existing
- Class II Existing
- Class III Existing

Planned/Proposed Bicycle Projects

- Class I Planned/Proposed w/ some funding committed
- Class II Planned/Proposed w/ some funding committed
- Class III Planned/Proposed w/ some funding committed

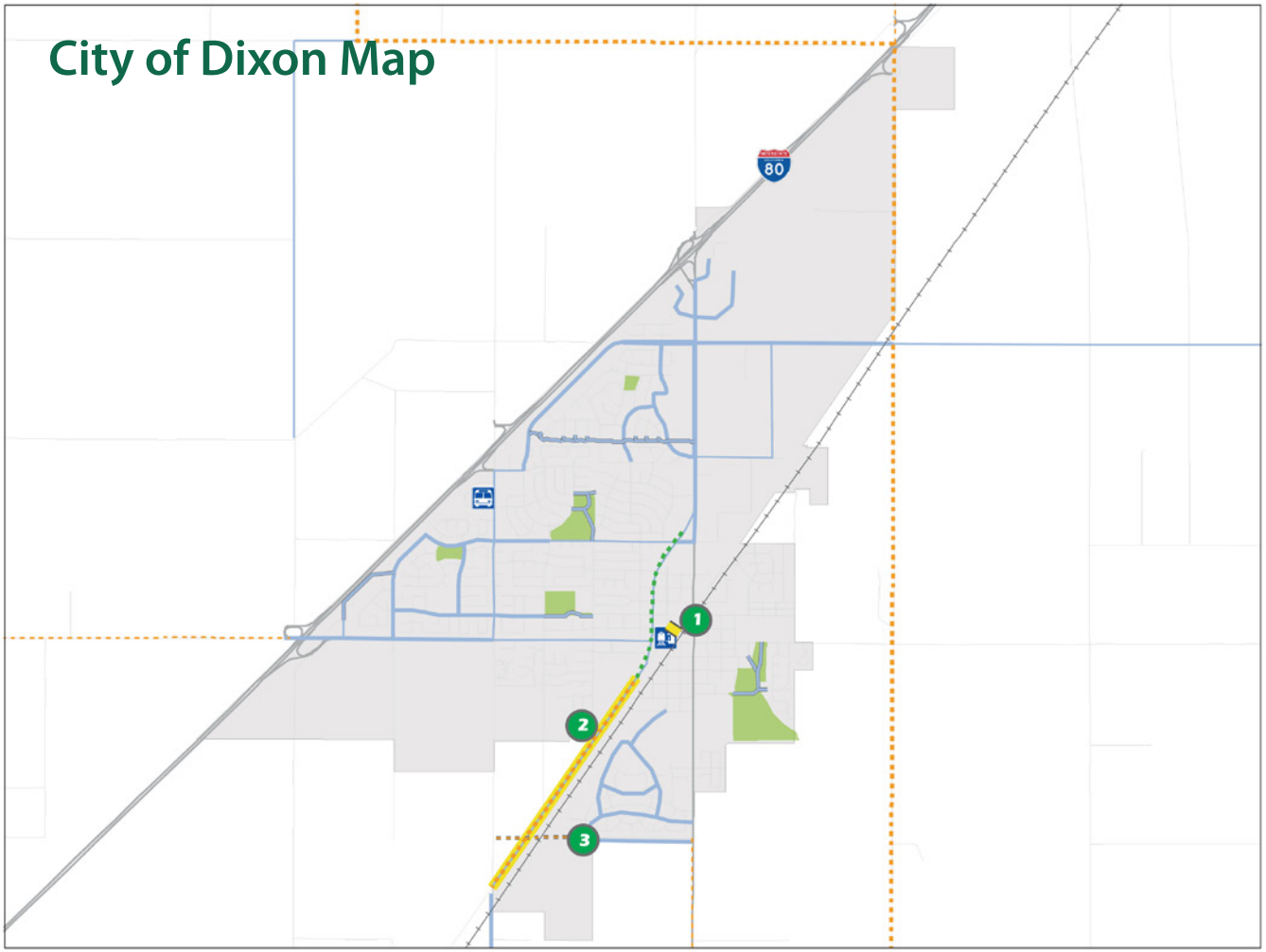
Project Tiers

- Tier 1 Priority Project
- Tier 2 Priority Project

Transit Facilities

- Bus Station
- Park & Ride

City of Dixon Map



Dixon Proposed Priority Bicycle Projects:

1. West B Street Bicycle-Pedestrian Undercrossing
2. Vacaville-Dixon Bike Route: Porter Road
3. Parkway Boulevard Class II

Legend

General

- Open Space/Conservation Areas
- Unincorporated Solano County
- Municipal Service Areas
- Major Arterials/Highways
- Union Pacific Railroad

Existing Bicycle Facilities

- Class I Existing
- Class II Existing
- Class III Existing

Planned/Proposed Bicycle Projects

- Class I Planned/Proposed
- w/ some funding committed
- Class II Planned/Proposed
- w/ some funding committed
- Class III Planned/Proposed
- w/ some funding committed

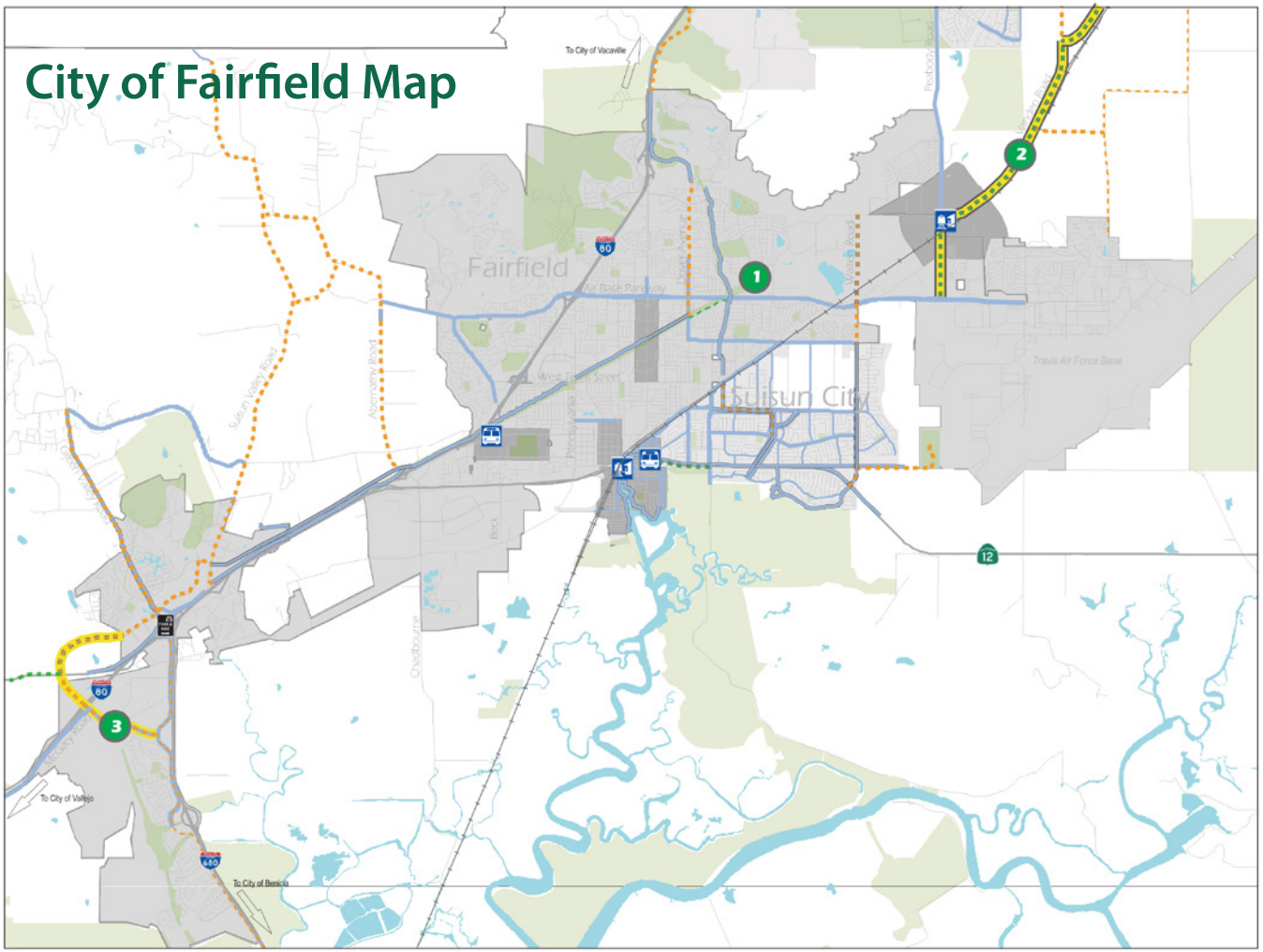
Project Tiers

- Tier 1 Priority Project
- Tier 2 Priority Project

Transit Facilities

- Bus Station
- Park & Ride

City of Fairfield Map



Fairfield Proposed Priority Bicycle Projects:

1. Linear Park Path
2. Support Jepson Parkway (STA Project)
3. Support North Connector (STA Project)

Legend

General

- Open Space/Conservation Areas
- Unincorporated Solano County
- Municipal Service Areas
- Major Arterials/Highways
- Union Pacific Railroad

Existing Bicycle Facilities

- Class I Existing
- Class II Existing
- Class III Existing

Planned/Proposed Bicycle Projects

- Class I Planned/Proposed w/ some funding committed
- Class II Planned/Proposed w/ some funding committed
- Class III Planned/Proposed w/ some funding committed

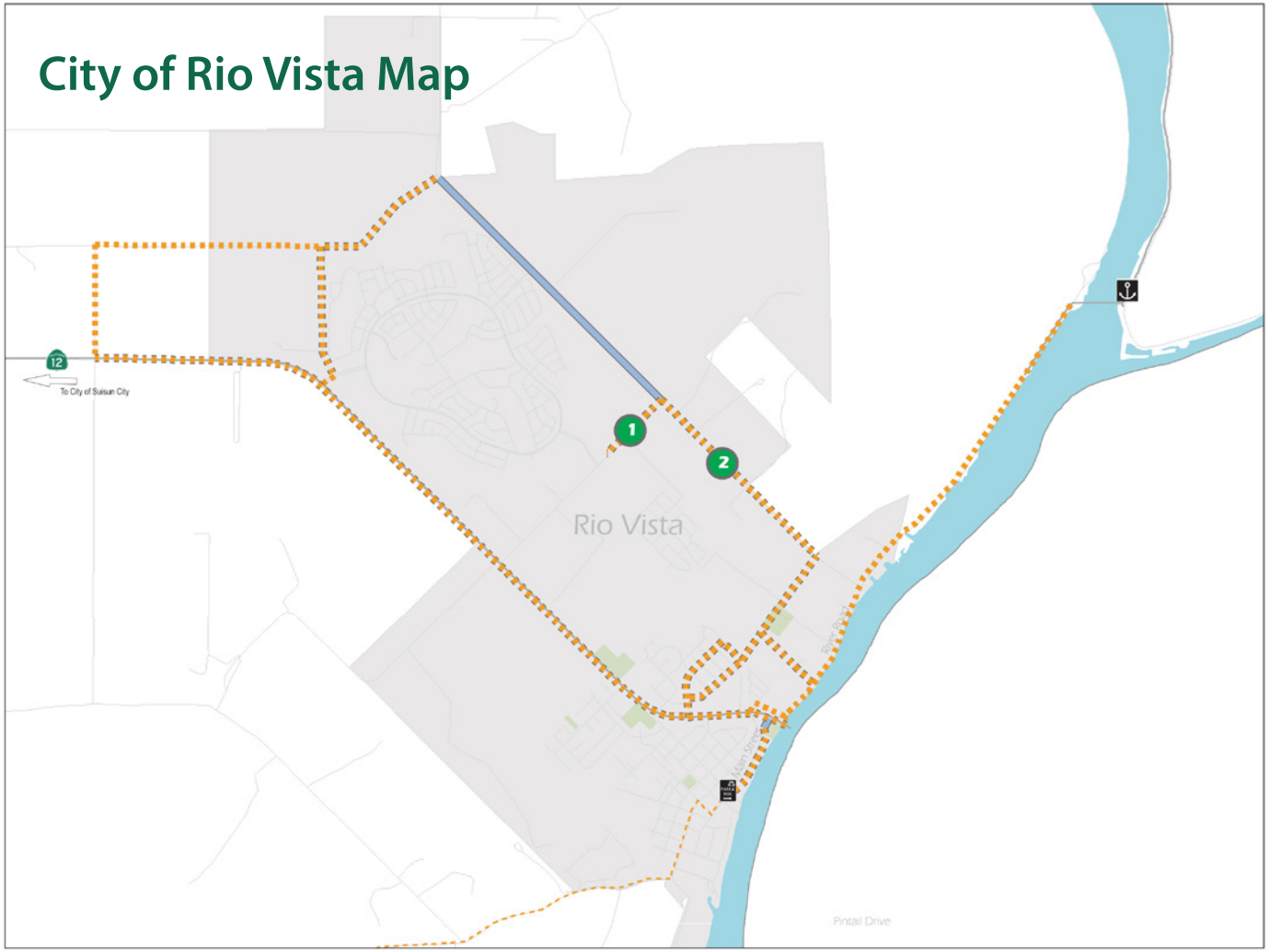
Project Tiers

- Tier 1 Priority Project
- Tier 2 Priority Project

Transit Facilities

- Bus Stop
- Rail Station
- Park and Ride

City of Rio Vista Map



Rio Vista Proposed Priority Bicycle Projects:

1. Rio Vista Loop: Church Road
2. Rio Vista Loop: Airport Road

Legend

General

- Open Space/Conservation Areas
- Unincorporated Solano County
- Municipal Service Areas
- Major Arterials/Highways
- Union Pacific Railroad

Existing Bicycle Facilities

- Class I Existing
- Class II Existing
- Class III Existing

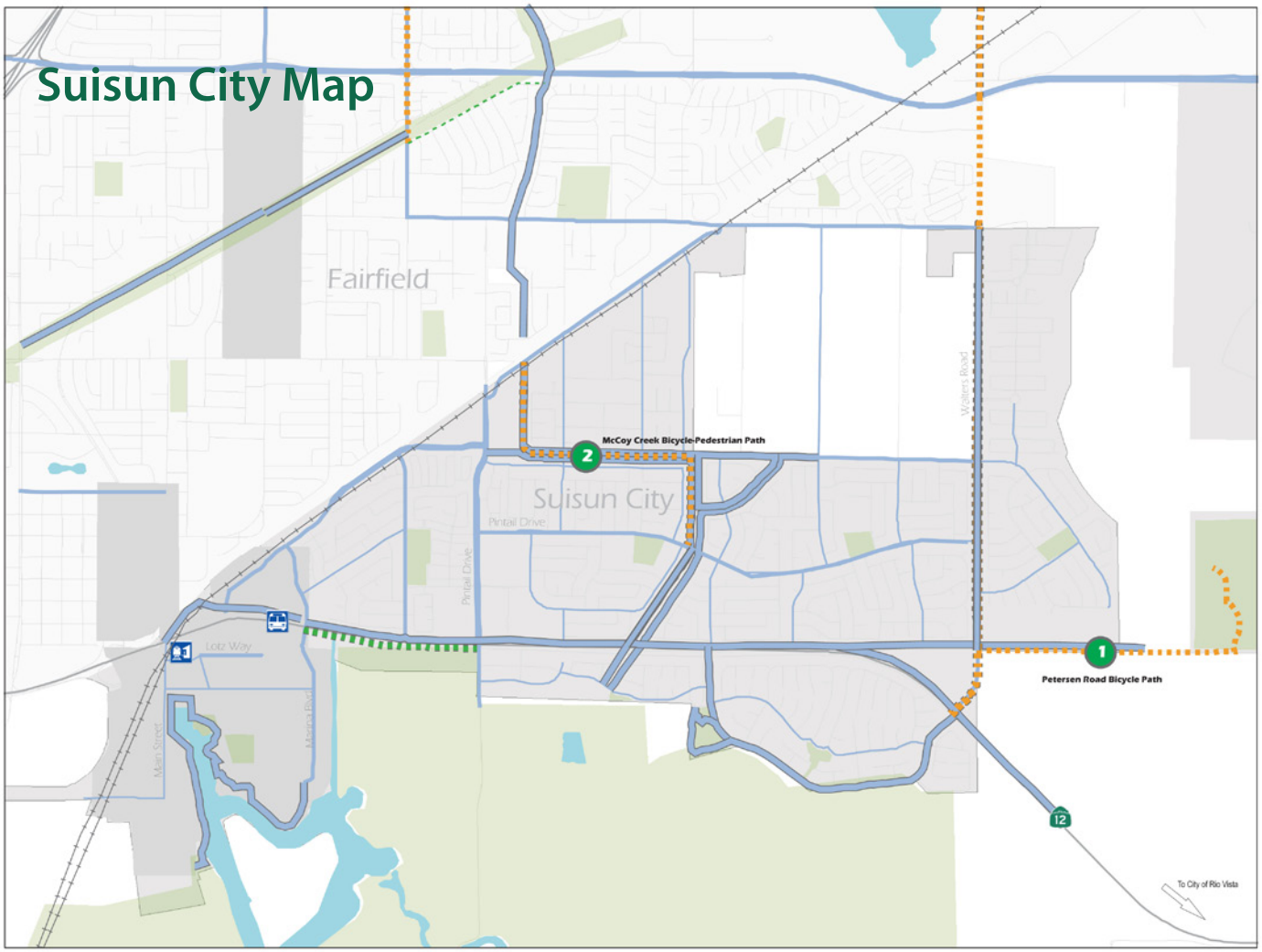
Planned/Proposed Bicycle Projects

- Class I Planned/Proposed
- w/ some funding committed
- Class II Planned/Proposed
- w/ some funding committed
- Class III Planned/Proposed
- w/ some funding committed

Transit Facilities

- Ferry
- Park and Ride

Suisun City Map



Suisun City Proposed Priority Bicycle Projects:

1. Petersen Road Bicycle Path
2. McCoy Creek Pedestrian-Bicycle Path

Legend

General

- Open Space/Conservation Areas
- Unincorporated Solano County
- Municipal Service Areas
- Major Arterials/Highways
- Union Pacific Railroad

Existing Bicycle Facilities

- Class I Existing
- Class II Existing
- Class III Existing

Planned/Proposed Bicycle Projects

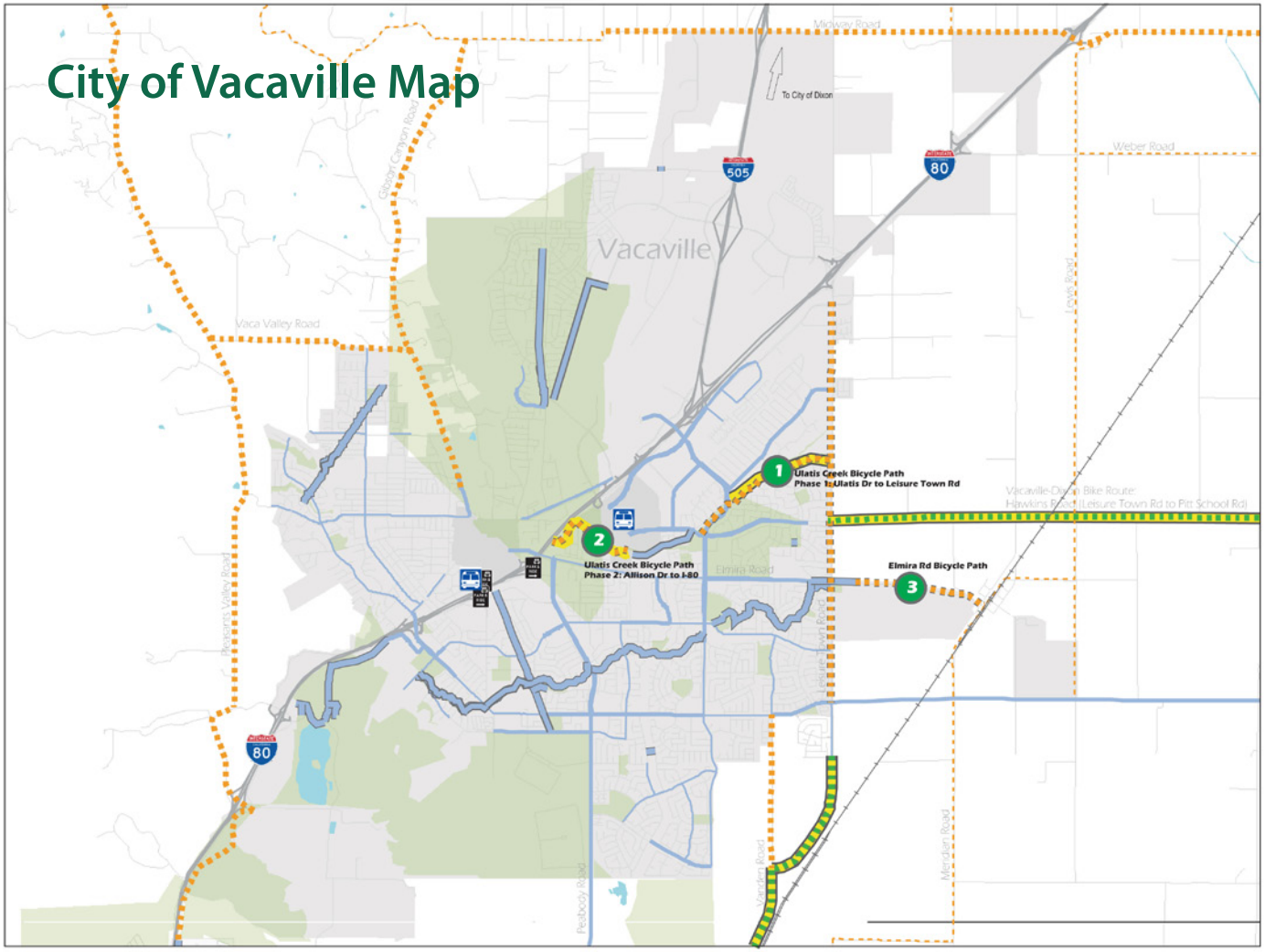
- Class I Planned/Proposed
- w/ some funding committed
- Class II Planned/Proposed
- w/ some funding committed
- Class III Planned/Proposed
- w/ some funding committed

Transit Facilities

- Bus Station
- Rail Station

STA
Solano Transportation Authority

City of Vacaville Map



Vacaville Proposed Priority Bicycle Projects:

1. Ulatis Creek Bicycle-Pedestrian Path Phase 1: Ulatis Dr to Leisure Town Rd
2. Ulatis Creek Bicycle-Pedestrian Path Phase 2: Allison Dr to I-80
3. Elmira Road Bicycle Path

Legend

General

- Open Space/Conservation Areas
- Unincorporated Solano County
- Municipal Service Areas
- Major Arterials/Highways
- Union Pacific Railroad

Existing Bicycle Facilities

- Class I Existing
- Class II Existing
- Class III Existing

Planned/Proposed Bicycle Projects

- Class I Planned/Proposed
- w/ some funding committed
- Class II Planned/Proposed
- w/ some funding committed
- Class III Planned/Proposed
- w/ some funding committed

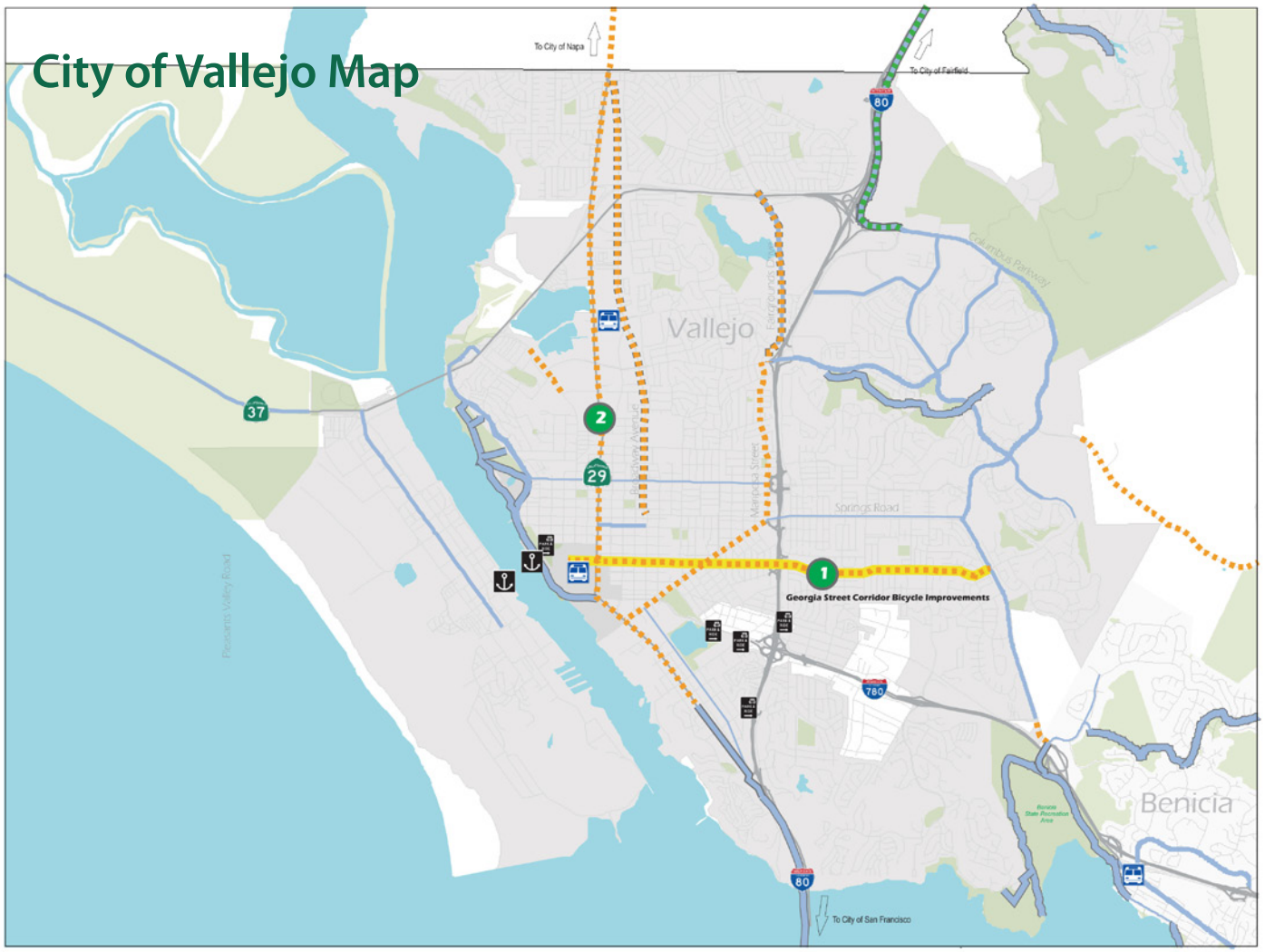
Project Tiers

- Tier 1 Priority Project
- Tier 2 Priority Project

Transit Facilities

- Bus Station
- Park & Ride
- Rail Station

City of Vallejo Map



Vallejo Proposed Priority Bicycle Projects:

1. Georgia Street Corridor Bicycle Improvements
2. SR 29 Class II Bike Route

Legend

General

- Open Space/Conservation Areas
- Unincorporated Solano County
- Municipal Service Areas
- Major Arterials/Highways
- Union Pacific Railroad

Existing Bicycle Facilities

- Class I Existing
- Class II Existing
- Class III Existing

Planned/Proposed Bicycle Projects

- Class I Planned/Proposed
- Class I Planned/Proposed w/ some funding committed
- Class II Planned/Proposed
- Class II Planned/Proposed w/ some funding committed
- Class III Planned/Proposed
- Class III Planned/Proposed w/ some funding committed

Project Tiers

- Tier 1 Priority Project
- Tier 2 Priority Project

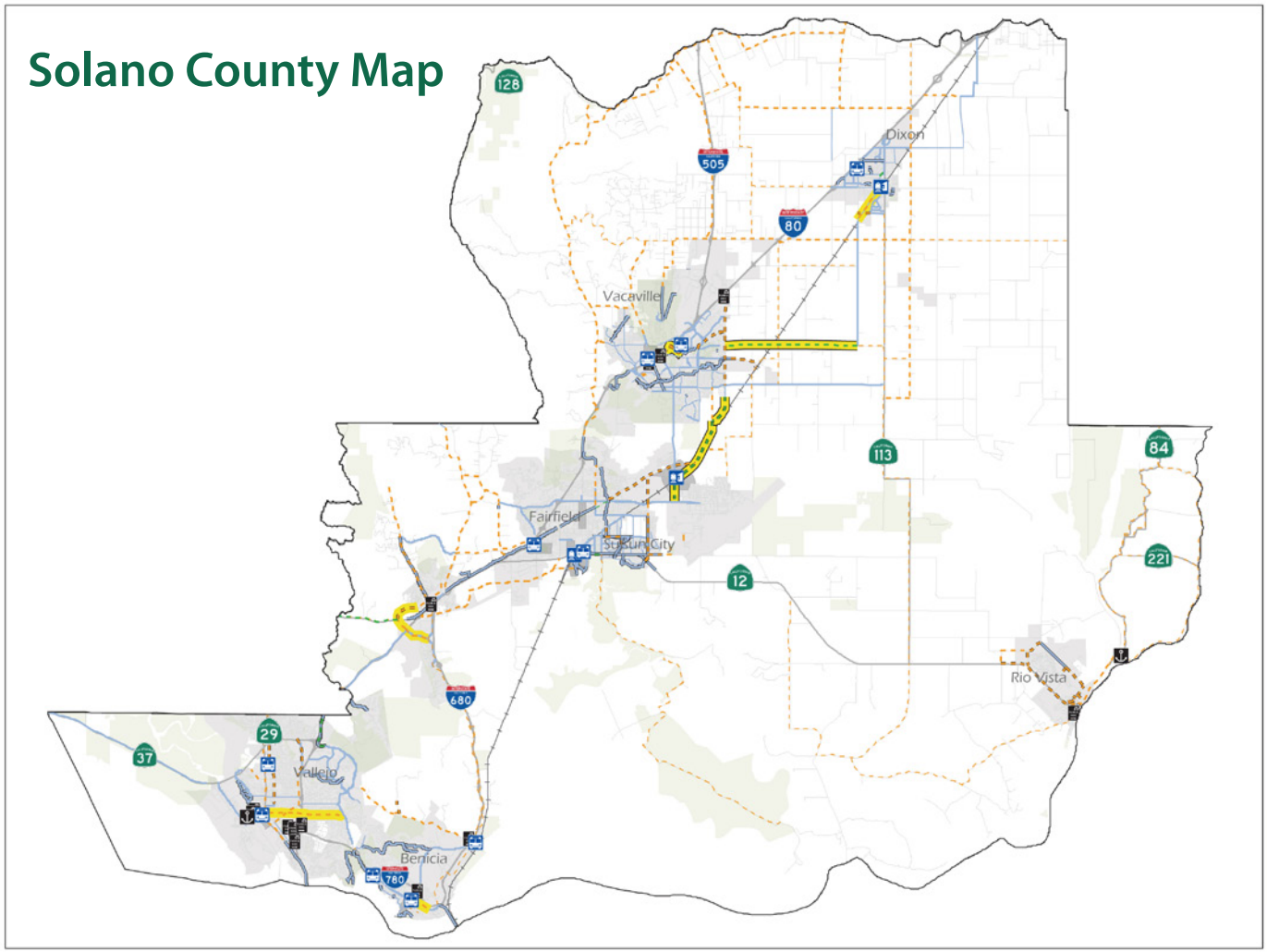
Transit Facilities

- Bus Station
- Park & Ride
- Rail Station
- Ferry

STA

Solano Transportation Authority

Solano County Map



Solano County Proposed Priority Projects:

Solano County has many projects countywide and through discussion with staff, it was determined that based on the nature of funding for county roads, projects should be determined based on availability of funding. A Countywide Tier 1 project is also recognized by Solano County: Vacaville-Dixon Bike Route (Phase 5) Hawkins Road.

Legend

General

- Open Space/Conservation Areas
- Unincorporated Solano County
- Municipal Service Areas
- Major Arterials/Highways
- Union Pacific Railroad

Existing Bicycle Facilities

- Class I Existing
- Class II Existing
- Class III Existing

Planned/Proposed Bicycle Projects

- Class I Planned/Proposed
- w/ some funding committed
- Class II Planned/Proposed
- w/ some funding committed
- Class III Planned/Proposed
- w/ some funding committed

Project Tiers

- Tier 1 Priority Project
- Tier 2 Priority Project

Transit Facilities

- Bus Stop
- Rail Station
- Ferry
- Park and Ride

3.5 Support Facilities

Bicycle Parking and Wayfinding Signage are the two primary recommended support programs for the Countywide Bikeway System. These programs are also discussed in the Chapter 4 – Policies and Programs. These components are often overlooked in bikeway system development. Just as the vehicular transportation system includes parking and signage as standard elements, a bikeway transportation system requires the same. This section provides an overview of each of these elements as well as references to resources to learn more.

Bicycle Parking Program

Bicycle Parking is an integral component of the bikeway network in that it provides a safe and organized place to leave one's transportation mode of choice, while he or she completes their activity at any particular location. For example, it would be difficult to complete a trip to the grocery store efficiently if the grocery store did not offer parking for your car or motor vehicle. In the same sense, it has been expressed by people (cyclists and those expressing reasons for not biking) that bicycle parking at their end destination is a primary obstacle when riding a bicycle. Chapter 4 provides an outline of the proposed work plan for STA's development of a Countywide Bicycle Parking Program. For more general information regarding bicycle parking, visit http://www.bicyclinginfo.org/engineering/parking.cfm.

Wayfinding Signage Program

The STA has adopted a policy to install the countywide bike route sign with all new bikeway projects constructed. This sign alone provides an identity for the countywide bikeway network, however, a more comprehensive system of wayfinding for travelers on the bikeways is necessary in order to effectively assist riders with navigating to their various destinations. As a part of this plan, STA staff recommends the development of a Countywide Wayfinding Guidance Plan that can be adopted by local jurisdictions to provide for a uniform method of sign fabrication and policies for installation. Some cities in the Bay Area, such as the City of Oakland, have adopted a well developed plan that serves as a good starting point for the development of a Wayfinding Signage Plan. STA will be working with local agencies over the next few years to complete the development of a Countywide Wayfinding Signage Plan and Implementation Program.

CHAPTER 4

POLICIES & PROGRAMS

4.1 POLICIES

These policies are briefly mentioned in Chapter 1 – Existing Conditions on page 10. In this chapter, these policies are described in further detail, with additional emphasis on the implementation of each policy in Solano County. Each description also provides information on how to access the resources for each item.

MTC Complete Streets Checklist

MTC adopted Resolution Number 3765 which is related to accommodation of pedestrians and bicyclists in the Bay Area to implement the findings of the 2006 Routine Accommodations study. This policy was adopted by the Commission on June 28, 2006. The policy reads:

"Projects funded all or in part with regional funds (e.g. federal, STIP, bridge tolls) shall consider the accommodation of bicycle and pedestrian facilities, as described in Caltrans Deputy Directive 64[R1]. These recommendations shall not replace locally adopted policies regarding transportation planning, design, and construction. These recommendations are intended to facilitate the accommodation of pedestrians, which include wheelchair users, and bicyclist needs into all projects where bicycle and pedestrian travel is consistent with current, adopted regional and local plans. In the absence of such plans, federal, state, and local standards and guidelines should be used to determine appropriate accommodations."

In 2006, MTC completed a Routine Accommodation study to evaluate how pedestrian and bicyclist needs are being accommodated in the Bay Area's transportation projects. This study was developed based on the Transportation 2030 Plan "call to action" to make bicyclists, pedestrians and wheelchair users full partners in the planning process and to consider the safety and convenience of non-motorized travelers with new construction and reconstruction of transportation facilities.

The study reviewed federal, state, regional, and county policies that addressed the ways project sponsors consider non-motorized transportation needs during the planning, design, funding, and construction of all types of transportation projects. It reflected data gathered through 35 interviews with project managers from a variety of agencies to understand what types of non-motorized improvements were included with their projects and how the decisions to do so came about. The study also included three case studies.

In 2006, the Commission adopted regional policies for the accommodation of non-motorized travelers. MTC Resolution No. 3765 called for creation and implementation of a checklist that promotes the routine accommodation of non-motorized travelers in project planning and design. Partner agencies will complete this checklist prior to submitting projects to MTC.

MTC's Complete Streets Checklist is intended for use on projects at their earliest conception or design phase so that any pedestrian or bicycle consideration can be included in the project budget. It is STA's responsibility to ensure that project

sponsors complete the checklist before projects are submitted to MTC. Completed checklists are required to be made available to the Bicycle Advisory Committee (BAC) and Pedestrian Advisory Committee (PAC) for review.

To view checklists for the current project funding cycles, visit STA's Web site: www.sta.ca.gov/completestreets [on STA website, link to: *http://www.sta.ca.gov/Content/10034/AdvisoryCommittees.html#bac]*

For more information regarding MTC's program, visit MTC's Web site: *http://www.mtc.ca.gov/planning/bicyclespedestrians/routine_accommodations.htm*

STA Complete Streets Checklist Implementation

STA Complete Streets Checklist Implementation – Per the MTC Complete Streets policy, STA implements the policy to include review by both the Solano County Bicycle Advisory Committee and Solano County Pedestrian Advisory Committee. Upon dissemination of the complete streets checklist during plan development and project delivery, STA staff makes completed checklists available to committee members for review and discussion of local priority projects identified by each group.

The STA Bicycle Advisory Committee generally meets every other month, and on an as-needed basis in addition, to conduct business. For review of complete streets checklists submitted by local sponsors, STA shall develop a Complete Streets web page to provide information about the checklist review process, with a current web link to access the checklists. Comments from committee members and general members of the public shall be submitted to STA through the "Complete Streets web page" via a Comment Box allowing users to enter a projects name and related comments. The STA Planning and Projects Departments shall be responsible for review and forwarding the comments submitted to the appropriate agencies. With regard to comments requesting follow up, STA staff will provide support and coordinate with local sponsors as appropriate.

Caltrans Deputy Directive 64 Revision (DD-64-R1)

Caltrans adopted a policy directive related to non-motorized travel. The Caltrans DD-64-R1 was revised in October 2009. It reads:

"The California Department of Transportation (Department) provides for the needs of travelers of all ages and abilities in all planning, programming, design, construction, operations, and maintenance activities and products on the State highway system. The Department views all transportation improvements as opportunities to improve safety, access, and mobility for all travelers in California and recognizes bicycle, pedestrian, and transit modes as integral elements of the transportation system.

The Department Develops integrated multimodal projects in balance with community goals, plans, and values. Addressing the safety and mobility needs of bicyclists, pedestrians, and transit users in all projects, regardless of funding, is implicit in these objectives. Bicycle, pedestrian, and transit travel is facilitated by creating "complete streets" beginning early in system planning and continuing through project delivery and maintenance and operations. Developing a network of "complete streets" requires collaboration among all Department functional

units and stakeholders to establish effective partnerships."

The Caltrans DD-64-R1 policy was updated in October 2008 and is titled "Complete Streets – Integrating the Transportation System." The policy is intended to provide for the needs of travelers of all ages and abilities in all planning, programming, design, construction, operations, and maintenance activities on the State highway system. Pursuant to DD-64-R1, Caltrans manuals and guidance will be updated and developed to outline statutory requirements, planning policy, and project delivery procedures to facilitate multimodal travel, which includes connectivity to public transit for pedestrians and bicyclists.

DD-64-R1 can be downloaded from the following web link: *http://www.dot.ca.gov/hq/tpp/offices/bike/guidelines_files/DD64.pdf*

Assembly Bill Concurrent Resolution No. 211 (ACR 211)

California's cities and counties have even more reason to pay attention to the two aforementioned policies. ACR 211 (Nation) "Integrating walking and biking into transportation infrastructure" became effective in August 2002. ACR 211 encourages all cities and counties to implement the policies of DD-64 and the USDOT design guidance document when building local transportation infrastructure. Specifically, ACR 211 asks local governments to "fully consider the needs of non-motorized travelers (including pedestrians, bicyclists and person with disabilities) in all programming, planning, maintenance, construction, operations, and project development activities and projects." The resolution also states that bicycling and walking contribute to cleaner air, encourage physical activity, provide for alternative transportation, help to safeguard California's coast from offshore oil drilling, and enhance California's energy independence and national security by reducing our reliance upon imported oil.

California Complete Streets Act of 2007 (AB 1358)

The goal of the Act to encourage and define how a city or county can plan for the development of a well-balanced, connected, safe, and convenient multimodal transportation network. This policy also aims to encourage healthy physical activity, aid in the strategic efforts to reduce greenhouse gas emissions, and reduce long-term costs of transportation development. According to the Complete Streets Act, the transportation network should consist of complete streets which are designed and constructed to serve all users of streets, roads, and highways. Streets should be designed for all ages and abilities, whether they are driving, walking, bicycling, or taking public transit.

The Complete Streets Act requires the legislative body of a city or county, upon revision of the circulation element of their general plan, to identify how the jurisdiction will provide for the standard accommodation of all users of the roadway. Beginning January 2011, cities and counties must plan for the development of multimodal transportation networks upon the next update of their circulation element.

Guidelines for updating the General Plan per the California Complete Streets Act of 2007 can be downloaded from the following web link: *http://www.opr.ca.gov/planning/docs/Update_GP_Guidelines_Complete_Streets.pdf*

Local Policies

As part of this update, new goals and objectives have been developed (see Chapter 2) that build on the previous versions of the Solano Countywide Bicycle Transportation Plan. This plan has evolved over time to encompass the needs of local jurisdictions, as all member agencies are represented with projects in this Plan, and each agency has been consulted individually with their respective Bicycle Advisory Committee member to submit projects for implementation to be included in this Plan. It is the intent of the BAC and this Plan to support local agency efforts to improve bicycling conditions at the local level.

Local policies should also follow AB 1358 and meet the requirements as described in the section above. Suggestions for local policies within the General Plan and other related documents beyond the policies identified in Chapters 2 and 4 or this plan include (but not limited to): addition of specific implementation policies that address items such as local programs, signage, and maintenance; development and implementation of ordinances regarding specific parking standards/requirements; mandatory development of bicycle facilities (i.e. greenways, class I and/or II bike facilities as part of new projects; connectivity through cul-de-sacs (i.e. City of Davis); mandatory development of greenways and bicycle facilities in new development with connectivity between developments.

4.2 Programs

Solano Bicycle Program (Funding)

The Solano Bicycle Program consists of three primary funding sources:

- Transportation Development Act (TDA) Article 3
- Regional Bicycle Program CMAQ
- Eastern Solano CMAQ

These funding sources are referenced with respect to their estimates in Solano County during FY 2010/11. This section explains the sources included in the Solano Bicycle Program (for a more comprehensive listing of funding and resource information, see Chapter 5 – Cost Analysis and Implementation Strategy):

Transportation Development Act (TDA) Article 3 – TDA Article 3 funds are awarded annually to local jurisdictions for bicycle and pedestrian projects in California. These funds originate from the state gasoline tax (Senate Bill 821) and are distributed according to population to local agencies. The STA Bicycle Advisory Committee (BAC) and Pedestrian Advisory Committee (PAC) play an active role in project selection and the distribution of TDA funds in Solano County.

Solano County does not currently have a local sales tax measure. Seven of the nine San Francisco Bay Area counties have a transportation sales tax that dedicates a portion of their revenue to bicycle and/or pedestrian related improvements. Its primary source of local discretionary funding is from Transportation Development Act (TDA) Article 3 funds.

Regional Bicycle Program (RBP) – Regional Bicycle Program (RBP) funds administered by MTC are provided to each Bay Area County Congestion Management Agency (i.e., STA) through the Congestion Mitigation and Air Quality (CMAQ) program. These federal funds are dedicated to the implementation of bicycle facilities.

Eastern Solano Congestion Mitigation for Air Quality (ECMAQ) – Eastern Solano CMAQ is administered by the Solano Transportation Authority. Since Solano County falls between the Bay Area and the Sacramento air basins, Eastern CMAQ funds are dedicated to projects in the eastern portion of the County. This is a mixture of federal and local funds and is only eligible to the cities of Dixon, Rio Vista, Vacaville, and the eastern portion of Solano County.

Cumulatively, these various funding sources provide for approximately $1.5-2.5 million per year. Over the next 25 years, this can be estimated to be $40-62.5 million.

These funds should be utilized according to the following Solano Bicycle Program Guidelines:

1. The Solano Transportation Authority's (STA) Bicycle Advisory Committee (BAC) shall each establish a 3-year Implementation Plan that consists of priority projects identified in the Solano Countywide Bicycle Plan for purposes of allocating Solano Bicycle Program (SBP) funds. The STA's Technical Advisory Committee and Alternative Modes Committee shall also review and make a recommendation on the 3-year Plan and any subsequent amendments before the plan is submitted to the STA Board for approval.
2. Eligible projects for the 3-year Implementation Plan shall be based on criteria recommended by the BAC and approved by the STA Board. The 3-year Plan will be prioritized by the following tiers:

   Tier 1 – Projects in the Countywide Bicycle Plan deemed to be top priority based on evaluation criteria.

   Tier 2 – The next level of priority projects listed in the Countywide Bicycle Plan based on evaluation criteria.

Based on a natural break in project criteria scores and review by the BAC and TAC, STA staff will divide their priority projects into Tier 1 and Tier 2 categories.

3. The 3-year Implementation Plan will function as a guide for SBP Fund recommendations and will be flexible to the funding needs of STA member agencies. Project sponsors will be requested to provide annual project updates to the BAC for projects identified in the 3-year Implementation Plan.
4. Each year, preferably during the months of December or January, BAC shall confirm their top priority projects for the next fiscal year's projects found in the then current SBP 3-year Implementation Plan.
5. The BAC will meet to develop their recommendations for the Solano Transportation Authority (STA) Board of Directors to allocate SBP funds. Not more than 25 percent of funds should be recommended per year for Tier 2 projects. The BAC is under no obligation to recommend allocation of all available SBP funding on a yearly basis.
6. A call for projects for the 3-year Implementation Plan will happen every three years. Amendments to the 3-year Plan must be approved by the project sponsors, the BAC, and the TAC before sending a recommendation to the STA Board for their adoption.

Countywide Bicycle Parking Program

The bicycle parking program is new to the 2011 plan in the form of implementation. In the 2004 Plan, the Bicycle Parking Program was identified as a recommendation for implementation. This year the plan identifies a preliminary scope of work to initiate the overall discussion of a sustainable countywide bicycle parking program. This scope of work is as follows:

- Report on locker users
  - Discuss cost effective methods of estimating users of the facilities
  - Discuss current and anticipated types of users
  - How can we get more users?
- Inventory and map bicycle locker facilities
  - Surveying sites will be time consuming. The BAC will need to recommend specific location types to focus countywide surveying efforts (e.g. survey public facilities, shopping centers, and transit facilities)
  - Determine what lockers types are available
- Report on city policies related to bicycle lockers
  - General Plan
  - Transit
  - Others?
- Report on current trends in bicycle lockers
  - Identify new, innovative, cost-effective lockers
  - Identify opportunities for public private partnerships
  - Identify funding opportunities
- Management and maintenance options
  - Determine who is maintaining lockers
  - Recent reported problems? How are they addressed?
- Opportunities

This scope of work will be further developed by STA staff to include a funding source and a resource to local agencies in need of expanding the availability of bicycle parking in their community. Chapter 5 – Cost Analysis and Implementation provides additional program recommendations.

CHAPTER 5

COST ANALYSIS AND IMPLEMENTATION STRATEGY

This Chapter includes the following sections:

- 5.1 Cost Estimates: Capital and Maintenance/Security
  - Table 5.1A – capital project cost assumptions
  - Table 5.1B – cost estimates
  - Table 5.1C – maintenance schedule
- 5.2 Funding Availability
  - TDA Article 3
  - CMAQ
  - ECMAQ
- 5.3 Implementation Strategy
  - Planning/Goal Setting (see Chapter 2)
  - Funding Strategy Development
  - Project Delivery
  - Performance Measures and Evaluation
  - Planning and Support Facility Recommendations

The Solano Countywide Bikeway Network is approximately 285 miles of the County's 416 miles in regional roadway. The cost to implement the capital projects identified to complete the bicycle network is approximately $80 million. Information regarding the proposed Countywide Bikeway Network's costs, funding, and project implementation strategies can be found in this Chapter. This Chapter is designed to be used as an on-going resource for the County and cities, helping to develop a consistent set of implementation tools and strategies. A primary goal of developing a consistent implementation system is to leverage outside funding. The projects identified in the Plan are under the administration authority of the local jurisdictions which would be the lead agency responsible for implementing the capital projects, including securing funding. The implementation strategies described herein are recommendations for STA staff and local jurisdictions to identify and secure funding and for completing projects.

5.1 Cost Estimates: Capital and Maintenance

Capital Projects and Maintenance Cost Estimates

Approximately 140 miles of the county's regional roadway contains bicycle lanes and over 16 miles of off-street multi-use paths have been developed. The estimated cost of implementing the remaining 145-mile proposed capital network is approximately $80 million. The estimated available funding for the next 25 years is $40-62.5 million. Since this amount is less than the full $80 million required to construct the entire network and support facilities, a Priority Bicycle Projects list (Tier 1) was developed. The costs estimates discussed in this section apply to this priority bicycle projects list.

The projects identified in the Tier 1 bicycle projects list vary in progress, from concept to shelf-ready. Since a concept project is less defined than a shelf-ready project, the cost associated with a concept project is also less defined. Based on a simple calculation used in the cost estimating, Total Project Cost can be calculated as follows:

Total Project Cost = Construction Cost + PE/ENV/PSE/CM ;
[Construction Cost*1.40]

The total project cost for each project in the countywide bikeway network (as detailed in Appendix D) was developed by using the cost assumptions data in Table 5.1A with a 40 percent increase to cover contingencies, design/environmental work, and administration. Based on this, the total cost to construct the Tier 1 priority bicycle projects network is $17.5 million.

The cost estimates for each priority bicycle project can be found in Table 5.1B, which includes an additional 40 percent to account for other aspects of the project delivery process. The makeup of the 40 percent estimation factor is as follows:

- Follow-up planning and preliminary engineering, including right-of-way work (5% of the total construction cost)
- Environmental Review (CEQA/NEPA), Habitat Mitigation Plan and project permitting (5% of the total construction cost)
- Design level engineering, including geotechnical engineering, structural, and hydrology/hydraulics analysis (10% of the total construction cost)
- Biological Monitoring and Construction Management, including construction site inspection (20% of the total construction cost)

To develop a uniform cost estimate as a baseline for planning purposes, cost assumptions shown in Table 5.1A were used to determine Construction Cost. The remaining costs to implementing the project were calculated as a percentage of the Construction Cost. In this case, 40 percent was used.

The cost assumptions are based on a unit cost data reviewed by the Solano County Public Works Department and data compiled from the Alameda Countywide Bicycle Plan and City of Santa Rosa Bicycle and Pedestrian Master Plan. These assumptions represent only construction costs in 2010 dollars.

Table 5-1A: Bikeway Network Cost Assumptions

Bikeway Capital Improvement Type	Unit Construction Cost
Class I: Construct new off-street multi-use bicycle and pedestrian facility	$720,000/mile
Class I: Improve/maintain existing multi-use bicycle and pedestrian facility	$145,000/mile
Class II: Bicycle Lanes • Stripe bicycle lanes, add signs, add pavement legends • Restripe lanes and bicycle lane treatment • Remove bicycle lane treatment • Road Widening Required	 $30,000/mile $60,000/mile $110,000/mile $640,000/mile
Class III: Widen Curb Lane	$70,000-$145,000/mile
Class III: Widen Shoulder	$260,000/mile
Class III: Designate/install signage for residential street, local street, or bicycle boulevard	$145,000/mile
Arterial Improvements	$290,000/mile
Traffic Signal	$230,000/each
Construct Pedestrian/Bicycle Overpass	$300,000/sq. ft.
Improve freeway interchange to accommodate bicycles	$430,000/per interchange improvement

Note: estimates are rounded to the nearest ten thousand

The above unit assumptions are constructions costs only. The assumptions do not include administrative costs, deflation/inflation considerations, contingencies, design, or right-of-way acquisition. Costs can vary depending on terrain, drainage needs, right-of-way, and design of the facility.

Other types of factors may additionally affect cost, which include the following categories:

- Move Traffic/Parking Lanes: restripe existing traffic and parking lanes in order to provide bike lanes.
- Move Utility Poles: relocated utility poles in some areas as part of a street widening effort to provide bike lanes.
- Fill Drainage Ditches: install storm drain system along road as part of street widening effort, which includes bike lanes. This item, along with moving utility poles, are accomplished for traffic reasons rather than the need for bike lanes.
- Add pavement: indicates the need for new or expanded shoulders, usually where there are no existing gutters or curbs.

- Cut/Retaining Walls: indicates the need for retaining walls to hold back cut-and-fill areas as part of street widening efforts, which include the provision of bike lanes. Land Acquisition: indicates the probable need for acquiring private property as part of a street-widening project or new bike path alignment.
- Separated paths: indicates new bicycle-pedestrian paths separated from vehicular traffic.
- Lighting/Fencing: indicates the need for lighting and/or fencing along a proposed bike path alignment.

Implementation costs can further be broken down between land acquisition (or lease) and construction costs. Land acquisition may be through purchase, easement, long-term lease, property exchange, or other means. Routes that probably will require right of way acquisition contain cost estimates based on local property values. More specific information must be developed as the actual parcels are identified and negotiations with the owners are conducted. A total of $2.4 million is identified as required to acquire right of way for future Class I bike paths in Phase I along the various waterway, railroad, and highway corridors. The actual amount will depend on localized property values and overall economic conditions at the time of purchase.

Construction costs may be limited to striping and signing for a Class II or III bikeway, or include bridges, underpasses, pathways, landscaping, drainage, grading, demolition, lighting, fencing and other expensive features associated with a Class I routes. The cost differential between bike lanes and routes versus bike paths can be substantial. For example, one highway overcrossing can cost $1.5 million, which is the equivalent cost to stripe 1,500 miles of bike route.

The priority bicycle projects total an estimated $17.5 million. These projects will be the focus of STA funding and implementation efforts until the next update of the Plan in approximately four years. Costs to implement the priority regional bicycle projects are presented in Table 5.1B.

The Solano Countywide Bikeway Network has two (2) levels of investment. They are the Priority Bikeway Network (Tier 1) and Complete Network (Tier 2). When completed, the entire proposed Solano Countywide Bikeway Network will total 285 miles.

Based on these figures, the total estimated cost to implement the 145 miles of bikeways planned in the short-, mid-, and long-term phases of the Solano Countywide Bicycle Plan is approximately $80 million, the majority of which is related to Class I bicycle paths. Of that $80 million, an estimated $17.5 million makes up the Tier 1 priority bicycle projects. A breakdown of cost per segment for the Tier 1 priority bicycle projects are listed in the following table:

Table 5-1B: Priority Bikeway Network Project Cost Estimates (2010 $'s)

Agency	Project Name	Env/ Design Cost*	ROW/ Construction Cost*	Total Cost*
Benicia	East-West Corridor Bicycle Connection: Military East Street/East L Street/Adams Street (1 mi)	$260,000	$640,000	$900,000
Dixon	West B Street Bicycle-Pedestrian Undercrossing (0.1 mi)	Fully Funded	$6,100,000	$6,100,000
Rio Vista	Church Road Bicycle Path (CI) - Airport Road to State Route (SR) 12 (1 mi)	$290,000	$720,000	$1,010,000
Solano County	Vacaville-Dixon Bike Route (CII) - Hawkins Road: Pitt School Road to Leisure Town Road	$450,000	$3,800,000	$4,250,000
Suisun City	Grizzly Island Trail (CI) - Grizzly Island Rd to Marina Blvd	Fully Funded	Fully Funded	$2,100,000
Vacaville	Ulatis Creek Bicycle/Pedestrian Path (CI, Phase I) - Ulatis Drive to Leisure Town Road	$61,000	$854,000	$915,000
Vallejo	Georgia Street Corridor Bicycle Improvements	$650,000	$1,600,000	$2,250,000
STA	Solano County Wayfinding Sign Plan and Program	N/A	N/A	$40,000
			Total Cost:	**$17,570,000***

**All cost estimates rounded to the nearest ten thousand*

These estimates are for planning purposes and more refined cost estimates should be developed in the design development process, especially for engineered portions of a bicycle project.

Maintenance Cost Estimates

The annual maintenance cost for the primary system is projected to be approximately $480,000 (2010 dollars) when the Solano Countywide Bikeway Network is fully implemented. All maintenance costs are associated with bicycle paths, as the bike lanes and routes will be maintained as part of the regular roadway maintenance.

Class I bike path maintenance includes cleaning, resurfacing and restriping the asphalt path, repairs to bridges and other structures, cleaning drainage system, trash removal, and landscaping (see checklist below). While this maintenance effort may not be major compared to roadway or park maintenance it does have the potential to develop heavy expenses.

For example, bikeways along waterways may experience damage from flooding and the use of tractors to clear waterways, requiring extensive rebuilding.

For purposes of estimating maintenance expenses for Class I bike paths, $10,200 per mile per year is used based on information received from other bike path facilities in northern California. This cost covers all expenses, including labor, supplies, and amortized equipment costs, for weekly trash removal, monthly sweeping (with a mechanized sweeper), and biannual resurfacing/repair patrols. Underbrush and weeds should be cut once in the late spring and again in mid-summer.

Many of these maintenance items are dependent on the type and amount of landscaping and supporting infrastructure that is developed along the trail. It is recommended that a consistent maintenance procedure be developed to ensure, at a minimum, that the facility is safe for trail users. There should be a mechanism to identify, record, and respond to maintenance problems, and to keep written records of such actions.

Expenses for maintaining Class II have not been separated from roadway maintenance such as sweeping and minor repairs provided as part of routine roadway maintenance. Additional costs should be minimal because, in most locations, the roadway surface area to be maintained will be the same with or without bike lanes; Class II maintenance costs are likely restriping for an estimated $30,000 per mile. Timing for maintenance varies depending on project type and environmental conditions throughout the year. Table 5-1C provides a schedule for bikeway maintenance as a reference

Table 5.1C: Maintenance Schedule

Maintenance Type	Frequency
Sign replacement/repair	1 – 3 years
Pavement marking replacement	1 – 3 years
Tree, shrub, and grass trimming/fertilizing	5 months – 1 year
Pavement sealing/potholes	5 – 15 years
Clean drainage system	1 year
Pavement sweeping	Weekly-monthly/as needed
Shoulder and grass mowing	Weekly/as needed
Trash disposal	Weekly/as needed
Lighting replacement/repair	1 year
Graffiti removal	Weekly-monthly/as needed
Maintain furniture	1 year
Fountain/restroom cleaning/repair	1 year
Pruning	1 – 4 years
Bridge/tunnel inspection	1 year
Remove fallen trees	As needed
Weed control	Monthly/as needed
Maintain emergency telephones, CCTV	1 year
Maintain irrigation lines	1 year
Irrigate/water plans	Weekly-monthly/as needed

Security

As a component of maintenance, enforcement and security on the Solano County Class I system will be provided by the local police departments. Existing vehicle statutes relating to bicycle operation will be enforced on Class II and III bikeways through the Police Department's normal operations. No additional manpower or equipment is anticipated for Class II and III segments.

Class I bike paths require special enforcement because in many cases they are not visible or accessible from streets, and they often directly abut private residences. One key aspect of enforcement is the hours of operation for Class I bikeways. It may be preferable to close some bike paths at night so that enforcement levels may be lowered.

Bike path under-crossings require special attention because they can be perceived as unsafe areas by some bicyclists, particularly after dark. It is recommended that any under-crossing over 50 feet in length be lighted, that all approaches to the undercrossing provide the bicyclist with a clear view all the way through the under-crossing, and that under-crossings be designated to eliminate blind spots or areas where people may sit off the bike path.

It is anticipated that the local city Police Department will have to be provided with special vehicles (such as trail bikes) for patrolling the bike paths. It is estimated that one (1) hour of additional police manpower is required for each 5 miles of bike path. Using this formula, the Class I bike paths proposed will eventually require 20 man-hours per day from the local Police Department. At this juncture, the Police Department may wish to recruit a bikeway specialist whose sole responsibility is patrolling the bikeway system.

5.2 Funding Availability

In the past, many funding sources have been identified and utilized to implement priority bicycle projects. This section provides an overview of the primary sources anticipated to be available over the next 25 years. Solano County has historically invested approximately $1.5 million annually in bicycle facilities. This money is derived from a variety of sources including funding from the Federal Transportation Bill (TEA-21, SAFETEA-LU) programs, competitive source funding, sales tax revenue, etc.

There are a variety of potential funding sources including local, state, regional, and federal funding programs that can be used to construct the proposed bicycle improvements identified in this plan. Most federal, state, and regional programs are competitive and involve the completion of extensive applications with clear documentation of the project need, costs, and benefits. Several funding sources available for bicycle projects are described in this section. More information regarding the various types of funding utilized to fully fund current projects in progress is explained below. Under each funding source is a list of projects that have been programmed for funding to illustrate the funding committed in Fiscal Year (FY) 2010/11.

Local Funding

Transportation Development Act (TDA) Article 3 – ($195,000 total in FY 2010/11)

TDA Article 3 funds are awarded annually to local jurisdictions for bicycle and pedestrian projects in California. These funds originate from the state gasoline tax (Senate Bill 821) and are distributed according to population to local agencies. The STA Bicycle Advisory Committee (BAC) and Pedestrian Advisory Committee (PAC) play an active role in project selection and the distribution of TDA funds in Solano County.

- Solano County Vaca-Dixon Bike Route Phase 5: Hawkins Road – Class II ($112,000)
- City of Fairfield Linear Park Alternate Route: Nightingale Drive – Class III ($29,000)
- City of Dixon Bicycle Racks at City Facilities ($2,000)
- City of Dixon Vaca-Dixon Bike Route: Adams Street – Class II ($52,000)

Solano County does not currently have a local sales tax measure. Seven of the nine San Francisco Bay Area counties have a transportation sales tax that dedicates a portion of their revenue to bicycle and/or pedestrian related improvements. Its primary source of local discretionary funding is from Transportation Development Act (TDA) Article 3 funds.

Federal Funding

Regional Bicycle Program (RBP) – ($1,035,000 total in FY 2010-11)

Regional Bicycle Program (RBP) funds administered by MTC are provided to each Bay Area County through the Congestion Mitigation and Air Quality (CMAQ) program. These funds are dedicated to the implementation of bicycle facilities.

- City of Suisun City Grizzly Island Trail – Class I ($814,000)
- City of Fairfield Linear Park Alternate Route: Nightingale Drive – Class III ($221,000)

Eastern Solano Congestion Mitigation for Air Quality (ECMAQ) – ($1,060,000 total in FY 2010-11)

The Eastern CMAQ is administered by the Solano Transportation Authority. Since Solano County falls between the Bay Area and the Sacramento air basins, Eastern CMAQ funds are dedicated to projects in the eastern portion of the County. Eastern CMAQ funds are only eligible to the cities of Dixon, Rio Vista, Vacaville, and the eastern portion of Solano County.

- Solano County Vaca-Dixon Bike Route – Class II ($250,000)
- City of Vacaville Ulatis Creek Bicycle-Pedestrian: Leisure Town Road and Ulatis Drive – Class I ($810,000)

Cumulatively, these various funding sources provide for approximately $1.5-2.5 million per year. Over the next 25 years, this can be estimated to be $40-62.5 million.

Detailed explanation of each of these sources can be found in Chapter 4 Section 2.

5.3 Implementation Strategy

Most planning efforts do not plan to fail, they fail to plan. In other words, the appropriate planning not only includes the identification of projects and accomplishments a community sets out to be completed, but the methodology to fund and deliver results-producing actions as well.

This chapter breaks down the Implementation Strategy of the Bicycle Transportation Plan into five (5) categories: Planning/Goal Setting (see Chapter 2), Funding Strategy Development, Project Delivery, Performance Measures/Evaluation, and Planning/Program Recommendations.

Planning/Goal Setting

Chapter 2 identifies the process for planning and developing a set of goals that each community in Solano County has built a consensus to achieve. Achievement of these goals will be monitored through implementation of the progress tracking identified in Chapter 7 – Performance Measures and Evaluation.

Funding Strategy Development

As described in Chapter 4 – Policies and Programs, under the Solano Bicycle Program (SBP), funding strategies for projects should be developed by STA staff and sponsoring agencies based on Tier and order of priority as identified by STA staff, through guidance from the STA BAC, STA PAC, and STA TAC. With a process-oriented approach, Tier 1 projects should have priority for development of a funding strategy in the short to mid-term for delivery. Tier 2 projects should be preparing for delivery at the local level with assistance from STA as needed. The current priority bicycle projects list is identified in Chapter 3.

Projects identified for Tier 1 primarily focus on project readiness, impact on safety, and improvement of regional connectivity. Based on the varying funding sources available depending on community and project scope, it is the responsibility of the Strategic Planning and Project Delivery Departments at STA to work together to keep the priority project lists up to date. With interagency coordination, the funding strategy can consist of federal aid, local sponsorship, public-private partnerships, etc. Table 5.3A provides a listing of known funding sources available.

TABLE 5-3A: Summary of Funding Sources

Name of Funding*	Fund Source/Type	Used For	Amount per Year (estimates)
Transportation Development Act (TDA) Article 3	Local (1/4¢ of state sales tax)	Bicycle and Pedestrian Projects	Approximately $260,000 to $350,000
Congestion Mitigation & Air Quality Improvement Program (CMAQ)	Federal (fuel tax)	Projects to reduce vehicle emissions and traffic congestion	Varies
Transportation for Livable Communities (TLC)	Federal (CMAQ funds)	Bicycle, pedestrian, transit or other projects that enhance community vitality	$1 million
Surface Transportation Program (STP)	Federal (fuel tax)	Capital projects including highways, bus/rail transit, local streets, port facilities, bicycle and pedestrian projects, etc.	Varies
Eastern Solano CMAQ	Federal	Projects to reduce vehicle emissions (i.e. clean vehicle technologies, alternative modes of transportation and public education)	$250,000
Yolo-Solano Air Quality Management District (YSAQMD) Clean Air Funds (CAF)	Local ($4 vehicle registration fee and AB 8 property tax)	Clean technologies/low emission vehicles, alternative transportation, transit services, public education	
Transportation Fund for Clean Air (TFCA)	Local ($4 vehicle registration fee)	Transportation programs/projects that improve air quality	$100-150,000
State Transportation Improvement Program (STIP)	State and Federal (fuel tax funds)	Projects may include, but not limited to, improving State highways, local roads, public transit (including buses), intercity rail, pedestrian and bicycle facilities, grade separations, transportation system management, transportation demand management, soundwalls, intermodal facilities, and safety.	Varies
Transportation Enhancements (TE)	Federal	For scenic beautification, bicycle and pedestrian facilities, historic rail depot upgrades, bus shelter, access for disabled persons, etc.	Discretionary varies annually
Local Funding	Local	TBD by local sponsoring agencies and stakeholders	Varies
Private Sponsorships	Local	TBD by local sponsoring agencies and stakeholders	Varies
Fundraising	Local	TBD by local sponsoring agencies and stakeholders	Varies
Public-Private Partnerships	Local/State/Federal	TBD by local sponsoring agencies and stakeholders	Varies

**PDF version includes a hyperlink to the resource page for the grants information (see Appendix F for list of hyperlinks to this table)*

Table 5-3B provides an overview of deadlines for each of the funding sources with the exception of local funding, private sponsorships, fund raising, and public-private partnerships as these sources are generally more flexible or hold deadlines specific to the administrators of the funding.

TABLE 5-3B : Funding Source Deadlines and Requirements

Name of Fund Source	Application/Funding Availability*	Application Deadline*	Comments	Deadline to spend funding**
Transportation Development Act (TDA) Article 3	Estimates provided in February of Calendar Year	Varies	Request for Resolution of Support to be submitted to STA for submission to MTC	Two years from date approved by MTC
Congestion Mitigation & Air Quality Improvement Program (CMAQ)	Available every 3-4 years, pending Federal Transportation Bill	Varies based on FHWA guidelines	If selected for funding by STA, resolution needed	Two years from award date
Surface Transportation Program (STP)	Available every 3-4 years, pending Federal Transportation Bill	Varies based on Caltrans guidelines	If selected for funding by STA, resolution needed3	
Eastern Solano CMAQ	Varies, every 2-4 years	Varies	If selected for funding by STA, resolution needed[3]	" "
Yolo-Solano Air Quality Management District (YSAQMD) Clean Air Funds (CAF)	January/February	March; Steering Committee review April; awards announced May	See application guidelines and eligibility requirements	" "
Transportation Fund for Clean Air (TFCA)	February/March	April	See program guidelines and eligibility requirements *(see http://www.ysaqmd.org/Incentives10.php)*	" "

** Dates are approximations and listed in month of Calendar Year*

*** By request, some funding deadlines for spending can be extended a limited time due to timing with specific project needs requested of grant administrators*

Project Delivery

Project delivery is focused on administering and monitoring various stages of project development, while meeting funding deadlines required by the project funding source(s). It is often the case that projects are funded through a variety of sources, including, but not limited to grants, federal and state funding, local discretionary funds, etc. Primary sources traditionally used to fund bicycle projects in Solano County include TDA Article 3, CMAQ, and Eastern Solano CMAQ. The order of project development is as follows:

Planning/Conceptual Design/Public Outreach

This is the initial step in beginning a project. This usually costs approximately $100,000 to $150,000.

Preliminary Engineering

Preliminary engineering is the conceptual development of a project with approximately 30% design of a project incorporated. This is usually estimated as 10% of Construction Cost.

Environmental Clearance

With federally funded projects, project sponsoring agency staff is precluded from pursuit of right-of-way acquisition or negotiation of corridor preservation unless the project has been environmentally cleared. This is usually estimated as 20% of Construction Cost. The types of environmental clearance based on funding type are as follows:

Federally Funded Projects (NEPA)	Locally and State Funded Projects (CEQA)
The analysis of a project required by CEQA usually takes the form of:	The analysis of a project required by CEQA usually takes the form of:
NEPA Environmental Impact Statement (EIS) – 3-24 months	CEQA Environmental Impact Report (EIR) – within 24 months*
NEPA Environmental Assessment (EA) – 2-3 weeks	CEQA Environmental Assessment (EA) – 2-3 weeks
NEPA Finding of No Significant Impact (FONSI) is issued by FHWA when environmental analysis and interagency review during EA process finds a project to have no significant impact on quality of environment	Negative Declaration – due 180 days from date application completed
NEPA Categorical Exclusion (CE) – 8 weeks	Categorical Exemption (CE) – 8 weeks

Note: NEPA is required only when federal funding is used, CEQA compliance is mandatory of all projects

**Time limit may be extended under certain circumstances, such as a delay by the applicant, joint NEPA/CEQA document preparation, or need for additional studies*

An environmental impact report (EIR) is a detailed report written by the lead agency describing and analyzing the significant environmental effects of a proposed project, identifying alternatives and discussing methods to reduce or avoid the possible environmental damage. An EIR is prepared when the lead agency finds substantial evidence that the project may have a significant effect on the environment. An environmental assessment (EA) is a substitute for the EIR under the Certified Regulatory Program. An environmental impact statement (EIS) is an environmental impact document prepared pursuant to NEPA, in place of the term EIR which is used in CEQA.

To find more information about the NEPA environmental review and assessment process, visit the following site:

http://www.environment.fhwa.dot.gov/projdev/index.asp

To find more information about the CEQA environmental review and assessment process, visit the following sites:

http://ceres.ca.gov/ceqa/guidelines/

http://www.dera.saccounty.net/FAQs/tabid/88/Default.aspx

The greatest challenge identified by STA staff is that number of requirements that apply to environmental approvals for transportation projects.

ROW Acquisition/Negotiations

As stated in the previous section, discussions regarding ROW are prohibited unless environmental clearance has been achieved. This phase of the project can be accomplished through purchase of necessary land or discussions with interested parties to obtain easement rights. ROW Acquisition/Negotiations is estimated as 10% of Construction Cost.

Construction

While Federal and State laws and requirements are essential to protecting the environment and facilitate a thorough planning process, these requirements also pose a significant challenge to timely project delivery. Challenges include the exceptional number of Federal laws, often inflexibility of many individual laws, inconsistencies with local or Federal laws, multiple agencies being charged with carrying out the requirements of the laws, detailed field review/hands-on oversight of Federal agencies for each project, and changing interpretations of the laws over time. Construction cost estimates can be found in Table 5-1A: Bikeway Project Cost Assumptions.

Performance Measures and Evaluation

Chapter 7 – Performance Measures and Evaluation provide an overview of each goal identified in the Bicycle Plan.

Planning and Support Facility Recommendations

The general recommendations in this section have been identified by comments made by members of the BAC and TAC. These recommendations may be adopted by local jurisdictions in tandem with policies and objectives.

Recommendation #1: Solano Countywide Bicycle Parking Implementation Project

(See Chapter 4 – Policies and Programs for preliminary scope of work)

STA staff recommends the following bicycle parking implementation project:

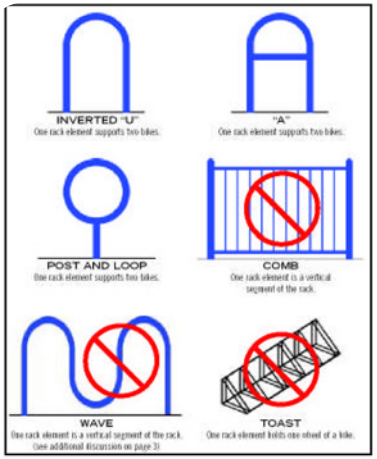
Key Participants in the Program

Key participants in the program include the STA, its member agencies, local business, schools and school districts, and developers.

Basic Components of the Program

He program consists of three basic components:

1. Acquiring and installing bicycle parking in public places such as city halls, libraries, parks, schools, etc.
2. Encouraging local businesses to provide bicycle parking for their customers and employees; and
3. Altering zoning regulations to ensure bicycle parking is provided in new developments



Sample rack style "do's and don'ts" as identified by the Association of Pedestrian and Bicycle Professionals.

Bicycle Parking Placement Guidelines (Location and Type)

Visibility – bicycle racks and lockers should be located in a highly visible location near building entrances so cyclists can spot them immediately. Bicyclists and motorists alike appreciate the convenience of a parking space located right in front of a destination. A visible location also discourages the theft and vandalism of bicycles and bicycle racks. Preferably, racks will be located as close as or closer than the nearest automobile parking spaces to the building entrance.

Security – properly designed bicycle racks and lockers that are well anchored to the ground are the first measure to help avoid vandalism and theft. In some cases, added measures, which may include lighting and/or surveillance, are essential for the security of bicycles and their users.

Weather Protection – is especially important. A portion of all bicycle parking should be protected from the rain and the sun. Various methods can be employed including the use of building awnings and overhangs, newly constructed covers, weatherproof bicycle lockers or lids, or indoor storage areas.

Clearance – adequate clearance is an essential component of rack placement. Clearance is required between racks to allow for the parking of multiple bicycles and around racks to give bicyclists room to maneuver and to prevent conflicts with others. Racks should be placed in a position where they do not block access to and from building entrances, stairways, or fire hydrants.

Cost of Implementation – Depends on type of bicycle parking (i.e., bicycle racks, manual lockers, electronic lockers, etc.)

Recommendation #2: Install new pedestrian signals at locations where school children must cross arterials to access the school grounds. These signals may be activated by loop detectors or operate only in the morning and afternoon. In conjunction with these improvements or as an alternative, crosswalks should be enhanced by having a crossing guard present before and after school hours, reconstructing crosswalk with different paving material (such as brick), adding rippled warning pavement 100 feet from crosswalk, installing adequate overhead light standards, and providing warning signs and flashing yellow lights. Locations and types of signals and other improvements should be accomplished by the Public Works department in conjunction with their respective school districts.

Recommendation #3: Install detectors at all signalized intersections along the bikeway system as intersections are upgraded. Detectors should be located within the striped bike lane either along the curb or between the right-turn lane and through lane. Detectors should be installed so as to be triggered by bicycles: a stenciled emblem should identify location of trigger point. Where possible, pockets should be provided at intersections between the right turn only lane and the through lane. Signal detectors should be provided at major signalized intersections unless pre-timed signal coordination is in effect.

Recommendation #4: Adopt specific guidelines for all grates, railroad crossings, and other potential hazards to bicyclists that meet Caltrans, AASHTO, or other relevant guidelines. Bikeway surfaces should be void of all grates and drains (maximum groove one-half inch wide) where a bicycle wheel may slip or become lodged. Maximum vertical step will be three-quarters inch high. All railroad crossings will be at 90 degrees.

Recommendation #5: Initiate a bikeway improvement and maintenance log in the local Department of Public Works where all observed and recorded hazardous conditions are listed, and scheduled for replacement or repair. This includes all grates and railroad crossings that do not meet specific criteria. Each bikeway should be swept on an as needed basis. Obstructions and potholes should be repaired as soon as feasible after being reported. Set up a phone number for people to call and report bicycle facilities that need repair/attention.

Recommendation #6: Establish a volunteer maintenance program where the city organizes regular work parties and provides support. Bike paths may be "adopted" by corporations or clubs and maintained by them in exchange for a public acknowledgment.

Recommendation #7: Develop an inventory of PCI for bikeway routes in Solano County. Use current Pavement Condition Index (PCI) information for roads to develop an inventory for existing bikeways in Solano County. Estimated annual maintenance costs for bike lanes and bike paths are included in Section 5.1 (table 5.1C). These costs cover a level of maintenance to ensure that existing and future bikeways are safe for bicyclists to use. An inventory of pavement condition for the routes included in the Solano Countywide Bikeway Network is anticipated for development in follow up to this plan. Recommendation #'s 5-6 are related.

Recommendation #8: Expand Education Programs. Past educational programs in Solano County schools, such as the off-road training and fitted helmets given by Trips for Kids in 1998, should be expanded and supported by a secure, regular funding source. A Joint City/School District Safety Committee should be formed consisting of appointed parents, teachers, administrators, police, and public works staff whose task it is to identify problems and solutions, ensure implementation, and submit recommendations to the School Board or City Council.

Recommendation #9: Develop New Educational Program Materials and Curriculum. Education materials should be expanded to promote the benefits of bicycling, the need for education and safety improvements, the most recent educational tools available in the country (including the use of low-cost safety videos), and directives to parents on the proper school drop-off procedure for their children. Educational pamphlets for children should be made more readable. Incentive programs to reward good behavior should be developed. Educational programs, and especially on-bike training, should be expanded to more grades and for more hours per year. Education curriculum should, at a minimum, cover the following lessons:

- On-bike training
- Rules of the road
- Night riding (clothes, lights)
- Importance of wearing helmets
- How to adjust and maintain a bicycle
- How to negotiate intersections
- Riding defensively
- Use of hand signals
- Riding on sidewalks

A standard safety handbook format should be developed incorporating the best elements of those currently in use, and made available to each school on disk so they may be customized as needed. Each school should develop a circulation

map of the campus and immediate environs to include in the handbooks, clearly showing the preferred circulation and parking patterns and explaining in text the reason behind the recommendations. This circulation map should also be a permanent feature in all school newsletters. Bicycle helmet subsidy programs are available in California, and should be used to provide low-cost approved helmets for all school children that ride bicycles.

Recommendation #10: Develop an Adult Education Program. Establish an adult bicycle education program through the Parks and Recreation Department or other City departments that (a) teaches adults how to ride defensively, (b) how to ride on a variety of city streets, and (c) encourages adults to feel more confident to ride to work or for recreation. Work with local bicycling groups who could provide the training expertise, and possibly lead organized bicycle training sessions, tours and rides.

Recommendation #11: Educate Motorists. Educate motorists about the rights and characteristics of bicyclists through a variety of means including: (a) making bicycle safety a part of traffic school curriculum, (b) producing a brochure on bicycle safety and laws for public distribution, (c) enforcing existing traffic laws for both motorists and bicycles, (d) sending an official letter to the Department of Motor Vehicles recommending the inclusion of bicycle laws in the drivers license exam, and (e) install signs that read "Share the Road" with a bicycle symbol at least every 2,500 feet along all routes of the proposed primary system where bike lanes are not feasible, travel lanes are under 14 feet wide, and ADTs exceed 20,000.

Recommendation #12: Bikeway Identity/Wayfinding Signs. A logo for the proposed bikeway system has been developed and could be placed relatively inexpensively on existing and new segments to raise the visibility of the effort. This identity should be used on all bikeway signs, brochures, maps, and other materials. The logo will help define the bikeway routes as a cohesive system rather than a series of disconnected routes. Directional, informational, and warning signs should conform to the Caltrans Chapter 1000 and the Manual of Uniform Traffic Control Devices (MUTCD) unless superseded by City Guidelines. <insert bikeway logo> The cost to produce a 18"x24" sign is approximately $300. Further development of a countywide wayfinding signage plan is needed.

Recommendation #13: Distribute Maps and Brochures. Solano County has produced and distributed over 30,000 Solano-Yolo BikeLinks Maps. This map is available for download and viewing online through the STA website (www.sta.ca.gov). The maps should continue to be distributed to all local bike shops, libraries, schools, and major employers.

Brochures on bikeway improvements and requirements are also effective education and marketing strategies. For example, the City of Portland produces brochures on bicycle parking requirements for local employers and bicyclists alike. Other specialty brochures might cover steps neighborhoods and elementary schools can take to improve bicycling conditions (i.e., Safe Routes to School), or types of incentive programs employers can offer to encourage employees to bicycle.

Recommendation #14: Provide Bicycle Licensing Information. Requiring bicycles at schools to be licensed can reduce theft by providing and identification number for the Police. It can also serve as a regular forum for providing education to young riders.

Recommendation #15: Provide Improvements to Major Intersections on Countywide Bikeway Network. These improvements should be targeted for all major intersections on the proposed bikeway network, and at locations where school children cross a busy street to gain access to their school.

Recommendation #16: Provide Crossing Protection Resources. Resources for crossing safety should be encouraged. Another type of crossing includes that of bikeway facilities or routes that traverse a railroad crossing. The Solano Rail Inventory Study provides and inventory of all such crossings. See recommendation #'s 3 and 4 in this section.

Recommendation #17: Establish a Bicycle Coalition for Solano County. Solano County does not currently have a bicycle coalition as an independent foundation for advocacy as is common in other Bay Area Counties. Support for development of a bicycle coalition would be beneficial to the development of the countywide bikeway network. If established as a non-profit organization, the group could also be eligible for specific grants and non-profit organization programs available.

Recommendation #18: Establish a Marketing Program for Bicycle Transportation Awareness. This section addresses actions a local jurisdiction can take to increase awareness and use of the existing bikeway system. Increased commuter bicycling is often one of the goals of a local Trip Reduction Ordinance (TRO) and Transportation Demand Management (TDM) organization, aside from the department charged with implementing the proposed bikeway system itself. One of the first steps is to identify and contact those local organizations or departments which have mutual interests in promoting bicycling, whether it is a TDM group or health organization such as the American Lung Association. Not only will this coordination help in gathering resources and support, but also assist or help in identifying innovative techniques that have proved successful. Other common marketing techniques are use of Bikeway Identity/Wayfinding Signs, Maps and Brochures, Project Information, and Bicycle Licensing Information.

CHAPTER 6

DATA COLLECTION

This chapter consists of data including the following:

6.1 BICYCLE AND PEDESTRIAN COUNTS

6.2 COMMUTE DATA

The data presented in this chapter is the result of data collection efforts of the Solano Transportation Authority. As part of these efforts, field surveys were conducted to document bicycle ridership in Solano County. The information collected had been used to assist in the development of the project updates recommended in this Plan.

6.1 Bicycle and Pedestrian Counts

Current Counts:

In 2002, the Metropolitan Transportation Commission (MTC) reported data from their Bicyclist and Pedestrian Data Collection project, which collected bicyclist and pedestrian counts. The purpose of conducting bicyclist and pedestrian counts is to determine the current usage levels at various types of bicycle and pedestrian facilities throughout the nine-county Bay Area region (Marin, Sonoma, Napa, Solano, Contra Costa, Alameda, Santa Clara, San Mateo and San Francisco counties). The counts alone do not determine the need or merit for improvements to a corridor or intersection. Although the STA has not conducted a countywide data collection effort, it is consistent with MTC's efforts. In 2011, the Metropolitan Transportation Commission (MTC) will be initiating a countywide collection process that STA staff will assist conducting. Table 6-1 provides the most current counts.

TABLE 6-1 – MTC Bicyclist and Pedestrain Counts (2002)

Agency	Location	AM Ped	AM Bike	PM Ped	PM Bike
Benicia	Military East @ 2nd Street	19	3	15	0
County	Dixon-Davis Bike Route @ Vaughn	0	0	3	0
Dixon	First Street @ C Street	62	8	17	10
Fairfield	Hwy 12/Jameson Canyon Rd @ Red Top Rd	0	0	1	0
Fairfield	Travis @ Texas	94	17	95	33
Rio Vista	Downtown Waterfront Path	5	0	23	2
Suisun City	Main @ Lotz	35	3	55	1
Vacaville	Alamo @ Nut Tree	95	48	60	38
Vacaville	Downtown Creekwalk	75	37	159	47
Vallejo	Solano Bikeway @ Columbus Pkwy	2	0	0	4
Vallejo	Waterfront Path	64	0	123	0
Total:		451	116	551	135

Methodology

The criteria used in selecting the count locations included:

1. High bicycle collision rates
2. On local or regional bicycle network (existing or proposed)
3. Proximity to major transit facilities
4. Proximity to schools and universities
5. Proximity to local or regional attractions/destinations

The original report from where this data was taken can be viewed through the following web link: *http://www.mtc.ca.gov/library/Bike-Ped-Data-Collection.pdf*

6.2 Commute Data

To identify documented bicycle commuters, United States Census data was reviewed for type of transportation used by commuters in Solano County. Table 6-2 shows the findings.

BTA REQUIREMENT #1

The estimated number of existing bicycle commuters in the plan area and the estimated increase in the number of bicycle commuters resulting from the implementation of the plan.

TABLE 6-2 – COMMUTE TO WORK STATISTICS, 2005-2007 American Community Survey (ACS) Transportation Profiles

Mode of Transportation	State of CA %	**Solano County %	Benicia %	Dixon %	Fairfield %	Rio Vista %	Suisun City %	Vacaville %	Vallejo %
Car, Truck, Van; Drive-alone	71.8	73.3	77.6	79.6	79.0	70.8	74.5	78.8	66.6
Car, Truck, Van; Carpooled	14.5	17.7	11.7	12.2	13.7	14.3	18.2	14.5	22.9
Transit	5.1	2.7	4.2	0.7	0.9	1.1	2.6	0.7	5.0
Walked	2.9	1.6	1.0	1.7	0.3	6.9	1.0	1.8	1.2
Bicycle	0.8	0.5	0.5	1.4	1.2	0.6	0.3	0.4	0.9
Other Means	1.0	1.2	0.8	1.0	0.5	0.0	1.2	1.4	0.9
Worked at Home	3.8	3.1	4.2	3.4	3.0	6.4	2.4	2.4	2.9

**Source: http://www.fhwa.dot.gov/ctpp/*

Commuters and students follow similar paths, which is typically the most direct possible route from origin to destination. For grammar school students, this may consist of residential or collector streets, with few crossings of major arterials. For junior high and high school students, riders may have to cross up to five or six arterials to reach school. For college students and adult commuters, rides are most often less than five miles but may be as long as 10 or 15 miles.

Unfortunately, commuters and students need to travel during periods of peak traffic activity, and to destinations that may have high levels of congestion and traffic volumes/speeds. For example, one of the most dangerous parts of a young student's commute is the drop off zone in front of their school where dozens of vehicles jockey for position. Once they have arrived at their destinations, bicycle commuters often find no (or poor) bicycle racks, and no showers or lockers.

Rather than providing an incentive for bicyclists, most schools and employers inadvertently discourage bicyclists while continuing to subsidize parking for the automobile. Commuting bicyclists have readily apparent and straightforward needs. They require bike lanes or wider curb lanes along all arterials and collectors, loop detectors at signalized intersections, new signals where school children need to cross busy arterials, adequate maintenance of the pavement, and adequate bicycle storage and showers at their destinations.

Most commute bicycle trips are less than five miles (eight kilometers) and therefore not regional trips, except for those commuters linking to another mode such at an Amtrak Station, transit stop, or park and ride lot. Allowing bicycles on other modes such as rail or bus, or providing bicycle lockers at multi-modal stations will help extend the range of the bicycle commuter. Other bicycle commuters will depend on a well-devised local bikeway network produced by a city in its bikeway master plan.

CHAPTER 7

PERFORMANCE MEASURES AND EVALUATION

This chapter covers the following components of the Solano Bicycle Transportation Plan:

7.1 RECOMMENDED PERFORMANCE MEASURES

7.2 EVALUATION

7.1 Recommended Performance Measures

Performance measures have been identified as part of the 2011 Solano Countywide Bicycle Transportation Plan to assist staff and implementing agencies monitor the progress being made toward achieving the goals and objectives of the Plan. The significance of performance measures is to quantify the goals and objectives of the Plan described in Chapter 2. By introducing performance measures to the 2011 Plan, STA staff and partnering project sponsors will have a better ability to track the progress of the development of the Solano Countywide Bikeway Network. Performance monitoring will be led by the STA Planning and Projects departments, with support from the Bicycle and Pedestrian Advisory Committees. The STA performance measures for achieving the Plan's Goals are represented in eight (8) categories:

a. Availability of Information (see Chapter 6, Data Collection)

b. Bikeway Network Development

c. Education

d. Environmental Assessment Process

e. Funding

f. Safety

g. Surface Condition

h. Wayfinding Signage

Table 6-3 has been adapted based on the City of Seattle Bicycle Master Plan Performance Measures. It is intended to outline the goals and specific performance measures to quantify the achievement of each. Following Table 6-3, descriptions of each are listed by Performance Measure. Each item listed in the "Performance Measure" column is either an outcome or an output. Performance measures often measure outputs, which are quantitative analyses (i.e. # of miles of bicycle lanes or # of bicycle racks installed). Due to the nature of cycling and the limited ability to accurately track and forecast usage, it is more challenging to identify measures to assess outcomes. Outcomes are used in a qualitative manner of analysis (i.e. percent of population who are "very satisfied" with the bikeway network in their community). To address this situation, many options were considered. In conclusion, it was decided by STA staff that a balance of both outcome and output oriented performance measures could be achieved rationally and logically by

splitting them into separate Performance Measure Sets for each Goal, Set 1 and Set 2. They are defined as follows:

- Performance Measures (PM) Set 1 (Quantitative) – Measures the physical development of the system and to some extent staff administration of this process. Since the countywide bikeway network is still under development and moving its focus toward implementation of many overall transportation connectivity/support aspects (i.e. bicycle racks on transit, bicycle parking, amenities at key business/service centers, etc.), a measure of physical development of the system is necessary to track the long-term progress (20+ years) of project delivery. Over time, STA staff and project sponsors can have a standard resource to look to when evaluating the progress they are making and planning for what they would like to accomplish.
- Performance Measures (PM) Set 2 (Qualitative) – This set aims to measure the satisfaction and benefits bestowed to the public as a result of development of the bikeway network as defined by this Plan. This performance measure set is twofold: a) Public Opinion Survey and b) Outcomes of Physical System Development; these are quantitative measures from which qualitative conclusions can be drawn (i.e. # of non-derelict bicycles locked to installed bike racks).
    - For PM Set 2a (Public Opinion Survey), a public opinion survey can identify perceived system usage and aspects to quality of life for residents in each community in Solano County.
    - For PM Set 2b (Outcomes of Physical System Development), the example of # of non-derelict bicycles locked to installed bike racks appears quantitative in nature. On the other hand, it actually demonstrates the ability to draw a correlation for bicycle ridership/increase or decrease in users over time (output) based on installed bicycle parking facilities (output). This also assumes that higher #s of bicycle riders suggests a higher quality of life due to increased physical activity and lesser vehicle emission from each bicycle user. With report development, it is necessary that all assumptions are detailed in conjunction with correlations drawn from the measures of Outcomes of Physical System Development.

Each goal in Table 6-3 on the following page provides Performance Measures categorized by Performance Measures Set as appropriate.

Table 6-3 : Performance Measures

Bicycle Transportation Plan Goal	Performance Measure*	Baseline Measurement	Performance Target	Data Collection Frequency	Data Collection Responsibility
Goal 1 – Plan and maintain a current Countywide Bikeway Network	Set 1: # of times countywide bicycle network projects is reviewed by Bicycle Advisory Committee (BAC)	To be collected in 2011	Committee review two times per year	Every Year	STA staff
	# of times priority bicycle projects are reviewed by STA staff with project sponsors	Every Year	One time per year	Every Year	STA staff
	Set 2a: Survey Questions: • what improvements would convince you to ride or ride more often? (comprehensive network, parking, showers/lockers at work, etc.) • is the bikeway system in your community comprehensive? (not comprehensive to extremely comprehensive)				
	Set 2b: # of STA partner agencies that have adopted Solano Countywide Bicycle Transportation Plan				
	# of times Solano Countywide Bicycle Transportation Plan is updated				

Table 6-3: Performance Measures (Continued)

Bicycle Transportation Plan Goal	Performance Measure*	Baseline Measurement	Performance Target	Data Collection Frequency	Data Collection Responsibility
Goal 2 – Build the bicycle transportation network by planning, designing, constructing and managing transportation facilities that will meet the needs of the cycling public	Set 1: Percentage of Bicycle Network Completed	To be collected in 2011	Complete 130 miles of proposed facilities by 2025 (includes existing)	Every Year Years	STA staff in collaboration with local agencies
	# of completed projects that were identified by Plan	To be collected in 2011		Every Year	" "
	# of miles of existing facilities	120 miles (2010)	Complete at least 10 miles by 2025	Every Two Years	" "
	# of grant applications applied for and obtained for bicycle projects/ programs	To be collected 2011	TBD	Every Year	STA staff
	Amount of funding programmed for bicycle projects per year	Approximately $2 million (FY2010-11)	TBD At least 50% All	Every Year	STA staff
	Percentage of targeted STA staff who participate in training on bicycle issues	TBD		Every Two Years	STA staff
	# of STA staff involved w/review of initial study for Tier1 and Tier 2 Priority Bicycle Projects	0-2		Every Year	STA staff
	Set 2a: • Does the bicycle network meet your expectations? • Does the bicycle network meet your needs?				
	Set 2b: # of non-abandoned bicycles locked at installed bicycle parking facilities				

Table 6-3: Performance Measures (Continued)

Bicycle Transportation Plan Goal	Performance Measure*	Baseline Measurement	Performance Target	Data Collection Frequency	Data Collection Responsibility
Goal 3 – Improve bicyclist safety in Solano County	Set 1: Surface Condition • Alternative Modes PCI Lighting • # of routes w/ lighting Set 2a: • What are factors for not riding or not riding more often? • Do you feel safe riding your bicycle in your community? • Is bicycling in your community safe? • Are bicycle shops accessible to you for purchase of bicycling safety equipment? • Do you wear bright and reflective gear when biking Set 2b: Public ability to contact public works departments regarding safety concerns	To be collected in 2011 To be collected in 2011	• Achieve __ PCI for Class I paths • Provide __ Alt. Modes PCI for Class II and III	Every Two Years Every Two Years	STA staff in collaboration with local agencies

Table 6-3 – Performance Measures (Continued)

Bicycle Transportation Plan Goal	Performance Measure*	Baseline Measurement	Performance Target	Data Collection Frequency	Data Collection Responsibility
Goal 4 – Increase the use of bicycles as a viable alternative to the automobile	Number of bicycle racks installed through the STA Bicycle Parking Program	Approximately __ existing bicycle racks	Provide bicycle racks at all city facilities by 2015	Every Two Years	STA staff
	Availability of BikeLinks Map/ # of maps printed/distributed	# of BikeLinks Maps Printed and distributed 2009-2010	All Bicycle Shops in Solano County have the BikeLinks Maps	Every Year	STA staff
	Website bicycle-related Clicks/ Searches/Site visits	To be collected 2011	TBD	Every Year	STA staff
	Use of Bicycle Incentive Program	To be collected 2011	TBD	Every Year	STA staff
	# of BikeLinks Map Updates	To be collected 2011	Review every year, update every two years	Every Two Years	STA staff
	# of employers w/ bicycle incentives or participate in the Solano Commute Challenge	To be collected 2011	TBD	Every Two Years	STA staff and SNCI staff
	Set 2a: Survey questions: • How many bicycles are in your household • How many bicycles were purchased in your household (3 months, 6 months, 12 months, 24 months) • What type of bicyclist are you? • How often do you ride your bicycle? • How often do you ride your bicycle to get to work?				

Table 6-3 – Performance Measures (Continued)

Bicycle Transportation Plan Goal	Performance Measure*	Baseline Measurement	Performance Target	Data Collection Frequency	Data Collection Responsibility
Goal 4 (Continued)	Set 2b: # of non-abandoned bicycles locked at installed bicycle parking facilities				
Goal 5 – Develop an integrated and coordinated transportation system that connects bicycling with other modes of transportation, which includes, but is not limited to, driving, walking, and taking public transportation	Set 1: # of Complete Streets Checklists submitted for priority bicycle projects \# of priority project tours hosted Inventory of bicycle parking at transit stations, onboard transit, and/or park-and-ride destinations Set 2a: • How long is your one-way bicycle commute? • What other forms of transportation do you use? (walking, train, bus, ferry, etc.) • Is the bikeway system connected to other modes of transportation in your community? Set 2b: # of transit facilities of regional significance with at least one bike route leading to it	To be collected in 2011 Every two years To be collected in 2011 (Capitol Corridor, SolanoExpress, Vallejo Ferry ridership data)	All projects submitted in Transportation Improvement Program (TIP) and all priority bicycle projects identified in Tier 1 must submit complete streets checklist Every Two Years TBD	Every Year Every Two Years Every Two Years	STA Staff STA Staff STA staff in collaboration with local agencies

Table 6-3 – Performance Measures (Continued)

Bicycle Transportation Plan Goal	Performance Measure*	Baseline Measurement	Performance Target	Data Collection Frequency	Data Collection Responsibility
Goal 6 – Provide safe access for bicyclists to all points in Solano County	Set 1: # of reported bicycle crashes per total number of bicyclists counted & annual traffic volumes • SWITRS data # of bicycle counts conducted Inventory of hours of operation and security for multi-use trails # of methods for public to provide comment regarding the bikeway network Set 2a: • Are you able to get to the places you would like to by bicycle? Set 2b: # bicyclists counted at key intersections identified by staff	1998-2008 SWITRS data 2002 MTC Counts To be collected in 2011 3 (website, BAC, email)	Less than 100 total collisions per year (# taken from average of total collision between 2006-2008) Conduct counts every two years TBD 5+	Every Two Years Every Two Years Every Two Years Every Two Years	STA Staff via CHP SWITRS data STA Staff STA Staff STA Staff
Goal 7 – Develop a bicycle network that connects to northern California's alternative modes system	Set 1: # of routes that connect to regional trails and bikeway networks	To be collected in 2011	TBD	Every Two Years	STA Staff

Table 6-3 – Performance Measures (Continued)

Bicycle Transportation Plan Goal	Performance Measure*	Baseline Measurement	Performance Target	Data Collection Frequency	Data Collection Responsibility
Goal 8 – Develop the Countywide Bicycle Plan to serve as a bicycle master plan or a foundation for local agencies to use in the development of a local plan	Set 1: # of agencies that have adopted the Solano Countywide Bicycle Transportation Plan	To be collected in 2011	All member agencies have adopted the Solano Countywide Bicycle Transportation Plan	Every Two Years	STA Staff
	# of agencies with citywide bicycle plan	To be collected 2011	Support all member agencies with desire to further develop plans	Every Year	STA Staff
Goal 9 – Develop a standard countywide wayfinding signage system to regionally direct bicyclists that can be adopted by local agencies	# of routes that have the Solano Bikeway Sign	To be collected in 2011	Complete Wayfinding Signage Plan by 2012	Every Year	STA Staff
	# of routes with wayfinding signage in addition to bike route signs Inventory of candidate routes for first phase of sign implementation	To be collected in 2011	All routes funded by STA by 2015	Every Two Years	STA Staff
	Set 2a: Survey questions: • Is the Solano-Yolo BikeLinks Map useful to you? (not useful to extremely useful) • Do you recognize the bicycle wayfinding system in Solano County? • Is the bicycle wayfinding system clear? • Is the bicycle wayfinding system useful to you?	To be collected in 2011	TBD	Every Two Years	STA Staff
	Set 2b: # of non-abandoned bicycles locked at installed bicycle parking facilities				

** Performance measures set 2a survey questions are recommendations and can be adjusted based on needs of each community*

This section provides a listing of each quantitative- performance category with a description of the measure listed in bullet points underneath.

Availability of Information (Goal 4)

- Number of BikeLinks Maps printed and distributed
- Website Clicks/Searches/Site visits
- Use of STA Bicycle Incentive Program

Bikeway Network Development (All Goals)

- # of projects completed
- Miles to be completed by 2025: 130 miles. 120 miles currently exist.
- Amenities: number of bicycle racks installed through the STA Bicycle Parking Program (new program)
- Bicycle Parking at transit stations and onboard transit throughout Solano County
- Number of employers w/ bicycle incentives or participate in the Solano Commute Challenge

Education (Goal 5)

- Percentage of targeted STA staff who participate in training on bicycle issues

Environmental Assessment Process (Goal 2)

- Completion of project information sheets for projects recommended for funding prior to commitment
- STA staff involvement with review of Initial Study for Tier 1 and Tier 2 Priority Bicycle Projects

Funding (Goal 2)

- number of bicycle project grant applications applied for and obtained for bicycle programs
- amount of funding programmed for bicycle projects per year
- Safety (Goals 3 and 6)
- Inventory of hours of operation and security for multi-use trails
- # of bicyclist counts conducted

Surface Condition (Goal 3)

- PCI for completed bikeway network routes
- Reporting process for public in need of expressing concern

Wayfinding Signage (Goal 9)

- Inventory of existing routes with County Bike Route sign (i.e. McGary Road, Vaca-Dixon Bike Route)
- Inventory of candidate routes for first phase of sign implementation
- # signs for complete wayfinding signage network

7.2 Evaluation

Evaluation of change should be focused on review of performance measures and discussion through a diverse group of committees, such as the Alternative Modes Committee (AMC), Bicycle Advisory Committee (BAC), and the Solano Transportation Authority Technical Advisory Committee (TAC). Data collected locally should be provided to STA staff to ensure that data used by STA at the regional capacity is consistent with local findings.

Each year in November, through the BAC, Project Delivery Working Group (PDWG), and TAC, STA staff will present a summary of successful processes based on project implementation, data collection, and general overall administering of funding for projects. The summary report will also provide information regarding challenging processes that could be noted and improved upon in the future.

The information provided through the recommended performance measures regarding the progress being made on projects will assist in understanding the overall progress of the system and the ability for STA staff and project sponsors to accomplish the Goals set forth in this Plan.