

# NCTPA Countywide Bicycle Plan



Prepared for



Napa County Transportation & Planning Agency



City of American Canyon



City of St. Helena



City of Calistoga



Town of Yountville



City of Napa



County of Napa

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## Executive Summary

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This Napa Countywide Bicycle Plan presents a cooperatively-developed 25-year vision for building a complete bicycling system for our community. It also presents a carefully chosen set of specific goals, objectives, and policies to guide the ongoing evolution of that system.

Napa County, with its varied terrain, beautiful scenery, and mild weather is ideal for both practical and recreational cycling. Cities in the County are relatively flat and compact, characteristics that are optimal for intra-city commute and utilitarian trips. Currently, inter-city travel on the valley floor via bicycle can be challenging because of the distance between the cities, limited connections, and roads with high-speed traffic. Outside of the cities and valley floor, the County's mountains, valleys, and scenery provide a "world class" experience that is a physically challenging and attractive for recreational cyclists.

This Plan has been developed at a time when there has been a strong surge of interest in bicycling in Napa County, as well as in the Bay Area Region, the nation and the world. New programs, systems and technologies have been emerging month by month, spurred on by an intention to reduce greenhouse gas emissions, to promote more active, healthy transportation options, to reduce traffic congestion, and to provide connections between our communities. The Napa Vine Trail Coalition, dedicated to creating a Class I Multi-use Path the full length of Napa Valley, has emerged as a popular community organization, made up of 27 of the county's most influential non-profit and government groups. The Napa Bicycle Coalition, recently re-named "Napa Bike," has energized the cycling community to become an even more active participant in the development of cycling resources in the county. The local "Safe Routes to School" program has been expanding rapidly, now serving schools throughout Napa County. The Napa County Transportation and Planning Agency (NCTPA) has adopted a long range strategic goal of having 10 percent of all trips made by bicycle in Napa County. This new Countywide Bicycle Plan is one way that NCTPA looks to accomplish this goal, in close partnership with the governments, non-profit organizations and citizens of our community.

This Plan is made up of two major elements:

1. A specific set of existing and proposed Class I, II and III bikeways, presented on a set of maps and a linked set of data tables that describe the routes, including their beginning and end points.
2. A set of supportive policies and programs designed to make maximum safe use of existing routes, and to promote turning "proposed" routes into reality.

This Plan is presented in two parts:

1. The Countywide Overview, which describes elements that are common to all six Napa jurisdictions. The Overview covers:
  - Vision and Goals
  - Background and Partners
  - Objectives and Policies
  - Existing Conditions
  - The Recommended Bicycle System
  - Implementation
2. Six jurisdiction-specific planning documents, one each for the Cities of American Canyon, Napa, St. Helena and Calistoga, one for the Town of Yountville and one for Napa County.

The Plan has been developed over the past year with active participation of several key groups: the staff of each City, Town and County; the local bicycle committees, made up of citizens appointed by the local governments; the general cycling community, which has been invited to all planning meetings; and the public at large, which was invited to two "bicycle summits" held at key points in the development of the Plan.

## **A Bicycle Vision and Goals for Napa County**

### Vision

There will be a comprehensive, interconnected bicycle system throughout Napa County, including connections to the rest of the Bay Area region. There will also be development patterns and programs that will support access to this system and provide people with safe, convenient and enjoyable. Bicycling is common for everyday trips and recreation, contributing to the quality of life in Napa and the health, safety and welfare of its residents, workers and visitors. Napa is known as a bicycle friendly community, achieving the highest level of certification from the League of American Bicyclists, with a “world class” bicycling system.

### Goals

*Principal Goal* – To develop and maintain a safe and comprehensive countywide bicycle transportation and recreation system that provides access, opportunities for healthy physical activity, and reduced traffic congestion and energy use. Policies, programs and projects work together to provide safe, efficient and enjoyable opportunities for bicyclists of all types, ages, and abilities to access public transportation, school, work, recreation areas, shopping and other activity centers, and residential neighborhoods, and to connect Napa jurisdictions to each other and the region.

*Goal from the NCTPA Strategic Plan, “Napa’s Transportation Future”* – Increase the percent of countywide trips made by bicycle to 10 percent.

## **Background and Partners**

### Relationship to Local Plans and Other Relevant Land Use, Transportation, Air Quality, and Energy Planning Efforts

Implementation of the NCTPA Countywide Bicycle Plan will require coordination, consistency, and cooperation amongst numerous jurisdictions and agencies with varied interests that implement policy and maintain regulatory authority over land-use and transportation decisions within and immediately adjacent to Napa County. Local bicycle plans in American Canyon, Calistoga, Napa, St. Helena, Yountville, and the County of Napa supplement this overview document and comprise the Napa Countywide Bicycle Plan. Additionally, there are a number of federal, state, regional, county, and local agencies that have developed plans, programs, directives, policies, and regulations related to funding, planning, designing, operating, maintaining, and using transportation systems and bicycle facilities. These agencies and their plans, policies, and supporting information have been evaluated for coordination, consistency, and conformance with this Plan as identified by Caltrans and stipulated in the Streets and Highways Code Section 891.2. Relevant documents, policies, and supporting information are summarized and provided in Appendix A.

### Bicycle Plan Development and Public Participation

The Bicycle Plan was developed over an 18-month period in 2010/11. The Plan was prepared by a consulting team working closely with NCTPA staff, a Project Steering Committee, local agency staff, Bicycle Advisory Committees or other responsible groups from the County and Napa’s cities, stakeholders, and the public and interested citizens. The 2011 Napa Countywide Bicycle Plan builds upon the efforts of the 2003 Plan and integrates new projects, partnerships, concepts, and programs.

Public participation was an important component in the development of the Countywide Bicycle Plan. The NCTPA and plan participants solicited public input on existing conditions for bicyclists, potential improvement projects and programs, and site-specific issues such as safety concerns, access, connectivity, bicycle parking, and other items needed to improve conditions for bicyclists.

## Implementing Partners



Implementation of the Countywide Bicycle System and encouragement of its use is a responsibility shared by all government agencies and jurisdictions in the Plan Area. It relies not only upon the development of good plans, but commitment at each level of government to support bicycle projects and programs. Whereas each agency has a different level of responsibility for building capital facilities, the implementation of education and encouragement programs is a responsibility shared fairly equally among all agencies.

- Cities and County
- Napa County Transportation Planning Agency
- Metropolitan Transportation Commission
- California Department of Transportation (Caltrans)
- Regional Trail Agencies
- Transit Agencies
- Private Developers
- Local Advisory Committees
- Napa County Health and Human Services Agency
- Napa County Office of Education, School Districts, and Schools

## **Objectives and Policies**

In addition to the countywide policies indicated below, each jurisdiction may choose to identify additional local policies. These additional policies are shown in the jurisdiction-specific plans that accompany this countywide overview. (Full text of all policies, including responsible agencies, is contained in the body of the Plan – pages 9-14)

### Objective 1.0: The Countywide Bicycle Network

*Establish a comprehensive, safe, connected countywide bicycle transportation and recreation system to support increases in bicycle trips made throughout the County to 10 percent of all trips by 2035.*

#### Policies

- 1.1 Develop and maintain a local and countywide bicycle transportation and recreation network that connects Napa's neighborhoods and communities . . .
- 1.2 Develop and maintain contiguous north-south and east-west Class I pathways . . .
- 1.3 . . . ensure that all transportation projects on designated bicycle routes include, enhance or maintain bicycle transportation facilities.
- 1.4 . . . cooperatively with all responsible departments and agencies . . . to close existing gaps in facilities and ensure the network is funded, designed, constructed, and maintained.
- 1.5 Consider the needs of all types of bicyclists
- 1.6 Establish and/or maintain local and countywide bicycle advisory committees

### Objective 2.0: Design

*Utilize accepted design standards and "best practices" to facilitate completion of a connected bicycle system that is safe, convenient and enjoyable to use.*

### Policies

- 2.1 (use standard official guidelines) as well as evolving “best practices”
- 2.2 . . . assure that all approaches to signalized intersections include bicycle detection devices . . .
- 2.3 Provide consistent enhanced crossing features at uncontrolled intersections with Class I trails.
- 2.4 Where standard Class II bike lanes are infeasible under current conditions, consider innovative approaches to safely accommodate bicycles . . .
- 2.5 Install way-finding signage, markers, and stencils on off-street paths, on-street bikeways, local Class III routes, and State Routes . . .
- 2.6 Improve safety and access for bicyclists at all at-grade railroad crossings . . .

### Objective 3.0: Multimodal Integration

*Develop and enhance opportunities for bicyclists to easily access public transit and other transportation resources.*

### Policies

- 3.1 Require transit providers to provide and maintain convenient and secure bike parking facilities . . .
- 3.2 Require local and regional transit agencies to accommodate bicycles on all transit vehicles . . .
- 3.3 Plan for additional bicycle storage capacity on transit vehicles . . .
- 3.4 Consider a “Safe Routes to Transit” program that prioritizes bicycle and pedestrian access to transit stops and centers . . .
- 3.5 Encourage the development of “staging areas” as a component of trail development and other bikeway projects . . .
- 3.6 Develop strategies and work with private landowners/businesses to provide bicycle parking at strategic locations . . .

### Objective 4.0: Comprehensive Support Facilities

*Ensure development of comprehensive support facilities for bicycling such as short- and long-term bicycle parking, end of trip amenities, bicycle staging areas, repair stations, and other resources such as bicycle maps, guide information, and on-line tools.*

### Policies

- 4.1 Require adequate . . . bicycle parking for non-residential uses as required in local standards.
- 4.2 Provide adequate short-term bicycle parking and long-term bicycle storage for transportation centers . . .
- 4.3 Work with businesses and private property owners to provide bicycle parking at existing employment, retail, and commercial sites . . .
- 4.4 Encourage employers to provide secure indoor and/or covered bicycle parking for their employees . . .
- 4.5 Encourage major employers to provide shower and locker facilities for workers . . .
- 4.6 Encourage local school district to provide well located, secure bicycle parking at schools. [NCTPA, cities, towns, County]
- 4.7 Design Class I Trails to incorporate high-visibility crossing treatments, pedestrian scale lighting, street furniture, drinking fountains, interpretive elements, and other amenities . . .

### Objective 5.0: Safety and Security

*Create a countywide bicycle system that is perceived to be safe for bicyclists of all types and age groups, and work to reduce collisions involving bicyclists by 50 percent by the year 2035. (Use 2008 collision data as the baseline for analysis and perform periodic progress evaluations at 5-year intervals to benchmark progress.)*

### Policies

- 5.1 Coordinate the delivery of bicycle Safety Education Programs to schools . . .
- 5.2 Focus on improving safety at intersections . . .
- 5.3 Focus on improving safety at railroad crossings . . .
- 5.4 Safety improvements in the vicinity of schools, major public transit hubs, civic buildings, shopping centers, and other community destinations shall be given a high priority for implementation.
- 5.5 Improve ongoing collection and analysis of collision data . . .
- 5.6 Promote targeted enforcement of violations that focus on primary collision factors . . .

### Objective 6.0: Land Use

*Support and strengthen local land use policies for compact, mixed use development in appropriate areas, and for designing and constructing bicycle facilities as part of new development projects.*

### Policies

- 6.1 Condition discretionary projects to provide needed bicycle improvements . . .
- 6.2 In accordance with CEQA Guidelines, projects that could result in the loss of existing bicycle facilities or jeopardize future facilities included in this Plan must be mitigated.
- 6.3 Encourage school districts to participate in providing safe and continuous bicycle and pedestrian connections from surrounding neighborhoods . . .

### Objective 7.0: Education and Promotion

*Develop programs and public outreach materials to promote safety and the positive benefits of bicycling.*

### Policies

- 7.1 Develop and implement a multimedia countywide bicycle and pedestrian safety and education campaign . . .
- 7.2 Expand the delivery of Safe Routes to Schools curriculum to all elementary and middle schools annually . . .
- 7.3 Educate law enforcement personnel, agency staff, elected officials, and school officials about the benefits of non-motorized transportation, and the safety needs of bicyclists and pedestrians.
- 7.4 Develop and maintain a public bikeway map and user guide . . .
- 7.5 Distribute bicycle and pedestrian safety, educational, and promotional materials . . .
- 7.6 Encourage events that introduce the public to bicycling and walking . . .
- 7.7 Encourage major employment centers and employers to facilitate commuting by bicycle . . .

### Objective 8.0: Planning

*Continue to update and integrate bicycle-related transportation projects into land use and recreation plans and roadway improvement projects.*

### Policies

- 8.1 The countywide and/or local Bicycle Advisory Committee (BAC) shall be responsible for advising staff and decision makers on the ongoing planning and coordination of the countywide bicycle transportation system.
- 8.2 Update and adopt the Bicycle Plan in accordance with the California Bicycle Transportation Act, and to coordinate with Regional Transportation Plan updates.
- 8.3 Participating jurisdictions shall update their general plans to incorporate the key contents of this Bicycle Plan.

- 8.4 Consider local and the Countywide BAC as a resource to review roadway improvement projects,
- 8.5 Proactively seek new opportunities for acquisition of . . . rights-of-way . . . for the development of new Class I multi-use pathways . . .
- 8.6 . . . maintain on-street bikeways where off street pathways or alternative routes are proposed. Existing bikeways should not be altered or eliminated without consulting local bicycle advisory committees.
- 8.7 . . . assign staff to assume bicycle coordination duties to oversee implementation of the Countywide Bicycle Plan and coordinate activities between affected departments . . .

**Objective 9.0: Maintenance**

*Maintain and/or improve the quality, operation, and integrity of bicycle infrastructure.*

*Policies*

- 9.1 Maintain geometry, pavement surface condition, debris removal, markings, and signage . . . to the same standards and condition as the adjacent motor vehicle lanes.
- 9.2 Develop or retain a maintenance reporting system with a central point of contact to report, track, and respond to routine bicycle maintenance issues . . .
- 9.3 Require that road construction projects minimize their impacts on bicyclists through the proper placement of construction signs and equipment, and by providing adequate detours . . .
- 9.4 Consider bicycle safety in the routine maintenance of local roads and seek to, at a minimum . . .
  - Trim vegetation . . .
  - Clear debris . . .

**Objective 10.0: Funding**

*Work to maximize the amount of funding to implement bicycle projects and programs throughout the county.*

*Policies*

- 10.1 Seek varied sources of funding, . . .
- 10.2 Encourage multi-jurisdictional funding applications . . .
- 10.3 Promote the availability of adequate regional, state and federal funding sources . . .

**Existing Conditions**

**Issues, Opportunities, and Constraints**

There are a variety of challenges associated with the planning and development of bicycle facilities throughout Napa County. General challenges are listed below and include:

- Limited Local Funds
- Limited Right-of-Way
- Public Support and Perception
- Physical Barriers
- Accommodating Bicyclists on Rural Highways, Arterials, and Roadways
- Railroad Tracks
- Narrow Bridges
- Traffic Signal Detection
- Construction Zones
- Plan and Policy Support
- Routine Consideration
- Bikeway Continuity
- Maintenance
- Bicyclists come in all Sizes, Ages, Skill Levels and Degrees of Confidence
- Real and Perceived Safety Concerns
- Lack of Respect between Motorists and Bicyclists
- SR 29 Divides Napa’s Communities
- Limited North-South and East-West Connections
- Distance Between Communities
- Visitors and Tourism

## Existing Bicycle Programs

There are a variety of existing entities and programs throughout Napa County that work to support and promote bicycling. Existing activities are aimed at improving the safety and convenience of getting around by bicycle and boosting ridership levels. Some of these existing programs have been in place for years, while others such as the County Office of Education Safe Route to Schools Program are relatively new. In some cases, the programs are city or county funded; in others, they are non-profit or volunteer run. Many of the existing programs are delivered on a by-request basis, rather than annually or at regular intervals. Further, there is little coordination amongst existing programs or entities, which tends to limit the delivery and impact of the efforts. Existing entities that provide support programs and/or current activities include:

- Napa County Bicycle Coalition – Napa Bike
- Napa Valley Vine Trail Coalition
- Napa County Office of Education
- Napa Valley Car Free
- Napa County Health and Human Services Agency Activities
- Street Smarts Traffic Safety Campaign
- Eagle Cycling Club
- Focused Law Enforcement Activities
- Bicycle Fairs, Races, and Community Events
- Bike to Work Day/Month Activities
- Bicycle Tours
- Bicycle Maps

## Existing Bikeway Network

### *Primary Bikeway Network*

A new element of this planning effort has been the designation of a countywide Primary Bikeway Network – a continuous countywide network of on- and off-street bikeways that extends between and through communities. The Primary Bikeway Network consists of a selection of existing and proposed Class I, Class II, and Class III bikeways that provide inter-city and inter-county routes along with connections to other transportation modes, major destinations, jobs, neighborhoods, recreation, and local bicycle networks. The network typically includes a north-south and east-west route through each community. The intention of the network is to focus and collaborate on a set of basic routes that will provide access to major destinations and activity areas.

### *Bikeways Inventory (Maps, Database, Description)*

The Countywide Bikeway Network consists of Class I multi-use paths, Class II bike lanes, and Class III bike routes and bicycle boulevards. A comprehensive inventory of existing bikeways is provided in tabular format by jurisdiction within the local agency plans. Existing bikeways are shown on the bikeway maps, Figures I through II.

## **Safety Plan**

### Bicycle Collisions and Safety Analysis

This section addresses safety conditions for bicyclists and includes a review of the California Office of Traffic Safety's (OTS) collision rankings, the Statewide Integrated Traffic Records System, Seasonal Trends in Napa County, an understanding of the limitations of bicycle collision reporting, an analysis of bicycle collisions throughout the County for the most recent 10 years for which collision data was available at the time of the analysis, identification of the top ten collision locations throughout the County by intersection and segment, and a review of urban and rural bicycle crash types.

## Safety, Education, Encouragement, and Enforcement Programs

The Countywide Bikeway Network has been planned to provide safe, convenient access for all types of bicyclists to destinations throughout Plan Area. Like all other modes of transportation, the system and its network of facilities must be used appropriately to maximize the safety of all users, bicyclists, pedestrians, and motorists alike. To help minimize safety risks, it is imperative that bicyclists and motorists follow basic traffic laws. For bicyclists, this includes activities such as riding in the correct direction, stopping at stop signs and traffic signals when the light is red, riding predictably, and taking proper measures to be visible day and night; and for motorists yielding to turning bicyclists, passing with care, and not driving or parking in designated bicycle lanes, to name a few behaviors for both.

### **Recommended Bicycle System**

#### Proposed Bikeway System

The proposed bikeway system consists of an interconnected network of Class I pathways, Class II bike lanes, and Class III bike routes to complete both the local and primary countywide bikeway networks, along with various safety enhancements, bicycle support facilities, and programs designed to improve safety and encourage bicycling.

The local and primary bikeway networks have been planned to link residents, visitors, and bicyclists of all ages and types between residential areas and community destinations including schools, parks, shopping, civic buildings, employment centers, and regional trails and bikeways.

While the projects in this Plan have received a preliminary feasibility evaluation, engineering and environmental studies will be required prior to project implementation to determine project specific issues such as right-of-way impacts, traffic operations, parking impacts, and/or environmental issues.

#### Programs

The bikeway system must be comprised of more than just bikeways to realize increases in the number of people who choose to bicycle, and to achieve the community benefits associated with an increase in bicycle trips and a reduction in vehicle miles traveled. Therefore, in addition to the construction of bicycle facilities and supporting infrastructure, it is critical that steps be taken to mainstream bicycling as a viable transportation option. To raise the awareness level of the rights and responsibilities of bicyclists and motorists and to forge a higher level of understanding between those on our roads and paths, a variety of education, encouragement, and enforcement activities are recommended.

- Education and Awareness
- Countywide Traffic Safety Campaign
- Share the Road Campaign
- Bicycle Ambassadors
- Bike Share Programs
- Local Agency Bicycle Fleets
- Education and Encouragement Activities
- Signing Program
- Countywide Bicycle Parking Program
- Maintenance Monitoring and Reporting System

### **Implementation**

This section identifies the activities and actions that are necessary to implement the physical improvements, facilities, and programs contained in this Plan, along with the estimated costs for the proposed improvements, maintenance requirements, and funding and financing strategies.

Successful implementation of the projects and programs contained in the Bicycle Plan will require ongoing cooperation within and amongst the NCTPA, local agencies, and various stakeholders including other public agencies and bicyclists. The planning horizon for the projects identified in this plan is the year 2035.

Implementation of the projects in this plan will occur incrementally in a variety of ways. Many projects will be incorporated into local agency’s Capital Improvement Program (CIP) processes and will be implemented as the CIP projects get funded. Others can happen as part of regular maintenance and operations practices and road resurfacing projects. Development and/or redevelopment in some areas will present a significant opportunity to implement some of the recommendations of this Plan.

Amending the Countywide Bicycle Plan and Maps between Updates

NCTPA will update the map of existing and proposed bikeways each year in January important changes may be made more frequently if required. The NCTPA Bicycle Advisory Committee (BAC) meets monthly on the fourth Monday of each month and will review submitted requests for changes.

Project Costs

Construction costs for bicycle infrastructure are presented in Table i. The costs below are for planning level estimates. They are unit costs for construction and do not include contingencies, design, environmental analysis, administrative costs, right-of-way acquisition, or inflation factors.

**Table i  
Construction Cost Assumptions for Bikeway Improvements**

<b>Capital Project</b>	<b>Unit</b>	<b>Cost</b>
<b>Class I: Multi Use Trail</b>		
Construct Multi-Use Pathway	Mile	\$550,000
Rehabilitation	Mile	\$125,000
<b>Class II: Bike Lanes</b>		
Install Signs, Striping, & Stencils	Mile	\$30,000
Reconfigure Roadway Striping, add Bike Lanes	Mile	\$75,000-\$90,000
<b>Class III: Bike Route</b>		
Install Signing (Up to 10 signs per mile)	Mile	\$2,500
Bicycle Boulevard (Signing and Stencils Only)	Mile	\$4,500
(Traffic Calming Treatments)	Each	\$2,000-\$60,000

Program Costs

This plan includes a variety of collaborative programmatic improvements and actions that will help achieve the vision of increased bicycling throughout Napa County and bicycle safety improvements for each community. The programs and actions are important to help realize Plan vision and safety enhancements and should be implemented as soon as time and funding resources are available. Costs for individual programs and actions are highly variable and dependent upon the scope and scale of actions. Table 5 identifies the primary programmatic improvements, which are defined in greater detail in earlier sections, includes a range of estimated costs, a potential lead agency, likely partner agencies, and potential funding sources.

Funding Resources

This section provides an overview of funding mechanisms available to implement the bicycle projects and programs contained in this plan. Due to its dynamic nature, transportation financing is complex.

Implementation of bicycle facilities, improvements, and programs is made possible by a wide variety of funding sources including Federal, State, Regional, and Local Governmental sources, private sector development and investment, and community, special interest and philanthropic organizations.

#### *Federal, State, Regional, and Local Governmental Sources*

Transportation funds are divided into myriad funding programs. In general, federal funds are used for capital projects. State funds are used for new capital projects too, but also cover maintenance costs. Regional and local funds are the most flexible, and may be used for capital project, maintenance, and operational costs, and programmatic improvements.

The primary implementers of infrastructure projects are city and county public works departments. Project selection is typically based on planning processes involving public participation. Additionally, schools and school districts can be project implementers.

#### *Private Sector Development and Investment*

Private sector development and investment play an important role in funding non-motorized infrastructure. Many newer housing and retail developments throughout Napa County have been planned, or required, to include sidewalks, pathways, and bicycle facilities. Private development is expanding its focus on “smart growth” and balanced transportation options. This inherently builds in orientation to the bicycle and pedestrian modes. Sometimes developers also fund such amenities as bicycle racks, bicycle storage, benches, lockers and shower facilities. Additionally, in many locations improvements such as closure of gaps in sidewalks or road widenings are made only after a private land use change is approved. Improvements or right-of-way dedication can be made conditions of approval, allowing upgrades for bicyclists and pedestrians.

#### *Community, Special Interest and Philanthropic Organizations*

Other non-governmental sources of funding include the contributions of community-based organizations, such as the Napa County Bicycle Coalition and the Napa Vie Trail Coalition, in carrying out programs that support bicycle usage.

#### Plan Maintenance and Revision

This Plan is a complex living document and will be continuously revised in the years to come. Each of the six jurisdictions in our community has staff members (in the public works and/or planning departments) who work together with the NCTPA to bring the elements of the plan to life. Most communities also have local citizen committees dedicated to the implementation, upkeep and revision of this plan. Other community organizations, such as the Napa Valley Vine Trail Coalition and NapaBike also participate in cooperatively overseeing the implementation of this plan. Throughout the year, these groups will review recommendations from the community for revisions to the plan. Based on this input, the NCTPA will revise the set of existing and proposed routes each year in January and we will revise the entire plan every five years. Special amendments may also be made at any time

## **A Common Vision and Plan for Bicycling Throughout Napa**

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This Napa Countywide Bicycle Plan presents a cooperatively-developed 25-year vision for building a complete bicycling system for our community. It also presents a carefully chosen set of specific goals, objectives, and policies to guide the ongoing evolution of that system. Altogether, this Plan will function as a mutually agreed upon framework applicable to the entire system and to the set of interconnected local bicycle networks, made up of all types of bikeways. These include “Class I” multi-use paths, physically separated from roadways, “Class II” bike lanes, designated by striping on roads and “Class III” bike routes, which are roadways designated to be shared by bicycles and other vehicles.

Napa County, with its varied terrain, beautiful scenery, and mild weather is ideal for both practical and recreational cycling. Cities in the County are relatively flat and compact, characteristics that are optimal for intra-city commute and utilitarian trips. Currently, inter-city travel on the valley floor via bicycle can be challenging because of the distance between the cities, limited connections, and roads with high-speed traffic. Outside of the cities and valley floor, the County’s mountains, valleys, and scenery provide a “world class” experience that is a physically challenging and attractive for recreational cyclists.

This Plan has been developed at a time when there has been a strong surge of interest in bicycling (and non-motorized transportation in general) in Napa County, as well as in the Bay Area Region, the nation and the world. New programs, systems and technologies have been emerging month by month, spurred on by an intention to reduce greenhouse gas emissions, to promote more active, healthy transportation options, to reduce traffic congestion, and to provide connections between our communities. The Napa Vine Trail Coalition, dedicated to creating a Class I Multi-use Path the full length of Napa Valley, has emerged as a popular community organization, made up of over 25 of the county’s most influential non-profit and government groups. The Napa Bicycle Coalition, recently re-named “NapaBike,” has energized the cycling community to become an even more active participant in the development of cycling resources in the county. The local “Safe Routes to School” program has been expanding rapidly, now serving schools throughout Napa County. The Napa County Transportation and Planning Agency (NCTPA) has adopted a long range strategic goal of having 10 percent of all trips made by bicycle in Napa County. This plan is one way that NCTPA looks to accomplish this goal, in close partnership with the governments, non-profit organizations and citizens of our community.

This Plan is made up of two major elements:

1. A specific set of existing and proposed Class I, II and III bikeways, presented on a set of maps and a linked set of data tables that describe the routes, including their beginning and end points.
2. A set of supportive policies and programs designed to make maximum safe use of existing routes, and to promote turning “proposed” routes into reality.

This Plan is presented in two parts:

1. The Countywide Overview, which describes elements that are common to all six Napa jurisdictions
2. Six jurisdiction-specific planning documents, one each for the Cities of American Canyon, Napa, St. Helena and Calistoga, one for the Town of Yountville and one for Napa County.

This Plan is a complex living document and will be continuously revised in the years to come. Each of the six jurisdictions in our community has staff members (in the public works and/or planning departments) who work together with the NCTPA to bring the elements of the plan to life. Most communities also have local citizen committees dedicated to the implementation, upkeep and revision of this plan. Other community organizations, such as the Napa Valley Vine Trail Coalition and NapaBike also participate in cooperatively overseeing the implementation of this plan. Throughout the year, these

groups will review recommendations from the community for revisions to the plan. Based on this input, the NCTPA will revise the set of existing and proposed routes each year in January and we will revise the entire plan every five years. Special amendments may also be made at any time.

The Plan has been developed over the past year with active participation of several key groups: the staff of each City, Town and County; the local bicycle committees, made up of citizens appointed by the local governments; the general cycling community, which has been invited to all planning meetings; and the public at large, which was invited to two “bicycle summits” held at key points in the development of the Plan.

The Plan contains a set of policies, some of which are shared by all six jurisdictions in the county, and some of which are special for each City or Town or the unincorporated County. These policies, which will be adopted by each jurisdiction’s governing council, will be the official “rules of the road” related to the development of cycling resources in our community. They are designed to enhance bicycle mobility and to improve safety, access, traffic congestion, air quality, and the overall quality of life for our residents, workers and visitors.

The role of the NCTPA is to coordinate planning and funding efforts, advocate and promote safe cycling, and interface with regional, state and federal cycling agencies, groups and committees. Local agencies, such as cities, towns, and the County and the non-profit and private sectors, will be chiefly responsible for implementation of the objectives, policies and programs.

### Key Concepts

These are some of the key concepts and terms used in this plan:

- *Bicycle “System”* – the whole of all of the components, including both physical and programmatic.
- *“Bikeway”* – a Class I multi-use path, Class II lane, or Class III route
- *Bicycle “Network”* – the interconnected set of physical bikeways (Class I, II and III).
- *“Primary Bikeway Network” (new in this plan)* – a continuous countywide network extending between and through communities that provide inter-city and inter-county routes and other key connections.
- *Goal* – where we want to be as a result of this planning exercise. The Goals in this plan are broad, optimistic and express our long-term vision.
- *Objective* – mileposts along the way to achieving the goals. They are specific, measurable steps to be achieved if the overall goals are to be met.
- *Policy* – a principle or rule to guide decisions by each local agency with regard to a particular issue or set of issues.
- *Program* – a specific action or set of actions designed to accomplish the policy or objective.

***a more comprehensive glossary can be found beginning on page 72***

## A Bicycling Vision and Goals for Napa County

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### Vision

There will be a comprehensive, interconnected bicycle system throughout Napa County, including connections to the rest of the Bay Area region. There will also be development patterns and programs that will support access to this system and provide people with safe, convenient and enjoyable. Bicycling is common for everyday trips and recreation, contributing to the quality of life in Napa and the health, safety and welfare of its residents, workers and visitors. Napa is known as a bicycle friendly community, achieving the highest level of certification from the League of American Bicyclists, with a “world class” bicycling system.

### Goals

**Principal Goal** – *To develop and maintain a safe and comprehensive countywide bicycle transportation and recreation system that provides access, opportunities for healthy physical activity, and reduced traffic congestion and energy use. Policies, programs and projects work together to provide safe, efficient and enjoyable opportunities for bicyclists of all types, ages, and abilities to access public transportation, school, work, recreation areas, shopping and other activity centers, and residential neighborhoods, and to connect Napa jurisdictions to each other and the region.*

**From the NCTPA Strategic Plan, “Napa’s Transportation Future”** – *Increase the percent of countywide trips made by bicycle to 10 percent*

### What is in this Plan?

The NCTPA Bicycle Plan addresses bicycle facility needs over a 25-year planning horizon and consists of several parts. There are six stand-alone Bicycle Plans (for the Cities of American Canyon, Napa, Calistoga and St. Helena, the Town of Yountville, and the County of Napa) to be used by the individual agencies to document policy and guide implementation of local projects and programs; and there is this countywide overview section to discuss mutual issues and foster improved coordination in realizing the countywide bicycle system. The individual Plans have been developed to address the local context of each community, to coordinate bicycle access between jurisdictions, and to comply with the requirements of the State-mandated Bicycle Transportation Act. This Plan includes a vision statement, goals, polices, and objectives. It documents existing conditions and proposed projects in text, tables, and GIS Maps. It includes a collision analysis and future funding needs. It provides a description of proposed projects and priorities for implementation; details design standards for bikeways, and includes a series of programmatic recommendations intended to help mainstream bicycling help achieve larger community livability and transportation goals, and to improve safety conditions for bicyclists and motorists alike.

The first *Napa Countywide Bicycle Master Plan* was prepared and adopted by the NCTPA in 2003. This plan, the 2011 Plan, was developed in accordance with the State of California Bicycle Transportation Act.

### Who will use this Plan?

The Napa Countywide Bicycle Plan will be used by agency staff, developers, transportation planners and engineers, elected officials, and the public as a tool used to evaluate current and long-term development plans for bicycle transportation. The Bicycle Plan is the “go to” tool for guiding staff and the development community in building a multi-modal transportation system that is bicycle “friendly,” and is a resource for available measures to encourage residents and visitors to make trips in the Napa area by bicycle.

## Background and Partners

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### Purpose of the Plan

The Napa Countywide Bicycle Plan provides the framework – background, coordination, vision, direction, and tools – to improve the bicycle transportation system throughout Napa County and its communities. The Plan is intended to guide and influence the development of bikeways, policies, programs and facility design standards to make bicycling safer, more comfortable, convenient, and enjoyable for all bicyclists in the Plan Area. The goal of implementing the Bicycle Plan is to increase the number of persons who bicycle throughout Napa County for transportation to work, school, and for utilitarian purposes, as well as for recreation and tourism. This Plan takes a coordinated and comprehensive approach to addressing policies, standards, education, and access, and includes projects and programmatic recommendations to improve bicycle transportation and safety across city boundaries and to neighboring counties.

Because motorized vehicles dominate the transportation system, bicycling is often perceived to be a dangerous and/or an unimportant mode of travel. The truth is bicycling can bring great economic, environmental, social and health benefits to our region. And, on any given day, a motorist is many times more likely to be involved in a crash than a bicyclist. Raising public awareness about the importance and value of bicycling, and its legitimate place in the transportation system, must be an ongoing priority.

This Plan focuses on facilities that provide direct, convenient connections to desired destinations including employment centers, commercial areas, parks, schools, tourist destinations, and transit. This coordinated effort will help with the inter-jurisdictional planning of bikeways that cross boundaries and affect more than one city or one planning agency (primary routes). Finally, this Plan will serve as a tool to obtain regional, state, and federal funding for bicycle projects and programs. This Countywide Bicycle Plan and its project proposals will be incorporated into the Napa County Transportation Planning Agency (NCTPA) Strategic Transportation Plan, the Regional Bicycle Plan for the San Francisco Bay Area, and the Metropolitan Transportation Commission's (MTC) Regional Transportation Improvement Program (RTIP).

### The Bicycle Transportation Act

The California Bicycle Transportation Act (BTA) requires that local agencies complete a Bicycle Transportation Plan in order to qualify for Bicycle Transportation Account grant funds issued by the California Department of Transportation. This Plan was crafted under the NCTPA's authority to conduct countywide transportation policy development and planning. The NCTPA and this coordinated planning effort fully recognize that the NCTPA does not have authority to construct the facilities recommended within the Plan, nor does it have the authority to require the adoption of the Plan by others. Therefore, the effort is meant to coordinate planning activities amongst the local agencies that do have the authority to construct the facilities and conduct the activities recommended.

### Caltrans Compliance – Required Elements per BTA

The Napa Countywide Bicycle Plan was prepared in accordance with the California Bicycle Transportation Act. To be eligible for Bicycle Transportation Account Funds, the California Bicycle Transportation Act requires that cities and counties prepare and adopt a Bicycle Transportation Plan that addresses items a – k in Section 891.2 of the Streets and Highways Code. These items are outlined in Table I. To maintain eligibility with the Caltrans BTA, Bicycle Transportation Plans must be updated every five years. Information on the Bicycle Transportation Act, Bicycle Transportation Plan (BTP) preparation and processing, and eligible Bicycle Transportation Account projects is available on Caltrans' BTA webpage; <http://www.dot.ca.gov/hq/LocalPrograms/bta/btawebPage.htm>

Note that Items a – k are addressed in the local agency plans.

**Table I**  
**Required Bicycle Master Plan Elements per California Bicycle Transportation Act (1994)**

- 
- |    |  |
|----|--|
| a. | Estimated number of existing and future bicycle commuters                                  |
| b. | Map and description of land use settlement patterns  |
| c. | Map and description of existing and proposed bikeways                                      |
| d. | Map and description of bicycle parking facilities  |
| e. | Map and description of multi-modal connections   |
| f. | Map and description of facilities for changing and storing clothes and equipment           |
| g. | Description of bicycle safety and education programs                                       |
| h. | Description of citizen and community participation   |
| i. | Description of consistency with transportation, air quality, and energy conservation plans |
| j. | Description of proposed projects and implementation priorities                             |
| k. | Description of past expenditures and future financial needs for bicycle facilities         |
- 

### **Relationship to Local Plans and Other Relevant Land Use, Transportation, Air Quality, and Energy Planning Efforts**

Implementation of the NCTPA Countywide Bicycle Plan will require coordination, consistency, and cooperation amongst numerous jurisdictions and agencies with varied interests that implement policy and maintain regulatory authority over land-use and transportation decisions within and immediately adjacent to Napa County. Local bicycle plans in American Canyon, Calistoga, Napa, St. Helena, Yountville, and the County of Napa supplement this overview document and comprise the Napa Countywide Bicycle Plan. Additionally, there are a number of federal, state, regional, county, and local agencies that have developed plans, programs, directives, policies, and regulations related to funding, planning, designing, operating, maintaining, and using transportation systems and bicycle facilities. These agencies and their plans, policies, and supporting information have been evaluated for coordination, consistency, and conformance with this Plan as identified by Caltrans and stipulated in the Streets and Highways Code Section 891.2. Relevant documents, policies, and supporting information are summarized and provided in Appendix A.

### **Bicycle Plan Development and Public Participation**

The Bicycle Plan was developed over an 18-month period in 2010/11. The Plan was prepared by a consulting team working closely with NCTPA staff, a Project Steering Committee, local agency staff, Bicycle Advisory Committees or other responsible groups from the County and Napa's cities, stakeholders, and the public and interested citizens. The 2011 Napa Countywide Bicycle Plan builds upon the efforts of the 2003 Plan and integrates new projects, partnerships, concepts, and programs.

Public participation was an important component in the development of the Countywide Bicycle Plan. The NCTPA and plan participants solicited public input on existing conditions for bicyclists, potential improvement projects and programs, and site-specific issues such as safety concerns, access, connectivity, bicycle parking, and other items needed to improve conditions for bicyclists. The public participation process utilized an "advocacy" approach, where the general public and citizen representatives serving on advisory committees were instrumental in the development of a vision for bicycling in the community. The public participation process is summarized below.

- *Project Steering Committee* – A project steering committee comprised of local agency staff, citizen representatives, representatives from the Napa County Bicycle Coalition, Vine Trail Coalition, Napa County Safe Routes to Schools Program, Bay Trail Project, Ridge Trail Council, and Napa County Parks and Open Space, bicycle advocates, and others was established to oversee the development and progress of the Plan.
- *Advisory Committee Meetings* – The project consultant and NCTPA staff attended bicycle or other responsible advisory committee meetings in each participating jurisdiction to kickoff the project, collect input on issues and opportunities, and develop a vision and goals for the project. A second round of advisory committee meetings was conducted to review draft plans, projects, and program proposals.
- *Public Workshop #1* – The initial public workshop for the Bicycle Plan was held on Saturday, October 23, 2010, from 10:30 a.m. to 12:30 p.m. at the Yountville Community Center. Approximately 65 people attended the workshop, including local agency staff, elected officials, NCTPA board members, local bicycle advocates, and members of public. The purpose of the workshop was to collect input on issues, opportunities, and constraints throughout the Plan Area. Attendees were led through a series of small and large group exercises designed to solicit their input using a slide presentation, mapping exercise, issues discussion, and a visioning exercise.
- *Staff Interviews* – Members of local agency staff responsible for bikeway implementation and maintenance were interviewed to solicit their input on existing conditions, issues, opportunities, and constraints regarding Napa’s bikeway system and programs.
- *Public Workshop #2* – The second public workshop for the Bicycle Plan was a countywide “Bicycle Summit” held on September 24, 2011 at New Technology High School in Napa. Approximately 60 people attended. Attendees conducted a detailed review of maps showing the existing and proposed network and offered substantial comments and suggestions that were later incorporated into the final network.
- *City Council, Board of Supervisors, and NCTPA Hearings* – The full Plan is scheduled to be presented to the NCTPA Board of Directors at its December 2011 meeting for their adoption. Following this, presentations will be scheduled to each city and town council and the Napa County Board of Supervisors for them to adopt the specific plan for their jurisdiction. This will occur in January and February of 2012.

## Implementing Partners



Implementation of the Countywide Bicycle System and encouragement of its use is a responsibility shared by all government agencies and jurisdictions in the Plan Area. It relies not only upon the development of good plans, but commitment at each level of government to support bicycle projects and programs. Whereas each agency has a different level of responsibility for building capital facilities, the implementation of education and encouragement programs is a responsibility shared fairly equally among all agencies. Following are descriptions of the partners that will share in the implementation of policies, projects, and programs contained in this Plan.

### Cities and County

Because development of bicycle projects and programs occurs mainly at the city and county levels, local jurisdictions hold the greatest share of responsibility for implementing bicycle networks. Napa’s cities

(American Canyon, Calistoga, Napa, St. Helena, and Yountville), Napa County and the NCTPA need to recognize and plan for bicycle travel in transportation elements of comprehensive plans, and to program projects into capital improvement programs. Law enforcement agencies have primary responsibility for the implementation of traffic safety and enforcement programs.

### Napa County Transportation Planning Agency

NCTPA is a joint powers authority formed in 1998 with members including the Cities of American Canyon, Calistoga, Napa, St. Helena, the Town of Yountville and the County of Napa. NCTPA serves as the Congestion Management Agency for Napa County and is responsible for long-range intercity transportation planning, programming State and Federal funding for transportation projects within the County, and promoting and coordinating intercity transit and rideshare services. NCTPA will provide oversight, coordination, implementation of various programmatic improvements, and will program regional transportation funds for the planning, design, and maintenance of the bicycle system.

### Metropolitan Transportation Commission

MTC is the federally designated Metropolitan Planning Organization for the nine-county San Francisco Bay Area. MTC is responsible for long-range transportation planning for the Metropolitan area. MTC does not design or construct capital projects, but is responsible for allocating regionally managed federal funds. MTC also oversees the San Francisco Bay Area Bicycle Program and 511.org, which promotes alternatives to driving alone. MTC develops and adopts the Regional Transportation Improvement Plan (RTIP) and the shorter-term Transportation Improvement Program (TIP).

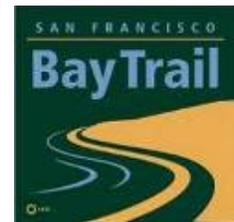


### California Department of Transportation (Caltrans)

Caltrans is an important partner in addressing regional bicycle needs through road projects, policies and maintenance on State transportation facilities. Given the nature of Napa's roadway system, which provides limited alternatives for intercity roadway connections, it will be critical to work with Caltrans to provide bicycle access within existing highway corridors including north-south access along SR 29 and east west access along SR's 12, 121, and 128.

### Regional Trail Agencies

Several regional trails are proposed within the Plan Area, including the San Francisco Bay Trail and the Bay Area Ridge Trail. It will be important to work closely with the non-profit and/or regional agencies that oversee the development of these trail networks to ensure that opportunities to integrate each of the trails into the local bikeway network are maximized. Each of the trails provides unique opportunities for recreational riding, and for commuters and tourists to access major destinations throughout the County. Further, as regional facilities these trails provide opportunities to connect to neighboring jurisdictions and points beyond Napa County within the greater San Francisco Bay Area. The respective trail agencies will play an important role in planning route alignments, garnering public support, and potentially funding route segments and trail amenities.



### Transit Agencies

Transit agencies such as the Vine are responsible for ensuring access for bicyclists at and in the immediate vicinity of transit transfer stations, park-and-ride lots and transit stops. These improvements facilitate bicycle access to transit facilities and include bike parking and bike racks on buses.

## Private Developers

Private developers will help implement the bicycle system by providing facilities for bicycle access in new developments. Their level of responsibility depends on each jurisdiction's codes and permitting requirements, which vary among municipalities. Developers are also responsible for providing supporting amenities at the workplace, such as bicycle parking, lockers, showers and changing rooms.

## Local Advisory Committees

Bicycle, pedestrian, trail, and citizens advisory committees from Napa County and its cities have a strong role in project planning, oversight, and community education and encouragement. They should also work collaboratively with public agencies during the planning, design and development of land use and transportation projects to ensure the policies, projects, and programs contained in this plan are carried out, and the needs of bicyclists are at least considered, but ideally met.

## Napa County Health and Human Services Agency

There is an increasing opportunity for Public Health Departments to support bicycling as a means to increase physical activity and improve public health. The Napa County Public Health Department will support bicycling and participate in implementation of the Plan through public policy actions and the delivery of education, encouragement, and awareness programs, and by addressing bicycle safety issues. To ensure the success of bicycling in the Plan Area, it will be important to partner with the Public Health Department to broaden the reach of safety, support, and encouragement activities. The Public Health Department should team with local law enforcement agencies to promote bicycle safety, with schools and districts to deliver programs for students that encourage bicycling as a healthy activity and teach bicycle safety, and with private employers to convey the health benefits of commuting by bicycle.

## Napa County Office of Education, School Districts, and Schools

The Napa County Office of Education currently provides Safe Routes to School (SRTS) bicycle and pedestrian safety education to elementary students at a limited number of schools in the Plan Area on a "by request" basis through its School and Community Partnership Program. The SRTS program uses a variety of education strategies including in-class curriculum and hands-on bicycle training to improve student safety and help encourage more children to walk and bicycle to school. The County Office of Education is interested in expanding the program to provide safety education annually to all elementary and middle school students in the Plan Area. The Napa County Office of Education will play an important role in the delivery of bicycle education and safety information to students and should increase its partnerships with local agencies, NCTPA, law enforcement, and the Napa County Health and Human Services Agency to expand the delivery of Safe Routes to Schools programs and activities.

### **Benefits of Bicycling**

Bicycling contributes to both local and regional goals established in General Plans and Transportation Plans throughout Napa County of being healthy vibrant communities that offer citizens a variety of transportation choices, to reduce vehicle miles traveled and greenhouse gasses, preserve community character, and offer an amazing quality of life.

Bicycling is a low-cost, quiet, non-polluting, sustainable and healthy form of transportation ideal for many local trips. The individual benefits of bicycling include:

- Improved health through increased physical activity
- Stress reduction
- Lower transportation costs

The social benefits of bicycling include:

- Improved air quality through reduced vehicular emissions
- Less vehicle traffic congestion
- Reduced use of non-renewable fuel resources
- Reduced health care costs via a healthier citizenry

The transportation benefits of bicycling include:

- Increased travel choices
- Reduced congestion
- Decreased pressure to build roads
- Enhanced traffic safety

## Objectives and Policies

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In addition to the countywide policies indicated below, each jurisdiction may choose to identify additional local policies. These additional policies are shown in the jurisdiction-specific plans that accompany this countywide overview.

### Objective 1.0: The Countywide Bicycle Network

*Establish a comprehensive, safe, connected countywide bicycle transportation and recreation system to support increases in bicycle trips made throughout the County to 10 percent of all trips by 2035.*

#### Policies

- 1.1 Develop and maintain a local and countywide bicycle transportation and recreation network that connects Napa's neighborhoods and communities, and provides access to public transportation, school, work, recreation areas, shopping and other activity centers, and to regional routes according to the maps and recommendations in this plan. [NCTPA, cities, towns, County]
- 1.2 Develop and maintain contiguous north-south and east-west Class I pathways to provide inter-city connections and serve as primary bikeways in the Countywide Bikeway System. [NCTPA, cities, towns, County]
- 1.3 Consistent with federal, state and regional directives for "routine accommodation and complete streets"<sup>1</sup>, ensure that all transportation projects on designated bicycle routes include, enhance or maintain bicycle transportation facilities. [NCTPA, cities, towns, County]
- 1.4 Seek opportunities to work cooperatively with all responsible departments and agencies (for example, transportation agencies, flood districts, utility agencies, parks and open space districts) to close existing gaps in facilities and ensure the network is funded, designed, constructed, and maintained. [NCTPA, cities, towns, County]
- 1.5 Consider the needs of all types of bicyclists (commuters, recreational riders, children, and families) in planning, developing, and maintaining a bikeway network that is safe and convenient. [NCTPA, cities, towns, County]
- 1.6 Establish and/or maintain local and countywide bicycle advisory committees to advise staff on bicycle network issues. [NCTPA, cities, towns, County]

Summaries of Federal, State, and Regional policies regarding the importance and consideration of non-motorized modes are provided in Appendix A.

### Objective 2.0: Design

*Utilize accepted design standards and "best practices" to facilitate completion of a connected bicycle system that is safe, convenient and enjoyable to use.*

#### Policies

- 2.1 Utilize Chapter 1000, "Bikeways Planning and Design," of the *California Highway Design Manual*, the *California Manual of Uniform Traffic Control Devices*, and the American Association of State Highway

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<sup>1</sup> US DOT Policy Statement: Integrating Bicycling and Walking into Transportation Infrastructure, 2000; Assembly Concurrent Resolution 211, 2002; Caltrans Deputy Directive 64, 2001; Caltrans Director's Policy 22 (Director's Policy on Context Sensitive Solutions), 2001; Metropolitan Transportation Commission Resolution No. 3765, (Routine Accommodations), 2006

Transportation Officials (AASHTO) *Guide for the Development of Bicycle Facilities*, as well as evolving “best practices” for the development of bicycle facilities. [NCTPA, cities, towns, County]

- 2.2 Consistent with Assembly Bill 1581 (Fuller) and Caltrans Policy Directive 09-06, assure that all approaches to signalized intersections include bicycle detection devices that are operational and properly marked. [NCTPA, cities, towns, County]
- 2.3 Provide consistent enhanced crossing features at uncontrolled intersections with Class I trails. [NCTPA, cities, towns, County]
- 2.4 Where standard Class II bike lanes are infeasible under current conditions, consider innovative approaches to safely accommodate bicycles. (Approaches may include but are not limited to: striped edge lines, signs, shared lane markings, “road diets,” eliminating parking, etc.) [NCTPA, Caltrans, cities, towns, County]
- 2.5 Install way-finding signage, markers, and stencils on off-street paths, on-street bikeways, local Class III routes, and State Routes to improve way finding for bicyclists, assist emergency personnel, and heighten motorists’ awareness. [NCTPA, Caltrans, cities, towns, County]
- 2.6 Improve safety and access for bicyclists at all at-grade railroad crossings by providing appropriate enhancements such as proper track structure, safe crossing angles, track fillers, lighting, and adequate warning and guidance information among other features. [NCTPA, Caltrans, cities, towns, County]

### European Design

European cities employ a variety of bikeway designs generally known as “Cycle Tracks” that protect or separate bikeways from vehicle traffic where possible. These engineering efforts combined with a comprehensive approach to safety, encouragement, and awareness have helped to establish mode split rates with up to 40 percent of all trips made by bicycle. Where appropriate, similar practices should be tested or employed to determine if significant mode split shifts can be achieved within the Napa Valley.

### Objective 3.0: Multimodal Integration

*Develop and enhance opportunities for bicyclists to easily access public transit and other transportation resources.*

#### Policies

- 3.7 Require transit providers to provide and maintain convenient and secure bike parking facilities and related amenities at major transit stops and transportation centers. [NCTPA, cities, towns, County]
- 3.8 Require local and regional transit agencies to accommodate bicycles on all transit vehicles that serve the general public. [NCTPA]
- 3.9 Plan for additional bicycle storage capacity on transit vehicles to ensure capacity keeps up with demand. [NCTPA]
- 3.10 Consider a “Safe Routes to Transit” program that prioritizes bicycle and pedestrian access to transit stops and centers. [NCTPA, cities, towns, County]
- 3.11 Encourage the development of “staging areas” as a component of trail development and other bikeway projects where appropriate to accommodate recreational bicycling needs. [NCTPA, cities, towns, County]

- 3.12 Develop strategies and work with private landowners/businesses to provide bicycle parking at strategic locations. [NCTPA, cities, towns, County, NCBC]

#### **Objective 4.0: Comprehensive Support Facilities**

*Ensure development of comprehensive support facilities for bicycling such as short- and long-term bicycle parking, end of trip amenities, bicycle staging areas, repair stations, and other resources such as bicycle maps, guide information, and on-line tools.*

##### Policies

- 4.8 Require adequate short-term (i.e. bike racks) and long-term (i.e. bike lockers) bicycle parking for non-residential uses as required in local standards. Nonresidential uses include private commercial and industrial uses, as well as hospitals, clinics, gyms, parks and other civic facilities. [Cities, towns, County]
- 4.9 Provide adequate short-term bicycle parking and long-term bicycle storage for transportation centers including transit transfer centers, park-and-ride lots, train stations, transit stops, etc. [NCTPA, Caltrans, cities, towns, County]
- 4.10 Work with businesses and private property owners to provide bicycle parking at existing employment, retail, and commercial sites. [NCTPA, cities, towns, County]
- 4.11 Encourage employers to provide secure indoor and/or covered bicycle parking for their employees. [Cities, towns, County]
- 4.12 Encourage major employers to provide shower and locker facilities for workers. [Cities, towns, County]
- 4.13 Encourage local school district to provide well located, secure bicycle parking at schools. [NCTPA, cities, towns, County]
- 4.14 Design Class I Trails to incorporate high-visibility crossing treatments, pedestrian scale lighting, street furniture, drinking fountains, interpretive elements, and other amenities where appropriate. [NCTPA, cities, towns, County]

#### **Objective 5.0: Safety and Security**

*Create a countywide bicycle system that is perceived to be safe for bicyclists of all types and age groups, and work to reduce collisions involving bicyclists by 50 percent by the year 2035. (Use 2008 collision data as the baseline for analysis and perform periodic progress evaluations at 5-year intervals to benchmark progress.)*

##### Policies

- 5.1 Coordinate the delivery of bicycle Safety Education Programs to schools utilizing assistance from law enforcement agencies, bicycle advocacy groups, local bicycle shops, Napa County Office of Education, Napa County Health and Human Services, and other appropriate organizations. [NCTPA, cities, towns, County, NCBC]
- 5.2 Focus on improving safety at intersections by using or installing routine pedestrian signal cycles; pedestrian push buttons; high-visibility crosswalk markings; appropriate warning and directional signs; and reassurance or directional markings for bicyclists such as shared lane markings, skip lines, etc.; and through the use of focused education.

- 5.3 Focus on improving safety at railroad crossings by providing safe track crossing angles for bicyclists, using concrete panels and flangeway fillers to avoid surface irregularities, and through the use of quad crossing gates and warning signs. [Caltrans, cities, towns, County, Napa Wine Train]
- 5.4 Safety improvements in the vicinity of schools, major public transit hubs, civic buildings, shopping centers, and other community destinations shall be given a high priority for implementation. [NCTPA, Caltrans, cities, towns, County]
- 5.5 Improve ongoing collection and analysis of collision data to assist in the identification of problem areas which may require immediate attention. [Cities, towns, County]
- 5.6 Promote targeted enforcement of violations that focus on primary collision factors such as riding on the wrong side of the road, riding without proper safety equipment including lights at night, and right-of-way violations, etc.

### **Objective 6.0: Land Use**

*Support and strengthen local land use policies for compact, mixed use development in appropriate areas, and for designing and constructing bicycle facilities as part of new development projects.*

#### Policies

- 6.1 Condition discretionary projects to provide needed bicycle improvements on Class I, II or III routes designated in this plan, assuming a nexus is established. Improvements include easements or land dedication and route construction, maintenance or enhancement, including support facilities. Construction may be deferred until a connection to an existing route can be made at the discretion of the jurisdiction. [Cities, towns, County]
- 6.2 In accordance with CEQA Guidelines, projects that could result in the loss of existing bicycle facilities or jeopardize future facilities included in this Plan must be mitigated.
- 6.3 Encourage school districts to participate in providing safe and continuous bicycle and pedestrian connections from surrounding neighborhoods when constructing new or improving existing school facilities. [NCTPA, cities, towns, County]

### **Objective 7.0: Education and Promotion**

*Develop programs and public outreach materials to promote safety and the positive benefits of bicycling.*

#### Policies

- 7.8 Develop and implement a multimedia countywide bicycle and pedestrian safety and education campaign to increase knowledge of riding rules, improve etiquette between motorized and non-motorized modes, promote bicycle tourism, and increase the awareness of the benefits of bicycling and walking as transportation modes. [NCTPA, cities, towns, County- potentially jointly]
- 7.9 Expand the delivery of Safe Routes to Schools curriculum to all elementary and middle schools annually. [NCTPA, cities, towns, County, School Districts, NCBC]
- 7.10 Educate law enforcement personnel, agency staff, elected officials, and school officials about the benefits of non-motorized transportation, and the safety needs of bicyclists and pedestrians. [NCTPA, cities, towns, County, School Districts, NCBC]

- 7.11 Develop and maintain a public bikeway map and user guide that provides bike route, education, safety, and promotional information. [NCTPA, cities, towns, County- potentially jointly]
- 7.12 Distribute bicycle and pedestrian safety, educational, and promotional materials at drivers training and citation diversion programs, school orientations and community and civic events. [NCTPA, cities, towns, County, law enforcement agencies, schools, advocacy organizations]
- 7.13 Encourage events that introduce the public to bicycling and walking such as bike-to-work, commuter challenges, bike/walk-to-school days, elected official bike rides, etc. [NCTPA, cities, towns, County, schools, advocacy organizations]
- 7.14 Encourage major employment centers and employers to facilitate commuting by bicycle, including the use of flex-time work schedules to support non-rush hour bicycle commuting. [NCTPA, cities, towns, County, advocacy organizations]

### **Objective 8.0: Planning**

*Continue to update and integrate bicycle-related transportation projects into land use and recreation plans and roadway improvement projects.*

#### Policies

- 8.8 The countywide and/or local Bicycle Advisory Committee (BAC) shall be responsible for advising staff and decision makers on the ongoing planning and coordination of the countywide bicycle transportation system. [County, city and town BACs]
- 8.9 Update and adopt the Bicycle Plan in accordance with the California Bicycle Transportation Act, and to coordinate with Regional Transportation Plan updates. [NCTPA, County, participating cities and towns]
- 8.10 Participating jurisdictions shall update their general plans to incorporate the key contents of this Bicycle Plan. [County, participating cities and towns]
- 8.11 Consider local and the Countywide BAC as a resource to review roadway improvement projects, particularly on designated bicycle routes, for bicycle safety and compatibility and consistency with this plan. “Roadway improvements” include widening, resurfacing, rehabilitation, capacity improvements, traffic calming improvements, etc. Note that MTC’s Regional Bicycle Plan for the San Francisco Bay Area recommends that local agencies form and maintain Advisory Committee’s to advise staff on bicycle and pedestrian issues. [NCTPA, cities, towns, County]
- 8.12 Proactively seek new opportunities for acquisition of abandoned rights-of-way, natural waterways, flood control rights-of-way, utility rights-of-way, and other lands for the development of new Class I multi-use pathways that integrate with the planned system. [NCTPA, cities, towns, County]
- 8.13 Recognize the varied needs of bicyclists by striving to maintain on-street bikeways where off street pathways or alternative routes are proposed. Existing bikeways should not be altered or eliminated without consulting local bicycle advisory committees. [NCTPA, cities, towns, County]
- 8.14 NCTPA and local jurisdictions are encouraged to assign staff to assume bicycle coordination duties to oversee implementation of the Countywide Bicycle Plan and coordinate activities between affected departments and jurisdictions. [NCTPA, cities, towns, County]

## **Objective 9.0: Maintenance**

*Maintain and/or improve the quality, operation, and integrity of bicycle infrastructure.*

### Policies

- 9.5 Maintain geometry, pavement surface condition, debris removal, markings, and signage on Class II and Class III bikeways to the same standards and condition as the adjacent motor vehicle lanes. [Cities, towns, County]
- 9.6 Develop or retain a maintenance reporting system with a central point of contact to report, track, and respond to routine bicycle maintenance issues in a timely manner. [NCTPA, NCBC, cities, towns, County]
- 9.7 Require that road construction projects minimize their impacts on bicyclists through the proper placement of construction signs and equipment, and by providing adequate detours. [Caltrans, cities, towns, County]
- 9.8 Consider bicycle safety in the routine maintenance of local roads and seek to, at a minimum, include the following activities [Caltrans, cities, towns, County]:
- Trim vegetation to provide a minimum horizontal clearance of 4 feet from the edge of pavement and a minimum vertical clearance of 8 feet.
  - Clear debris from road shoulder areas to provide a clean surface for bicycling.

## **Objective 10.0: Funding**

*Work to maximize the amount of funding to implement bicycle projects and programs throughout the county.*

### Policies

- 10.4 Seek varied sources of funding, including but not limited to federal, state, and regional programs, partnerships with local non-profits and other local agencies, and local sources such as assessments to improve the bicycle system. [NCTPA, cities, towns, County]
- 10.5 Encourage multi-jurisdictional funding applications to implement the primary network and countywide bicycle system. [NCTPA, cities, towns, County]
- 10.6 Promote the availability of adequate regional, state and federal funding sources for bicycle transportation projects. [NCTPA, NCBC, cities, towns, County]

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## The Varieties of Bicyclists and Bicycle Facilities

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### Operation of Bicycles/Rules of the Road

In California, the *California Vehicle Code* (VC) is the set of traffic laws that govern the behaviors of vehicle drivers. VC 231 defines a bicycle as “a device upon which any person may ride, propelled exclusively by human power through a belt, chain, or gears and having one or more wheels.” The VC does not define bicycles as vehicles, but states that persons riding bicycles have all the rights and responsibilities of the drivers of vehicles (Division II, “Rules of the Road”). Additionally, the VC includes several sections specific to bicyclists. In general, bicyclists are required to ride according to the basic traffic laws that all drivers follow including but not limited to the following:

- Drive on the right-hand side of the roadway
- Obey traffic control devices (signs, signals)
- Yield to cross traffic
- Yield when changing lanes

### Duty of Bicycle Operator: Operation On Roadway (VC 21202)

- a) Any person operating a bicycle upon a roadway at a speed less than the normal speed of traffic moving in the same direction at such time shall ride as close as practicable to the right-hand curb or edge of the roadway except under any of the following situations:
- When overtaking and passing another bicycle or motor vehicle proceeding in the same direction.
  - When preparing for a left turn at an intersection or into a private road or driveway.
  - When reasonably necessary to avoid conditions (including, but not limited to, fixed or moving objects, vehicles, bicycles, pedestrians, animals, surface hazards, or substandard width lanes) that make it unsafe to continue along the right-hand curb or edge. For purposes of this section, a "substandard width lane" is a lane that is too narrow for a bicycle and a vehicle to travel safely side by side within the lane.
- b) Any person operating a bicycle on a one-way street or highway with two or more marked traffic lanes, may ride as near the left-hand curb or edge of such roadway as practicable.

### Permitted Movements from Bicycle Lanes (VC 21208)

- a) Whenever a bicycle lane has been established on a roadway, any person operating a bicycle upon the roadway at a speed less than the normal speed of traffic moving in the same direction shall ride in the bicycle lane, except under the following situations.
- When overtaking or passing another bicycle, vehicle, or pedestrian within the lane or about to enter the lane if such overtaking and passing cannot be done safely within the lane.
  - When preparing for a left turn at an intersection or into a private road or driveway.
  - When necessary to leave the lane to avoid debris or other hazardous conditions.
- b) No operator of a bicycle shall leave a bicycle lane until it can be done safely and then only after giving an appropriate hand signal in the event that any vehicle might be affected by the movement.

### Intersection Positioning

At intersections, bicycles should travel in the right-most lane that leads to their destination. This means that if a bicycle is preparing for a left-hand turn, they may leave the right side of the road even if a bike lane is provided.

## Types of Bicyclists

Understanding the needs and preferences of the various types of bicyclists in the Plan Area is an important part of the process of evaluating existing usage, projecting future demand, and planning for improvement projects. While bicyclists' skills, confidence, and preferences can vary significantly amongst the various bicyclist types, concerns about the safety of bicycling remain paramount for all bicyclists. According to the Portland Office of Transportation, "riding a bicycle should not require bravery, yet all too often, that is the perception among bicyclists and non-bicyclists alike." The common denominator for cities around the world that have achieved a high share of bicyclists in their mode splits is that they have essentially removed the element of fear associated with bicycling in an urban environment. In regard to travel choices, it is unfortunate that fear currently exists in our society. In many cities, bicycling is often the most logical, enjoyable and cost effective choice for short trips for a substantial portion of the community, if not the majority of their populace.

Bicyclists can be categorized in a variety of ways, including age, skill, trip purpose, i.e. transportation or recreation, and even by type of bicycle ridden such as road, mountain, or recumbent bicycle. For the purpose of this Plan, bicyclists have been classified in the following categories: "Advanced Bicyclists," "Average Bicyclists," and "Novice Youth/Adult Bicyclists."

*Advanced Bicyclists* are typically comfortable riding anywhere they are legally allowed to operate a bicycle, including space shared with cars and trucks along arterials or rural highways. *Less advanced or Average Bicyclists* are typically more comfortable on roadways that provide space separated from motorists and/or along separated pathways. *Novice Bicyclists*, including children and new adult riders, may be confident and have some level of bicycle handling skills; however, they often do not have the experience of seasoned riders, nor the training or background in traffic laws necessary to operate safely on the road. Bicyclist types and their preferences and needs are defined further in Table 2.

**Table 2  
Bicyclist Types, Preferences and Needs**

Bicyclist Type	Rider Preferences	Rider Needs
<b>Advanced Bicyclist</b> Experienced riders who can operate under most traffic conditions	<ul style="list-style-type: none"> <li>• Direct access to destinations</li> <li>• Operate at maximum speed with minimum delays</li> <li>• Sufficient roadway space or shoulder so that bicyclists and motorists can pass without altering their line of travel</li> </ul>	<ul style="list-style-type: none"> <li>• Establish and enforce speed limits</li> <li>• Provide wide outside lanes (urban)</li> <li>• Provide usable shoulders (rural)</li> </ul>
<b>Average Bicyclist</b> Casual or new adult and teenage riders who are less confident of their ability to operate in traffic without special provisions for bicycles	<ul style="list-style-type: none"> <li>• Comfortable access to destinations</li> <li>• Direct route, but on low-speed, low traffic-volume streets or on designated bicycle facilities</li> <li>• Well-defined separation of bicycle and motor vehicles or separate multi-use paths</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure low speeds on neighborhood streets</li> <li>• Traffic calming</li> <li>• Provide network of designated bicycle facilities (bike lanes, multi-use paths, bike routes, bike boulevards, etc.)</li> <li>• Usable roadway shoulders</li> </ul>
<b>Novice Bicyclist</b> Young children, students, and pre-teen riders whose roadway use is initially monitored by parents, and/or adult bicyclists just beginning to ride	<ul style="list-style-type: none"> <li>• Access to schools, recreation facilities, shopping, or other residential areas</li> <li>• Residential streets with low motor vehicle speed limits and volumes</li> <li>• Well-defined separation of bicycles and motor vehicles or separate bike paths</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure low speeds on neighborhood streets</li> <li>• Traffic calming</li> <li>• Provide network of designated bicycle facilities (lanes, bike paths, bike boulevards)</li> <li>• Usable roadway shoulders</li> </ul>

Source: Hawaii DOT, Minnesota DOT

## Bikeway Types

The *California Vehicle Code* permits bicycling on all roads in California with the exception of access controlled freeways and expressways. Chapter 1000 of the Caltrans *Highway Design Manual* recognizes this when it states that “the needs of non-motorized transportation are an essential part of all roadway projects.” Although not all streets are designated as bikeways, they are all important facilities that ensure access and connectivity for bicyclists.

Effective bikeways encourage the use of bicycles as an alternative to the automobile. The bikeways identified in this Plan include standards and designations established by Caltrans. The *Highway Design Manual* identifies three distinct types of bikeways: Class I Off-Street Bike Paths (Multi-Use Path), Class II On-Street Bike Lanes, and Class III On-Street Bike Routes. These facilities are described below and design details for each facility type are provided in Appendix B. In addition to these three basic facility types, hybrid bikeways and facility enhancements are also described below and recommended for use in appropriate locations. Each class of bikeway has its appropriate application.

### Standard Bikeways

#### *Class I Multi Use Path*

Class I facilities, typically known as bike paths, are multi-use facilities that provide a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross flows of motorized traffic minimized.

#### *Class II Bike Lane*

Class II facilities, known as bike lanes; provide a striped and signed lane for one-way bicycle travel on a street or highway. The minimum width for bike lanes ranges between four and five feet depending upon the edge of roadway conditions (curbs). Bike lanes are demarcated by a six-inch white stripe, signage and pavement legends.

#### *Class III Bike Route*

Class III facilities, known as bike routes, provide signs for shared use with motor vehicles within the same travel lane on a street or highway. Bike routes may be enhanced with warning or guide signs and shared lane marking pavement stencils. While Class III routes do not provide measures of separation, they have an important function in providing continuity to the bikeway network.

### Class III Bike Route Enhancements

#### *Bicycle Boulevard*

A bicycle boulevard is a roadway that gives priority to bicycle traffic at intersections along the route. The boulevard may also include traffic calming features that reduce the total number of vehicles that use the roadway to make the roadway more bicycle-friendly. By definition, bicycle boulevards are Class III facilities, but are not typically signed with just the basic “Bike Route” sign.

### Bikeway Types



Class I Multi Use Path



Class II Bike Lane



Bicycle Boulevard



Shared Lane Marking



Cycle Track

### *Shared Lane Marking*

Shared Lane Markings (SLM), known “Sharrows,” are pavement legends which may be placed in the travel lane adjacent to on-street parking. The purpose of the marking is to provide positional guidance to bicyclists on roadways that are too narrow to be striped with bike lanes. SLM do not designate a particular part of the street for the exclusive use of bicyclists. They simply guide bicyclists to the best place to ride on the road to avoid the “door swing” of parked cars, and to warn motorists that they should expect to see and share the lane with bicyclists.

### Non-Standard Bikeways

#### *Cycle Track*

A cycle track is a bikeway that is separated from adjacent traffic flows through the use of a visible grade change or other physical buffer between the bikeway and the roadway. Cycle tracks may provide for one- or two-way travel. Additionally, cycle tracks may be placed outside the parking lane, but in front of the sidewalk. There are no federal or State standards for cycle tracks, and they are not currently approved for use in California.

## Existing Conditions

### Setting

Napa County is located in the North Bay, within the nine-county San Francisco Bay Area Metropolitan Statistical Area. It is considered one of the most rural of all the Bay Area counties. This is partly due to the extensive land area consumed by mountains, forests, lakes, and rivers, and partly by human design. In the late 1960's, Napa County adopted the first agricultural land protection policy in the United States, known to locals as the "Ag Preserve." The policy was then and is to this day a groundbreaking land use policy that protects the agricultural character and quality of the Napa Valley by asserting that agriculture and open space are the "best use" for the land within Napa County. The "Ag Preserve" now designates more than 438,000 acres within Napa County as agricultural preserve or watershed protection lands. Napa Valley is known worldwide for its legendary wine, food, and hospitality industries.

Napa Valley is located approximately 50 miles northeast of San Francisco, and 45 miles southwest of Sacramento. It is bordered on the west by the Mayacamas Mountains and Sonoma County, on the east by the Howell Range and Solano and Yolo Counties, on the north by Lake County, and on the south by San Pablo Bay. The County is home to the Cities of American Canyon, Calistoga, Napa, and St. Helena, and the Town of Yountville, with a countywide population of 138,917 (2010 CA Department of Finance Estimates) and a total land area of approximately 754 square miles. According to projections from the Association of Bay Area Governments, the countywide population is projected to reach 148,800 persons by the year 2035. General demographic and land use information are presented in Table 3.

**Table 3  
General Information**

Total Population <sup>1</sup>		138,917
Males <sup>1,2</sup>	49.90%	69,320
Females <sup>1,2</sup>	50.10%	69,597
Median Age <sup>2</sup>		38.3
2035 ABAG Population Projections <sup>3</sup>		148,800
Land Area <sup>4</sup>	754	sq. mi
Average Population Density <sup>1,4</sup>	184	persons/sq. mi.
Elevation <sup>4</sup>	N/A	feet

Source: <sup>1</sup> CADOF 2010

<sup>2</sup> United States Census 2000

<sup>3</sup> 2035 ABAG Projections

<sup>4</sup> City-data.com July 2008

Napa County is ideal for both utilitarian and recreational cycling. The County's varied terrain, beautiful scenery, and mild weather provide excellent conditions for bicycling. Cities in the County are relatively flat and compact, characteristics that are optimal for intra-city commute and utilitarian trips. At the present time, the distance between urbanized areas, combined with issues such as limited on- and off-street connections and rural roads and highways that carry high speed traffic, make inter-city travel via bicycle more difficult. Outside of the cities and valley floor, the County's mountains, valleys, and scenery provide a "world class" experience that is a physically challenging and attractive atmosphere for recreational cyclists.

### Issues, Opportunities, and Constraints

There are a variety of challenges associated with the planning and development of bicycle facilities throughout Napa County. General challenges are listed below and include:

- *Limited Local Funds* – The availability of funding to implement projects is a challenge faced by all local jurisdictions. The good news is that bicycle and pedestrian projects are eligible for funding through a variety of federal, state, regional, and local transportation fund programs, and more money is available through these programs than ever before. Furthermore, while development opportunities throughout the Plan area are limited, private development is expanding its focus on 'smart growth' and balanced transportation options, and will play a key role in re-development and new development projects throughout the Plan area.

While the total cost of the improvements proposed in this Plan is unknown, it is anticipated that the number will be in the multi-millions. However, while the total cost of implementation of this Plan may be staggering, the local agency's contribution to the cost of any individual project, or the entire costs associated with full implementation of the plan, is somewhere in the range of 15 percent based on typical federal transportation financing. Moreover, aggressive pursuit of competitive source funds such as Air Quality Grants, Safe Route to Schools Grants, and bicycle specific grants, along with the formulation of strategic development partnerships for bicycle improvements will enable the development of major facilities to occur sooner rather than later.

- *Limited Right-of-Way* – Like many jurisdictions around the State, communities in Napa County are challenged to provide bicycle facilities in built out neighborhoods and districts where retrofit is required to either fit within an existing urban environment such as downtown where building setbacks are minimal, or to upgrade rural roadways that do not include curb, gutter, or sidewalks. These particular environments present some of the greatest challenges to planners and designers. However, through careful planning and engineering and close coordination with the community, multi-modal solutions can be implemented within these constrained rights-of-ways.
- *Public Support and Perception* – Public support and perception are a major challenge for the success of the planned bicycle transportation system. To institute a shift in mode split, local agencies must work to gain public support for trips on bike or by foot, as well as to dispel the perception that people who bike or walk do so out of necessity, or that these modes of travel are unsafe for transportation. Public education is an important tool to address this issue. While various efforts are being implemented individually by local agencies in Napa County, such as the City of Napa's "Street Smarts" program, a public campaign designed to raise awareness to benefit the safety of drivers, pedestrians, and cyclists, more can be done. Similar awareness campaigns should be coordinated and delivered through multi-media efforts throughout the Plan area. Further, employer education should be pursued as many employers are not aware of the substantial benefits to be gained through a modest investment in facilities and programs that encourage bicycle use. Employers need to recognize the health benefits and value of non-motorized commuters.
- *Physical Barriers* – There are a variety of physical barriers such as SR 29, the Wine Train Rail Line, topography, private property, and waterways that impact connectivity for bicyclists. Throughout the Plan area there are discontinuous facilities and dead-end routes, high-speed and/or high-volume roadways, rough railroad crossings, one-way streets, narrow streets, narrow bike lanes/shoulders, infrequent roadway crossings, and other conditions that can affect bicycling. For novice users or commuters who are trying to make good time these conditions are not just simple annoyances – they are substantial disincentives to bicycling.
- *Accommodating Bicyclists on Rural Highways, Arterials, and Roadways* – Rural roadways are a significant part of Napa County's street network. State Routes, intercity connections and many residential neighborhoods throughout Napa's communities maintain rural street characteristics, which often leaves little or no room for pedestrians to walk and has bicyclists competing for space in the travel lanes with vehicular traffic. While some residents and neighborhoods maintain their preference of the existing rural character, the provision of access improvements for people on foot and bike is not always as odds with the preservation of existing character. While Class II bike lanes may not be feasible or appropriate for all sections of rural highways and arterials, measures to accommodate bicyclists must be taken. There are a variety of low impact mechanisms, such as signing, shoulder or spot widening, striping, and or surface maintenance that can be utilized to enhance access and safety conditions for bicyclists.
- *Railroad Tracks* – The Napa Wine Train railroad tracks cross streets at-grade in several locations in Napa County. The track crossings are a safety concerns for bicyclists, especially at locations where

the crossing angle is skewed. The most skewed location is at Whitehall Lane. Several other locations have skewed crossings, including Lincoln Avenue, Soscol Avenue, and other locations in the City of Napa, and a spur crossing SR 29 just north of Rutherford Cross Road. The tracks also cross several side streets at 90-degree angles, which, although not nearly as dangerous, can pose difficulty for unsuspecting bicyclists.

At Whitehall Lane, the State has been working on a project to alleviate the skew problem. The project would build a short section of Class I bike path on both sides of SR 29 to allow the cyclists to cross the tracks at a 90-degree angle. The project is undergoing protracted right-of-way negotiations with the Wine Train.

- *Narrow Bridges* – Many of the roads in Napa County cross over the Napa River, one of the County's many other numerous creeks, or in some instances both. Some of the bridges are wide enough to accommodate two lanes of traffic and bicycles, while some are narrow and can barely accommodate one bike and one car. On low-volume roadways, narrow bridges generally do not pose problems for bicyclists. An important factor is sight distance. In some of these locations the bridge is directly adjacent to an intersection. As many of these are historic structures, replacement with wider structures is more difficult. Options may include increased signage or relocation of the crossing with the old bridge becoming a bicycle/pedestrian crossing.
- *Traffic Signal Detection* – Bicycle detection at traffic signals is a common problem primarily in the City of Napa. Occasionally push buttons are provided, but in some instances this means bicyclists must dismount or position themselves improperly to continue through the intersection. The City is in the midst of a several-year process to replace the signal detection systems to accommodate cyclists. However, the detection of bicycles that are not made of ferromagnetic materials remains an issue when traditional loop detectors are used.
- *Construction Zones* – Construction zones can significantly impact bicyclists and bicycle routes. Care should be taken to ensure that the placement of warning signs and construction materials does not present a hazard to bicyclists. It is important that temporary work be well-marked, and that joints and seams associated with overlay and widening projects conform to specifications as lateral elevation changes present a safety hazard for bicyclists.
- *Plan and Policy Support* – Zoning ordinances, street design standards, transportation plans, land use plans, design guidelines, and policy documents include a great many provisions that impact the bicycling environment. By integrating bicycling issues into their standards and recommendations projects will include consideration of bicycling and adverse impacts to bicycling will be avoided.
- *Routine Consideration* – It is essential that the needs of bicyclists be considered in the planning and design of new developments, as well as in street construction, rehabilitation, and maintenance projects. Bicyclists travel on all roads and it is important to address the needs of bicyclists when undertaking any of these activities to ensure continuity of bicycle facilities and to utilize opportunities to provide enhancements when they arise.
- *Bikeway Continuity* – Without continuous bicycle routes, confusion can result and the number of cyclists who use the route may be reduced. Continuous routes connecting homes, businesses, schools, and recreational centers encourages more use.
- *Maintenance* – Maintenance of facilities and roads used by bicyclists must be examined. This includes sweeping away dirt, gravel, debris and thorns, patching pavement in a way that leaves a smooth surface, methods of road resurfacing, providing safer railroad crossings, trimming overhanging vegetation and other activities. If facilities are not well maintained, people will not use them.

- *Bicyclists come in all Sizes, Ages, Skill Levels and Degrees of Confidence* – There is no standard test that a person must pass to ride a bicycle. Some people can ride safely in almost any traffic situation, while others are less skilled and less comfortable in heavy traffic. Decisions should be made about the best ways to plan for the widely varying needs of bicyclists. Tourists and recreational riders visiting the area may need to be guided through maps, signage or other means so they do not get lost or confused about where and how to ride. Consideration might be given to provision of materials in several languages, given the popularity of the Napa communities as a destination for international tourists.
- *Real and Perceived Safety Concerns* – There are a variety of real and perceived safety concerns for bicyclists primarily associated with narrow rural roadways, high-traffic routes, high traffic speeds, and personal safety. Every effort should be taken to address these concerns through engineering improvements, education for motorists and bicyclists, and enforcement activities.
- *Lack of Respect between Motorists and Bicyclists* – To address this issue, a public awareness campaign should be developed to help cultivate a new level of understanding, awareness, and respect between motorists and bicyclists. Bicyclists need to understand that irresponsible and irregular riding results in ill will by motorists toward all cyclists, and motorists must accept and respect that bicyclists have the same right to be on the road that they do, and give them consideration.
- *SR 29 Divides Napa's Communities* – SR 29 runs north-south through Napa County, connecting to Lake County in the north and Solano County in the south. SR 29 passes through each city in the County; it divides the cities of American Canyon and Napa into two halves and serves as Main Street in St. Helena. The SR 29 corridor carries interregional traffic and presents a variety of challenges for bicyclists.
- *Limited North-South and East-West Connections* – Due to topographical constraints, existing land use patterns, transportation corridors, water bodies, etc., there are a limited number of north-south and east-west connections in the Plan Area for bicyclists, including to destinations and population centers outside of the Valley floor such as Angwin, Berryessa, Pope Valley, Lake County, Sonoma County, and Solano County.
- *Distance Between Communities* – When combined with a lack of direct or continuous routes and bikeways, the distance between communities can deter potential bicyclists from commuting for work or utilitarian purposes.
- *Visitors and Tourism* – Tourism and the visitor travel market are a primary component of the economics of Napa County. Visitors from all over the world are attracted to Napa by the wine and culinary industry and Napa's unique scenery and hot springs. Napa's tourism industry has expanded to include hotels, spas, restaurants and specialty retail activity that attract tourists. While bicycle tourism is already integrated into the industry, additional public/private partnerships should be pursued to increase opportunities for tourists to experience the Napa Valley by bicycle and to reduce the number of tourism related vehicle trips in the Plan Area.

Additional bicycling issues including site-specific opportunities and constraints are detailed in the local agency plans.

### **Existing Bicycle Programs**

There are a variety of existing entities and programs throughout Napa County that work to support and promote bicycling. Existing activities are aimed at improving the safety and convenience of getting around by bicycle and boosting ridership levels. Some of these existing programs have been in place for years, while others such as the County Office of Education Safe Route to Schools Program are relatively

new. In some cases, the programs are city or county funded; in others, they are non-profit or volunteer run. Many of the existing programs are delivered on a by-request basis, rather than annually or at regular intervals. Further, there is little coordination amongst existing programs or entities, which tends to limit the delivery and impact of the efforts. Existing entities that provide support programs and/or current activities include:

- Napa County Bicycle Coalition – Napa Bike
- Napa Valley Vine Trail Coalition
- Napa County Office of Education
- Napa Valley Car Free
- Napa County Health and Human Services Agency Activities
- Street Smarts Traffic Safety Campaign (City of Napa)
- Eagle Cycling Club
- Focused Law Enforcement Activities
- Bicycle Fairs, Races, and Community Events
- Bike to Work Day / Month Activities
- Bicycle Tours
- Bicycle Maps

### Napa County Bicycle Coalition

The Napa County Bicycle Coalition, now called Napa Bike, is a non-profit member-supported bicycling advocacy organization that promotes a bicycle and pedestrian friendly Napa County through facility implementation, policy changes, education, and the encouragement of bicycling and walking for all its residents. Napa Bike's main public functions include bicycle education, bicycle advocacy, promoting events and programs, and providing valet bicycle parking at community events to encourage attendance by bicycle. In addition, Napa Bike will play an oversight and advocacy role for the implementation of bicycle facilities and programs contained in this Plan and will serve as a partner to local agencies; representing the interests of bicyclists in public meetings and on transportation projects, helping to organize community events, collecting bicycling data, educating citizens and elected officials, advocating at the local, regional, state, and federal levels, and providing support services for bicyclists such as offering bicycle parking at community events, and providing bicycle repair clinics, bicycle rodeos for children, and bicycle education for adults.



### Napa Valley Vine Trail Coalition

The Napa Valley Vine Trail Coalition is a grassroots nonprofit organization with a vision of building a walking/biking trail system connecting the entire Napa Valley. The Coalition is working to design, fund, construct, and maintain 44 safe and scenic miles of level, paved, family-friendly, Class I trail, stretching from Calistoga to the Vallejo Ferry. The Vine Trail Coalition has proven its dedication to the implementation of the vision and project. The Vine Trail is an exemplary model of the success that can be achieved in private/public partnerships. Every effort should be made to support the implementation of the project.



### *Education*

NCBC teaches programs for the public on safe bicycle riding, works to highlight the health advantages of bicycle riding over other forms of transportation, and engages public officials and government staff to make them aware of potential problems for bicyclists and what can be done to make bicycling safer.

### *Bicycle Advocacy*

NCBC promotes infrastructure improvements in Napa County to make bicycle riding safer, more convenient, and pleasant. NCBC staff and representatives help to identify bicycling issues, making city and county staff and public officials aware of the bicyclist's viewpoint, notifying bicyclists of important public meetings, and providing bicyclists' input into the public forum.

### *Promoting Events and Programs*

NCBC promotes Bike to Work/School month activities and events, working with the Metropolitan Transportation Commission to coordinate and implement local activities and volunteers. Additionally, NCBC works to promote Safe Routes to School activities and programs throughout the County.

### Napa County Office of Education Safe Routes to Schools Program

In 2008, the Napa County Office of Education implemented a Safe Routes to Schools Program (SRTS) as an element of its School and Community Partnership Program. The Napa County SRTS program includes bicycle and pedestrian safety education and encouragement elements. The program has a part-time director and support staff. The Program performs outreach to two to four school sites throughout the County annually.

### *Bicycle Safety Program*

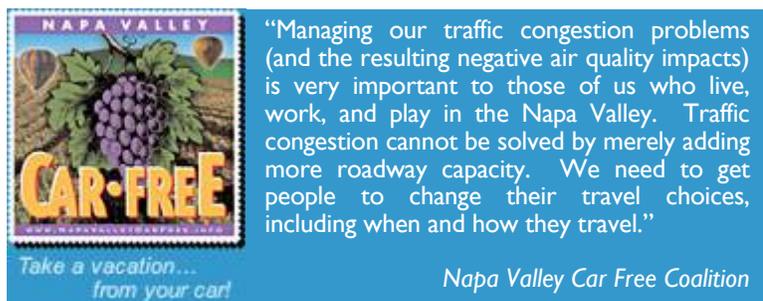
The Safe Routes to School (SRTS) Bike Safety Program teaches courses in 4<sup>th</sup> to 6<sup>th</sup> grade classrooms, meeting numerous Health and Psychical Education curriculum benchmarks mandated by the State of California, with the goal of empowering students by giving them the right amount of bicycle knowledge, excitement, and school and community support so they want to ride their bikes to and from school. The Bicycle Safety Program brings resources into schools, including a trained instructor, a fleet of 35 bikes, helmets, brochures and pamphlets, safety vests, videos, and other equipment. The Program's ten-hour curriculum is split into four hours of in-class and six hours of on-the-bike instruction.

### *Pedestrian Safety Education Program*

Pedestrian safety is an integral component of the Safe Routes to School program. The Program teaches children through classroom activities and community walkabouts. Students learn to be responsible pedestrians who follow traffic rules and regulations. Adults learn what to expect in pedestrian areas, particularly in school zones and other areas where children tend to be. The in-school program is delivered to 2<sup>nd</sup> and 3<sup>rd</sup> graders. It incorporates physical education, health, and social responsibility. The goal is to provide students with the background information and hands-on practice to safely walk on urban streets, choose appropriate routes for walking, and recognize and respond to an unsafe situation.

### Napa Valley Car Free Coalition

Napa Valley Car Free is an initiative of the Napa Valley Clean Air Coalition, an all-volunteer group comprised of representatives from the public, private, and non-profit sectors that was formed to promote and preserve clean air in the Napa Valley. The Coalition includes representatives from the Bay Area Air Quality Management District, City of Napa Public Works Department, Community Focus, Napa Chamber of Commerce, Napa County Transportation and Planning Agency, Napa Valley Destination Council, Napa Valley Wine Train, and



Solano Napa Commuter Information, among others. The Coalition meets regularly to discuss air quality issues and maintains a website to provide pre-trip travel information to visitors of the Napa Valley so they can plan their trip using viable transportation alternatives to driving a car. <http://napacarfree.net-flow.com/index.html>

### Napa County Health and Human Services Agency

The Napa County Health and Human Services Agency serves the people of Napa County by providing a variety of social programs and services. The Public Health Division works to protect public health; prevent disease, premature death and disability; promote healthy lifestyles; support families; and respond to outbreaks, epidemics, and disasters. The Public Health Division implements the National Safe Kids Program, which provides information about critical child injury risks. The Safe Kids Program provides bicycle safety information to individuals and students and free helmets to those in need.



### Street Smarts

Street Smarts is a nationally recognized Traffic Safety Education Program that uses a multi-media approach to address driver, pedestrian and bicyclist behavior. The program employs a variety of tools to work with schools, neighborhood groups, seniors and other community organizations to improve traffic safety. The project's multi-pronged approach is designed to improve bicycle, pedestrian and overall traffic safety with consistent and long-term changes in public awareness and behavior. The City of Napa has joined the Street Smarts Coalition and is currently implementing the program. Napa's program focuses on stop sign compliance, red light running, speeding, school zone compliance, crosswalk safety and compliance, and bicyclist awareness.



### Eagle Cycling Club

The Eagle Cycling Club is deeply rooted in the Napa Valley and is among the oldest bike clubs in the nation. The Club is a strong resource for local and visiting bicyclists, from the novice rider to the professional racer, and provides cyclists with a variety of information about riding experiences in the Napa Valley. Club members can be seen on the road, in the hills, on tandems, on recumbents and often pulling kids in trailers. The Club is active in the community, promoting safe bicycle riding, supporting the Napa County Bicycle Advisory Committee and Napa County Bicycle Coalition, and sponsoring an Adopt a Highway cleanup section on Silverado Trail. The Club hosts a number of annual cycling events including the Cherry Pie Criterium, Skyline Park Mountain Bike Race, and the Tour of Napa Valley, among others. The Eagle Racing Team is the competitive cycling branch of the Eagle Cycling Club. Eagle Racing Team membership includes first time racers as well as highly ranked amateur racers, ranging from Juniors to Masters, team members participate in all disciplines of road, mountain, and cyclocross racing.

### Focused Law Enforcement Activities

The California Highway Patrol, Napa County Sheriff, and local Police Departments conduct focused enforcement activities on an as-needed basis when funding is available. These activities include school zone compliance, crosswalk compliance, bicycle enforcement, bicycle rodeos, seatbelt compliance, and DUI checkpoints. There is a potential to increase the impact of these activities through interagency coordination.

### Bicycle Fairs, Races, and Community Events

There are a variety of bicycle fairs, races, and community events that occur throughout the Plan Area. Some of these events occur annually, others are one-time events. Either way, community events

provide a tremendous opportunity to reach the bicycling community as well as the general public. Napa County Fair, Tour of California, Tour of Napa Valley, local farmers markets, community parades, holiday celebrations, music festivals, movies in the park, and countless industry events. When the Tour of California races through the Napa Valley, it draws thousands of spectators to the race route and associated festivities, including many local residents and non-bicyclists. Efforts to provide promotional, educational, safety and awareness information to the public at special events should be continued and expanded.

### Bike to Work Day / Month Activities

May is National Bike to Work month. Historically, the Bay Area and agencies in Napa County have celebrated bicycling with numerous events and activities throughout the month. The Napa County Bicycle Coalition has played a pivotal role in the implementation of Bike to Work activities in Napa County, supporting the Napa County Transportation Planning Agency and Solano Napa Commuter Information by promoting activities in local newspapers and radio advertisements, distributing flyers and posters, hosting special bike rides and tours with elected officials and families, and hosting energizer stations.

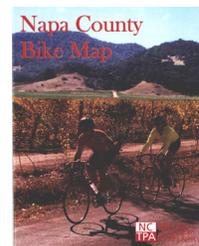


### Bicycle Tours

Bicycle Tours are a prominent activity in the Napa Valley. They provide a local visitors and tourists an opportunity to tour wineries and vineyards “car free.” Several operators offer a range of touring options including bike rentals, self-guided winery tours by bike, single-day guided winery tours by bike, custom Napa Valley vacation packages, and private group or corporate bike tours.

### Bicycle Maps

Bicycle guide maps are an essential education and outreach tool for the bikeway system. Bicycle maps provide bicyclists with information on designated facilities, recommended routes, trails, recreation and touring information, along with educational and promotional information. To ensure their effectiveness, they need to be readily accessible and up-to-date. NCTPA maintains the Napa County Bike Map. The map displays designated bikeways throughout the County and provides a description of their classification or type, and grade information. It also includes an assessment of roadways that are not currently designated as routes or lanes that provide important links, most of which are included in the Plan to become designated routes or lanes. The map identifies routes that connect to bike routes in neighboring counties along with the location of bicycle shops, public restrooms, and locations to mountain bike. It includes a brief synopsis of safe bicycling practices and an explanation of the rules of the road as they pertain to bicycling. The map is especially useful for the out-of-town visitor to the area. The map is available at bike shops, restaurants, city halls, tourist information facilities and through the NCTPA website, [www.nctpa.net](http://www.nctpa.net). The map is not only informative but also serves as a promotional tool for bicycling and Napa County.



### **Existing Bikeway Network**

This section describes the existing bikeway network within the Plan Area. Existing bicycle facilities throughout Napa County were inventoried through a review of existing plans, GIS survey, field reconnaissance, staff questionnaires and interviews, and through outreach to the public and Bicycle Advisory Committees.

## Primary Bikeway Network

A new element of this planning effort has been the designation of a countywide Primary Bikeway Network – a continuous countywide network of on- and off-street bikeways that extends between and through communities. The Primary Bikeway Network consists of a selection of existing and proposed Class I, Class II, and Class III bikeways that provide inter-city and inter-county routes along with connections to other transportation modes, major destinations, jobs, neighborhoods, recreation, and local bicycle networks. The network typically includes a north-south and east-west route through each community. The intention of the network is to focus and collaborate on a set of basic routes that will provide access to major destinations and activity areas. Primary Bikeway Network routes are identified on the project maps with a colored highlight around their route designation. Additional bikeway designations include Regional and Local routes. Regional routes are the bikeways that are designated as part of the San Francisco Regional Bikeway Network, and Local routes provide access to destinations within a select community.

## Bikeways Inventory (Maps, Database, Description)

The Countywide Bikeway Network consists of Class I multi-use paths, Class II bike lanes, and Class III bike routes and bicycle boulevards. A comprehensive inventory of existing bikeways is provided in tabular format by jurisdiction within the local agency plans. Existing bikeways are shown on the bikeway maps, Figures I through II. The map series includes a Countywide Map, North Valley, Mid-Valley, and South Valley Planning Area Maps, a Primary Bikeway Map, and a map of regional trails.

## Transit and Multi-Modal Access

Convenient multi-modal connections that are well-integrated into the transportation system are a vital component of the bicycle system. Transit has the potential to extend trip ranges for bicyclists to nearby communities and destinations outside of Napa County. This is especially important in Napa County considering existing barriers to bicycle travel such as distances between communities, gaps in the existing bikeway networks between urban areas, topography, heat during summer months and rain during winter months. While these obstacles likely serve as deterrents to existing and potential trips by bike, convenient multi-modal access can help to address these issues and extend trip ranges.

### *Vine Public Transit*

The NCTPA manages the Vine, Napa County's public transit system. The transit system consists of the fixed route Valley Intercity Neighborhood Express (VINE), and VINE Go (paratransit), as well as a group of community shuttles: Calistoga HandyVan, the Yountville Shuttle, the St. Helena Vine Shuttle, and American Canyon Transit. NCTPA also operates the Downtown Napa Trolley. Thus, NCTPA provides comprehensive transit service to residents throughout the Napa Valley. Between each of these services, Napa's transit system serves more than 800,000 transit trips a year. All fixed route buses are equipped with front loading bike racks which hold two bikes each. Bike rack spaces are available on a first come, first served basis. When the front loading racks are full, drivers can accommodate bicycles inside the bus at their discretion.

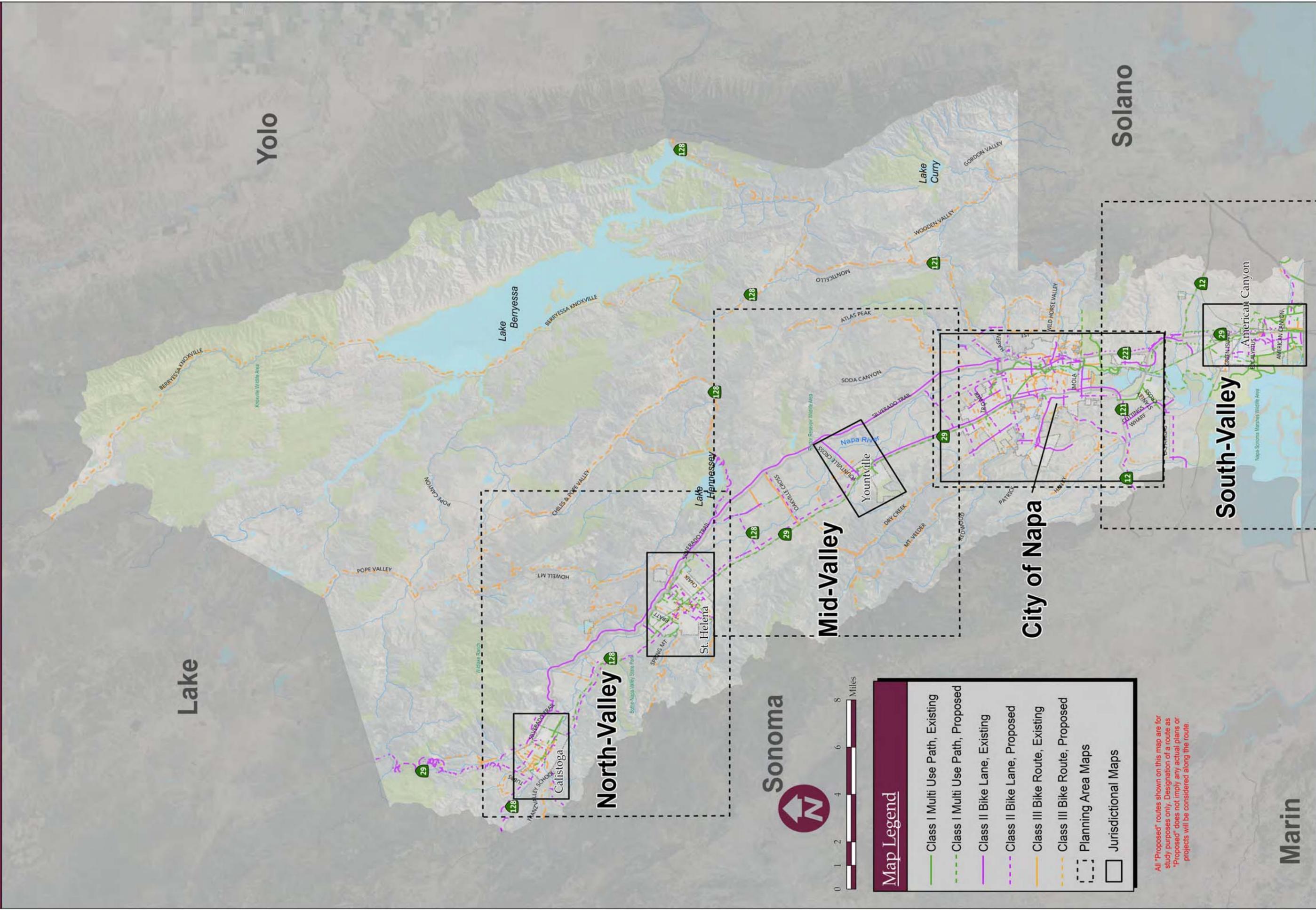
- *VINE Fixed-Route* – The VINE provides intra-community service within the City of Napa as well as regional service. City routes operate on weekdays from around 6:30 am to 7:00 pm on 60-minute frequencies. Inter-community service runs every hour on weekdays from around 5 a.m. to 9 p.m., every two hours on Saturday and every 1 to 3 hours on Sunday.
- *Calistoga HandyVan* – The Calistoga HandyVan is an on-demand transit service for the general public within the City of Calistoga. No advanced reservations are required.

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# Napa County Bicycle Plan Overview

## Napa Countywide Bicycle Plan

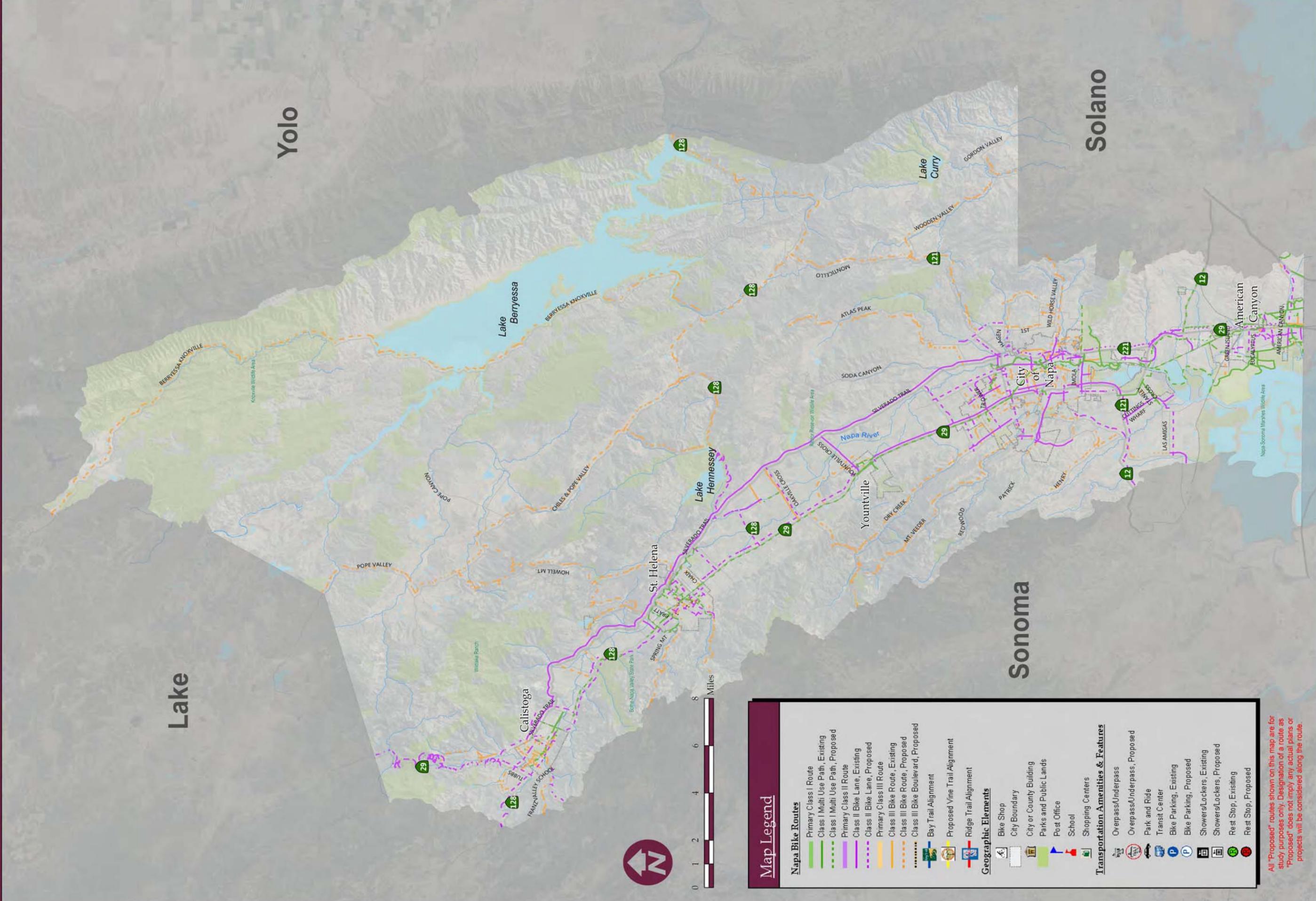
FIGURE 1



### Map Legend

- Class I Multi Use Path, Existing
- - - Class I Multi Use Path, Proposed
- Class II Bike Lane, Existing
- - - Class II Bike Lane, Proposed
- Class III Bike Route, Existing
- - - Class III Bike Route, Proposed
- Planning Area Maps
- Jurisdictional Maps

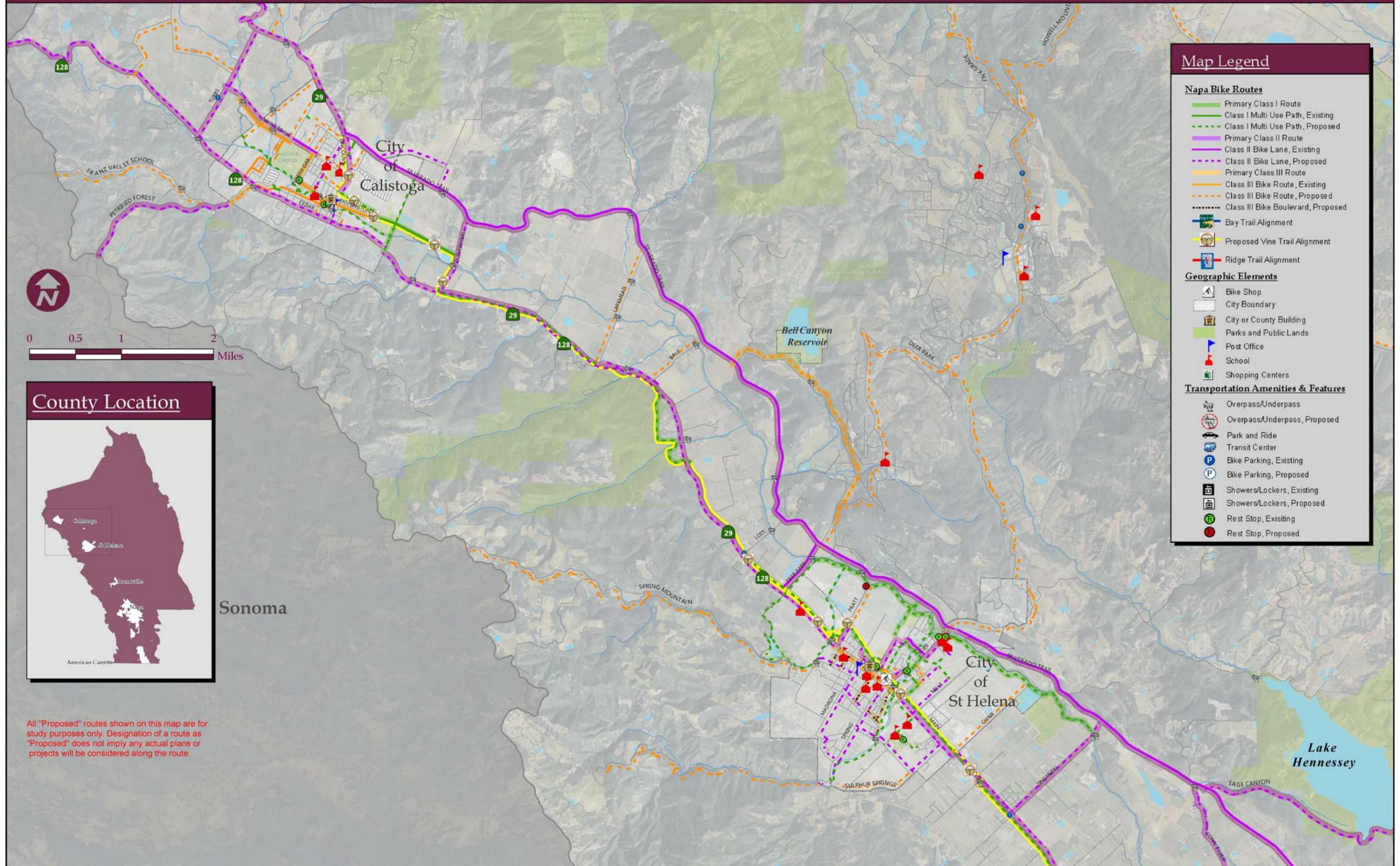
All "Proposed" routes shown on this map are for study purposes only. Designation of a route as "Proposed" does not imply any actual plans or projects will be considered along the route.



### Map Legend

- Napa Bike Routes**
- Primary Class I Route
  - Class I Multi Use Path, Existing
  - Class I Multi Use Path, Proposed
  - Primary Class II Route
  - Class II Bike Lane, Existing
  - Class II Bike Lane, Proposed
  - Primary Class III Route
  - Class III Bike Route, Existing
  - Class III Bike Route, Proposed
  - Class III Bike Boulevard, Proposed
  - Bay Trail Alignment
  - Proposed Vine Trail Alignment
  - Ridge Trail Alignment
- Geographic Elements**
- Bike Shop
  - City Boundary
  - City or County Building
  - Parks and Public Lands
  - Post Office
  - School
  - Shopping Centers
- Transportation Amenities & Features**
- Overpass/Underpass
  - Overpass/Underpass, Proposed
  - Park and Ride
  - Transit Center
  - Bike Parking, Existing
  - Bike Parking, Proposed
  - Showers/Lockers, Existing
  - Showers/Lockers, Proposed
  - Rest Stop, Existing
  - Rest Stop, Proposed

All "Proposed" routes shown on this map are for study purposes only. Designation of a route as "Proposed" does not imply any actual plans or projects will be considered along the route.



### Map Legend

**Napa Bike Routes**

- Primary Class I Route
- Class I Multi Use Path, Existing
- Class I Multi Use Path, Proposed
- Primary Class II Route
- Class II Bike Lane, Existing
- Class II Bike Lane, Proposed
- Primary Class III Route
- Class III Bike Route, Existing
- Class III Bike Route, Proposed
- Class III Bike Boulevard, Proposed

**Trails**

- Bay Trail Alignment
- Proposed Vine Trail Alignment
- Ridge Trail Alignment

**Geographic Elements**

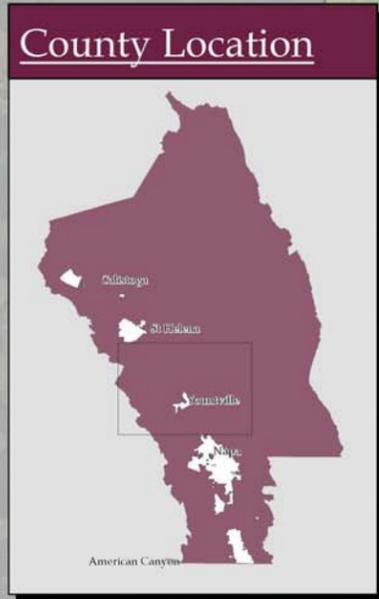
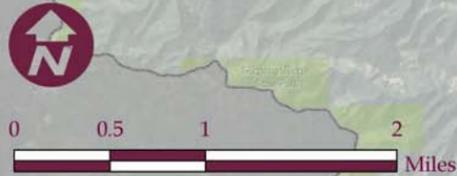
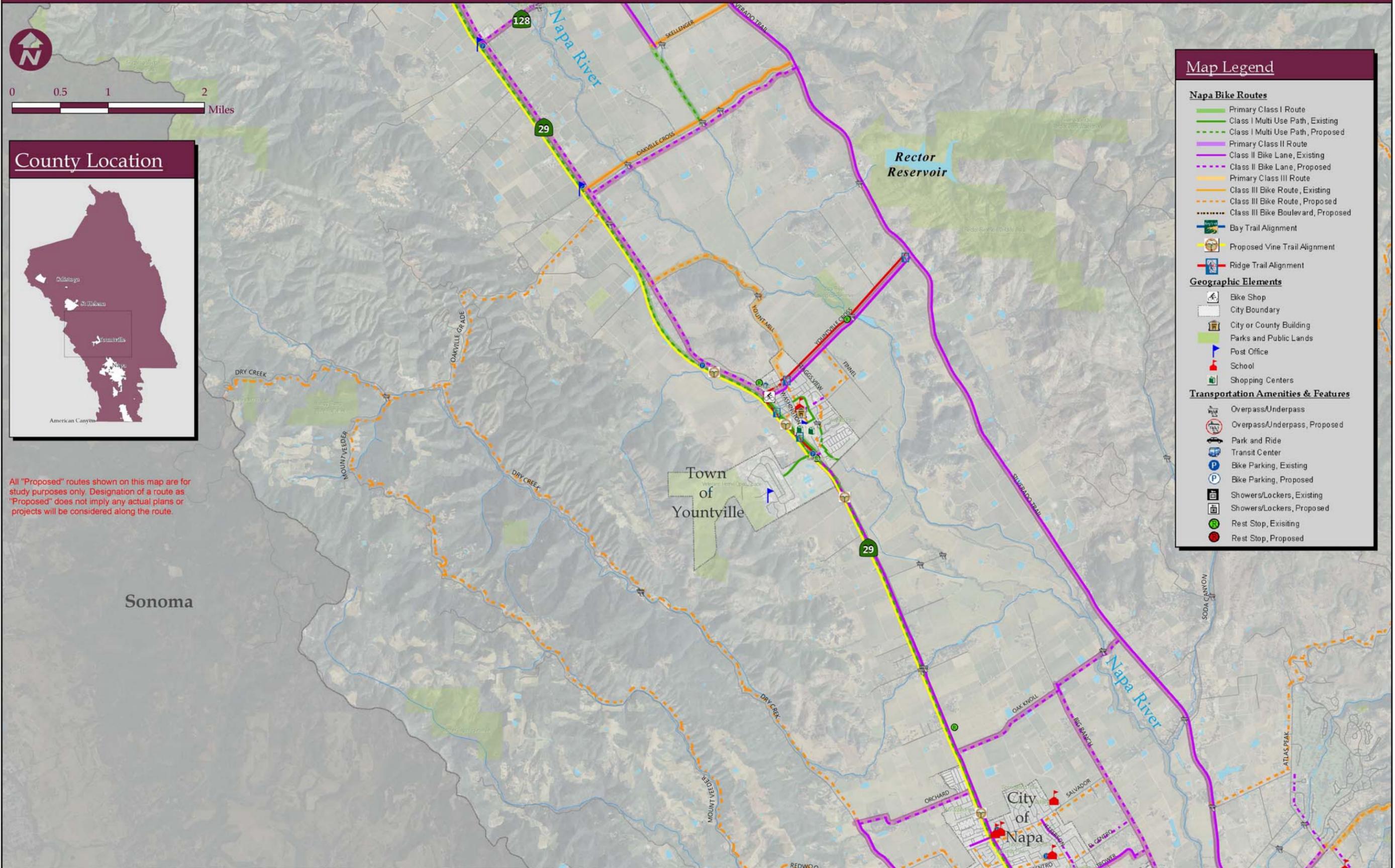
- Bike Shop
- City Boundary
- City or County Building
- Parks and Public Lands
- Post Office
- School
- Shopping Centers

**Transportation Amenities & Features**

- Overpass/Underpass
- Overpass/Underpass, Proposed
- Park and Ride
- Transit Center
- Bike Parking, Existing
- Bike Parking, Proposed
- Showers/Lockers, Existing
- Showers/Lockers, Proposed
- Rest Stop, Existing
- Rest Stop, Proposed

### County Location

All "Proposed" routes shown on this map are for study purposes only. Designation of a route as "Proposed" does not imply any actual plans or projects will be considered along the route.

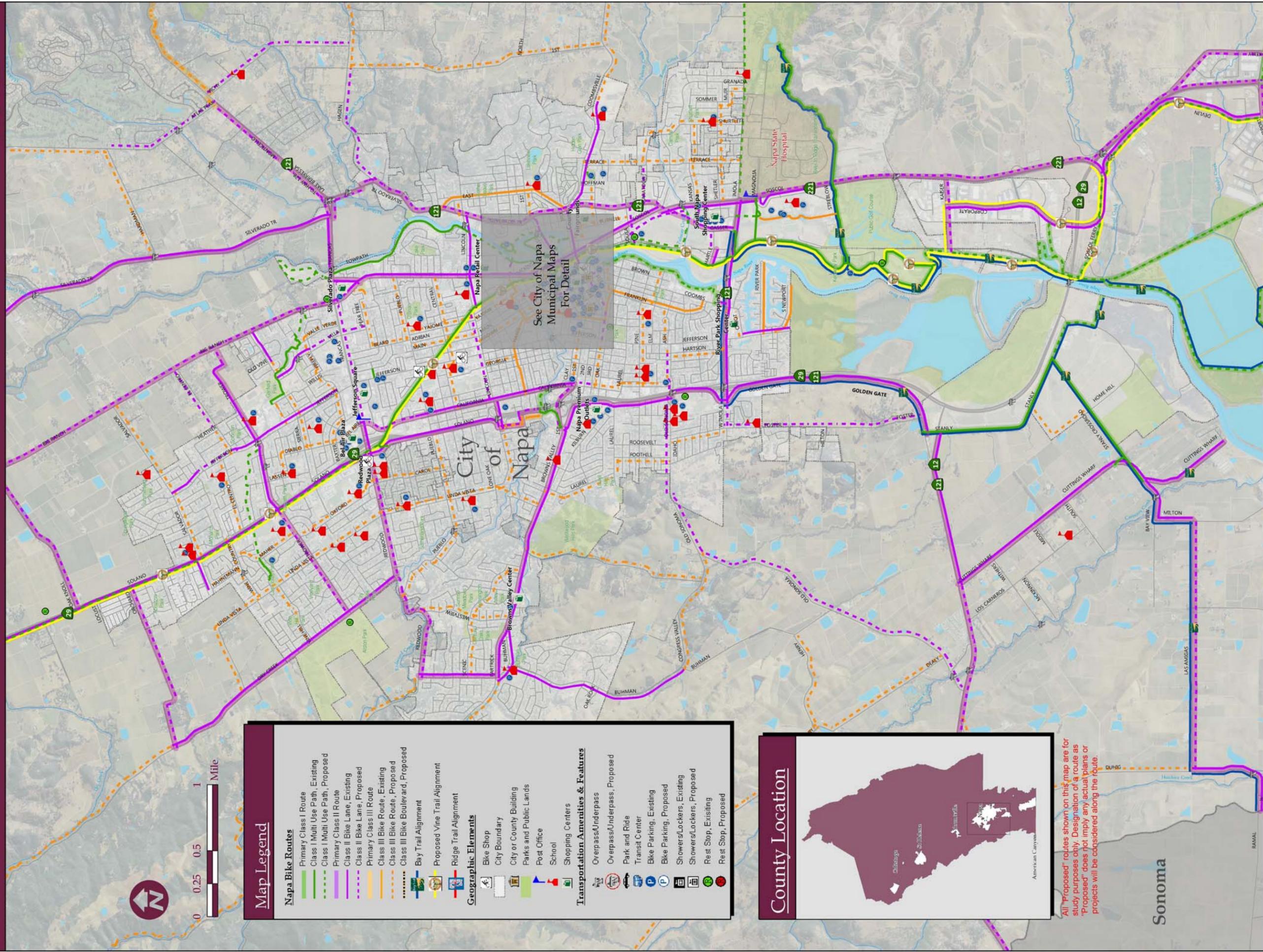


All "Proposed" routes shown on this map are for study purposes only. Designation of a route as "Proposed" does not imply any actual plans or projects will be considered along the route.

# Planning Area - City of Napa

# Napa Countywide Bicycle Plan

FIGURE 5



### Map Legend

**Napa Bike Routes**

- Primary Class I Route
- Class I Multi Use Path, Existing
- Class I Multi Use Path, Proposed
- Primary Class II Route
- Class II Bike Lane, Existing
- Class II Bike Lane, Proposed
- Primary Class III Route
- Class III Bike Route, Existing
- Class III Bike Route, Proposed
- Class III Bike Boulevard, Proposed
- Bay Trail Alignment
- Proposed Vine Trail Alignment
- Ridge Trail Alignment

**Geographic Elements**

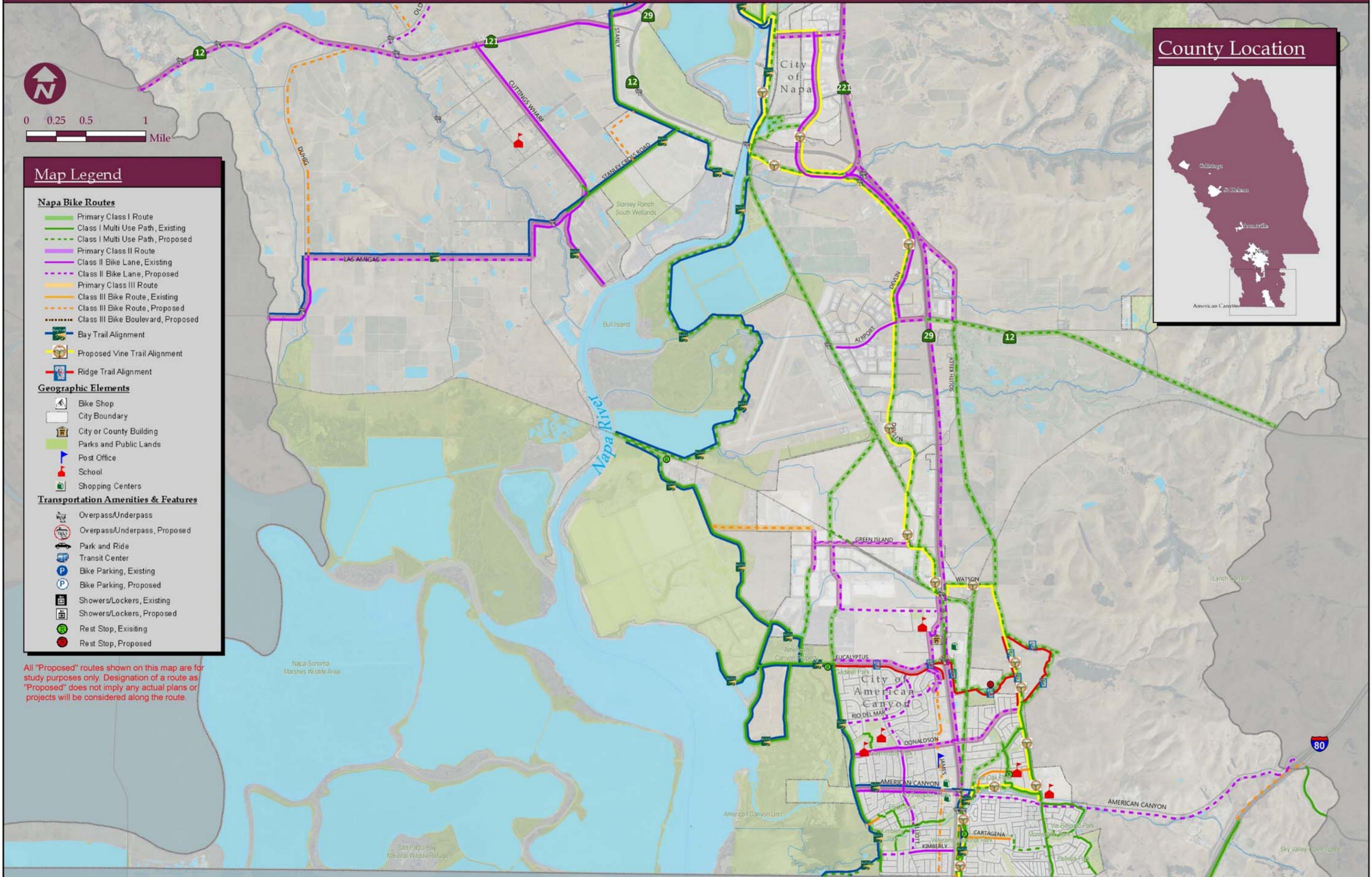
- Bike Shop
- City or County Building
- Parks and Public Lands
- Post Office
- School
- Shopping Centers

**Transportation Amenities & Features**

- Overpass/Underpass
- Overpass/Underpass, Proposed
- Park and Ride
- Transit Center
- Bike Parking, Existing
- Bike Parking, Proposed
- Showers/Lockers, Existing
- Showers/Lockers, Proposed
- Rest Stop, Existing
- Rest Stop, Proposed

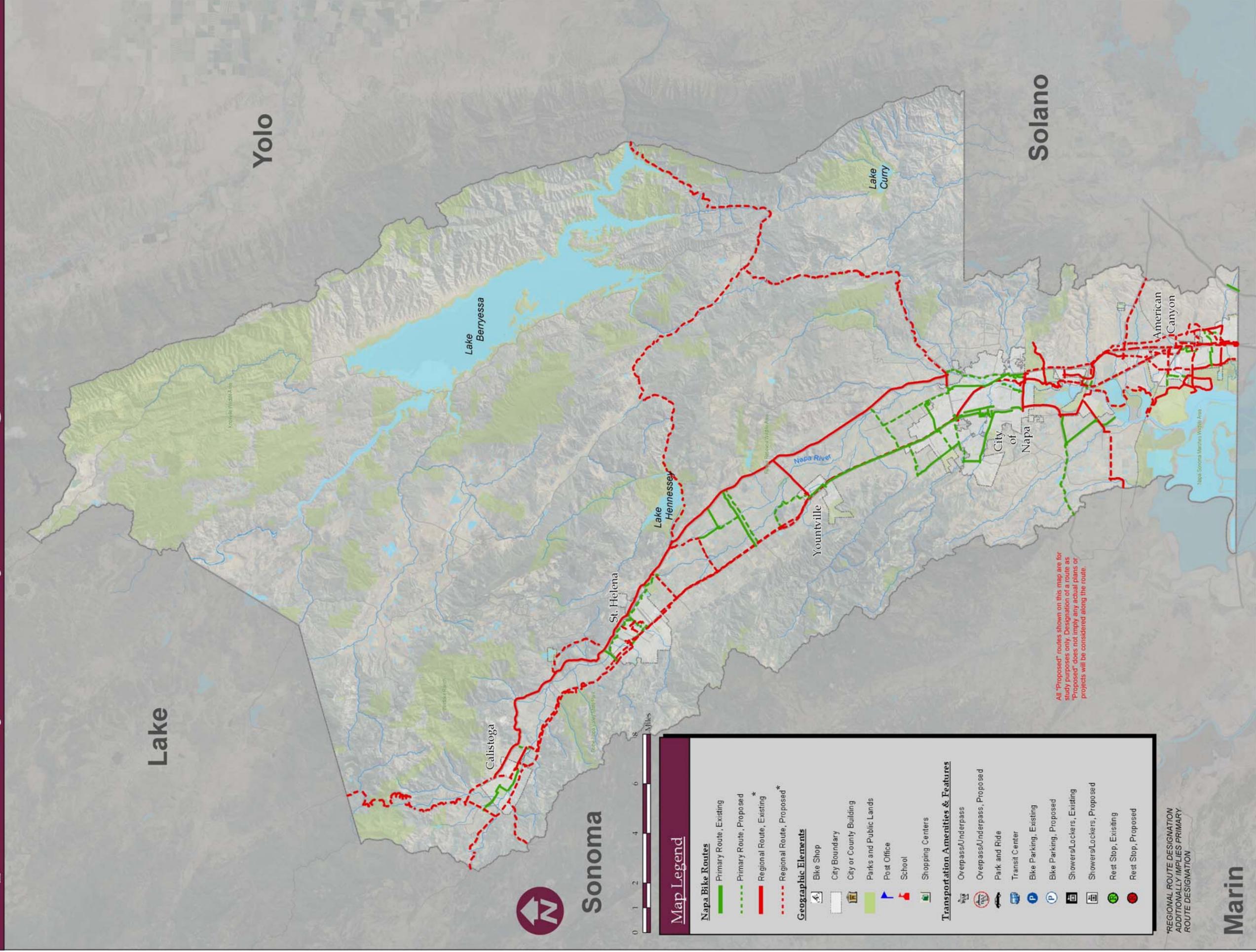
### County Location

All "Proposed" routes shown on this map are for study purposes only. Designation of a route as "Proposed" does not imply any actual plans or projects will be considered along the route.



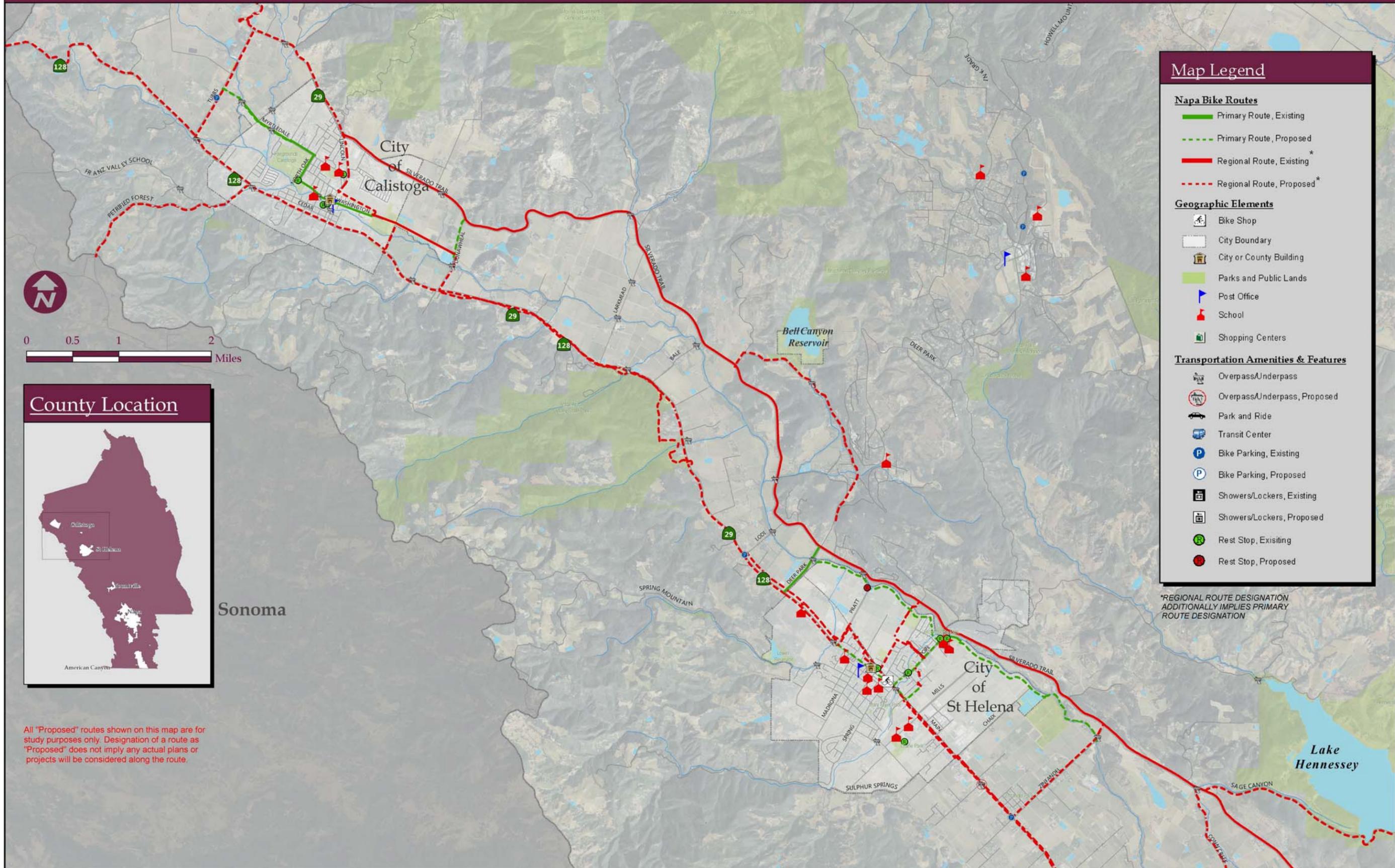
All "Proposed" routes shown on this map are for study purposes only. Designation of a route as "Proposed" does not imply any actual plans or projects will be considered along the route.

Napa Countywide Bicycle Plan  
**Napa County Primary and Regional Routes** FIGURE 7



# Planning Area - North Valley Primary and Regional Routes

FIGURE 8



### Map Legend

**Napa Bike Routes**

- Primary Route, Existing
- Primary Route, Proposed
- Regional Route, Existing \*
- Regional Route, Proposed \*

**Geographic Elements**

- Bike Shop
- City Boundary
- City or County Building
- Parks and Public Lands
- Post Office
- School
- Shopping Centers

**Transportation Amenities & Features**

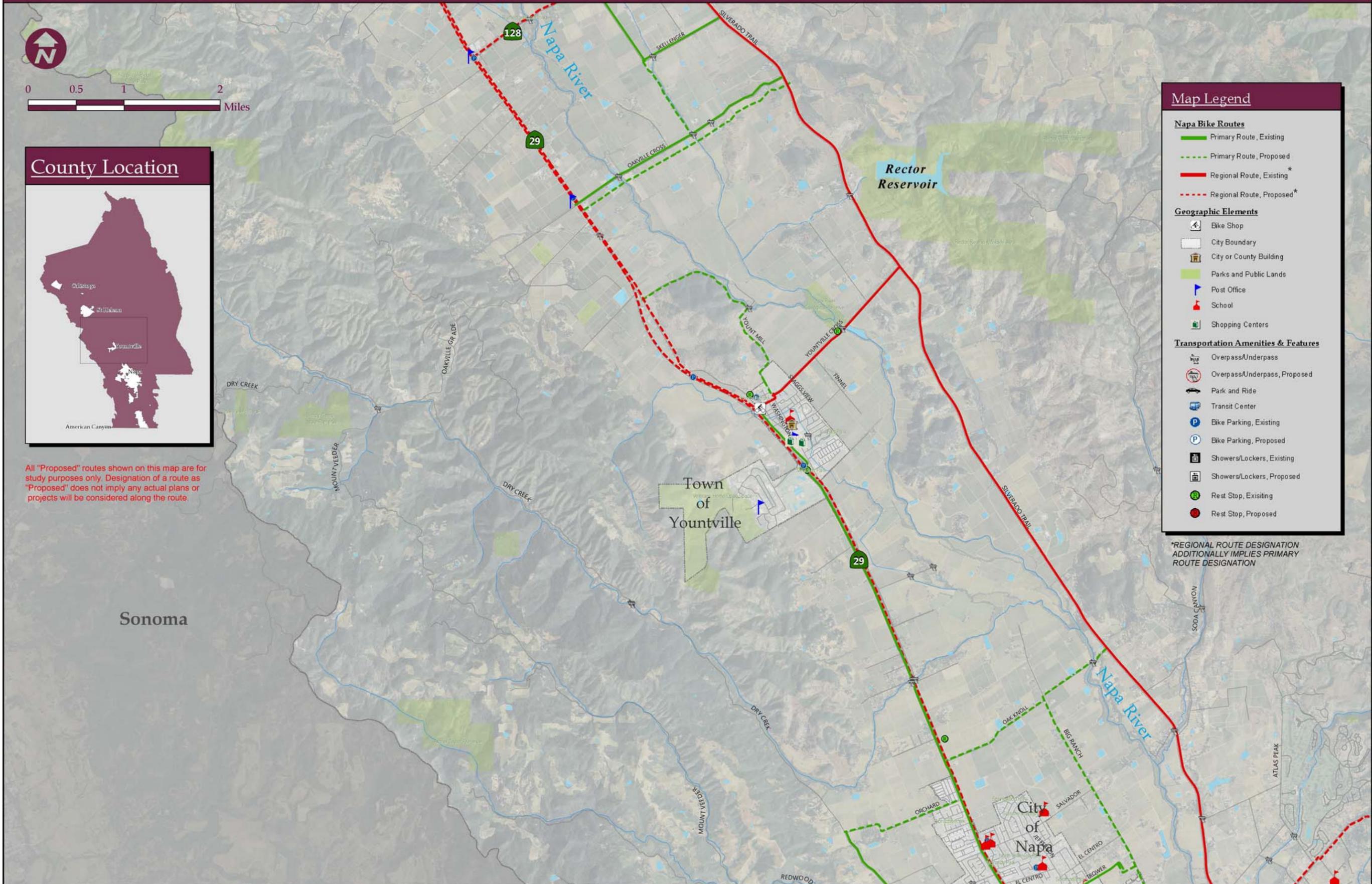
- Overpass/Underpass
- Overpass/Underpass, Proposed
- Park and Ride
- Transit Center
- Bike Parking, Existing
- Bike Parking, Proposed
- Showers/Lockers, Existing
- Showers/Lockers, Proposed
- Rest Stop, Existing
- Rest Stop, Proposed

\*REGIONAL ROUTE DESIGNATION  
ADDITIONALLY IMPLIES PRIMARY  
ROUTE DESIGNATION

### County Location

All "Proposed" routes shown on this map are for study purposes only. Designation of a route as "Proposed" does not imply any actual plans or projects will be considered along the route.

# Planning Area - Mid Valley Primary and Regional Routes



0 0.5 1 2 Miles

### County Location



All "Proposed" routes shown on this map are for study purposes only. Designation of a route as "Proposed" does not imply any actual plans or projects will be considered along the route.

#### Map Legend

**Napa Bike Routes**

- Primary Route, Existing
- Primary Route, Proposed
- Regional Route, Existing\*
- Regional Route, Proposed\*

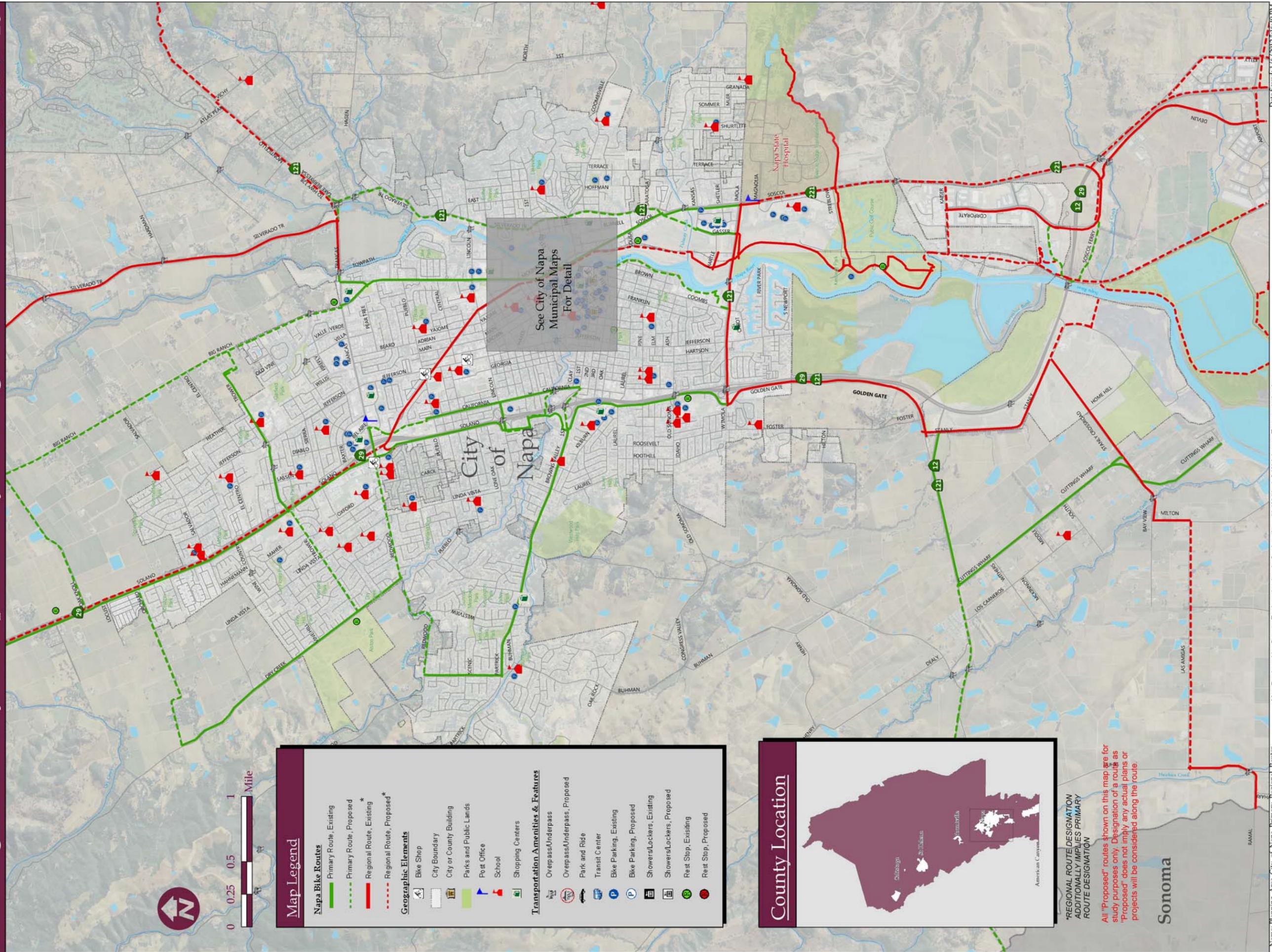
**Geographic Elements**

- Bike Shop
- City Boundary
- City or County Building
- Parks and Public Lands
- Post Office
- School
- Shopping Centers

**Transportation Amenities & Features**

- Overpass/Underpass
- Overpass/Underpass, Proposed
- Park and Ride
- Transit Center
- Bike Parking, Existing
- Bike Parking, Proposed
- Showers/Lockers, Existing
- Showers/Lockers, Proposed
- Rest Stop, Existing
- Rest Stop, Proposed

\*REGIONAL ROUTE DESIGNATION ADDITIONALLY IMPLIES PRIMARY ROUTE DESIGNATION



**Map Legend**

**Napa Bike Routes**

- Primary Route, Existing
- Primary Route, Proposed
- Regional Route, Existing
- Regional Route, Proposed

**Geographic Elements**

- Bike Shop
- City Boundary
- City or County Building
- Parks and Public Lands
- Post Office
- School
- Shopping Centers

**Transportation Amenities & Features**

- Overpass/Underpass
- Overpass/Underpass, Proposed
- Park and Ride
- Transit Center
- Bike Parking, Existing
- Bike Parking, Proposed
- Showers/Lockers, Existing
- Showers/Lockers, Proposed
- Rest Stop, Existing
- Rest Stop, Proposed

**County Location**

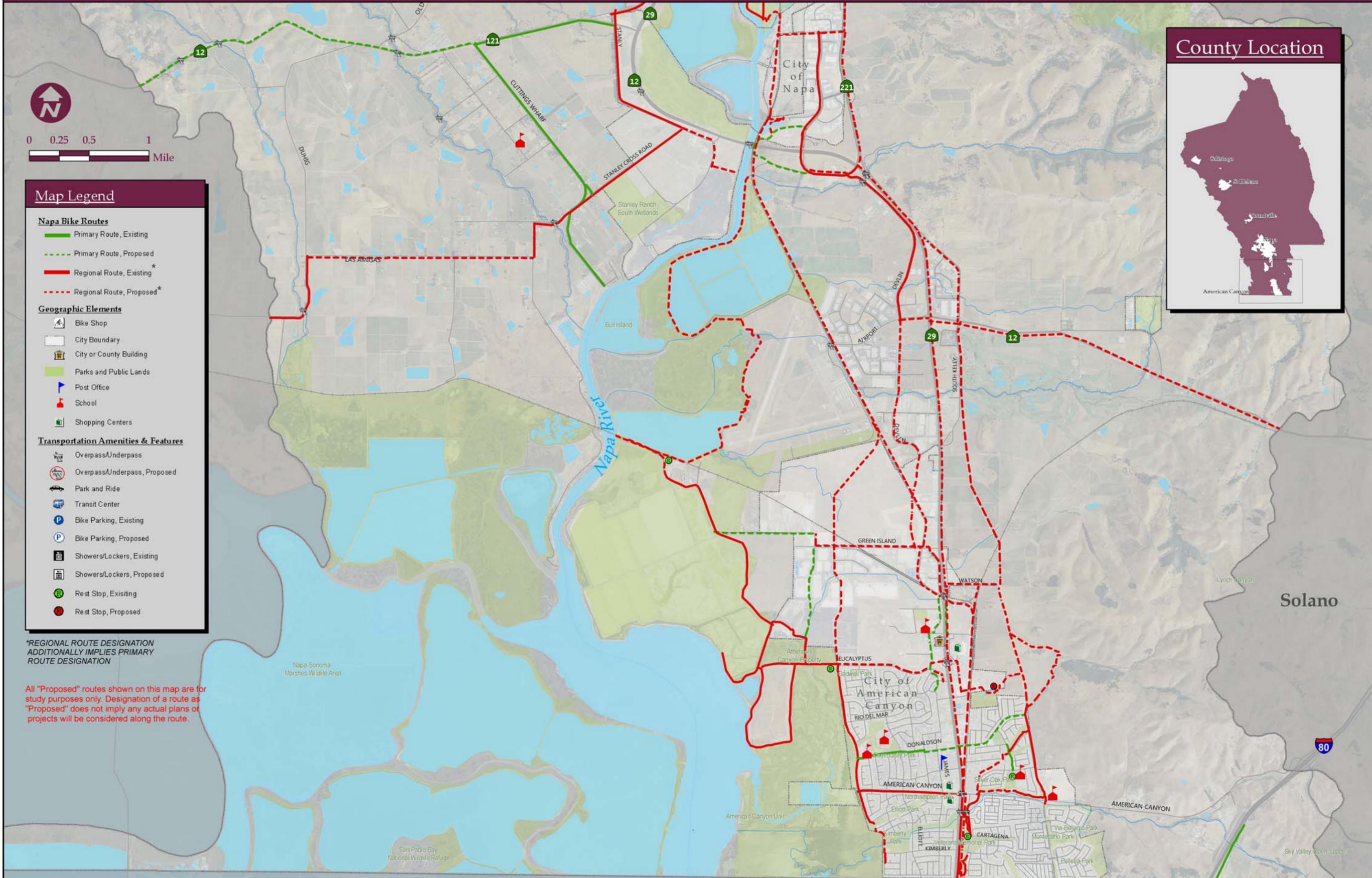
American Canyon

**\*REGIONAL ROUTE DESIGNATION ADDITIONALLY IMPLIES PRIMARY ROUTE DESIGNATION**

All "Proposed" routes shown on this map are for study purposes only. Designation of a route as "Proposed" does not imply any actual plans or projects will be considered along the route.

Sonoma

# Planning Area - South Valley Primary & Regional Routes



North Arrow

0 0.25 0.5 1 Mile

### Map Legend

**Napa Bike Routes**

- Primary Route, Existing
- Primary Route, Proposed
- Regional Route, Existing \*
- Regional Route, Proposed \*

**Geographic Elements**

- Bike Shop
- City Boundary
- City or County Building
- Parks and Public Lands
- Post Office
- School
- Shopping Centers

**Transportation Amenities & Features**

- Overpass/Underpass
- Overpass/Underpass, Proposed
- Park and Ride
- Transit Center
- Bike Parking, Existing
- Bike Parking, Proposed
- Showers/Lockers, Existing
- Showers/Lockers, Proposed
- Rest Stop, Existing
- Rest Stop, Proposed

\*REGIONAL ROUTE DESIGNATION  
ADDITIONALLY IMPLIES PRIMARY  
ROUTE DESIGNATION

All "Proposed" routes shown on this map are for study purposes only. Designation of a route as "Proposed" does not imply any actual plans or projects will be considered along the route.

### County Location

The inset map shows the state of California with Napa County highlighted in the northwestern region. Major cities like Ukiah, Eureka, and San Francisco are also marked.

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- *Yountville Shuttle* – The free Yountville Shuttle provides local fixed-route service in the Town of Yountville. The service operates on a 30-minute frequency from 9 a.m. to 4 p.m. on Tuesday through Sunday, with no service on Monday.
- *St. Helena VINE* – The St. Helena VINE provides local service in the City of St. Helena and to Deer Park at St. Helena Hospital. Connections to VINE are available at St. Helena City Hall (northbound side) and Main at Pope Streets (southbound side) in downtown St. Helena, and to Lake Transit at St. Helena Hospital.
- *American Canyon Transit Shuttle (The Duck)* – American Canyon Transit (ACT) Shuttle provides service within the City of American Canyon, and begins and ends at the Safeway at SR 29 and American Canyon Road.
- *VINE Go* – The VINE Go is a door-to-door, paratransit service that serves Napa Valley from Calistoga to American Canyon and portions of the City of Vallejo, for ADA individuals and seniors who live in south Napa County, and general public residents that live in the North Valley cities of Yountville, St. Helena and Calistoga, and unincorporated areas within Napa Valley.

#### *Vallejo Ferry Terminal*

The Ferry Terminal in Vallejo has weekday and weekend ferry service to San Francisco. Bikes are allowed on the Ferry unless conditions or passenger loads preclude the safe transport of bicycles. This intermodal connection is enhanced by the bike racks on the Vine buses. A key goal of the Vine Trail is to provide continuous bicycle access via a family-friendly Class I multi-use pathway between the communities of Napa County and the Vallejo Ferry Terminal.

#### *Park-and-Ride Lots*

Park-and-Ride lots are an important component of the bikeway system. They provide intermodal access for commuter bicyclists and serve as potential staging areas for recreational riders during non-commute hours. Commuter parking at Caltrans operated park-and-ride lots is free of charge, no permits are required. Various amenities are provided at park-and-ride lots including transit access, short and long-term bicycle parking, lighting, information kiosks, etc.

Caltrans operates two park-and-ride lots in Napa County. One is located on Golden Gate Drive at Imola Avenue on the west side of SR 29. The facility includes 74 vehicle parking spaces and four bicycle lockers. The second lot is located on the west side of the SR 29/Trancas Street Interchange at the corner of Redwood Road and Solano Avenue. Opened in late 2010, the site includes 91 vehicle parking spaces, and bicycle racks and lockers. Additional features include a transit shelter, a transit information kiosk, bus transfer, including paratransit vehicles and two spaces for electrical vehicle parking.

Future park-and-ride lots are also planned in American Canyon on the southwest corner of SR 29 and Rio Del Mar, and in Yountville just south of the park at California and Washington.

**Napa’s Transportation Future**

Streets and Roads V:  
Create Satellite Park-and-Ride Sites

Place lots at the edge of cities that will allow drivers to leave their cars and use public transportation to move around the cities.

*Recommendation*

Identify potential Park-and-Ride sites and establish a “Bike Share” program in partnership with the wine and hospitality industries entities such as Car Free Napa Valley to develop staging areas that would allow tourists, visitors, and others to stage bicycle tours of Napa’s communities and grape appellations.

## **Bicycle Parking and End of Trip Support Facilities**

This section describes existing bicycle parking, showers and locker facilities in Napa County. Referred to as “support facilities,” these facilities are essential components of bicycle travel. The provision of convenient and secure bicycle parking and end of trip support facilities to change and store clothes, and ‘freshen-up’ or shower help to encourage bicycle commuting, and in some cases, they may make the difference whether the bike trip is made at all. Bicycle parking generally includes bicycle racks, bicycle lockers, parking corrals, covered parking, and indoor parking. Effective parking requires properly designed racks, lockers, and shelters, which are sited appropriately for ease of use, convenience, and protection from the elements and vandalism.

Bicycle parking is provided at various destinations throughout the Plan Area. The availability of bicycle parking varies by jurisdiction, and in general the existing bicycle parking supply consists of bike racks to accommodate short-term bicycle parking within public rights-of-way in downtowns and business districts, in corrals at elementary, middle, and high schools, adjacent to building entrances at civic destinations, at transit hubs and park-and-rides, parks and community facilities, and on private property at various retail centers and employment destinations. Inventories of existing bicycle parking facilities by type and location are documented in text and tables and are mapped on the bikeway maps, in the local agency plans.

## Safety Plan

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### **Bicycle Collisions and Safety Analysis**

The following section addresses safety conditions for bicyclists and includes a review of the California Office of Traffic Safety's (OTS) collision rankings, the Statewide Integrated Traffic Records System, Seasonal Trends in Napa County, an understanding of the limitations of bicycle collision reporting, an analysis of bicycle collisions throughout the County for the most recent 10 years for which collision data was available at the time of the analysis, identification of the top ten collision locations throughout the County by intersection and segment, and a review of urban and rural bicycle crash types.

#### Collision Rankings

The California Office of Traffic Safety (OTS) conducts ongoing research of traffic safety statewide. OTS prepares an annual traffic safety ranking of all California cities and counties. Cities are broken into groups based on population, while all 58 counties are grouped together; however, the grouping does not take into account other local demographics or characteristics. With the exception of the City of Napa, all cities within Napa County experience a lower number of annual bicycle collisions than the average for their population group. Because these cities have populations of less than 25,000, any small increase or decrease in annual collisions can result in a dramatic shift in their ranking. Therefore, these rankings were used for a generalized look at collision performance, not as an exact metric.

#### Seasonal Trends

Seasonally, Napa County experiences the most bicycle collisions during the summer and early fall months, which corresponds to periods with more tourism. Additionally, most crashes occur on Friday through Monday with generally fewer collisions midweek. This also corresponds to increased tourism activity on weekends. The vast majority of collisions reported occurred during daylight and with clear weather conditions.

#### Collision Reporting

Collision records provided in SWITRS only include collisions reported by an involved party. In cases where there is no significant damage or injury, especially if the collision only involved a single bicyclist, the collision often is not reported. When a collision is reported, the level of detail provided can vary depending on the reporting styles and/or policies of the responding law enforcement agency or even the individual officer.

#### Comparison of Rural and Urban Bicycle Crashes

A 2010 report by the FHWA's Highway Safety Information System, *Factors Contributing to Pedestrian and Bicycle Crashes on Rural Highways*, was prepared to examine the difference between pedestrian and bicycle crashes in urban and rural settings in order to identify crash types and crash locations specific to rural highways that could be addressed through the use of existing safety treatments and/or through the development of new treatments.

According to the study, "approximately 25 percent of nationwide pedestrian and bicycle fatal and injury accidents occur on rural highways. In contrast to urban highways, rural highways have certain characteristics that can be more hazardous to pedestrians and bicyclists, such as higher average vehicle speeds and a lack of sidewalk and/or shoulder provisions." Further, limited research has been conducted on rural highways, in regards to the potential to link between crash data and roadway characteristics and traffic counts.

The first objective of the study was to compare general descriptive statistics of rural versus urban crashes. This general comparison is useful for indicating which factors are common to both localities as well as which factors are over-represented in a rural environment.

The most common crash types for bicyclists differed in rural and urban areas. The most common rural crashes included bicyclists turning/merging into the path of the driver and drivers overtaking the bicyclist. The most common urban crashes included drivers failing to yield, bicyclists failing to yield midblock, and bicyclists failing to yield at the intersection. One noticeable difference is that common rural crash types generally occurred on midblock segments, while urban crash types generally occurred at intersections.

### Bicycle Collision Analysis

The bicycle collision histories for Napa County and its local agencies were reviewed to determine any trends or patterns that could indicate safety issues for bicyclists. Collision data for a ten-year period from January 1, 1999, through December 31, 2008, was obtained from the California Highway Patrol (CHP) as published in their State Wide Integrated Traffic Records System (SWITRS) reports. The collected SWITRS data was verified for location references, duplicate reporting, and inconsistencies. It is important to note that SWITRS data only includes collisions that were reported, so does not necessarily reflect all conflicts that occurred.

A comprehensive review of the data was performed to help understand the nature and factors involved in reported bicycle collisions. A better understanding of these factors may help planners and engineers address some of the physical environments that contribute to these incidents. For example, if it is determined that a high incidence of collisions is occurring in the evening, lighting improvements may help to correct the situation. Conversely, a high incidence of collisions attributed to riders traveling in the wrong direction or those involving children may be addressed through education and/or enforcement activities.

#### **Statewide Integrated Traffic Records System**

The California Highway Patrol (CHP) Accident Investigation Unit maintains SWITRS, which was developed as a means to collect and process data elements from a collision scene. The program ensures that local police departments and the CHP utilize and maintain uniform tools and methods to collect and compile meaningful data and statistics which can be used to improve roadway conditions and monitor the effectiveness of enforcement efforts.

The following types of data were reviewed with an emphasis on the conditions indicated to better understand the factors that may have contributed to the reported collisions:

**Collisions:** This information includes an analysis of the major causes of each collision, the locations of collisions, and the seasonal variation of collisions.

**Conditions:** Environmental conditions at or near the collision site at the time of each crash were examined. This included an analysis of weather conditions, lighting conditions, and types of traffic control devices present.

**Demographics:** This included a determination, by gender and age, of collision rates for bicyclists.

**Locations:** This portion of the analysis includes a map of reported bicycle collisions and spatial analyses of different collision types.

For the ten-year period reviewed a total of 26,641 collisions were reported throughout Napa County, including 725 bicycle collisions. During the review period, bicycle collisions accounted for approximately 2.7 percent of all collisions in Napa County. Analysis of the data for all jurisdictions

combined revealed a rise in the total number of collisions per year from 1999 to 2002 to a high of 3,082 collisions annually, and then a steady decline to 1,789 collisions in 2008. Of this total number, 725 bicycle collisions were recorded throughout the County. Similarly, a general decline in the number of bicycle collisions recorded occurred over the ten-year review period. There were six bicycle fatalities during the review period. The locations of all reported bicycle-involved incidents were plotted in the County's GIS mapping system in order to determine roadway segments and intersections that appear to have higher frequencies of collisions. Specific street segments were identified and their approximate lengths estimated in order to develop a collision rate per mile, which was then divided by the ten-year period of available data. The "collisions per mile per year" statistic provides a general means of ranking the street segments by the historical frequency of collisions. Maps and tables summarizing the high incident collision locations by jurisdiction are included in the local agency plans.

### **Safety, Education, Encouragement, and Enforcement Programs**

The Countywide Bikeway Network has been planned to provide safe, convenient access for all types of bicyclists to destinations throughout Plan Area. Like all other modes of transportation, the system and its network of facilities must be used appropriately to maximize the safety of all users, bicyclists, pedestrians, and motorists alike. To help minimize safety risks, it is imperative that bicyclists and motorists follow basic traffic laws. For bicyclists, this includes activities such as riding in the correct direction, stopping at stop signs and traffic signals when the light is red, riding predictably, and taking proper measures to be visible day and night; and for motorists yielding to turning bicyclists, passing with care, and not driving or parking in designated bicycle lanes, to name a few behaviors for both.

Efforts must be made to encourage a culture of respect and shared usage, among motorists and bicyclists alike. The safety, education, encouragement, and enforcement programs recommended in this section are intended to help grow the number of bicyclists in the Plan Area, while also increasing safe and appropriate behavior by bicyclists and all other roadway users.

#### Bicycle Safety Education for Students

*Action: Provide bicycling/walking safety education to 16 schools (4,000 students) throughout the County from second grade through high school annually.*

The Napa County Office of Education Safe Routes to School Program currently provides bicycling/ walking safety education to approximately eight (8) schools throughout the County annually. The program should be expanded to sixteen (16) schools annually, doubling the current participation. The Napa County Office of Education, NCTPA, Napa County Bicycle Advisory Committee, law enforcement, and community partners should work together to determine how to target the program and curriculum towards specific schools, geographic areas, and grade levels to ensure the greatest impact of funds spent on student safety education.

- *Expected Result:* Decrease the number of bicycle crashes among school age children and increase the number of students bicycling/walking to school through increased Safe Routes to School safety education delivery efforts.
- *Measure:* Collision analysis and bicycle and walking counts performed regularly by agency staff.

*Action: Develop a sustainable Walking School Bus/Bicycle Train Program for interested schools.*

Safety is a primary concern when parents decide whether to allow their children to bicycle/walk to school. Walking school busses and bicycle trains are organized groups of students who walk or bicycle to school under the supervision of one or more adults. The Program's formal

organization and adult supervision can provide peace of mind for parents wanting to let their child walk or bicycle to school. The Napa County Office of Education should work with school and local agency staff to develop a formal program identifying school commute routes and establishing a roster of volunteer parent or staff “bus drivers” from each participating school.

- *Expected Result:* More students will bicycle and walk to school on a regular basis.
- *Measure:* The Napa County Office of Education Safe Routes to School Coordinator will track the number of children walking and biking to school and survey participating schools to track the success of walking and bicycling school busses.

### Bicycle Safety Education for Adults

*Action:* Develop and deliver bicycle safety education to adult bicyclists throughout the County using a variety of media (print, radio, web, and hands-on instruction) targeted toward specific user groups: migrant workers, college students, commuter bicyclists, recreational bicyclists, families, senior citizens, and the County’s largest employers.

Adult bicyclists account for the majority of bicyclists in the Plan Area. A variety of rider types comprise the “adult bicyclist” category, as such appropriate safety education information should be developed to target focused issues for each user group. Safety information is widely available from FHWA, AAA, the League of American Bicyclists, and a variety of local and regional transportation agencies. Existing resources should be used and adapted to meet the needs of the local community. Safety education should stress the importance of following the rules of the road and how doing so plays a role in the prevention of collisions. Educational messages should be targeted at addressing common violations, issues, and/or collision types such as: wrong-way riding, no lights or other required night-riding equipment, running stop signs or red lights, bicyclists that are careless or disobey traffic laws, proper helmet use, riding with children, sharing trails and roads, riding two abreast or in groups, yielding to pedestrians, etc.

- *Expected Result:* Bicyclists will employ safe bicycling techniques and etiquette on streets and pathways, parents will serve as role models for safe bicycling techniques for their children, bicycle conflicts along streets and pathways will decrease, and annual bicycle collisions will be reduced.
- *Measure:* Traffic citations, bicycle crash data, and bicycle/traffic complaints will be analyzed on an annual basis to determine trends. Surveys may be conducted on trails and/or as a component of regular bicycle counts to determine the effectiveness of the outreach and if bicycle/vehicle/ pedestrian interactions have improved.

### Bicycle Safety Education and Encouragement Campaign for Tourists

*Action:* Develop and deliver bicycle safety education information to tourists throughout the County to make bicycling more attractive and available to short-term tourists.

Findings from the 2005 Napa Valley Visitor Profile Study document the profound significance that tourism has on the Napa Valley’s economy and transportation system. In order to help alleviate traffic congestion, improve traffic safety, reduce vehicle miles traveled, and make bicycling more attractive and available to tourists, a focused tourist information, safety, and education campaign should be developed. The campaign would require collaboration from multiple entities including NCTPA and local agencies, and tourism, winery hospitality, agricultural, and visitor serving interests. Marketing will be critical to inspire tourists of all levels, abilities, and desires to tour the Valley’s many attractions by bicycle. Materials should be

developed in multiple languages, and focus on issues such as bicycling safety and etiquette, tips to improve comfort and convenience, route planning and wayfinding, bike rental services, and information on both guided tours and unguided routes.

- *Expected Result:* The number bicycle trips by made by short-term tourists visiting the Napa Valley will increase substantially. Both bicycle and traffic safety will improve as a greater understanding of the bicycle system is developed and vehicle miles traveled are reduced. Targeted reductions in Greenhouse Gas Emissions will be achieved as fewer “short” tourism trips are made. Touring the Napa Valley’s vineyards, wineries, and attractions by bicycle, and experiencing Napa’s “healthy lifestyle” will be central to the Valley’s tourism industry and an active destination choice for tourists worldwide.
- *Measure:* Traffic citations, bicycle crash data, and bicycle/traffic complaints will be analyzed on an annual basis to determine trends. Visitor serving businesses including bicycle tours and rental establishments, wineries, and lodging will be surveyed to determine trends and the effectiveness of the campaign.

### Law Enforcement Activities

Police officers are responsible for enforcing traffic laws and improving safety for bicyclists and motorists on Napa’s highways, streets and pathways. Traffic officers interact with bicyclists and motorists on a daily basis, which puts them in a unique position to add credibility to efforts to encourage bicycling and to improve bicycle safety. Coordination with law enforcement agencies and an improved understanding of bicycling issues by officers can lead to better enforcement, heightened awareness of safety issues, and recognition of “teachable moments” for both bicyclists and motorists.

*Action: Provide bicycle specific training for law enforcement personnel and establish a community policing agreement.*

Training of law enforcement personnel, including on-bike enforcement techniques, is critical to keeping officers up to date on current bicycle laws and issues, and will help officers to understand the behaviors, rights, and traffic safety concerns associated with bicycling. A community policing agreement engages members of the community, including agency engineering and planning staff, local elected officials, non-profit community advocates, schools, and others, to ensure the coordination of enforcement goals and strategies, and to develop a balanced approach to address traffic safety issues that includes education, engineering, and enforcement. A community policing agreement amongst local law enforcement agencies in the Plan Area will help to ensure specific and consistent consideration of enforcement efforts as well as consistent investigation techniques of collisions for on-going monitoring purposes.

- *Expected Result:* Bicycle specific training for police officers will familiarize enforcement personnel with bicycle issues and the bicyclist’s perspective. A community policing agreement will ensure a collaborative approach to traffic safety that includes enforcement, engineering, and education efforts to improve traffic safety.
- *Measure:* Trained enforcement officers may be required to complete post training evaluation forms. Community policing agreements would result in regular committee meetings and a reduction in bicycle-related citations and collisions.

*Action: Establish a bicycle diversion program for bicycle traffic offenders.*

Bicycle diversion programs are provided in a variety of jurisdictions throughout the nation. Diversion programs allow persons cited for eligible bicycle-related traffic violations to attend a

bicycle safety course sponsored by law enforcement and the Court in lieu of paying a fine. Courses are typically free of charge, and successful completion results in the dismissal of the fine and all charges. Eligibility is determined by the Court. Diversion courses range from one to four hours in duration and include the delivery of instructional videos, bicycle safety materials, a review of state and local laws, and hands on safety skill training.

- *Expected Result:* Court administered bicycle diversion program for bicycle traffic offenders which would provide bicycle safety training in lieu of a fine.
- *Measure:* Bicycle safety training delivered to (number) of residents through the program.

*Action:* Provide focused law enforcement operations at high collision locations.

The Bicycle Plan has identified the top collision locations for bicyclists throughout the County. Increased law enforcement efforts at these specific locations may help to decrease collisions between motorists and bicyclists. Local planning and engineering staff should work with law enforcement (community policing) to develop a strategy to address safety concerns at these locations. Strategies may include increased patrols during peak periods, crosswalk(s), signal compliance, etc.

- *Expected Result:* Increased law enforcement patrols at top collision locations throughout the County.
- *Measure:* Reduction in bicycle collisions at high collision locations.

## Recommended Bicycle System

This section provides an overview of proposed bicycle system improvements throughout Napa County, including both physical improvements such as bike paths, lanes, routes, and parking, and programmatic improvements such as education and awareness campaigns. Project specific details are provided in the local agency plans.

### Proposed Bikeway System

The proposed bikeway system consists of an interconnected network of Class I pathways, Class II bike lanes, and Class III bike routes to complete both the local and primary countywide bikeway networks, along with various safety enhancements, bicycle support facilities, and programs designed to improve safety and encourage bicycling. The local and primary bikeway networks have been planned to link residents, visitors, and bicyclists of all ages and types between residential areas and community destinations including schools, parks, shopping, civic buildings, employment centers, and regional trails and bikeways. Proposed bikeways are illustrated on the bikeways maps shown in Figures I through II. Details about the proposed projects are provided in the responsible local agency plans and include segment identification numbers and names, begin and end points, lengths, improvement type, ranking score and priority, estimated cost, and potential funding sources. While the projects in this Plan have received a preliminary feasibility evaluation, engineering and environmental studies will be required prior to project implementation to determine project specific issues such as right-of-way impacts, traffic operations, parking impacts, and/or environmental issues.

#### **Bikeway System**

*The whole of all of the components including both physical and programmatic.*

#### **Bikeway Network**

*The physical improvements that establish bikeways (Classes I, II, III).*

#### **Primary Bikeway Network**

*A continuous countywide network of on- and off-street bikeways that extend between and through communities along with connections to other transportation modes, major destinations, jobs, neighborhoods, recreation, and local bikeway networks.*

Recommended bicycle support facilities and programs are described in the following sections and include increasing short- and long-term bicycle parking supplies, improving multi-modal integration, developing maintenance and monitoring programs, and implementing a bicycle counting program, safe routes to school programs, public education, signing and marking enhancements, a bike share program, and a communitywide traffic safety education campaign.

### Primary Bikeway Network

A new element of this planning effort has been the designation of a countywide Primary Bikeway Network – a continuous countywide network of on- and off-street bikeways that extend between and through communities. The Primary Bikeway Network consists of a combination of existing and proposed Class I, Class II, and Class III bikeways that provide inter-city and inter-county routes along with connections to other transportation modes, major destinations, jobs, neighborhoods, recreation, and local bikeways. The network typically includes one or more north-south and east-west routes through each community. The intention of the Primary Bikeway Network is to focus and collaborate on a set of basic routes that will provide access to major destinations and activity areas. Primary Bikeway Network routes are identified on the bikeway maps using a colored highlight around their route designation, Primary Bikeway Maps have been prepared to show how the network connects between communities, and proposed project lists identify bikeway segments on the Primary Bikeway Network. The Primary Bikeway Network has been further coordinated with “routes of regional significance” that comprise the Bay Area’s Regional Bicycle Network identified in the Metropolitan Transportation Commission’s Regional Bicycle Plan for the San Francisco Bay Area.

## Major Trails

There are several major trails that serve as primary bikeways in the Countywide Bikeway System including the San Francisco Bay Trail, Napa River Trail, Napa Valley Vine Trail, and the Bay Area Ridge Trail. These facilities provide both recreational and commuter access to destinations along their routes, they connect to numerous local bikeways, and the Bay and Vine Trails provide family friendly connections between communities. Major trails are shown on Figure 12.

## Future Trails

The 2003 Countywide Bicycle Plan included a list of potential or conceptual trail corridors that were identified as a result of access needs, latent demand, or opportunity. These potential projects are generally conceptual in nature and do not necessarily show up as proposed bikeways on the bikeway maps. However, they are important opportunities that should be explored. They are generally seen as long-term projects with a timeline of 10 years or more. They would require a sponsor agency to begin the process of implementation, which would likely include refining the concepts, gaining public support, feasibility analysis, right-of-way acquisition, project design, environmental analysis, funding, etc.

### 1. *River Path*

- Follow Ranch Road/Big Ranch Road north from Trancas, in Napa.
- Acquire an easement or right-of-way to connect to the Napa River from the north end of Big Ranch Road.
- Follow the Napa River to either Finnel Road or the Yountville Cross Road.
- From the Yountville Cross Road either follow the River north or take Yount Mill Road/Cook Road as far as possible; then
- Follow either Conn Creek or the River to the Oakville Cross Road.
- Take the Conn Creek Path to Rutherford Road.
- Follow the Napa River to Calistoga, as feasible.

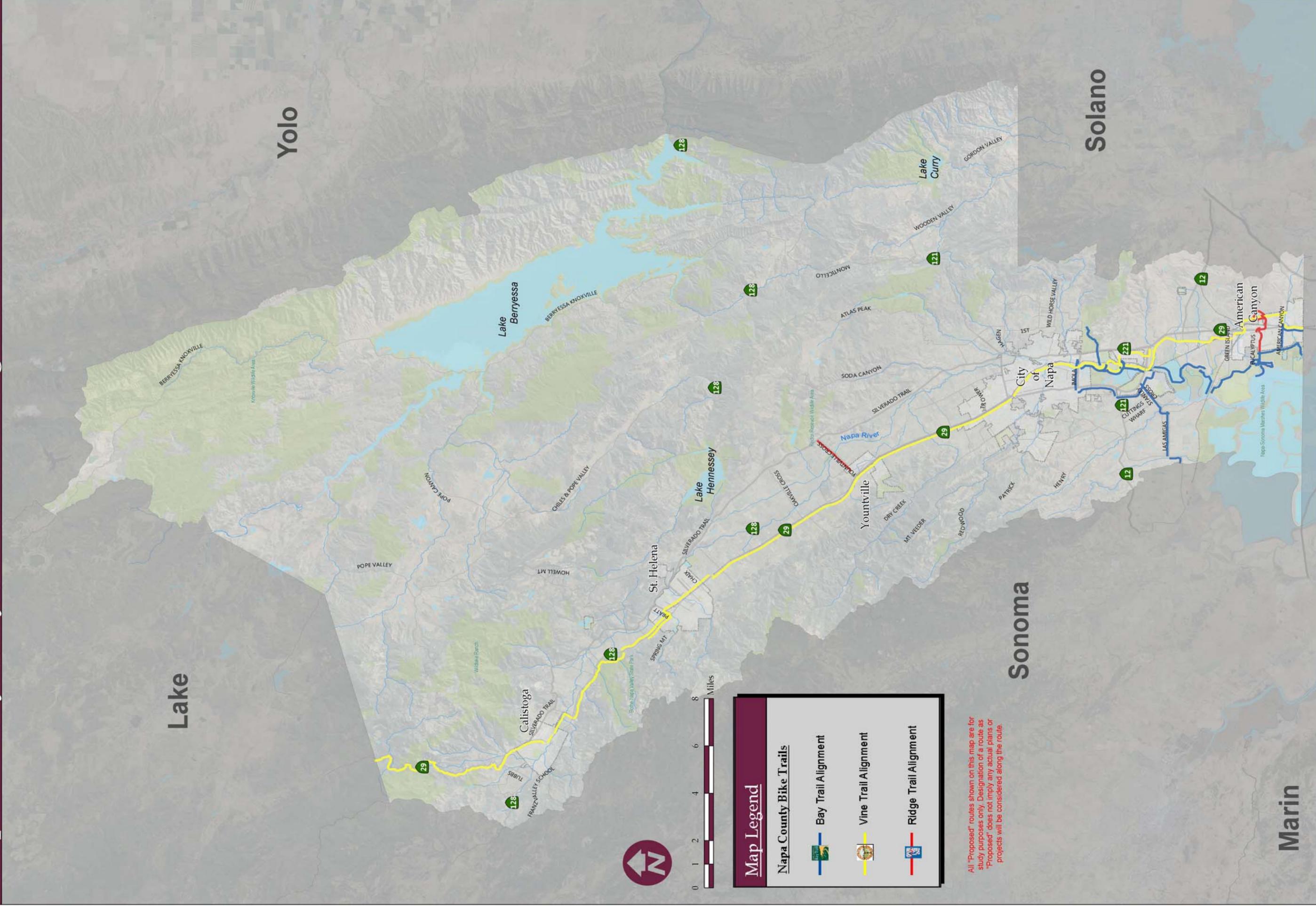
### 2. *Rail Path*

An alternate route might use the railroad right-of-way from Napa to Calistoga. Both Napa and the City of Calistoga show paths along this right-of-way.

### 3. *North Valley Loop*

The proposed Bay Area Ridge Trail will provide access west of Highway 29 from Napa to Sugarloaf State Park. It is proposed that a path be extended north from Sugarloaf to Bothe-Napa State Park and then from Petrified Forest Road east to Lake Berryessa, looping south and back to the Napa River at Rutherford Road. This route would involve the following (approximate) alignment:

- Bay Area Ridge Trail from City of Napa to Sugarloaf State Park;
- North from Sugarloaf to Bothe-Napa State Park along the Langtree Road alignment;
- From the Park, take Larkmead lane to the proposed rail-path and north into Calistoga;
- From Calistoga take either Petrified Forest Road, which will connect with Class III facilities planned in Sonoma County; or
- Follow the Oat Hill Road Trail/abandoned road from Highway 29 to Pope Valley Road;
- At Pope Valley Road, follow unpaved jeep trails/dirt roads roughly paralleling Pope Creek to Walter Springs.
- From Walter Springs, follow a new path to be built to Lake Berryessa.
- Work with the BLM to plan and develop a continuous path system at Lake Berryessa.



All "Proposed" routes shown on this map are for study purposes only. Designation of a route as "Proposed" does not imply any actual plans or projects will be considered along the route.

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- As part of work with BLM, develop a route from the south end of the lake to Lower Chiles Valley Road.
- Follow a four-wheel drive road to Lake Hennessy Recreation Area.
- Work with the County and City of Napa to develop a path along Lake Hennessy to the Silverado Trail, where bicyclists can link into other planned facilities.
- From Lake Hennessy, develop a path through the portion of the Recreation Area south of Highway 128, to link with the Bay Area Ridge Trail.

4. *Sonoma County Connection – Mid-Valley: Henry Road Extension to Lovall Valley Loop*

This path will provide a direct linkage to Sonoma, joining Sonoma's planned bikeway system on 8<sup>th</sup> Street East. From the end of Henry Road, the path will climb steeply over the ridge as a single-track (or minimum-design) path. It will provide spectacular views of Napa Valley and will tie into planned facilities on Old Sonoma Road, Highway 12 and the Bay Area Ridge Trail. The primary difficulties associated with this path are finding a suitable route across the ridge that will be rideable by more than a few "expert" mountain bicyclists and minimizing environmental impacts in the process. The land on the east side of the ridge is pasture, with isolated stands of trees. The path will have to cross a creek before climbing up the side of the ridge. It looks difficult but "do-able."

**Programs**

The bikeway system must be comprised of more than just bikeways to realize increases in the number of people who choose to bicycle, and to achieve the community benefits associated with an increase in bicycle trips and a reduction in vehicle miles traveled. Therefore, in addition to the construction of bicycle facilities and supporting infrastructure, it is critical that steps be taken to mainstream bicycling as a viable transportation option. To raise the awareness level of the rights and responsibilities of bicyclists and motorists and to forge a higher level of understanding between those on our roads and paths, a variety of education, encouragement, and enforcement activities are recommended. Recommendations are segregated by category; prioritized as high, medium, and low; and include an implementation timeframe.

Education and Awareness

Education and awareness training for bicyclists and motorists is essential to help create a safer bicycling environment throughout Napa County. Materials and activities can and should be targeted towards bicyclists and drivers, students, families, and employers and employees, as well as tourists – who account for a significant percentage of traffic in the Napa Valley. The following improvements are recommended.

- Recommendation:* Develop a centralized bicycle education and awareness program and give it a “brand name” to promote the effort and gain public recognition. Develop a program webpage.
- Priority:* High
- Timeframe:* Short-Term
- Responsibility:* NCTPA, cities, and County

Potential names or “branding of the program” will be linked to the scope of the effort. Note that it may be desirable to fold walking and transit into the campaign. The name or slogan should be focused and short. Suggestions include: “Bike Napa,” “Napa Bikes,” “Napa Bicycles,” “Napa – Go by Bike,” “Bike, Walk,



Sample Bicycle Program Names and Logos

Ride Napa,” “Go Napa Go,” or a similar slogan that encapsulates the effort. Selection of a program name should be accomplished by the NCTPA, reviewed and approved by its Bicycle and Technical Advisory Committees, and approved by the NCTPA Board. The next step will be the development of a program webpage that serves as a clearing house for bicycle information in the Plan Area. There are a number of existing programs throughout the nation that can serve as examples.

Many of the following program recommendations would be implemented as a component of the Napa Bike Program.

Countywide Traffic Safety Campaign

The goal of a traffic safety campaign is to save lives and increase traffic safety for all modes of transportation. The premise of a coordinated countywide campaign is to create a singular look and unified message for distribution to the public throughout the Plan Area. The program should target drivers, bicyclists and pedestrians with distinct recognizable designs and repeated slogans using a variety of media.

*Recommendation:* Implement a coordinated Countywide Traffic Safety Campaign. The Campaign should consist of a variety of multi-media activities designed to reach target audiences including motorists, adult bicyclists, recreational bicyclists, students, migrant workers, employers, etc.

*Priority:* High

*Timeframe:* Short-Term

*Responsibility:* NCTPA, local law enforcement agencies, cities, and County

The Traffic Safety Campaign should consist of a variety of multi-media activities designed to reach target audiences including motorists, adult bicyclists, recreational bicyclists, students, migrant workers, and employers and employees. The Campaign should be integrated with the Napa Bike Program, with links between the Napa Bike Program web page and the Traffic Safety Campaign web page. Various traffic safety campaigns exist which can either be utilized, and/or used as a model. For example, the Street Smarts Program is a nationally recognized traffic safety campaign that was developed by the City of San Jose in coordination with the California Office of Traffic Safety. The program has expanded to approximately 25 communities, including the City of Napa. Together, the communities form the Street Smarts partnership. Joining the partnership grants access to an extensive library of professionally-designed and market-tested Street Smarts materials, which are then rebranded with the local agency’s name. Members of the partnership are encouraged to develop customized materials targeting behaviors specific to their community. New materials are shared amongst the partnership. Every city using the program has seen an increase in traffic safety awareness and many have reported reductions in traffic-related incidents. The Traffic Safety Campaign should include the following activities:

- Deliver public service announcements in a variety of formats including radio and newspaper advertisements, television and movie shorts, driver education classes, and web media.
- Private sector sponsors may be engaged to pay for public service announcements and advertisements in local newspapers, magazines, and radio.
- Coordinate with the NCTPA/VINE to disseminate bus shelter posters and bus vehicle streamers
- Promote traffic safety education materials in local schools
- Put up campaign posters at schools, in restaurants, shops, and other venues of public interaction
- Engage neighborhood organizations to promote the campaign



City of Napa  
Street Smarts Posters

## Share the Road Campaign

“Share the Road” is a widely recognized traffic warning sign that was developed in the late 1990’s to help educate bicyclists and motorists and to encourage courtesy and safe roadway behavior for all road users. Since the concept’s inception, the “Share the Road” warning sign has been adopted as a standard traffic sign and has been installed by countless jurisdictions throughout the state and nation. Many local bicycle advocacy groups and transportation planning agencies have used the slogan as a brand for education and awareness campaigns.



Sample “Share the Road” and bicycle safety bumper stickers

**Recommendation:** Implement a countywide “Share the Road” campaign to increase motorists’ awareness of bicyclists throughout the Napa Valley. The Share the Road campaign would complement the Napa Bike Program and the Countywide Traffic Safety Campaign.

**Priority:** High

**Timeframe:** Short-Term

**Responsibility:** NCTPA, local law enforcement agencies, Vine Transit, cities, and County

Develop “Share the Road” or similar bumper stickers and apply them to local agency fleet vehicles, law enforcement vehicles, Vine transit busses, and school busses. Further, conduct outreach to the County’s largest employers and/or fleet operators to encourage to placement of stickers on their fleet vehicles as well. The decals serve as a moving billboard and help to reinforce the “Share the Road” message.

Continue the installation of Share the Road signs in various locations throughout the County. Installation locations should be strategically selected to provide warning where roadway constraints occur such as narrow bridges, where roadway shoulders drop off, and locations where bicyclists must ride in or take the travel lane. To raise awareness, signs should also be installed at transition points such as city and County borders and for reassurance along rural highways and arterials. Share the Road signs are intended to raise awareness among motorists that it is likely they will encounter bicyclists along the roadway.

## Bicycle Ambassadors

Bicycle Ambassadors are advocates tasked with promoting bicycling in a community. Ambassadors are hired by government to perform outreach to other agencies, the public, employers, and employees. Through direct interaction, Ambassadors can address the specific interests, questions and needs of individuals.

**Recommendation:** Develop a Bicycle Ambassador Program.

**Priority:** Medium

**Timeframe:** Mid-Term

**Responsibility:** NCTPA

Bicycle Ambassadors would be agents of the Napa Bike Program. They would bring the program’s education and awareness messages directly to the public through face-to-face interaction. Ambassadors

would attend community events such as farmers’ markets, music festivals, health fairs, etc. and/or create special events in order to teach bicycle safety, sharing the road, bike lane and bike path etiquette, and how to bike to work and school. Bicycle Ambassadors could also give bicycle safety demonstrations at day camps, libraries and schools, as well as bike to work presentations for area businesses. Bicycle Ambassadors would promote safety for all road users – bike riders, motorists, and pedestrians – and encourage residents to ride their bikes more!

Bike Share Programs

Bike sharing is a form of public transportation using bicycles. Cities around the world provide bike sharing systems as a transportation option for visitors and residents. Bike sharing utilizes a network of docking stations and specially-built bikes that are configured to meet the needs of the bike share location. Riders sign up for the program and use an electronic key to check out bicycles. Residents can sign up for a set period such as 30 days or a year. Visitors can purchase a 24-hour membership using a credit card at the station kiosk. Bicycles are available on demand and can be returned to any docking station in the network.

*Recommendation:* Implement a bike share program through public-private partnerships to serve the tourism industry and locals alike.

*Priority:* Medium

*Timeframe:* Short- to Mid-Term

*Responsibility:* NCTPA, cities, County, hospitality industry

Establishing a bike share program would compliment supply strategies identified in Napa’s Transportation Future, which have been developed to help address traffic congestion, vehicle miles traveled, and green house gas emissions, particularly, “Streets and Roads VI: Create Satellite Park and Ride Sites”. Bike Sharing could be incorporated into proposed park-and-ride lots which would serve each community. While the program has the potential to serve local residents, the greatest impact could be achieved by developing a focused tourism strategy and marketing effort to encourage short-term visitors to see the Napa Valley’s many attractions by bicycle. By working closely with the hospitality industry to establish a marketing program, tourists and wine tasters could be encouraged to experience Napa’s compact cities and many wineries, vineyards, and grape growing appellations “the healthy Napa way” by bicycle. Bike share technologies have experienced significant advancements in recent years. Program bicycles can now be outfitted with components to make them more difficult to steal and tamper with, and be equipped with GPS units to guide riders, and radio frequency identification tags to track their locations. These technologies could be utilized to lead visitors on self-guided tours, and/or provide route, location, and safety information.

Local Agency Bicycle Fleets

*Recommendation:* Establish bicycle fleets for local agency staff.

*Priority:* Low

**Bike Share Programs** have been established in communities throughout the world, and have been established in major cities throughout the US in recent years.



**Above:** Tourists use Capitol Bike Share to tour the monuments in Washington DC



**Above:** Bike Share Station in Melbourne, Australia

**Timeframe:** Short- to Mid-Term

**Responsibility:** NCTPA, cities, and County

Provide an inventory of bicycles for local agency staff that can be used for traveling to destinations within the community. While intercity travel by bicycle may not be a practical use of staff time, traveling to destinations within the community for inter-office meetings, site visits, or other purposes can be more efficient than travel by vehicle and should be encouraged through the establishment of staff bicycle fleets. The program should start small, with an initial purchase of bicycles commensurate to staff demand, approximately two to six bikes per agency. The bikes should be unisex and utilitarian in nature, and be equipped to allow staff to transport materials between offices and/or other destinations. Bicycles should be available for check out by staff on a first-come first-served basis.

### Education and Encouragement Activities (Napa Bike Program)

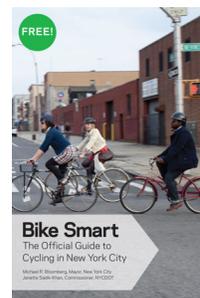
In addition to the specific actions defined above, there are a number of education and encouragement activities that should be folded into the Napa Bicycle Program to provide local residents with the information and confidence they need to bicycle more often.

**Recommendation:** Develop/acquire bicycle safety education materials and encouragement programs for the public.

**Priority:** High

**Timeframe:** Short-Term

**Responsibility:** NCTPA, cities, County, schools, Napa County Bicycle Coalition



*Sample Bicycle  
Public Guide*

There is a wealth of information that can be provided to support bicycling in the Plan Area. Materials are readily available from existing sources such as the Metropolitan Transportation Commission, Caltrans, the League of American Bicyclists, other Transportation Planning Agencies, and bicycling advocacy agencies. Potential programs and/or outreach topics are listed below. Education and awareness information should be readily available on-line via the Napa Bike Program web page and materials should be published for use by residents and tourists. At a minimum, resources should be available in English and Spanish.

#### *Safety and Education Materials*

- Tricks and tips for bicycling to work
- What Every Bicyclist Must Know
- Bicycle Maps
- Trail Etiquette Brochure
- Locking your bicycle
- Bicycling with your family
- Using bicycle lanes
- Turning safely
- Wearing a helmet
- Riding against traffic
- Fitting a bicycle
- Riding on the sidewalk
- Shared Lane Markings
- Bicycling through roundabouts
- League of American Bicyclists Street Skills Bicycle Safety Classes

## Encouragement Programs

- All Kids Bike – promotional campaign to increase bicycling among school-aged children
- Big Biking Day, City-Streets, Cyclovia, etc. – one-day events that support recreational family bicycling within a particular location
- Cycling Friendly Work Place – a certification process that encourages businesses to become more cycle friendly
- Street Skills Classes for the workplace

## Signing Program

A low cost measure that can be used to immediately improve, grow, and provide an identity for the countywide bicycle system is the development of a comprehensive signing program. While signing programs can take on various forms, their ultimate intention is to enhance existing facilities and improve user safety by signaling the presence and location of facilities to existing users, potential users, and motorists. Effective signage can encourage more people (residents and visitors) to use the system by guiding them to existing facilities and destinations. Moreover, signs enhance safety and promote motorist awareness by alerting motorists to expect the presence of bicyclists either on the roadway or at crossing locations.

**Recommendation:** Develop custom logos for bicycle signs and implement a Countywide bicycle signing program.

**Priority:** High

**Timeframe:** Short-Term

**Responsibility:** NCTPA, cities, and County

There are two basic types of signing systems for bikeway networks, both use a custom Caltrans approved SG45 bike route sign. The sign incorporates custom information (a unique logo or route numbering) to enhance the identification of bikeways, and can be used on Class I, Class II or Class III routes. The first example uses a route numbering system similar to the Federal Highway System methodology where routes are numbered based on their north-south and east-west alignment. This system is typically developed in conjunction with a system or ‘user’ map that identifies the routes by number and the major destinations they serve. Although this system certainly helps motorists and cyclists recognize primary bicycle routes, bicyclists may be at a loss without the accompanying user map to guide them. The second system utilizes a custom logo on the bike route sign along with directional signage to help define the network and provide way-finding information. Specific routes may receive their own custom sign treatment, such as the Vine Trail, Bay Trail, or other routes.

## Way-Finding Signs

In addition to the standard “Bike Lane,” “Bike Route,” and custom SG45 “Bike Route” signs that are recommended for installation on all existing and proposed bicycle facilities, the primary bikeway network would be significantly enhanced by developing its own unique wayfinding directional signage program. These signs should include directional arrows and distance information to significant local and regional destinations and connecting bicycle facilities.



Sample SG45  
Custom Bike Route  
Sign from Solano  
County



Sample Way-  
Finding Signs

## Warning Advisory Signs and Pavement Markings

A variety of warning advisory signs and pavement markings may be used in conjunction with the signs described above to further reinforce the presence of bicyclists and inform motorists. These include bicycle warning signs that can be combined with a variety of messages such as “Share the Road”, “Watch for Bikes”, “Pass with Care”, “Bikes on Roadway Next XX Miles”, and others.

### Shared Lane Markings

The shared lane marking (SLM), known as a “shared roadway bicycle marking” in the MUTCD, and as “sharrows” by the bicycling public, is a pavement legend which may be placed in the travel lane adjacent to on-street parking. The purpose of the marking is to provide positional guidance to bicyclists on roadways that are too narrow to be striped with bike lanes. Unlike bike lanes, a SLM does not designate a particular part of the street for the exclusive use of bicyclists. It is simply an informational marking to guide bicyclists to the best place to ride on the road to avoid the “door swing” of parked cars, and to remind motorists to expect to see and share the lane with bicyclists. The marking gives bicyclists freedom to move further to the left within a travel lane rather than brave the door zone, squeezed between moving and parked cars. The marking is usually repeated every several hundred feet. Without such markings, bicyclists might seek refuge on the sidewalk, ride in a serpentine pattern between parked vehicles, or travel in the wrong direction. Perhaps the most important benefit of SLM is that they send a message to cyclists and drivers alike that bikes belong on the road.



**Shared Lane Marking**

*The SLM consists of a standard bicycle symbol combined with chevron arrows*

Shared Lane Markings were approved for use in California in 2007 after device testing was performed by the City of San Francisco. While the version of the 2010 MUTCD adopted by California specifies that the device is to be used only where there is existing on-street parallel parking (Section 9C.103), the national MUTCD provides for use of the device on streets without on-street parking. Further, jurisdictions around the nation are recognizing the benefit of utilizing the device in locations where it may not be obvious where cyclists should be riding, such as at intersections with multiple turn lanes, as a guide marking through intersections (similar to skip lines), and as a guide-marking between bikeways.

### Marking Placement

Laterally – According to the California MUTCD guidelines, SLM shall be placed so that the centers of the markings are a minimum of 11 feet from the curb face or edge of paved shoulders, and the distance may be increased beyond 11 feet. According to the National MUTCD, if SLM are used on a street without parking, the markings should be placed far enough from the curb to direct cyclists away from gutters, seams, and other obstacles, or near the center of the lane if the lane is less than 14 feet wide.

Longitudinally – SLM should be placed immediately after intersections and spaced at intervals of 250 feet. The longitudinal spacing of the markings may be increased or decreased as needed for roadway and traffic conditions (Source: 2010 CA MUTCD).

### Bike Dots

The City of Seattle, WA, has developed a unique pavement legend for bicycle wayfinding called Bike Dots. According to the Seattle DOT, “unlike sharrows, bicycle dots are not intended to provide guidance on bicycle positioning but are a tool to provide wayfinding.” It is recommended that the Napa Bike Program consider using “Bike Dots” through a public private partnership as a wayfinding tool for tourists traveling streets along the valley floor in search of vineyards and wineries.



## Regulatory Signs

Regulatory signs should also be used to inform bicyclists, pedestrians, and motorists of the rules of the road. Regulatory signs include “Bikes May Use Full Lane”, “Wrong Way, Ride With Traffic”, “No Parking, Bike Lane”, and others.



## Sign Placement

Signs should be placed at route start and stop points, route junctions, and turns within a route. Reassurance signs should be placed along long uninterrupted segments and at wide or odd-angled intersections. Share the road signs should be installed on routes with little or no shoulder space for bicyclists, at the County boundaries, and at transition points between jurisdictions. The County will need to work with Caltrans to site and maintain the signs on State Routes.

## Countywide Bicycle Parking Program

The availability of secure convenient bicycle parking facilities is critical to promoting greater bicycle usage throughout the Plan Area. “End of trip” bicycle facilities can include short- and long-term bicycle parking, showers, lockers and lighting.

**Recommendation:** Implement a Countywide Bicycle Parking Program including the following components: evaluate existing bicycle parking in each jurisdiction to ensure that it is an appropriate type and sited adequately; acquire and install bicycle parking (racks and lockers) in public places such as transit centers, commercial districts, city halls, libraries, parks, schools, etc.; encourage local businesses to provide bicycle parking for their customers and employees; and update local bicycle parking ordinances or policies to ensure that bicycle parking is provided in new developments.

**Priority:** High

**Timeframe:** Short-Term

**Responsibility:** NCTPA, cities, and County

As bicycling becomes more prevalent in the Plan Area, there will be more demand for adequate bicycle parking. The recommendations below are designed to build upon the existing parking inventory.

1. Each agency should review their existing bicycle parking inventory to determine existing bicycle parking locations and facility type and to evaluate the appropriateness of these facilities. Wave racks and bicycle racks that only support a bicycle’s wheel should be replaced. Appropriate sites for installation to meet existing and future demand should be catalogued. Bicycle parking should be provided at all public destinations, including transit centers and bus stops, community centers, parks, schools, downtown areas, and civic buildings. All bicycle parking should be in a safe, secure, covered area (if possible) conveniently located with reference to the main building entrance. These improvements will be incremental and as demand warrants.
2. Each agency should assess and update their zoning ordinance to require the provision of bicycle parking and shower/changing/storage facilities in new development and/or redevelopment. Formulas for parking amenity requirements should be developed based on building size, leasable square footage, employees, and/or rental units.
3. Bicycle parking for existing non-residential uses should be implemented through one or a combination of the following two methods: (a) Require existing non-residential uses to provide

bicycle parking per the requirements described above as part of the building permit process. (b) Subsidize the cost of bicycle parking through grants from public or private sources.

4. Work with employers where employees have expressed an interest in bike lockers. Lockers could be sold to businesses at a discount, possibly with grants making up the difference.

#### *Bicycle Parking Placement – Type and Location*

*Visibility* – bicycle racks and lockers should be placed in a highly visible location near building entrances so bicyclists 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. 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. The rack element (part of the rack that supports the bike) must keep the bike upright by supporting the frame in two places allowing one or both wheels to be secured. Inverted “U,” “A,” and post and loop racks are recommended designs. Older style wave type racks are not recommended because they require excessive space and are so often used improperly.

*Weather Protection* – protection from the elements 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. Long-term parking should always be protected.

*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. Empty racks must not pose a tripping hazard for visually impaired pedestrians. Racks should be positioned out of the walkway’s clear zone (space reserved for walking). Likewise, bicycle racks placed along a sidewalk should be oriented parallel with the street, so parked bicycles do not intrude into the walkway’s clear zone. A row of inverted “U” racks should be 36 inches apart, center-to-center. Ideally, racks should be located immediately adjacent to the entrance to the building it serves, but not in a spot that may impede pedestrian flow in and out of the building.

#### *Parking and Transit*

Safe bicycle parking is a concern to many bicycle-transit commuters. Both long-term bicycle parking at transit stations and work sites, and short-term parking at retail destinations and other commercial areas support bicycling. Secure long-term parking is valuable to commuters because bicycles parked for longer periods are more exposed to weather and theft.

#### *Cost of Implementation*

The cost of bike rack and locker implementation is generally low, particularly compared to vehicle parking space costs. Rack installations cost about \$250 for racks accommodating two bikes and about \$1,800 for lockers accommodating two bikes. The cost of providing shelters for covered parking increases the cost; however, these facilities can be planned into new building or redevelopment projects at minimal additional cost.

## *Implementation Strategies*

There are a variety of strategies to implement bicycle parking. Bicycle parking can be funded through sources such as air district grants, the Bicycle Transportation Account, SAFETEA-LU, and TDA sources. Another source is through formation of cooperative efforts. For example, in some locations, redevelopment funds have been used to purchase infrastructure and the public works department completes the installation. In order to implement bicycle parking in the short-term, it is recommended that the local agencies enter into a cooperative agreement to set aside a nominal amount of TDA Article 3 funds for a period of two to five years to purchase and install bicycle parking throughout the County. A \$5,000 set-aside per jurisdiction could be used to install approximately 20 bicycle racks or several bicycle lockers annually.

### Maintenance Monitoring and Reporting System

Routine roadway and bicycle facility maintenance may be one of the most important ways to improve the safety and accessibility of roads and pathways for bicyclists, and to ensure that they remain usable over time. By nature, bicycles which ride on skinny, high-pressure tires are extremely sensitive to the quality of roadway and path surfaces. Debris can deflect or puncture tires, potholes can bend rims, and minor surface irregularities, gravel, leaves, or wet surfaces can all lead to a loss of control and cause a bicyclist to fall. As such, facilities that are inadequately maintained will become unusable to bicyclists over time. Thus, it is important to properly maintain existing facilities. Regular maintenance of the bikeway network will help to protect the investment of public funds in bikeways, and ensure that they can continue to be used safely over time.

*Recommendation:* Develop and implement a maintenance program that adequately accommodates bicycles and includes a hazard and maintenance reporting system.

*Priority:* High

*Timeframe:* Short-Term

*Responsibility:* NCTPA, cities, County, NCBC

Developing a dedicated maintenance request/response program can help to address low-cost small-scale maintenance issues such as debris sweeping, filling pot holes, vegetation removal, and surface irregularities. The maintenance reporting program could be set up to receive requests in a variety of ways. The most efficient format would be the submission of an email or on-line form submittal from the Napa Bike Program webpage. Requests could be catalogued in a central clearinghouse with a monthly report reviewed by the BAC or TAC, or requests could be routed directly to appropriate departments or contacts within the local agencies. Requests for work or improvements that are outside the scope of the maintenance program would be considered for capital improvement projects or other projects/funding sources as appropriate. To close the loop on the maintenance request, the person making the request should be contacted either by letter or telephone once the repair is completed.

### Adopt-a-Trail Program

Well maintained, safe, and attractive trails receive more use than those that receive minimal maintenance. Adopt-a-Trail programs, which are similar to “Adopt-a-Highway” programs, can help to address routine maintenance and landscape needs, while reducing maintenance liabilities for local agencies and fostering a sense of community pride for the volunteers. Implementing Adopt-a-Trail programs for primary trail facilities such as the Bay, River, and Vine Trails, as well as local pathways could help to ensure that minor and routine maintenance needs including litter removal, graffiti cleanup, mowing, vegetation and landscape maintenance, minor repairs, and upkeep of signs and kiosks (as

specified and permitted by the Adopt-a-Trail Agreement) are performed on a regular basis. The program could draw assistance from local businesses, community groups, and schools among other entities. Under agreement with the local agency, and in coordination with the Napa Bike Program, groups or organizations would “adopt” a section of trail and agree to perform specific maintenance responsibilities for a specified time period, typically one year. Larger maintenance issues would be reported to the responsible agency.

*Recommendation:* Develop an Adopt-a-Trail program to help address routine maintenance needs on primary and local trails throughout Napa County and its local jurisdictions.

*Priority:* High

*Timeframe:* Short-Term

*Responsibility:* NCTPA, cities, County

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## Implementation

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### Introduction

This section identifies the activities and actions that are necessary to implement the physical improvements, facilities, and programs contained in this Plan, along with the estimated costs for the proposed improvements, maintenance requirements, and funding and financing strategies. Note that the implementation of physical improvements in public rights-of-way is the responsibility of local agencies. NCTPA does not have the authority to construct project improvements.

### Implementation

Successful implementation of the projects and programs contained in the Bicycle Plan will require ongoing cooperation within and amongst the NCTPA, local agencies, and various stakeholders including other public agencies and bicyclists. The planning horizon for the projects identified in this plan is the year 2035. Implementation of the projects in this plan will occur incrementally in a variety of ways. Many projects will be incorporated into local agency's Capital Improvement Program (CIP) processes and will be implemented as the CIP projects get funded. Others can happen as part of regular maintenance and operations practices and road resurfacing projects. Development and/or redevelopment in some areas will present a significant opportunity to implement some of the recommendations of this Plan. While improvements associated with development and/or redevelopment often occur "piecemeal", this is the way development happens and it is important to include bicycle improvements as a component of project improvements. Finally, outside funding can be obtained to finance the design and construction of other projects, improvements and programs. The most likely funding sources are addressed in the last section of this chapter.

### *Project Implementation Process*

The actions necessary to complete infrastructure projects identified in this Plan will vary from project to project, but generally include:

1. Adoption of the local agency Plans by resolution
  - a. Approval of the Plans by the Metropolitan Transportation Commission
  - b. Certification of the Plans by the Caltrans Bicycle Facilities Unit
  - c. Programmatic level review and environmental clearance of the Plan
2. Feasibility analysis, environmental analysis, and cost estimates for individual projects as needed
3. Public review as necessary
4. Project approvals; Advisory Committees, Planning Commissions, City Councils, Board of Supervisors, etc.
5. Secure local and outside funding commitments
6. Completion of final plans, specifications and estimates, advertising for bids, receipt of bids and award of contract(s)
7. Project construction

## **Monitoring Future Progress**

It is important to evaluate the progress and results of the Bicycle Plan and project implementation. Only by monitoring the effects of building bicycle facilities and measuring the results of public information programs can government agencies, citizens and public officials know and understand the benefits of such investments. Armed with solid objective data about the impacts and results of such investments, the public may be more supportive of future bicycle improvements and programs.

### Suggested Actions

1. Conduct counts to measure changes in bicycle travel over time.
2. Conduct “before and after” studies to evaluate the impact of improved and expanded facilities.
3. Develop tools to measure the effects of safety, education and encouragement programs.
4. Periodically inventory bicycle facilities in the region.

## **Amending the Countywide Bicycle Plan and Maps between Updates**

NCTPA will update the map of existing and proposed bikeways each year in January important changes may be made more frequently if required. The NCTPA Bicycle Advisory Committee (BAC) meets monthly on the fourth Monday of each month and will review submitted requests for changes.

## **Project Costs**

Construction costs for bicycle infrastructure are presented in Table 4. Costs estimates were developed by researching the latest unit costs experienced by the local jurisdictions in Napa County and the North Bay, and were cross-referenced by reviewing the National Cooperative Highway Research Program’s *Guidelines for Analysis of Investments in Bicycle Facilities*<sup>2</sup>. In recent years, actual costs have fluctuated significantly, with sharp rises in the costs of construction materials in the late 1990’s and early 2000’s, followed by steep declines in labor costs and a leveling of construction material costs in last few years. Overall, these changes have been dramatic and have resulted in instabilities that are difficult to predict, especially over a long-term. The costs below are for planning level estimates. They are unit costs for construction and do not include contingencies, design, environmental analysis, administrative costs, right-of-way acquisition, or inflation factors. Furthermore, unit costs may vary considerably depending on the size of the job and the location. For example, the unit cost of striping only 1,000 linear feet can easily be two to three times that of a 15,000-foot project. The same ‘economy of scale’ can be applied to sign installation and signal modification projects. Pavement widening costs also vary considerably depending on the terrain and other variables, such as presence of utility poles, monuments, and drainage issues.

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<sup>2</sup> Transportation Research Board, National Cooperative Highway Research Program’s *Guidelines for Analysis of Investments in Bicycle Facilities*, 2006

**Table 4  
Construction Cost Assumptions for Bikeway Improvements**

<b>Capital Project</b>	<b>Unit</b>	<b>Cost</b>
<b>Class I: Multi Use Trail</b>		
Construct Multi-Use Pathway	Mile	\$550,000
Rehabilitation	Mile	\$125,000
Trail Entry Improvements (may include bollards, signs, minor paving, & concrete driveway apron)	Each	\$2,000-\$6,000
At Grade Roadway Crossing (varies by improvement type)	Each	\$10,000-\$90,000
Grade Separated Crossing (under/over crossing)	Each	**
Trail Bridge (Prefabricated steel bridge 10-12 ft wide by 100 ft long)	Each	\$200,000
<b>Class II: Bike Lanes</b>		
Road widening to accommodate bike lanes	Mile	\$300,000
Install Signs, Striping, & Stencils	Mile	\$30,000
Reconfigure Roadway Striping, add Bike Lanes	Mile	\$75,000-\$90,000
Install Loop Detectors	Each Intersection	\$2,500-\$5,000
Intersection Striping (bike lane pockets, combined turn lanes, advanced stop bar/pocket)	Each Intersection	\$2,000-\$6,000
<b>Class III: Bike Route</b>		
Install Signing (Up to 10 signs per mile)	Mile	\$2,500
Bicycle Boulevard (Signing and Stencils Only)	Mile	\$4,500
(Traffic Calming Treatments)	Each	\$2,000-\$60,000
Shoulder/Roadway Widening (One side, 6 foot)	Mile	\$325,000
Shared Lane Markings / Pavement Legends	Each	\$175-\$300
<b>Bicycle Parking</b>		
Inverted "U" Rack (1 rack parks 2 bikes)	Each	\$250
Post and Ring Rack (1 rack parks 2 bikes)	Each	\$200
Bicycle Locker (1 to 2 bikes per unit depending upon locker type)	Each	\$1,500
Bus Bicycle Racks – Front Loading	Each	\$600-\$800

Notes: The above unit costs are for construction. These planning level estimates do not include contingencies, design, administrative, right-of-way acquisition costs, or inflation factors.

\*\* Costs are highly variable depending upon conditions

### **Program Costs**

This plan includes a variety of collaborative programmatic improvements and actions that will help achieve the vision of increased bicycling throughout Napa County and bicycle safety improvements for each community. The programs and actions are important to help realize Plan vision and safety enhancements and should be implemented as soon as time and funding resources are available. Costs for individual programs and actions are highly variable and dependent upon the scope and scale of actions. For example, bicycle counts are often collected using volunteer labor which results in a significant savings. Other programs and actions can be carried out using existing staff resources and/or by utilizing existing media available free of charge from other transportation agencies such as safety education materials and/or public service announcements. Table 5 identifies the primary programmatic improvements, which are defined in greater detail in earlier sections, includes a range of estimated costs, a potential lead agency, likely partner agencies, and potential funding sources.

**Table 5  
Cost Assumptions for Programmatic Improvements**

<b>Program/Project Name</b>	<b>Lead Agency</b>	<b>Partner Agencies</b>	<b>Estimated Cost</b>	<b>Estimated Annual Maintenance Cost</b>	<b>Potential Funding Source</b>
<b>Napa Bike Program – Education and Encouragement Activities</b>					
Centralized Bicycle Program Webpage	NCTPA	Cities, County, Town	\$20,000 start up	0.25 time staff position	Federal, State, Regional Funds
Maintenance, Monitoring, and Reporting System	NCTPA	Cities, County, Town	\$0 Component of Bicycle Program Webpage	\$0 Part of regular staff duties	
Countywide Traffic Safety Campaign	NCTPA	Cities, County, Town	\$250,000 start up and operation for two year period	\$10,000+ printing, maintenance, and outreach costs	CA Office of Traffic Safety, Federal, State
Bicycle Guide Map	NCTPA	Cities, County, Town	\$40,000	\$10,000 printing and update costs every 3 to 5 years	Regional and State Grants
Safety and Education Publications (Includes print media, billboards, transit billboards)	NCTPA	Cities, County, Town	\$15,000 assumes utilization of existing materials. Includes initial print runs.	\$5,000 to \$7,000	Federal and state grants
Street Skills Bicycling Safety Courses	NCTPA	Cities, County, Town	\$5,000 administration and contract instructors	\$2,000 to \$4,000	Non-profit, Grants
Encouragement Activities (bike to work day, city streets, fairs, races, student, and community events)	NCTPA, Cities, County, Town, Non-profits	Cities, County, Town, non-profits, local businesses	\$5,000 to \$20,000 per event	Varies per event	Non-profits, local businesses, Tourism and Hospitality Industries
Radio, TV, Public Service Announcements	NCTPA, Cities, County, Town	Non-profits, local law enforcement agencies, private business	\$15,000 start up assumes administration and materials acquisition	\$3,000 to \$5,000	Donations, non-profit grants, local businesses, Federal, state, regional grants, CA Office of Traffic Safety
Tourism/Tourist Safety and Wayfinding Materials	Local Businesses, Tourism/Hospitality Industry	NCTPA, Cities, County, Town	\$75,000 startup	\$10,000 printing and maintenance costs	Non-profits, local businesses, Tourism and Hospitality Industries
Bicycle Parking Program	NCTPA, Cities, County, Town, local businesses	Non-profits	\$20,000 start-up Assumes design, administration, site selection	\$5,000 Annual installation expenses	Bicycle Transportation Account, state and regional grants

**Table 5  
Cost Assumptions for Programmatic Improvements**

<b>Program/Project Name</b>	<b>Lead Agency</b>	<b>Partner Agencies</b>	<b>Estimated Cost</b>	<b>Estimated Annual Maintenance Cost</b>	<b>Potential Funding Source</b>
Wayfinding Signing Campaign	NCTPA	Cities, County, Town	\$75,000 Accounts for design and administration along with installation of approximately 250 signs Countywide	\$5,000	Bicycle Transportation Account, state and regional grants
Share the Road Campaign	NCTPA	Cities, County, Town	\$35,000 Accounts for design and administration along with installation of approximately 75 signs Countywide	\$2,500	Bicycle Transportation Account, state and regional grants, general fund
Bicycle Ambassador Program 2 to 4 part-time persons Potential internship or volunteer opportunities	NCTPA	Cities, County, Town	\$5,000 Administration costs	\$2,000 to \$5,000	Private funding, non-profits, local businesses
Bicycle Share Program	NCTPA	Cities, County, Town, local businesses	\$5,000 per installation site. Does not include land costs.	Annual operating costs can range from \$1,000 to \$2,000 per bike	Private Funding, local businesses, Tourism and Hospitality Industries
Local Agency Bicycle Fleets	Local Agencies and NCTPA	Cities, County, Town	\$3,000 to \$6,000 per agency	\$250 to \$500	
Bicycle Diversion Program	Napa County Courts	Local Police Agencies	\$5,000 Program start-up	\$0	Part of annual operating costs
Focused/Targeted Enforcement	Local Law Enforcement Agencies	Cities, County, Town	\$0		General Fund, CA Office of Traffic Safety Grants
Bicycle Counts	Cities, County, Town	NCTPA, Non-profits, volunteers	\$6,000 Program start-up and administration	\$3,500	

## **Funding Resources**

This section provides an overview of funding mechanisms available to implement the bicycle projects and programs contained in this plan. Due to its dynamic nature, transportation financing is complex. Implementation of bicycle facilities, improvements, and programs is made possible by a wide variety of funding sources including:

- Federal, State, Regional, and Local Governmental Sources
- Bay Trail
- Private Sector Development and Investment
- Community, Special Interest and Philanthropic Organizations

### Federal, State, Regional, and Local Governmental Sources

The dollars used to fund transportation projects originate from a wide variety of government sources including federal and state fuel taxes, sales taxes, property taxes, transit fares, truck weight fees, vehicle registration fees, tolls, development fees, bonds, traffic fines, local general funds, and assessment districts, among others. Many transportation fund sources are closely tied to larger local, state, and national economic trends, and as a result, the availability of these funds can fluctuate with economic upturns and downturns.

In the San Francisco Bay Area, the flow of revenues for bicycle and pedestrian projects from source to implementing entity most often involves the California Department of Transportation (Caltrans), the regional Metropolitan Transportation Commission (MTC), to a limited extent, the Bay Area Air Quality Management District (BAAQMD), and at the local level, the Napa County Transportation Planning Agency (NCTPA). Funding for bicycle projects is possible from various sources that NCTPA facilitates. While the NCTPA does not own or operate bicycle facilities or services, the agency supports the implementation of projects and programs identified by its member agencies.

At the federal, state, regional and local levels, transportation funds are divided into myriad funding programs. Each program is handled differently, depending on its size, eligible uses, and the agency responsible for making spending decisions. While some programs remain relatively consistent, the majority are dynamic, changing regularly with passage of legislation or as a result of administrative or programmatic adjustments. Moreover, many programs, especially at the regional level, are not funded from a single source; rather they are derived from a combination of federal and/or state funds. Government funds can be used for both non-infrastructure and infrastructure projects. Examples of the non-infrastructure or “programmatic” improvements include safe routes to school education and community traffic safety campaigns; examples of infrastructure projects include roadway rehabilitation, roadway construction, construction of Class I multi-use pathways and Class II bike lanes, and traffic signal infrastructure.

In general, federal funds are used for capital projects, such as new roadway, highway, and rail construction, as well as for specific projects earmarked by Congress. State funds are used for new capital projects too, but also cover maintenance costs, like street and highway resurfacing. Certain State funds may also be used as matching funds for larger federal projects, and/or to cover operational costs. Regional and local funds are often the most flexible, and may be used for capital project, maintenance, and operational costs, and programmatic improvements.

The primary implementers of infrastructure projects are city and county public works departments. Project selection is typically based on planning processes involving public participation. Additionally, schools and school districts can be the implementers of on-site bicycle and pedestrian infrastructure and amenities, such as sidewalks and bicycle racks; and/or for bicycle and pedestrian education programs and incentives. Other governmental partners are law enforcement agencies and parks and recreation

departments. Such entities can sponsor enforcement and/or safety programs that are aimed at improving motorist, bicyclist and pedestrian behaviors to bring about greater community safety and security.

Redevelopment agencies are another source of governmental funding. Many redeveloped districts have incorporated bicycle and pedestrian facilities in their planning. Likewise, fees exacted from developers for project mitigation can potentially be used to accommodate pedestrians and bicyclists.

#### Private Sector Development and Investment

Private sector development and investment play an important role in funding non-motorized infrastructure. Many newer housing and retail developments throughout Napa County have been planned, or required, to include sidewalks, pathways, and bicycle facilities. Private development is expanding its focus on “smart growth” and balanced transportation options. This inherently builds in orientation to the bicycle and pedestrian modes. Sometimes developers also fund such amenities as bicycle racks, bicycle storage, benches, lockers and shower facilities. Additionally, in many locations improvements such as closure of gaps in sidewalks or road widenings are made only after a private land use change is approved. Improvements or right-of-way dedication can be made conditions of approval, allowing upgrades for bicyclists and pedestrians. Finally, both the government and the private sector can play important roles in providing employee programs that encourage walking and bicycling, as well as use of transit.

#### Community, Special Interest and Philanthropic Organizations

Other non-governmental sources of funding include the contributions of community-based organizations, such as the Napa County Bicycle Coalition and the Napa Vie Trail Coalition, in carrying out programs that support bicycle usage. Examples include Bike to Work Day efforts, bicycle valet parking at events, education programs, and community bike rides. Special-interest groups have made contributions toward non-motorized improvements and programs if such are in alignment with group objectives. Sometimes the contribution is monetary; at other times in the form of volunteer efforts, such as path or trail upkeep programs.

Philanthropic entities including non-profit, foundation, and corporate organizations and individuals can fund programs, and at times facilities. Donations and grants have paid for community amenities such as pathways and trails; landscaping, fountains and other aesthetic improvements; and street furniture such as bicycle racks, lighting and seating benches. The latter “beautification” efforts create bicycle and pedestrian friendly environments.

#### Construction Projects

Because this Plan’s planning process has generated a ranked list of construction projects for each entity, additional information about the sources of infrastructure financing will be useful. Bicycle projects are eligible for funding through a variety of program sources. However, while a portion of the funds available for such improvements are programmed or ‘guaranteed’ to the local agencies based on various formulas, the majority of the funds are available through a competitive process at the state, regional, or local level. Thus while improvements to major roadways are likely to be financed through programmed transportation funds, the majority of the projects contained in this Plan are likely to be funded through competitive grant programs or some combination of the two sources.

To ensure timely implementation of the projects contained in this plan, it will be incumbent upon the local agencies to pursue competitive source funds, which are expected to account for the majority of funds available to implement the projects in this Plan. Competition for these limited funds can be intense, especially at the state and regional levels where often hundreds of applicants compete for

monies from impacted programs. Therefore, competitive programs typically require the development of extensive applications with clear documentation of the project need, costs, and benefits, along with maps, schedules, letters of support, and proposed work scopes. A local match of between 10 and 15 percent is typically required; however, some programs require a dollar for dollar match. While the development of applications combined with securing local matching funds can be challenging, competitive source funding programs represent an outstanding opportunity to secure funds for local improvements.

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## Definitions, Terms, and List of Acronyms

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**AASHTO** – American Association of State Highway and Transportation Officials

**Accessible** – Characteristic of a location allowing approach and use; absence of barriers

**Accessible Pathway** – Unobstructed path connecting all accessible elements and spaces of a building or a facility that meets the requirements of ADAAG

**Accessible Pedestrian Signal (APS)** – A device that communicates information about pedestrian signal timing in non-visual format, through the use of audible tones (or verbal messages) and vibrating surfaces

**ADAAG** – ADA Accessibility Guidelines for Buildings and Facilities

**Americans with Disabilities Act (ADA)** – A Federal law prohibiting discrimination against people with disabilities. Requires public entities and public accommodations to provide accessible accommodations for people with disabilities

**AQMD** – Air Quality Management District

**Arterial** – Through route/street carrying traffic to and from major points of interest, often inter-city

**BAC** – Bicycle Advisory Committee

**Bicycle Boulevard** – A low volume or residential street that has been modified for bicyclist safety and access.

**Bicycle Connection** – Paths or roadways created to link bicycle users with major streets/corridors

**Bicycle Facilities** – A general term denoting improvements and provisions to accommodate or encourage bicycling, including parking facilities, all bikeways and shared roadways, bicycle activated signal infrastructure, bicycle storage and changing facilities, etc.

**Bicycle Lane (Class II Bike Lane or Class II Bikeway)** – A portion of a roadway that has been designated by striping, signing, and pavement markings for the preferential or exclusive use of bicyclists. Bike lanes are ideal for minor thoroughfares or collectors. Under certain conditions, bike lanes may be beneficial on streets with significant traffic volumes and/or speeds. The Highway Design Manual (HDM) specifies the minimum width for bike lanes under various curb and on-street parking conditions. The HDM also states that “for greater safety,” widths wider than the minimums should be provided “wherever possible.”

**Bicycle Path (Class I Multi-Use Path or Class I Bike Path)** – A bikeway physically separated from motorized vehicular traffic and either within the highway right-of-way or within an independent right-of-way. Bike paths have a minimum paved width of 8 feet, with an additional graded area maintained on each side of the path. Typically, these facilities are usually shared with other non-motorized modes of travel.

**Bicycle “Network”** – the physical improvements that establish bikeways (Class I, II, or III routes)

**Bicycle Route (Class III Bike Route or Class III Bikeway)** – a designated route that provides for shared use of paved surfaces with pedestrian or motor vehicle traffic, also termed “shared roadway” designated by appropriate directional and/or informational signs. In this plan, a Class 3 signed bike route may be a local or residential street, bicycle boulevard, an arterial with wide outside lanes, or a roadway with a paved shoulder.

**Bicycle “System”** – the whole of all of the components, including both physical bikeways and programmatic improvements

**Bicyclist Demand** – Number determined by count of recreational and non-recreational bike trips during a specific duration of time (i.e. peak commute, weekly, monthly, etc.) on a given street/corridor

**Bikeway** – Any path or roadway with a provision for transportation or recreational use by bicyclists

**Bikeway Network** – The combined system of all bikeway types and amenities; connects destinations and attractions via bicycle accessible routes

**Bollards** – A rigid post placed in a through fare so as to limit access or traffic of certain widths or types

**BPAC** – Bicycle & Pedestrian Advisory Committee

**BTA** – Bicycle Transportation Account

**Caltrans** – California Department of Transportation

**CARB** – California Air Resources Board

**CEQA** – California Environmental Quality Act

**Circulation Enhancements** – Elements placed to modify and improve circulation for one or more modes of transportation

**CMAQ** – Congestion Mitigation and Air Quality Program

**Connectivity** – The relative relationship of transportation routes and access corridors to necessary resources and points of interest

**Controlled Intersection** – Area with a traffic light or other traffic control device where traffic flow from two or more paths or roadways meet

**Corridor** – An area that follows the shape and path of a major environmental feature; also a term used for transportation routes with designated district activities such as a mixed use-retail corridor

**Crosswalk** – Portion of a roadway where pedestrians are permitted to cross the street; can be marked or unmarked

**CTC** – California Transportation Commission

**Curb Ramp** – A combined ramp and landing that accomplishes a change in level at a curb. This element provides street and sidewalk access to pedestrians using wheelchairs

**Design Guidelines** – Specifications set to govern the physical or visual elements of development

**Detectable Warning** – A standardized surface feature built in or applied to walking surfaces or other elements to warn people who are blind or visually impaired of specified hazards

**Existing Conditions** – Current context of a site, including physical, demographic and political data

**FAS** – Federal Aid System

**FHWA** – Federal Highway Administration

**FTA** – Federal Transit Administration

**FTIP** – Federal Transportation Improvement Program

**Gateway** – A designated or marked entrance to a pathway or area

**Goal** – a "goal" describes the destination, or where we want to be at the end of the planning journey. Goals are usually broad, optimistic and expressive of a long-term vision.

**Greenway** – A pathway for various modes of transportation, including bicycles, that contains elements of a linear park

**Infill Development** – Development of new building adjacent to or on the same lots as existing buildings, utilizes pockets of un- or underdeveloped real estate contiguous with existing development

**Infrastructure** – Physical structures that support basic uses and services

**Intersection** – Where traffic flow from two or more paths or roadways meet

**ISTEA** – Intermodal Surface Transportation Efficiency Act of 1991 (reauth'd 1998 as TEA-21, and 2006 as SAFTEA-LU)

**JARC** – Job Access and Reverse Commute Program

**Landscaping** – Alteration of the ground through grading, planting and contouring

**LTF** – Local Transportation Fund

**Median** – A barrier (paved, landscaped, or planted) separating two traffic through fares

**Median Refuge** – An area within an island or median that is intended for pedestrians to wait safely away from travel lanes for an opportunity to continue crossing the roadway

**Midblock Crosswalk** – A legally established crosswalk that is not at an intersection

**Mode Split** – the number of people using a particular mode of transportation (bicycle, public transit, vehicle, walking, etc.)

**MPO** – Metropolitan Planning Organization

**MTC** – Metropolitan Transportation Commission – The Metropolitan Transportation Commission is the transportation planning, coordinating and financing agency for the nine-county San Francisco Bay Area

**MUTCD** – Manual on Uniform Traffic Control Devices

**NCTPA** – Napa County Transportation Planning Agency

**NEPA** – National Environmental Quality Act

**Objective** – objectives describe mileposts along the way to achieving the goals. They are specific, measurable steps to be achieved if the overall goals are to be met.

**Paved Shoulder** – The part of the highway/street that is adjacent to the regularly traveled portion of the highway, is on the same level as the highway, and when paved can serve as a bikeway. Paved shoulders should be at least four feet wide and additional width is desirable in areas where speeds are high and/or a large percentage of trucks use the roadway.

**Paving Treatments** – a variety of materials, utilitarian and /or decorative used to level and condition pathway and roadway surfaces

**Pedestrian Accessibility** – the relative ease with which a location can be approached and utilized by pedestrian traffic

**Policy** – a principle or rule to guide decisions by the local agency with regard to a particular issue or set of issues.

**Primary Bikeway Network** – a continuous countywide network of on- and off-street bikeways that extend between and through communities developed specifically through this planning effort. The Primary Bikeway Network consists of a selection of existing and proposed Class I, Class II, and Class III bikeways that provide inter-city and inter-county routes along with connections to other transportation modes, major destinations, jobs, neighborhoods, recreation, and local bicycle networks.

**Program** – a specific action to accomplish the policy or objective

**PSR** – Project Study Report

**Public Improvements** – additions to public space intended to increase value and functionality

**Public Transit** – a system of multi-user transportation incorporating light rail, busses, ferries, streetcars, aerial trams, commuter trains

**PUC** – Public Utilities Commission / Public Utilities Code

**Regional Trail System** – a trail system that cross jurisdictional lines

**Right of Way** – the right of a vehicle or pedestrian to proceed in a lawful manner in preference to another vehicle or pedestrian. (2) A general term denoting land, property, or interest therein, usually in a strip. (3) Land designated for transportation purposes, usually in the public sphere

**RPA** – Rural Planning Assistance

**RSTP** – Regional Surface Transportation Program

**RTIP** – Regional Transportation Improvement Program

**RTP** – Regional Transportation Plan

**RTPA** – Regional Transportation Planning Agency

**Safe Routes to Schools** – a nationwide program focusing efforts on improving the paths and routes used by children to commute to and from school

**SHA** – State Highway Account

**SHOPP** – State Highway Operation and Protection Program

**Shared Lane Markings (Sharrows)** – pavement legends which may be placed in the travel lane to provide positional guidance to bicyclists on roadways that are too narrow to be striped with bike lanes

**Shoulder** – Any portion of a roadway to the right of the right-most travel lane, but not including curbs, planting buffers and sidewalks. Shoulders can have a variety of surface treatments including pavement, gravel or grass. Depending on their width and surface, they serve a variety of purposes, including providing space for vehicles to slow and turn right, accommodation of stopped or broken-down vehicles, to allow emergency vehicles to pass, for structural support of the roadbed, or for bicycle and pedestrian travel.

**Sidewalk** – An informal term referring to a portion of a street or highway right-of-way, separated from motor vehicle traffic, and designed for non-motorized modes of travel, including bicycles

**STA** – State Transit Assistance

**STIP** – State Transportation Improvement Program

**STP** – Surface Transportation Program

**Streetscape** – the overall appearance and functionality of the roadway, incorporating the rights-of-way, landscaping, built features and adjacent land uses

**Subdivision** – an area that has been divided into smaller lots for individual development

**TAC** – Technical Advisory Committee, a committee made up of citizens and technical professionals, convened to create recommendations for the development of a plan

**TDA** – Transportation Development Act of 1971

**TE** – Transportation Enhancement Program (formerly TEA)

**TEA-21** – Transportation Equity Act for the 21st Century (1998 – formerly ISTEA)

**Title 24 Standards** – administrative, building, mechanical, and safety codes set forth in the California Code of Regulations

**Traffic Congestion** – roadway condition characterized by reduced travel speeds or even complete stoppage of flow of vehicles

**Transportation Routes** – all widely used paths and roadways

**USDOT** – United States Department of Transportation

**Utilitarian Trips** – all trips made to secure basic needs and services; e.g. grocery, pharmacy, local commerce

**VMT** – vehicle miles traveled

**Wide Outside Lane** – an outside (curb) lane on a roadway that does not have a striped bike lane, but may be of sufficient width for a bicyclist and motorist to share the lane with a degree of separation

**Wrong-Way Riding** – riding against the flow of traffic

**Zoning** – regulation by a governing agency to specify permitted land uses for a given area

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## Appendix A

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### Summary of Plan and Policy Review



## Appendix A – Existing Plan and Policy Review

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### Federal

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

Federal Transportation Legislation sets policy, addresses challenges, and provides funding for federal and a variety of state and regional transportation programs throughout the nation. In August 2005, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) was signed into law. SAFETEA-LU, which will run through December 31, 2010, replaces TEA-21, the Transportation Equity Act for the 21<sup>st</sup> Century.

The new bill provides \$286.5 billion nationwide for surface transportation projects, including highways, mass transit, road safety programs, and bicycle and pedestrian improvements. SAFETEA-LU builds on the initiatives established in TEA-21 and its predecessor, ISTEA. It combines the continuation and improvement of current programs with new initiatives to meet the challenges of improving safety, increasing multi-modal transportation options, reducing traffic congestion, and protecting and enhancing communities and the natural environment through efficient and flexible transportation improvements.

SAFETEA-LU promotes more efficient and effective Federal surface transportation programs by focusing on transportation issues of national significance, while giving State and local transportation decision makers more flexibility for solving transportation problems in their communities.

#### Policy:

*Federal transportation policy is to increase non-motorized transportation to at least 15 percent of all trips and to simultaneously reduce the number of non-motorized travelers killed or injured in traffic collisions by at least 10 percent (TEA-21, 1998). This policy, which was adopted in 1994 as part of the National Bicycling and Walking Study, remains a high priority for the U.S. Department of Transportation (USDOT). Federal Transportation Legislation provides the funding opportunities, planning processes, and policy language by which states and metropolitan areas can achieve these ambitious national goals.*

<http://www.fhwa.dot.gov/safetealu/index.htm>

#### US DOT Accommodating Bicycle and Pedestrian Travel

“Accommodating Bicycle and Pedestrian Travel: A Recommended Approach” is a policy statement that was adopted by the U.S. Department of Transportation (USDOT) in response to TEA-21. USDOT encourages public agencies, professional organizations, advocacy groups, and any other groups involved in transportation issues to adopt this policy to further promote bicycling and walking as viable components of the transportation system. The policy statement address measures to improve bicycle and pedestrian access, convenience, and safety in transportation projects. It incorporates three key principles:

- a. policy statement that bicycling and walking facilities will be incorporated into all transportation projects unless exceptional circumstances exist;
- b. an approach to achieving this policy that has already worked in State and local agencies; and
- c. a series of action items that a public agency, professional association, or advocacy group can take to achieve the overriding goal of improving conditions for bicycling and walking.

Finally, the policy statement notes that:

*The challenge for transportation planners, highway engineers and bicycle and pedestrian user groups, therefore, is to balance their competing interest in a limited amount of right-of-way, and to develop a*

*transportation infrastructure that provides access for all, a real choice of modes, and safety in equal measure for each mode of travel.*

<http://www.fhwa.dot.gov/environment/bikeped/design.htm>

#### Federal Americans with Disabilities Act (ADA)

In 1990, Congress passed the Americans with Disabilities Act (ADA), which provides comprehensive rights and protections to people with disabilities in the areas of employment, public accommodations, state and local government services, and telecommunications. Title II of the ADA requires that new and altered facilities constructed by, on behalf of, or for the use of state and local government entities be designed to be readily accessible to and usable by people with disabilities (28 CFR 35.151).

Title II also requires that public entities prepare and submit “transition plans,” which identify alterations that are needed to make their facilities (including transportation networks) and programs accessible; and specify how those alterations will be accomplished. ADA transition plans must include a schedule for providing curb ramps where pedestrian walkways cross curbs, giving priority to walkways serving government offices, public transportation and other public places.

<http://www.usdoj.gov/crt/ada/adahom1.htm>

#### Revised Draft Guidelines for Accessible Public Rights-of-Way, US Access Board

The goal of the ADA is to assure equality of opportunity, full participation, independent living, and economic self-sufficiency. Under the ADA, the US Access Board has developed and continues to maintain design guidelines for accessible buildings and facilities known as the ADA Accessibility Guidelines (ADAAG). ADAAG covers a wide variety of facilities including roadway design practices, slope and terrain issues, and pedestrian access to streets, sidewalks, curb ramps, street furnishings, pedestrian signals, parking, and other components of public rights-of-way. The ADAAG establishes minimum requirements for new construction and alterations.

The Board’s aim is to ensure that access for persons with disabilities is provided wherever a pedestrian way is newly built or altered, and that the same degree of convenience, connection, and safety afforded the public generally is available to pedestrians with disabilities. The guidelines do not require alterations to existing public rights-of-way, but apply where a pedestrian route or facility is altered as part of a planned project to improve existing public rights-of-way.

<http://www.access-board.gov/prowac/draft.htm>

#### Federal Statutes – State

Title 23, CFR Sec §450.214 (b) (3) The State shall develop a statewide transportation plan for all areas of the State and contain, as an element, a plan for bicycle transportation, pedestrian walkways and trails which is appropriately interconnected with other modes.

Title 23, CFR Sec §450.214 (b) (4) The State shall develop a statewide transportation plan that is coordinated with the metropolitan transportation plans required under 23 U.S.C. 134.

Title 23, U.S.C. Sec. 135 (a) (3). The plans and programs for each State shall provide for the development and integrated management and operation of transportation systems and facilities (including pedestrian walkways and bicycle transportation facilities) that will function as an intermodal transportation system for the State and an integral part of an intermodal transportation system for the United States.

Title 23 U.S.C. 217(g) Planning and Design. Bicyclists and pedestrians shall be given due consideration in the comprehensive transportation plans developed by each metropolitan planning organization and state in accordance with sections 134 and 135, respectively. Bicycle transportation facilities and pedestrian

walkways shall be considered, where appropriate, in conjunction with all new construction and reconstruction of transportation facilities, except where bicycle and pedestrian use are not permitted.

#### Federal Statues – Metropolitan Planning Organizations

Title 23, CFR §450.322 The Metropolitan Transportation Plan shall contain adopted congestion management strategies including, as appropriate, traffic operations, ridesharing, pedestrian and bicycle facilities, alternative work schedules, freight movement options, high occupancy vehicle treatments, telecommuting, and public transportation improvements (including regulatory, pricing, management, and operational options), that demonstrate a systematic approach in addressing current and future transportation demand and identify pedestrian walkway and bicycle transportation facilities in accordance with 23 U.S.C. 217(g).

Title 23, U.S.C. Sec. 134 (a) (3) The plans and programs for each metropolitan area shall provide for the development and integrated management and operation of transportation systems and facilities (including pedestrian walkways and bicycle transportation facilities) that will function as an intermodal transportation system for the metropolitan area and as an integral part of an intermodal transportation system for the State and the United States.

#### **State**

State bicycle and pedestrian related policies and laws are found in a variety of documents, legislative actions, and codes. State policies are generally more focused than Federal policies and statutes, and are applicable to Federal and state transportation facilities, as well as local bicycle and pedestrian projects.

#### California Streets and Highways Code, Division I: State Highways, Chapter 8 Non-Motorized Transportation – California Bicycle Transportation Act, 890-894 (1994)

The California Bicycle Transportation Act, Streets and Highways Code 890-894 is legislation that seeks "to establish a bicycle transportation system designed and developed to achieve the functional commuting needs of the employee, student, business person, and shopper as the foremost consideration in route selection, to have the physical safety of the bicyclist and bicyclist's property as a major planning component, and to have the capacity to accommodate bicyclists of all ages and skills."

A city or county may complete a bicycle transportation plan pursuant to Section 891.2 in order for their project to be considered by the Department for funding. Section 890.6 states the Department, in cooperation with county and city governments, shall establish minimum safety design criteria for the planning and construction of bikeways and roadways where bicycle travel is permitted. Section 890.8 states the Department shall establish uniform specifications and symbols for signs, markers, and traffic control devices to designate bikeways, regulate traffic, improve safety and convenience for bicyclists, and alert pedestrians and motorists of the presence of bicyclists on bikeways and on roadways where bicycle travel is permitted. As Section 891 states, "All city, county, regional, and other local agencies responsible for the development or operation of bikeways or roadways where bicycle travel is permitted shall utilize all minimum safety design criteria and uniform specifications and symbols for signs, markers, and traffic control devices established pursuant to Sections 890.6 and 890.8."

[http://www.leginfo.ca.gov/.html/shc\\_table\\_of\\_contents.html](http://www.leginfo.ca.gov/.html/shc_table_of_contents.html)

#### California Vehicle Code

The California Vehicle Code is an extensive body of laws which regulate all facets of driving in California. The Vehicle Code is nearly 700 pages long and covers everything to do with roads and driving, including pedestrians and bicyclists.

Sections 2149-21971 describe the responsibilities of pedestrians when crossing the street or walking along a street on a sidewalk, and the roles and responsibilities of motorists in relationship to pedestrians and wheelchair users. According to the Vehicle Code, "it is the policy of the State of California that safe and convenient pedestrian travel and access, whether by foot, wheelchair, walker, or stroller, be provided to the residents of the state." The code also states that it is the intent of the Legislature that all government levels, especially Caltrans and other DOTs, will work to provide safe, convenient passage for pedestrians on or across all streets and highways, increase levels of walking, and reduce pedestrian fatalities and injuries.

Sections 21200-21212 pertain to the operation of bicycles including laws applicable to bicycle use, operating bicycles on a roadway, bicycle parking, and bicycle regulations. Sections 39000-39011 pertain to the licensing and registration of bicycles. Section 21200 states that "every person riding a bicycle upon a street or highway has all the rights and is subject to all the duties applicable to the driver of a vehicle," and the CVC permits the use of bicycles on all streets and highways, except where restricted on Freeways by discretion of the State DOT or local authorities as identified in Section 21960.

<http://www.dmv.ca.gov/pubs/vctop/vc/vc.htm>

#### Chapter 1000, California Highway Design Manual

Highway Design Manual, Chapter 1000, "Bikeway Planning and Design. The Highway Design Manual, Chapter 1000, "Bikeway Planning and Design," provides design standards and guidelines for on- and off-street bikeways. State and local transportation agencies are required to comply with Chapter 1000 mandatory standards as a minimum when implementing new bikeways. Chapter 1000 differs from the rest of the Highway Design Manual in that it also applies to facilities off the State Highway System (California Streets and Highways Code, Sections 890.8 and 891).

[www.dot.ca.gov/hq/oppd/hdm/hdmtoc.htm](http://www.dot.ca.gov/hq/oppd/hdm/hdmtoc.htm)

#### California Manual on Uniform Traffic Control Devices (CA MUTCD), 2006

The MUTCD provides general standards and guidance for traffic control devices, nationally. The California MUTCD clarifies which policies, practices or standards are different in California, by identifying and including them. It also enhances the federal standards by providing additional details.

The California Manual on Uniform Traffic Control Devices (California MUTCD) is published by the State of California, Department of Transportation and is issued to adopt uniform standards and specifications for all official traffic control devices, in accordance with Section 21400 of the California Vehicle Code.

[http://www.dot.ca.gov/hq/traffops/signtech/mutcdsupp/ca\\_mutcd.htm](http://www.dot.ca.gov/hq/traffops/signtech/mutcdsupp/ca_mutcd.htm)

#### California Blueprint for Bicycling and Walking

The Supplemental Report of the 2001 Budget Act required the California Department of Transportation (Caltrans) to submit a report addressing "measurable goals for increasing bicycling and walking within the state, funding of facilities, and a reduction in pedestrian and bicycling injuries and fatalities." The *California Blueprint for Bicycling and Walking* responds to the Budget Act requirements with three main statewide goals:

- A 50 percent increase in bicycling and walking trips by 2010.
- A 50 percent decrease in bicycle and pedestrian fatality rates by 2010.
- Increased funding for bicycle and pedestrian programs.

Achieving the first two goals lies largely on local agencies. Policies and programs in this Plan will allow Napa County and its cities to actively work towards fulfilling these goals.

<http://www.dot.ca.gov/hq/tpp/offices/bike/CABlueprintRpt.pdf>

## Caltrans Project Development Procedures Manual, CHAPTER 31 – Non-motorized Transportation Facilities

The Office of State Project Development Procedures and Quality Improvement in the Division of Design is responsible for the development and consistent application of Caltrans' policies for the project development process. The office maintains the Project Development Procedures Manual (PDPM), to provide guidance for project development on State Highway System projects. While the emphasis of the PDPM is directed toward State highway projects, projects on local transportation systems and other modes are also discussed. Chapter 31: Non-motorized Transportation Facilities outlines pertinent statutory requirements, planning policies, and implementing procedures regarding non-motorized transportation facilities.

[http://www.dot.ca.gov/hq/oppd/pdpm/chap\\_htm/chapt31/chapt31.htm](http://www.dot.ca.gov/hq/oppd/pdpm/chap_htm/chapt31/chapt31.htm)

### Caltrans Deputy Directive-64-RI (DD-64-RI), Deputy Directive on “Complete Streets-Integrating the Transportation System”

Deputy Directive 64-RI, a policy directive related to “Complete Streets” non-motorized travel throughout the state, was adopted by Caltrans in October of 2008. DD 64-RI supersedes DD 64, which was developed to consider the needs of non-motorized travelers. DD 64-RI 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.*

[http://www.dot.ca.gov/hq/tpp/offices/bike/guidelines\\_files/DD64.pdf](http://www.dot.ca.gov/hq/tpp/offices/bike/guidelines_files/DD64.pdf)

### Director’s Policy 22 (DP-22), “Director’s Policy on Context Sensitive Solutions”

Director’s Policy 22, a policy regarding the use of “Context Sensitive Solutions” on all state highways, was adopted by Caltrans in November of 2001. The policy reads:

*The Department uses “Context Sensitive Solutions” as an approach to plan, design, construct, maintain, and operate its transportation system. These solutions use innovative and inclusive approaches that integrate and balance community, aesthetic, historic, and environmental values with transportation safety, maintenance, and performance goals. Context sensitive solutions are reached through a collaborative, interdisciplinary approach involving all stakeholders.*

*The context of all projects and activities is a key factor in reaching decisions. It is considered for all State transportation and support facilities when defining, developing, and evaluating options. When considering the context, issues such as funding feasibility, maintenance feasibility, traffic demand, impact on alternate routes, impact on safety, and relevant laws, rules, and regulations must be addressed.*

The policy recognizes that “in towns and cities across California, the State highway may be the only through street or may function as a local street,” that “these communities desire that their main street be an economic, social, and cultural asset as well as provide for the safe and efficient movement of people and goods”, and that “communities want transportation projects to provide opportunities for

enhanced non-motorized travel and visual quality.” The policy acknowledges that addressing these needs will assure that transportation solutions meet more than just traffic and operational objectives.

<http://www.dot.ca.gov/hq/transprog/stip/2004%20ITIP/references/DP-22.pdf>

#### Assembly Concurrent Resolution No. 211 (ACR 211)

California’s cities and counties have even more reason to pay attention to the 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.

[http://www.leginfo.ca.gov/pub/01-02/bill/asm/ab\\_0201-0250/acr\\_211\\_bill\\_20020820\\_chaptered.html](http://www.leginfo.ca.gov/pub/01-02/bill/asm/ab_0201-0250/acr_211_bill_20020820_chaptered.html)

#### California Department of Motor Vehicles

The California Department of Motor Vehicles maintains a webpage dedicated to bicycle rules and safety. The page contains information for drivers and bicyclists and includes links to the Bicycle Section of the *DMV Driver’s Handbook*, bicycle safety information on the California Department of Transportation’s website, information on the National Highway Transportation Safety Agency and the California Vehicle Code as well as other links.

<http://www.dmv.ca.gov/about/bicycle.htm>

#### Caltrans Bicycle Transportation Account

The California Bicycle Transportation Account (BTA) provides state funds for city and county projects that improve safety and convenience for bicycle commuters, which are included in an adopted local Bicycle Transportation Plan that complies with Section 891.2 of the Streets and Highways Code, and are designed and constructed in accordance with the Chapter 1000 of the *Highway Design Manual*. The program is consistent with the Legislature’s intent when it adopted the California Bicycle Transportation Act:

*“...to establish a bicycle transportation system...designed and developed to achieve the functional commuting needs of the employee, student, business person, and shopper as the foremost consideration in route selection, to have the physical safety of the bicyclist and bicyclist’s property as a major planning component, and to have the capacity to accommodate bicyclists of all ages and skills”.*

<http://www.dot.ca.gov/hq/LocalPrograms/bta/btaweb%20page.htm>

#### Assembly Bill 32: Global Warming Solutions Act

In 2006, the California Legislature passed the Global Warming Solutions Act, which set the 2020 greenhouse gas emissions reduction goal into law. It directed the California Air Resources Board to begin developing actions to reduce greenhouse gases while also preparing a scoping plan to identify how best to reach the 2020 limit. The reduction measures to meet the 2020 target are to be adopted by the start of 2011.

Assembly Bill 32 Includes a Number of Specific Requirements:

- ARB shall prepare and approve a scoping plan for achieving the maximum technologically feasible and cost-effective reductions in greenhouse gas emissions from sources or categories of sources

- of greenhouse gases by 2020 (Health and Safety Code (HSC) §38561).
- Identify the statewide level of greenhouse gas emissions in 1990 to serve as the emissions limit to be achieved by 2020 (HSC §38550).
- Adopt a regulation requiring the mandatory reporting of greenhouse gas emissions (HSC §38530).
- Identify and adopt regulations for discrete early actions that could be enforceable on or before January 1, 2010 (HSC §38560.5).
- Ensure early voluntary reductions receive appropriate credit in the implementation of AB 32 (HSC §38562(b) (3)).
- Convene an Environmental Justice Advisory Committee (EJAC) to advise the Board in developing the Scoping Plan and any other pertinent matter in implementing AB 32 (HSC §38591).
- Appoint an Economic and Technology Advancement Advisory Committee (ETAAC) to provide recommendations for technologies, research and greenhouse gas emission reduction measures (HSC §38591).

<http://www.arb.ca.gov/cc/ab32/ab32.htm>

#### Senate Bill 375: Linking Regional Transportation Plans to State Greenhouse Gas Reduction Goals

Senate Bill 375 enhances California's ability to reach its AB 32 goals by promoting good planning with the goal of more sustainable communities. SB 375 establishes a process for the California Air Resources Board (ARB) to implement the state's global warming legislation (AB 32) for the transportation sector. It requires ARB to adopt regional greenhouse gas (GHG) targets for emissions associated with the automobile and light truck sector. ARB will also work with California's 18 metropolitan planning organizations to align their regional transportation, housing and land-use plans and prepare a "sustainable communities strategy" to reduce the amount of vehicle miles traveled in their respective regions and demonstrate the region's ability to attain its greenhouse gas reduction targets. The Bill acknowledges that spending less time on the road is the single-most powerful way for California to reduce its carbon footprint. Additionally, SB 375 provides incentives for creating attractive, walkable and sustainable communities and revitalizing existing communities.

<http://www.arb.ca.gov/cc/sb375/sb375.htm>

#### **Regional**

Federal and state policy are often used to inform regional policy, which is then crafted to be more focused with specific requirements, actions and design implications.

#### Metropolitan Transportation Commission

The Metropolitan Transportation Commission (MTC) is the transportation planning authority for the nine county San Francisco Bay Area. The MTC serves as the state designated Regional Transportation Planning Agency (RTPA) and the federally designated Metropolitan Planning Organization (MPO). MTC provides oversight on all transportation projects in the region and is responsible for preparing the Regional Transportation Plan (RTP). MTC is largely responsible for transportation financing in the Bay Area, and helps to set priorities for the hundreds of millions of dollars flowing each year to the Bay Area from flexible federal funding programs. Using flexible federal dollars, MTC has established several funding programs that were developed to enhance Bay Area communities including the Transportation for Livable Communities (TLC) Program, Housing Incentive Program (HIP), Low Income Flexible Transportation (LIFT) Program, and the Regional Bicycle and Pedestrian Program (RBPP).

<http://www.mtc.ca.gov/>

### Regional Transportation Plan (RTP)

The current RTP, Transportation 2035, was finalized in February 2009 and updates the previous 2005 RTP. The 2035 Plan sets forth regional transportation policy and provides capital program planning for all regional, state and federally funded projects. In addition, the 2035 Plan provides strategic investment recommendations to improve regional transportation system performance over the next 25 years. Investments in regional highway, transit, local roadway, bicycle, and pedestrian projects are set forth in the 2035 Plan. These projects have been identified through regional and local transportation planning processes. Project recommendations are premised upon factors related to existing infrastructure maintenance, increased transportation system efficiencies, improved traffic and transit operations, and strategic expansions of the regional transportation system.

The 2035 Plan includes programs and projects which provide or contribute to a safe and well maintained transportation system, a reliable commute, access to mobility, livable communities, clean air, and efficient freight travel. A key element of the Transportation 2035 Plan is the coordination of land use and transportation planning, both at a regional and local level. Further, this plan element calls for an emphasis on “the Three E’s of sustainability-Economy, environment, and equity.” The Plan also recommends that existing transportation infrastructure be utilized efficiently while new investment is coordinated regionally. This includes new public transit service supporting existing transit centers and densification of development around existing transit infrastructure.

[http://www.mtc.ca.gov/planning/2035\\_plan/FINAL/T2035\\_Plan-Final.pdf](http://www.mtc.ca.gov/planning/2035_plan/FINAL/T2035_Plan-Final.pdf)

### Regional Bicycle Plan for the San Francisco Bay Area

The 2001 Regional Bicycle Plan for the San Francisco Bay Area was developed by the MTC and has been incorporated into the Regional Transportation Plan (RTP), which establishes a 25-year investment plan for regional transportation projects in the nine-county Bay Area. The overall goal of the plan is to ensure that bicycling is a convenient, safe, and practical means of transportation throughout the Bay Area. To achieve this goal, the plan established a regional bicycle network, programs to enhance bicycling, and a financial strategy to implement the improvements. To ensure implementation of the Plan, MTC developed the Regional Bicycle and Pedestrian Program Fund, which uses regional discretionary funds allocated through the federal Surface Transportation Program/Congestion Mitigation and Air Quality improvement program (STP-CMAQ) for bicycle and pedestrian projects that support the Regional Network.

Programs identified to enhance bicycling include safe routes to transit, a comprehensive network leading to major transit hubs; annual bicycle counts; more detailed collision data collection; and increased outreach and marketing efforts such as training programs, emphasis on Bike to Work Week, and a web-based trip planner, [www.511.org](http://www.511.org).

<http://www.mtc.ca.gov/planning/bicyclespedestrians/>

### Metropolitan Transportation Commission Complete Streets (Routine Accommodations)

The San Francisco Bay Area’s Regional Transportation Plan – Transportation 2030 – calls for “full consideration of the needs of pedestrians and bicyclists during transportation project development design, construction, and rehabilitation.” To help accomplish this “Call for Action,” in 2006 the MTC adopted Resolution No. 3765, which sets forth “MTC’s regional policies for accommodating bicycle and pedestrian facilities during transportation project planning, design, funding and construction.” The policy was written in recognition that developing such facilities in conjunction with the development of parallel facilities for motor vehicles offers cost savings and can create safer and more convenient bicycle and pedestrian travel.

To implement the Resolution’s requirements, MTC maintains a “Complete Streets” checklist, which sponsors of projects seeking regional transportation funds are now required to submit with their

funding applications. The checklist requires project sponsors to document how the needs of bicyclists and pedestrians were considered in the process of planning and designing the project for which funds are being requested. It is meant to prompt consideration of bicyclists and pedestrians during project planning and design and alert bicycle and pedestrian advisory committees of upcoming projects that may deserve their attention.

MTC Resolution 3765, “Routine Accommodations” Policy requires that:

*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. 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.*

[http://www.mtc.ca.gov/planning/bicyclespedestrians/routine\\_accommodations.htm](http://www.mtc.ca.gov/planning/bicyclespedestrians/routine_accommodations.htm)

### The Bay Trail

The Bay Trail Project is a nonprofit organization administered by the Association of Bay Area Governments (ABAG) that plans, promotes and advocates for the implementation of a continuous 500-mile bicycling and hiking path around San Francisco and San Pablo Bays. The Bay Trail Plan was prepared by ABAG pursuant to Senate Bill 100, which was passed into law in 1987. In 1990, the San Francisco Bay Trail Project was created as a nonprofit organization dedicated to planning, promoting and advocating implementation of the Bay Trail. To carry out its mission, the Bay Trail Project makes available grant funds for trail construction and maintenance; participates in planning efforts and encourages consistency with the adopted Bay Trail Plan; educates the public and decision-makers about the merits and benefits of the Bay Trail; produces maps and other materials to publicize the existence of the Bay Trail; and disseminates information about progress on its development. The Bay Trail Project does not own land, construct trail segments, or maintain them; segments are built, owned, managed and maintained by cities, counties, park districts and other agencies with land-management responsibilities.

In Napa, the original alignment in the 1989 Bay Trail Plan was along Highway 29 – not a particularly pleasant experience, and also not along the shoreline. For many years, the North Bay counties of Sonoma, Napa and Solano saw little or no progress on their sections of Bay Trail. However, in the last 6-8 years, significant strides have been made. The City of American Canyon has constructed and opened 3 miles of Bay Trail with another 3 miles in the planning phase. Local jurisdictions in coordination with the Bay Trail Steering Committee have reassessed and realigned 6 miles of trail from busy roadways to the edges of the Napa River and bay wetlands. The Bay Trail is collaborating with the Napa Vine Trail to capture synergies, and continues its long partnership with the Ridge Trail to connect the two systems.

Pending environmental review and Bay Trail Steering Committee approval, segments of trail through the Napa Pipe property, across Napa Sanitation District levees, and along the edge of the Napa airport will connect existing trail at Kennedy Park to existing trail at the California Department of Fish and Game’s Napa Plant Site restoration project off of Green Island Road, and south into American Canyon.

Ultimately, the Bay Trail will be a 500-mile bicycle and hiking trail encircling the San Francisco and San Pablo Bays. Currently over 300 miles of the trail are in operation, including several segments located within Napa County. The segments in Napa County are comprised of various on- and off-street routes including:

#### *Built Trail Sections*

- Las Amigas from Milton to Cuttings Wharf (Class II)
- Cuttings Wharf from Las Amigas to Cuttings Wharf Boat Ramp (Class II)

- Stanly Lane from Stanly Crossroad to Hwy 12/121 (Class I)
- Maxwell Bridge on Imola (Class II)
- Napa River Trail from Hartle Ct to Southern end of Kennedy Park (Class I)
- CA Department of Fish and Game Napa Plant Site Trail – end of Green Island Rd to existing Bay/River trail near Eucalyptus/treatment ponds (levee-top gravel trail)
- American Canyon--Eucalyptus to River Trail (gravel/levee top)
- American Canyon Wetlands Edge Trail--Eucalyptus to American Canyon Road (Class I)
- Golden Gate Drive (Class II)

#### *Un-Built Trail Sections*

The following sections of the un-built trail have been identified by the Bay Trail Project. As of November 2010, additional route planning is underway by the Bay Trail in conjunction with local agency staff. Route updates will be documented when official plans are in place.

- Duhig from Ramal onto Las Amigas to Milton (proposed Class II)
- Stanly Crossroad (proposed Class I)
- Imola from Golden Gate to Maxwell Bridge (proposed Class II)
- Napa Pipe (proposed Class I)
- Napa Sanitation District Levees (Proposed levee top trail)
- CDFG Lands: Fagan Marsh (proposed boardwalk)
- Kimberly Park to Vallejo/Solano border (Class I and natural surface trails)

<http://baytrail.abag.ca.gov/>

#### The Bay Area Ridge Trail

The Bay Area Ridge Trail Council formed in 1987 with the vision of a trail that would ring the San Francisco Bay Area high on the ridges of the hills and mountains that encircle San Francisco and San Pablo Bays. Current plans call for over 550 miles of trail along these ridge tops, open to hikers, equestrians, mountain bicyclists, and outdoor enthusiasts of all types. To date, the Council has worked with state, regional, local, and non-profit agencies to dedicate over 325 miles of trail.

Many of the existing Ridge Trails in Napa County run through regional and state parks along existing trails. Most of these trail sections are isolated, with either on-street connections or large gaps between them. The built and un-built sections of the Bay Area Ridge Trail within Napa County include the following:

#### *Built Trail Sections*

- Sugarloaf Ridge State Park: From Visitor Center to Bald Mountain Summit (2.7 mi)
- Yountville Cross Road: From Locust Ave. and Highway 29 to Yountville Cross Road and Silverado Trail (7.5 mi)
- Skyline Wilderness Park and Napa Solano Ridge Trail: From Skyline Wilderness Park Entrance to south boundary (5.7 mi)

#### *Un-Built Trail Sections*

- Bald Mountain Summit to Locust Ave and Highway 29
- Yountville Cross Road and Silverado Trail to Skyline Wilderness Park Entrance

The Ridge Trail Council is working to close existing facility gaps in order to connect the routes for hikers, equestrians, and bicyclists. More details about the ridge trail are located at the Bay Area Ridge Trail website.

[www.ridgetrail.org](http://www.ridgetrail.org)

## Bay Area Air Quality Management District

Bay Area Air Quality Management District (BAAQMD) is the regional agency with the authority to develop and enforce regulations for the control of air pollution throughout the Bay Area including Napa County. The clean Air Plan is the BAAQMD's plan for reducing the emission of air pollutants that lead to ozone. BAAQMD has also published CEQA Guidelines for the purpose of evaluating the air quality impact of projects and plans. One of the criteria that the Guidelines describe is that plans must demonstrate reasonable efforts to implement transportation control measures included in the Clean Air Plan, and identify local governments as the implementing agencies. The BAAQMD cites on-road motor vehicles as the largest source of air pollution in the Bay Area. To address the impact of vehicles, the California Clean Air Act requires air districts to adopt, implement, and enforce transportation control measures.

The BAAQMD has implemented the Bicycle Facility Program, an annual grant program developed from the Transportation Fund for Clean Air that provides funding to reduce motor vehicle emissions through the implementation of new bikeways and bicycle parking facilities in the San Francisco Bay Area.

<http://www.baaqmd.gov/>

## Bay Area Ozone Strategy

The 2005 Bay Area Ozone Strategy was prepared by the BAAQMD in cooperation with the Metropolitan Transportation Committee and the Association of Bay Area Governments (ABAG). The Plan was developed to show how the Bay Area will achieve compliance with State air quality standards. According to the report, "the Bay Area has made considerable progress towards improving ozone conditions over the years; however, the region fails to meet the State one-hour ozone standard."

The 2005 Ozone Strategy is a comprehensive document that describes the Bay Area's strategy for compliance with State one-hour ozone standard planning requirements, and represents the region's commitment to achieving clean air to protect the public's health and the environment. The control strategy includes: stationary source control measures to be implemented through Air District regulations; mobile source control measures to be implemented through incentive programs and other activities; and transportation control measures to be implemented through transportation programs in cooperation with the MTC, local governments, transit agencies and others. Transportation control measures (TCM) were developed to mitigate the impact of mobile pollution sources. The TCMs proposed in the 2005 Strategy that relate to bicycling and walking include:

*TCM #1: Support Voluntary Employer-Based Trip Reduction Programs* – provide incentives and assistance to help employers develop programs to reduce single-occupancy vehicle use to work.

*TCM #5: Improve Access to Rail & Ferries – Safe Routes to Transit* program sponsored by the MTC; develop a master plan for innovative secure bicycle storage strategies at key transit hubs.

*TCM #9: Improve Bicycle Access and Facilities* – fund the Regional Bicycle Plan and Safe Routes to Transit improvements; continue Transportation Development Act (TDA) Article 3, Tobacco Litigation Settlement (TLS), and Transportation fund for Clean Air (TFCA) funding for bike improvements; develop an on-line bicycle mapping tool as part of the regional 511 traveler information number; promote Bike-to-Work Week/Day; encourage local jurisdictions to develop safe and convenient bicycle lane and route networks, provide secure bike racks and storage, and require bicycle access and amenities as conditions of approval of development projects; explore innovative bicycle programs, such as "station bike" or bike sharing programs at transit stations, downtowns, and activity centers; encourage public education about bicycle safety for both bicyclists and motorists.

*TCM #10: Youth Transportation* – encourage Safe Routes to School program.

*TCM #15: Local Land Use Planning and Development Strategies* – MTC to continue Transportation for Livable Communities (TLC) planning, capital grant, and HIP programs; MTC will examine opportunities for transit oriented development along major transit corridors; BAAQMD will continue the TFCA program; ABAG will provide incentives for smart growth.

*TCM #19: Improve Pedestrian Access and Facilities* – review and comment on general/specific plan policies to promote development patterns that encourage walking; encourage amending zoning ordinances to include pedestrian-friendly design standards; MTC will continue to fund TLC, support SR2S, and support the Regional Pedestrian Committee and associated pedestrian safety programs; identify and fund projects that enhance pedestrian movement in neighborhoods, downtowns, and near transit stops.

*TCM #20: Promote Traffic Calming Measures* – implement projects such as pedestrian-only streets, residential and neighborhood traffic calming measures, and arterial and major route traffic calming measures.

[http://www.baaqmd.gov/pln/plans/ozone/2005\\_strategy/index.htm](http://www.baaqmd.gov/pln/plans/ozone/2005_strategy/index.htm)

#### Lake County Regional Bikeway Plan

The 2006 Lake County Regional Bikeway Plan was prepared by the Lake County/City Area Planning Council through the transportation planning agency's planning work program. This document is an update to the 2002 Regional Bikeway Plan. The Plan is consistent with projects, goals, policies and objects identified in the 2005 Regional Transportation Plan. This Regional Bikeway Plan is a capital improvement program of commuter bikeways. It incorporates proposals for bikeway improvements for all jurisdictions within Lake County into one document. It is directed toward meeting the provisions of the California Bicycle Transportation Act. Napa County shares a common border with Lake County along the northern Napa County border. The two counties are connected by SR 29 and Butts Canyon Road. The Lake County Regional Bikeway Plan does not include planned bikeways to Napa County.

<http://lakeapc.org/acc.asp?Webpage=Documents>

#### Solano Countywide Bicycle Plan

The 2004 Solano Countywide Bicycle Plan was prepared by the Solano Transportation Authority. The Plan aims to encourage the development of a bicycle network that will provide connections within Solano County as well as connections to surrounding counties. The Plan covers the entire County and contains policies designed to encourage and support biking, implementation standards, and promotional strategies. The Plan includes proposed bikeway connections to Napa County along the SR 12, SR 29, Suisun Valley Road, and McGary Road corridors.

<http://www.sta.dst.ca.us/plans2.html#bikeplan>

#### County of Yolo Bicycle Implementation Plan

The County of Yolo Bicycle Implementation Plan was prepared by the Yolo County Transportation Advisory Committee and published in 2006. This plan is an update of the 2002 County of Yolo Bicycle Implementation Plan and formulates a long-range, comprehensive, and consistent policy guide for achieving a countywide bikeway network. The plan includes goals and policies for bicycle facilities in the unincorporated County to encourage bicycle ridership. The Plan includes a proposed bikeway connection to Napa County along the SR 128 corridor between northeastern Napa County and southwestern Yolo County.

<http://www.yolocounty.org/Index.aspx?page=834>

## Sonoma County – SCTA Countywide Bicycle and Pedestrian Master Plan

The 2008 SCTA Countywide Bicycle and Pedestrian Master Plan was developed under the guidance of the Sonoma County Transportation Authority. The Plan is designed to prioritize bicycle and pedestrian improvements, develop implementation strategies, and foster countywide collaboration and coordination. Consisting of eight stand alone documents specific to local agencies and a countywide overview section, the SCTA Countywide Bicycle and Pedestrian Master Plan is designed to facilitate transportation improvements for bicyclists and pedestrians. The recommendations of the plan include physical improvements, expanding existing facilities, and connecting gaps in the network, addressing constraints, and providing greater local and regional connectivity. Several bicycle facilities are planned that would connect Sonoma County to Napa County including Class II bike lanes on SR 128, Petrified Forest Road, and SR 12/121. A Class I pathway connection is proposed via the Bay Trail, and Class III bike route connections are proposed on St. Helena Road, Trinity Road, and Duhig/Ramal Road.

[http://www.sctainfo.org/Bike\\_Main\\_files/index.htm](http://www.sctainfo.org/Bike_Main_files/index.htm)

### **Local**

#### Napa Wine Train

The Napa Valley Wine Train (NVWT) runs between the Cities of Napa and St. Helena. The Napa Valley Railroad (NVR) owns the right-of-way used by the NVWT. The NVR has indicated its willingness to consider hosting passenger rail along the existing NVWT route as detailed in the Napa/Solano Passenger/Freight Rail Study provided that sufficient infrastructure improvements are made to prevent any conflict with existing NVWT and freight rail service.

#### Napa/Solano Passenger/Freight Rail Study

The Napa/Solano Passenger/Freight Rail Study is a comprehensive new-start public rail transportation plan completed in 2003. The main objectives of the study were to determine economic feasibility of possible passenger rail service and enhanced rail freight activity, compare of potential rail versus existing and potential bus service, and examine the long run potential of connecting passenger rail services. The plan addresses both new passenger rail and increased freight service between Vallejo, Fairfield/Suisun, Napa, Calistoga and intervening areas. The Fairfield/Suisun Amtrak station, Vallejo Ferry Terminal and Downtown Napa were identified as locations for major intermodal stations.

<http://www.nctpa.net/docs/Napa%20Solano%20Freight%20Rail%20Study.pdf>

#### Napa's Transportation Future

The 2009 Napa's Transportation Future document was developed by the Napa County Transportation and Planning Agency (NCTPA). The NCTPA is a "Joint Powers Agency" (JPA) made up of the City of Calistoga, the City of St. Helena, the Town of Yountville, the City of Napa, the City of American Canyon and Napa County and acts as the transportation program and funding administrator for all member jurisdictions. The vision of Napa's Transportation Future is to create an attractive, flexible, fully integrated transportation system with a diverse set of transportation mode options which will enable people and good to flow throughout the County in a more efficient manner. This plan coordinates the transportation planning efforts throughout the County in order to prioritize transportation needs for the horizon of the year 2035. The Plan establishes a series of visionary goals to address traffic congestion and air quality issues including:

- Goal: Reduce/restrain growth of automobile vehicle miles traveled (VMT)  
Objective: 0 percent net growth in aggregate VMT
- Goal: Shift travel from Single-Occupancy Vehicles to other modes  
Objective: Increase the percent of county trips made by transit to 5 percent

Objective: Increase the percent of county trips made by bicycle to 10 percent  
Objective: increase the percent of county trips made by walking to 10 percent

<http://sites.google.com/site/napastransportationfuture/>

### Napa County General Plan

In 2008 the Napa County Department of Conservation, Development & Planning updated the 1983 Napa County General Plan. The General Plan acts as the blueprint for growth and development on County unincorporated land through the year 2025. The General Plan will determine how much growth will occur and where it will occur. Development of the document included extensive public outreach, input and oversight from a General Plan Update Steering Committee, and community meetings. Currently adopted key General Plan policies regarding transportation and circulation that are applicable to bicycle and pedestrian planning include:

- Circulation CIR-2 – CIR-4; CIR-31 – CIR-37
- Conservation CON-65 d, CON-69
- Recreation and Open Space ROS-10 – ROS-12.5, ROS-15

<http://www.countyofnapa.org/GeneralPlan/>

### Napa County Regional Parks and Open Space District Master Plan

The Napa County Regional Park and Open Space District Master Plan was completed in 2009 and covers the time period of 2008-2013. This plan provides a comprehensive framework for guiding the future work of the District through the identification of long-term goals and guiding principles, as well as identifying a 2008 through 2013 work program. The Master Plan is consistent with the Napa County General Plan and strives to meet the goal of providing opportunities for outdoor recreation through the development of a system of parks, trails, water resource activities, open space and related facilities. The Master Plan identifies 61 separate projects in its work program of which 17 are trail projects. These trail projects consist of the following:

- A.1 Oat Hill Mine Trail Improvements
- A.2 Milliken Creek Trails and Picnic Area Development
- A.4 Rector Ridge/Stag's Leap Trail Development
- A.5/A.6 Napa River and Bay Trail Development from American Canyon to Napa
- A.7 Lake Hennessey North Shore Trail Expansion
- A.9 Newell Preserve Access Improvement
- A.10 Lake Berryessa Trail Development
- A.11 Berryessa Peak and Blue Ridge Public Access Development
- A.12. Berryessa Vista Wilderness Park Development
- A.13 Pope and Putah Creeks Trail Development
- A.15 Camp Berryessa to Knoxville Wildlife Area Trail Development
- A.19 Bay Area Ridge Trail Completion
- A.22 Moore Creek Trail, Picnic Area and Camping Facilities Development
- A.24 Napa Valley Greenway / Vine Trail Development
- A.25 Henry Road/Milliken Peak Area Trail Development
- A.26 Countywide Trail Network Development

<http://napaoutdoors.org/documents>

### Napa County Flood Control and Water Conservation District

The Napa County Flood Control and Water Conservation District administers water supply contracts, watershed management and stormwater management programs throughout Napa County. The District's

mission is the conservation and management of flood and storm waters to protect life and property; the maintenance of the County watershed using the highest level of environmentally sound practices; and to provide coordinated planning for water supply needs for the community. The Napa County Flood Control and Water Conservation District maintains the 13 miles of channels within its jurisdiction.

<http://www.countyofnapa.org/FloodDistrict/>

#### Napa Countywide Community Climate Action Plan

The 2009 a preliminary draft of the Napa Countywide Community Climate Action Plan was completed by the private consultant MIG. The Action Plan includes viable measures to help the County reduce Green House Gas emissions resulting from County operations. The report establishes a baseline during the year of 2005, and emissions contributors are categorized by three distinct categories: jurisdiction, sector, and source. The report notes that 55% of the County's green house gas emissions result from transportation and mobility related activities. The Plan contains reduction targets of 30 percent below the baseline year, and provides a series of actions that can be utilized to reduce Napa County's green house gas emissions including shifting the current commute habits of County employees to alternative modes such as public transit, ridesharing, bicycling, and walking as much as possible.

#### Napa County Bicycle Coalition

The Napa County Bicycle Coalition is a non-profit member based organization that was created to encourage bicycling in Napa County. The NCBC works with local government from an advocacy stand point to ensure that bicycles are an integral part of the part of the County's transportation system. The Coalition serves the four main functions of bicycle education, bicycle advocacy, promotion of events and programs, and fundraising to support the coalition.

<http://www.napabike.org/>

#### Napa Greenway Feasibility Study

The Napa Greenway Feasibility Study was completed in 2009 by Alta Planning for the Napa County Transportation and Planning Agency. The proposed 48 mile Greenway is planned to provide a continuous pedestrian and bicycle path from the BayLink Ferry terminal in Vallejo north through the Napa Valley and ending in the City of Calistoga. The Greenway study consisted of background data gathering, development of route options and alternatives, alternative alignment analysis, and design and implementation strategies. The Greenway is designed in a manner which allows for each individual segment can function as a stand-alone facility until connections are built. Key implementation steps for the future include funding, identifying an agency responsible for the Greenway as a whole, and finding implementation sponsorship for the project.

<http://sites.google.com/site/napastransportationfuture/napagreenwayfeasibilitystudy>

#### Napa Valley Vine Trail

The nonprofit Napa Valley Vine Trail Coalition was created in 2008 after the completion of the Greenway Feasibility Study to design, fund and implement its conclusions. The trail is planned to follow Highway 29 and the existing Wine Train tracks north of Napa. South of Napa it will follow the Wine Train Tracks and the Napa River. The design will ultimately link the existing unconnected segments including the Napa Valley Vine Trail, the San Francisco Bay Trail, the Bay Area Ridge Trail and the wider Bay Area and when completed make-up a combined 149 miles of trails. When completed, the Napa Valley Vine Trail is anticipated to be one of the premier active transportation systems in the country.

<http://www.railstotrails.org/resources/documents/ourWork/Napa%20Valley%20Vine%20Trail%20Case%20Statement.pdf>

## 2007 Calistoga Bicycle Transportation Plan

The *2007 Calistoga Bicycle Transportation Plan* was prepared by Calistoga staff and the Calistoga Bicycle Advisory Committee. The Plan was developed to meet the requirements of the California Bicycle Transportation Act, and the needs of the community. The Plan was developed over the course of approximately two years and included a number of opportunities for public involvement. The Plan includes goals, objectives, policies, and actions to improve conditions for bicyclists within the community of Calistoga, and to provide bikeway connections to the outlying County and neighboring communities. It identifies an extensive network of Class I pathways, Class II bike lanes, and Class III bike routes within Calistoga, and recommends Class II bike lanes on SR 128, Tubbs Lane, Bennett Lane, and Dunaweal Lane.

<http://www.ci.calistoga.ca.us/Index.aspx?page=101>

## **Existing Plan and Policy Review – City of American Canyon**

### American Canyon General Plan

Policy I.1.4 – Provide adequate transportation (vehicle, bicycle, pedestrian) and utility (sewer, water, energy, etc.) infrastructure and public services (police, fire, schools, etc.) to support the needs and businesses of American Canyon. (Page I-10)

Policy I.11.4 – Require that land use and site design techniques be employed that achieve an integration of uses and sense of neighborhood and community, avoiding the character of undifferentiated residential tracts, based upon consideration of the following:

Policy I.11.4g – establishment of a continuous network of sidewalks, pedestrian, bicycle and equestrian trails, and other elements that link all community areas and provide linkages to adjacent neighborhoods and districts. (Page I-23)

Policy I.11.4i – incorporation of extensive landscape along peripheral and interior streets, pedestrian, bicycle and equestrian trails, and at key public places. (Page I-23)

Policy I.11.6 – Require that nonresidential structures and sites incorporated in “planned” communities (e.g., recreation facilities, community meeting rooms and auditoriums, neighborhood commercial, services and religious facilities) be designed to be compatible with and convey the visual and physical scale and character of residential structures. These should be linked by pedestrian walkways, bicycle paths and other elements. (Page I-23)

Policy I.14.3 – Require that development be designed to convey a local neighborhood, “village” environment in accordance with policies I.18.1 to I.18.5 and the following:

Policy I.14.3b – buildings should be sited on common sidewalks, pedestrian areas and bicycle paths that are connected with surrounding residential communities. (Page I-26)

Policy I.18.2 – Require that multi-tenant and large scale commercial development be sited and designed to convey a “village” environment in accordance with the following:

Policy I.18.2g – provision of pedestrian and bicycle paths to adjacent districts and neighborhoods (Page I-29)

Policy I.19.11 – ensure that the Town Center is a sustainable, “green” development through the implementation of such features as:

Policy I.19.11d – pedestrian and bicycle circulation system (Page I-33)

Policy 4.6.1 – Require nonresidential developments to provide employee feasible incentives for utilizing alternatives to the conventional single occupant automobile (i.e., carpools, vanpools, buses, bicycles, walking, telecommuting, etc.) (Page 4-10)

Goal 4D – Provide a Citywide system of safe, efficient and attractive bicycle and pedestrian routes for commuter, school and recreational use. (Page 4-11)

Objective 4-8 – Promote the safety of bicyclists and pedestrians by adhering to Citywide standards and practices. (Page 4-11)

Policy 4.8.1 – Develop Citywide standards for construction and maintenance of bikeways and pedestrian walkways. The bikeway construction standards should comply with Caltrans Highway 29 Manual, Chapter 1000 (Bikeway Planning and Design) (Page 4-11)

Policy 4.8.2 – Develop and adopt the planned bikeway system, which links all community centers, civic areas, schools and parks in the city and connects to other neighboring bikeway networks. (Page 4-11)

Policy 4.8.4 – Require that proposed developments include bicycle paths, lanes, or off-street trails in their street improvement plans if they are located adjacent to proposed bikeway routes and where appropriate, construct bicycle paths or lanes as a condition of project approval. Additionally, require developers to construct equestrian paths if they are appropriate for the proposed development. (Page 4-11)

Policy 4.8.5 – Construct safe, convenient paths for bicycles and pedestrians so as to encourage these alternate forms of transportation. (Page 4-11)

Policy 4.8.6 – Design and construct safe bicycle and pedestrian crossings of SR-29 at key locations. These crossings should be constructed so that children and seniors can cross in safety. (Page 4-11)

Policy 4.8.7 – Develop programs that encourage the safe utilization of easements and/or rights-of-way along public utilities, railroads and streets wherever possible for the use of bicycles and/or pedestrians. (Page 4-12)

Policy 4.8.8 – Provide pedestrian and bicycle linkages between all residential areas and employment centers within the City. (Page 4-12)

Policy 4.8.9 – Promote bicycle and pedestrian use through marketing techniques such as the use of informational brochures. (Page 4-12)

Policy 4.8.10 – Actively support the Bay Area Ridge Trail Council, the Bay Trails and similar organizations and work with these agencies to provide local linkages, where appropriate. (Page 4-12)

Policy 4.8.11 – Promote the transition of abandoned rail rights-of-way to trails. (Page 4-12)

Policy 4.8.12 – Negotiate easements and establish pedestrian/bikeway access (possibly through the landfill) to the Napa River and adjacent wetlands in the near future.

## **Existing Plan and Policy Review – City of Napa**

### Policies

#### *City of Napa General Plan*

LU-6.6 – The City shall enhance public access to the downtown, including a stronger link to downtown residential neighborhoods, through improvements to directional signs, roads, transit and pedestrian and bike trails along streets and the river. (Page 1-19)

LU-6.10 – The City shall continue to support development of public amenities along the Napa Riverfront such as parking, plazas, trails, docks and landscaping. *(Page 1-19)*

T1.1d – **Bikeways** For streets which are designated bikeways, minimum street widths shall be increased accordingly to accommodate bicycle facilities. The Public Works Director shall determine which local street cross section is appropriate in each case, and may approve minor modifications to local street standards, provided safe and adequate public access and circulation are preserved. The City will also review and revise and necessary, existing policies which regulate which street designs are public and which are private. Criteria will be established to restrict the use of public streets in specific situations. *(Page 3-9)*

Goal T-6 – To develop and maintain a safe, integrated bicycle route network for residents and visitors, connecting key destinations to neighborhoods, neighborhoods to each other, and the city of Napa to the County. *(Page 3-25)*

T-6.1 – The City shall promote the development of a comprehensive and safe system of recreational and commuter bicycle routes. To this end, the City shall continue to implement the bicycle network shown in Figure 3-5. *(Page 3-25)*

T-6.2 – The City shall apply for funding to undertake bicycle network route improvements that include the following components: (a) Completion of through north/south and east/west routes, (b) Completion of elements of the existing network, (c) Connections to employment centers and shopping areas: downtown, corporate park, Trancas, State Hospital, (d) Connections to larger schools (high schools, middle schools, Napa Valley College), (e) Connections to Napa to destinations outside Napa (e.g. “Up-valley,” Vallejo, Sonoma Valley). (f) Easily and affordably implemented, building on the existing network, (g) Off-road routes such as the River Trail; Wine-Train trail (“Rail Trail”). *(Page 3-25)*

T6.3 – The city shall evaluate the feasibility of establishing two “bicycle boulevards” to provide priority travel for bicycles, establishing a north/south and east/west route through the city. *(Page 3-25)*

T6.4 – The City shall provide for safe bicycle lanes or new or reconstructed freeway crossings and bridges. The City shall also consider modifications to existing bridges and freeway crossings to improve bicycle safety. *(Page 3-25)*

T6.5 – The City shall consider the feasibility of constructing a bicycle/pedestrian bridge of Highway 29 at Pueblo Avenue. *(Page 3-25)*

T6.6 – The City shall consider innovative ways of encouraging bicycle use on a few key through streets that are normally too narrow (in part or in whole) to safely accommodate bicycles. *(Page 3-25)*

T-6.7 – The City shall incorporate designs to support bicycle operating characteristics in intersections and traffic controls systems. *(Page 3-25)*

T-6.8 – The City shall provide for bicycle storage and access in future development. *(Page 3-25)*

T-6.9 – The City shall promote bicycle access in the site planning and design of all residential subdivisions over 20 units, and of all commercial or industrial projects over 20,000 square feet. *(Page 3-25)*

T-6.10 – The City shall encourage bicycling by providing information to the public and participating in regional bicycle planning efforts. To this end, the City shall support efforts by the County to prepare a regional bicycle plan and a regional bicycle route map. *(Page 3-25)*

T-6.11 – The City shall maintain existing bicycle facilities and regularly review the status of the City’s progress in improving bicycle facilities. *(Page 3-25)*

T-6.12 – The City shall incorporate regional bicycle routes (such as the Bay Trail) into the City bicycle route system. (Page 3-25)

T-6.A – The city shall investigate the feasibility and location of two “bicycle boulevards” in the City of Napa, to include a north/south and an east/west route. (Page 3-25)

T-6.B – The City shall investigate innovative ways of encouraging bicycle use on a few key through streets which are normally too narrow (in part or in whole) to safely accommodate bicycles. Such innovations may include prohibiting parking during peak travel times and/or prohibiting parking on one side of a particularly important street and restriping the street for bicycle lanes. Candidate streets for this type of treatment include Lincoln Avenue and narrower portions of Jefferson Street and others deemed appropriate by the Public Works Director. (Page 3-26)

T-6.C – The City shall investigate the feasibility of constructing a bicycle/pedestrian bridge over Highway 29 at Pueblo Avenue. (Page 3-25)

T-6.D – The City shall, as funding permits, implement a demonstration project for intersection controls. Based on the results of the demonstration project, the City may prepare a recommendation for new intersection design and control standards which are “bicycle friendly.” (Page 3-26)

T-6.E – The City shall seek funding from USTEA and other funding programs to retrofit intersections along designated bicycle routes to make them bicycle friendly. (Page 3-26)

T-6.F – The City shall, as funding is available, prepare a bicycle route map to be made available to the public. (Page 3-26)

T-6.G – The City shall continue to seek funding for development of a recreation trail system along the Napa River, Salvador Channel and other trail segments included in the *Napa River* and *Citywide Trails Plans*. (Page 3-26)

Goal T-7 – To develop and maintain bicycle support facilities in appropriate locations to encourage the use of bicycle travel in Napa. (Page 3-28)

T-7.1 – The City shall continue to require that commercial and industrial projects requiring more than 10 parking spaces provide bicycle parking at the rate of 1 space per 10 parking spaces. (Page 3-28)

T-7.2 – The City shall provide for bicycle support facilities, as appropriate, in existing and new development. (Page 3-28)

T-7.A – The City shall review and update its standards for bicycle racks so that bicycle racks and/or lockers are provided for all new retail commercial, industrial uses and existing commercial and industrial uses and theaters. (Page 3-28)

T-7.B – The City shall investigate requiring the provision of bicycle racks or lockers in all older commercial and industrial buildings, theaters, shopping centers or other similar uses over 5,000 square feet upon an application for any use permit where automobile parking is provided on-site. (Page 3-28)

T-7.C – The city shall consider the feasibility of establishing the position of Bicycle Coordinator with primary responsibility for implementing the bicycle policies of this General Plan. (Page 3-28)

Goal T-8 – To improve bicycle safety in promoting the use of bicycle travel in the City. (Page 3-28)

T-8.1 – The City shall encourage and assist bicycle education programs for youth and adults. (Page 3-28)

T-8.2 – The City shall, as funding and staff resources permit, work with the school district to encourage students to identify safe routes to school, such as a “Safe Way to School” program. (Page 3-28)

T-8.3 – The City shall consider seeking changes in bicycle law enforcement procedures to allow bicycle enforcement to focus on improving bicycle safety. For example, bicycle violators could be required to take bicycle safety classes, and income from bicycle enforcement could be used to support bicycle safety programs. (Page 3-28)

T-8.A – The City shall work with bicycle clubs and schools to establish regular bicycle safety classes and programs such as bike rodeos. (Page 3-29)

T-8.B – The City shall review existing bicycle accident records and develop a focused enforcement program with a goal of reducing accidents by 10 percent. (Page 3-29)

T-9.3 – The City shall develop a major public multi-use trail and amenities along the Napa River from Stanly Ranch to Trancas Street, and along Salvador Channel, while protecting the natural resources along the trail corridor. If feasible, establish a multi-use trail along the Wine Train Railroad right-of-way. (Page 3-29)

T-9.4 – The City shall connect the City’s major planned trails to the proposed regional Ridge and Bay Trails, connecting all of these major pedestrian and bicycle routes to downtown. (Page 3-29)

T-9.8 – The City shall, where deficiencies in school route are identified, coordinate with NVUSD and property owners to develop cost-effective pedestrian and bicycle access to school sites. (Page 3-30)

T-10.4 – The City shall consider possible future transportation uses of existing rail rights-of-way when reviewing or developing short-term recreational use plans that include portions of such rights-of-way. (Page 3-32)

Goal PR-5 – To develop a comprehensive system of trails for bicycle and pedestrian traffic both within the existing urbanized area and connecting to surrounding County areas. (Page 5-14)

PR-5.1 – The City shall provide for a trail system that provides connections with open space areas in and outside the City. In the City, trails should connect Kennedy Park, Westwood Hills Park, Timberhill Park and Alston Park with the Napa River Trail. Outside the City, trail destinations should include the Napa Marshes, Skyline Park, watershed areas, and views of vineyards and other agricultural lands. (Page 5-14)

PR-5.2 – Trails shall be located off road, following creeks wherever possible. As trail opportunities are limited, on-road connections should also be included to link the off-road sections of the system. These connections should be included in the *Bicycle Facilities System*. The trail system should consist of the following components. Alignment possibilities are included in Appendix D. (a) Napa River Trail South: east bank, (b) River Trail South: west bank, (c) River Trail north of Salvador Channel to Alston Park with connection to Las Flores Community Center, (d) Napa River Trail east to Skyline Park, (e) Napa River Trail to Westwood Hills and Timberhill city parks, (f) Other creek connections to the Napa River Trail, (g) Connections to surrounding county areas. (Page 5-14)

PR-5.3 – The City shall connect City trails with regional trails: the Bay Area Ridge Trail and the Bay Trail. (Page 5-14)

PR-5.4 – The City shall provide trails to serve the needs of residents, tourists and workers and visitors to the commercial and industrial areas of the City. (Page 5-14)

PR-5.5 – The City shall develop trails that are safe for people of all age groups, especially children and those persons with special needs. (Page 5-14)

PR-5.6 – The City shall provide trails accessible to people of all abilities and conform to the requirements of the American with Disabilities Act wherever feasible. (Page 5-15)

PR-5.7 – In creekside areas, the City shall develop trails outside any riparian setback requirements wherever possible. *(Page 5-15)*

PR-5.8 – The City shall design trails to be consistent with the City's *Trail Design Standards* to accessibility, width, surfaces, signage, safety elements and access appropriate to the proposed use. *(Page 5-15)*

PR-5.9 – The city shall seek community support for public trails. *(Page 5-15)*

PR-5.10 – The City shall establish a liaison with trails organizations and groups. *(Page 5-15)*

PR-5.11 – The City shall support development of a regional trail network for bicycle and pedestrian use. *(Page 5-15)*

PR-5.12 – The City shall identify potential linkages along easements and rights-of-way to publicly accessible open space lands in the Napa vicinity, such as the Napa Marsh. *(Page 5-15)*

PR-5.13 – The City shall assist, when appropriate, in the identification and acquisition of elements of the regional trail network within the City of Napa. *(Page 5-15)*

PR-5.14 – The City shall coordinate trails planning in Napa to ensure integration with the plans of other public and nonprofit agencies. *(Page 5-15)*

PR-5.15 – The City shall identify and utilize equitable and realistic methods of financing and/or implementing acquisition, improvement and maintenance of trails. *(Page 5-15)*

PR-5.16 – The City shall require new development to dedicate trail alignments and associated improvements as a condition of development approval. *(Page 5-15)*

PR-5.17 – The City shall seek federal, state and private funding for development of trails as part of mitigation efforts associated with roadway improvements. *(Page 5-15)*

PR-5.18 – Where trails are joint-use, such as for utility access and along flood control channels, the City may share capital improvement and maintenance costs. *(Page 5-15)*

PR-5.19 – The City shall continue to support a Citizen Trail Advisory Subcommittee to the Parks and Recreation Commission. *(Page 5-15)*

PR-5.A – The City shall prepare and adopt trail design guidelines. *(Page 5-15)*

Goal PR-6 – To develop a major public multi-use trail and amenities along the Napa River, while protecting and enhancing the natural resources along the trail corridor. *(Page 5-15)*

PR-6.1 – The City shall develop a major public multi-use trail and amenities along the Napa River from Stanly Ranch to Trancas Street and along the Salvador Channel, while protecting and enhancing the natural resources along the trail corridor. *(Page 5-15)*

PR-6.2 – The Napa River Trail shall be developed according to design guidelines adopted by the City. *(Page 5-16)*

PR-6.3 – Trail development shall be consistent with protection and enhancement of wildlife habitats along the River. The City shall identify potential areas for habitat preservation and enhancement along the river during the preparation of trail design and development plans. The City shall design and locate the multi-use trail to minimize impacts to sensitive habitats and resources wherever possible. *(Page 5-16)*

PR-6.4 – The City shall link that Napa River Trail to other trails, parklands and community resources including downtown and river-oriented businesses. *(Page 5-16)*

PR-6.5 – The City shall provide trail access points, staging and rest areas, and other amenities, such as boat launches and enhanced fishing areas. Facilities should be designed to meet accessibility standards whenever possible. Facilities should accommodate boat traffic, including some oriented toward commercial/tourist river boating, as well as recreational boating. (Page 5-16)

PR-6.6 – The city shall establish a continuous trail corridor and sites for trail-related amenities. The city shall pursue various methods for acquiring a trail corridor, including coordination with other public agencies and utility companies and negotiation with property owners for an easement or fee title for a trail corridor. (Page 5-16)

PR-6.7 – The city shall work with the Army Corps of Engineers to ensure that the Napa River Trail is incorporated into any flood control project. (Page 5-16)

PR-6.8 – The city shall conduct appropriate site investigations to identify any contaminated soils and/or groundwater which could affect public health along the proposed trail and staging areas near the River and shall identify mitigation to ensure adequate remediation. (Page 5-16)

PR-6.10 – The City shall establish financial strategies for acquiring and developing the Napa River Trail and facilities. These financial strategies may include the following: (a) Allocate funds for Napa River Trail when appropriate and necessary to use as leverage for additional funding, (b) Pursue various grant and funding programs from public and private sources, (c) Establish donation program through the Foundation for Napa Recreation, (d) Organize special fund raising events. (Page 5-16)

PR-6.11 – The City shall prioritize and phase trail development, taking into account funding and acquisition opportunities. (Page 5-16)

PR-6.13 – The City shall provide for long-term maintenance, safety and security of the trail. (Page 5-16)

PR-6.14 – The City shall prepare and adopt a trail sign program to address trail safety and etiquette. (Page 5-16)

PR-6.15 – The City shall provide adequate access for emergency and maintenance vehicles along the trail. (Page 5-16)

PR-6.17 – The City shall solicit participation of the business community in trail planning and development. (Page 5-16)

PR-6.18 – The City shall involve neighborhoods in the process of designing trail segments and amenities. (Page 5-16)

PR-6.A – The City shall establish an ongoing trail inspection and maintenance program. (Page 5-17)

*From the City of Napa's Bicycle Boulevard Implementation Policies (Pages 3 through 5)*

## “BICYCLE BOULEVARD” IMPLEMENTATION

### A. Definition of and Selection of Streets for Bicycle Boulevards

The “Bicycle Boulevard” concept is an innovative approach to developing efficient bikeways for all types of cyclists in an urban environment with limited street space. The City of Napa “Bicycle Boulevard” guidelines include the following criteria, which should be used to select roadways where “Bicycle Boulevards” could be implemented:

- I. The City of Napa “Bicycle Boulevard” is an **enhanced Class 3 bike route** with more pavement legends and road signs (see attached Figure 2 for locally developed standards). The definition of a “Bicycle Boulevard” as a Class 3 bike facility is consistent with the definitions by other cities such as

Berkeley, Davis, and Palo Alto. These cities also have an existing and extensive traffic calming program integrated into their “Bicycle Boulevards.”

2. There shall be no striped bike lanes on the “Bicycle Boulevard.”
3. There should be no loss of existing on-street parking in the implementation of a “Bicycle Boulevard” unless safety enhancements are required.
4. Potential candidate streets include local streets or low-volume collector streets with less than 5,000-average daily traffic (ADT).
5. Potential candidate streets should have low-accident history and should not include any “high accident locations” with an average of five or more accidents/year over the last three years.
6. The proposed route should provide direct connection to at least one school.
7. Typical 12-foot travel lanes are preferred on the proposed route; but narrower lanes are possible for lower-volume streets (approximately 2,500 ADT or less) that are not on the Fire Department’s Primary Emergency Response Routes.
8. The proposed route must be consistent with Goal T-6 and the associated policies of the General Plan, which provide the conceptual framework for citywide bike planning.
9. The proposed route could be an interim bikeway facility implementation for a designated Class 2 future bike lane in Figure 3-5 of the General Plan.
10. The proposed route should provide access to major destinations and could provide basic directional signs to the Downtown, schools, and parks—assuming funding for installation and maintenance of these directional signs is available.
11. The proposed route should provide connections to other bicycle facilities and fill in gaps in missing links between bicycle facilities.
12. City staff will consider the need for appropriate traffic control devices that would allow bicyclists on “Bicycle Boulevards” to safely cross major streets and arterials. The traffic control devices on a “Bicycle Boulevard” shall meet current professional engineering standards and practices as required by the California Vehicle Code.

In addition to the above guidelines and criteria, the Napa County Transportation Planning Agency (NCTPA) *2005 Countywide Bicycle Plan Amendment* has the following guidelines for bicycle boulevards in urban areas that shall aid in the planning of the City of Napa’s “Bicycle Boulevards”:

13. *“In developed areas, there exists the potential to designate a street or streets that have design features that help make it a more attractive route to bicyclists, particularly the casual and child cyclists. These features provide significantly more benefit to bicyclists than simply signing existing streets as bike routes (as is done for Class III routes).”* Based on available funding, these design features could be integrated in a major capital improvement project (CIP) for the redesign of a street as long as right-of-way needs are minimized and on-street parking is not lost, unless safety enhancements are required.
14. *“Where possible, priority is given to the street at intersections by, for example, giving right-of-way to traffic on the Bicycle Priority Street.”* Priority for streets must be assigned to achieve the citywide transportation goals from the General Plan—where the mobility and access needs of motorists, pedestrians, bicyclists, transit providers, truck services, emergency service providers, and other road users are balanced to preserve the quality of life of neighborhoods and to promote the economic development of the City. Removal or alteration of existing traffic control devices (e.g. stop signs) or the addition of new traffic control devices shall be subject to the requirements of the California

Vehicle Code as documented in the Caltrans' standards for traffic control devices and supplemented by the Public Works Department policy guidelines for traffic control devices.

15. *“Other measures are to include design features used for traffic calming such motor vehicle traffic is discouraged and/or motor vehicle speeds are reduced. Such streets are sometimes referred to as Bicycle Boulevards... They are appropriate within cities or other areas where the street network is laid out in a grid pattern or otherwise have low volume streets and many alternatives for auto traffic.”* ‘Bicycle Boulevards’ are appropriate candidates for traffic calming to transform an ordinary local residential street into a “bikeway expressway” that accommodates local motor traffic while deterring through motor traffic. The planning, design, implementation, and maintenance of traffic calming features on the City of Napa “Bicycle Boulevards” shall be guided by the Public Works Department’s new “*Citywide Guidelines for Traffic Calming and Neighborhood Traffic Management.*” The pursuit of traffic calming on “Bicycle Boulevards” shall be subject to the availability of dedicated funding sources and the commitment of staff resources by the City Administration.

## **Existing Plan and Policy Review – City of St. Helena**

### Saint Helena General Plan

LU3.2 – Enhance the pedestrian-oriented character of commercial areas and provide for convenient pedestrian and bicycle connections to encourage walking and reduce vehicle trips within the commercial area. (Page 2-34)

LU3.7 – Provide sufficient auto and bicycle parking in order to serve local businesses in the commercial districts. Ensure that all parking areas are well-designed, and that auto parking spaces are hidden from pedestrian view, whenever possible. (Page 2-35)

### Relevant Circulation Element Goals: (Page 5-12)

- Provide a complete bicycle and pedestrian network between residential areas, downtown and other major activity centers identified by the City.
- Increase the current mode split for transit, bicycling and walking (as measured by the American Community Survey).

CR1.1 – Promote a connected street network within the City to provide better internal automobile, bicycle and pedestrian connections for residents. Where new streets are constructed, ensure they connect to dead-end roads and other streets to create a flexible network for residents. (Page 5-29)

CR1.5 – Avoid mitigation measures that negatively impact the walking and bicycling environment and encourage driving, such as roadway and intersection widenings. (Page 5-29)

CR1.9 – Promote a walking and bicycling environment that is comfortable and convenient. Ensure that all St. Helena streets have no more than a single through-automobile lane in each direction, plus a single left-hand turning lane where appropriate, even if this requirement increases vehicle travel times. Allow exceptions if an extra lane would reduce the possibility of collisions. (Page 5-30)

CR1.A – Use the street typologies as defined in the Circulation Element as a basis for improving and managing streets. Improve vehicle, pedestrian and bicycle facilities on streets based on this system. (Page 5-31)

CR1.C – Identify streets that should become “more complete,” through consideration of transit priorities, sidewalk gap closures, new bikeways and vehicle traffic calming measures. (Page 5-31)

CR1.J – Ensure that any new land use development provides a continuous path of travel for walking and bicycling from the development site to the center of downtown and other key destinations, as determined by the City. Determine appropriate bicycle and pedestrian routes based on street

typologies and the proposed bicycle and pedestrian network. If a path of travel is not continuous, require development to construct improvements and/or contribute to the transportation mitigation fee program. (Page 5-32)

CR2.1 – Create a comprehensive bicycle and pedestrian network that enhances neighborhood connectivity. Develop the system as shown in Figure 5.3 to expand and improve the pedestrian and bikeway system. (Page 5-34)

CR2.2 – Promote walking and bicycling as safe and convenient modes of transportation. (Page 5-34)

CR2.3 – Ensure secure, accessible and convenient bicycle parking facilities throughout St. Helena, including downtown, commercial areas, schools and parks. (Page 5-34)

CR2.6 – Encourage walking and bicycling trips to St. Helena schools. (Page 5-34)

CR2.A – Develop and adopt a citywide bicycle and pedestrian master plan to improve bicycle and pedestrian safety, and to encourage community members to walk and bike more often. Build on St. Helena’s existing partnership with the Napa County Transportation and Planning Agency (NCTPA) to ensure that the City’s master plan is consistent with countywide transportation planning efforts. (Also see the following elements: Open Space and Conservation, Topic Area 2; and Parks and Recreation, Topic Area 6) (Page 5-35)

CR2.B – Develop guidelines for the design, construction and maintenance of bicycle and pedestrian paths in St. Helena. Coordinate the guidelines with Napa County or regional trail connections. (Page 5-35)

CR2.C – Develop and adopt an ordinance that requires any new development and re-use projects to provide bicycle and pedestrian improvements and amenities. (Page 5-35)

CR2.D – Identify and pursue funding opportunities for bicycle projects on the local, state and federal levels. Update the existing and proposed bicycle system every five years, as required by Caltrans to qualify for Bicycle Transportation Account funds. (Page 5-35)

CR2.K – Consider the feasibility of a citywide bike sharing program for municipal and/or public use. (Page 5-36)

CR3.6 – Support development of the bikeway and pedestrian networks to provide a convenient opportunity for at least 20 percent of commuters to get to work by walking or bicycling. (Page 5-38)

CR3.C – Regularly monitor progress toward increasing the number of residents and workers walking, biking and using public transit, in order to achieve the mode split targets outlined in Table 5.5. (Page 5-39)

CR4.5 – Improve traffic safety and encourage walking and bicycling trips to St. Helena schools through a Safe Routes to School program. (Page 5-40)

CR6.1 – Prioritize and implement improvements to the circulation system, including street extensions, bicycle and pedestrian improvements, and expanded transit service. (Page 5-44)

CR6.2 – Require concurrent infrastructure development for any new development projects that have impacts on the circulation system, including streets, paths, trails, sidewalks and public transit. (Page 5-44)

CR6.A – Prioritize and construct all new streets, paths and trails (identified in Section E: St. Helena’s Circulation and Mobility Future) when adequate funding is secured and concurrent with any new, adjacent developments. (Page 5-45)

CR6.B – Update the existing St. Helena Traffic Mitigation Fee program to provide funding for all new streets and trails included in the Circulation Element, in order to ensure new streets and trails are constructed in a timely manner. (Page 5-45)

Relevant Community Design Element Goals: (Page 7-12)

Encourage Community Design throughout the City that Helps to Build Community, Encourage Human Interaction and Support Non-Automobile Transportation. St. Helena is committed to promoting community design that is human-scaled, comfortable, safe and convenient for pedestrian, bicyclist and transit use.

CD2.C – Install attractive and well-designed community amenities such as public restrooms, drinking fountains, benches, bicycle racks and trash and recycling containers in commercial districts. Ensure that community amenities are designed and installed to complement surrounding businesses and support the pedestrian-orientation of the street. (Page 7-19)

CD3.4 – Ensure safe bicycle and pedestrian-friendly character on all residential streets. Consider retrofitting existing wide residential streets, such as Starr Avenue, with landscaped medians, wide sidewalks and adjacent Class I pedestrian and bicycle trails. (Page 7-22)

CD3.F – Establish residential street guidelines that ensure a safe environment for families and children. Encourage traffic calming, street trees, wide sidewalks, and Class I or II bike lanes. (Page 7-24)

CD4.4 – Integrate bicycle and pedestrian trails adjacent to open spaces to enhance connectivity throughout the City and the region. (Also see the Parks and Recreation Element, Topic Area 6) (Page 7-26)

CD6.1 – Ensure a connected street system that maximizes pedestrian and bicycle connectivity. (Page 7-29)

CD6.2 – Promote the inclusion of bicycle and pedestrian trails and bicycle lanes throughout the City, as well as connections to regional trail systems, such as the Napa Valley Vine Trail. (Also see the Parks and Recreation and Circulation elements for additional policies and implementing actions relating to bicycle and pedestrian trails and amenities.) (Page 7-29)

CD6.3 – Require streetscape design that maximizes bicycle and pedestrian usage by providing safe and well-lit streets. (Page 7-29)

CD6.A – Use the City’s grid street pattern as the template for any future developing areas. Ensure that new streets logically extend existing street and infrastructure; facilitate the safe and efficient flow of pedestrian, bicycle and vehicular traffic; enhance and frame views of the hills and surrounding agricultural lands; and incorporate appropriate traffic calming features to support and complement the neighborhood environment. (Page 7-30)

Parks and Recreation Element Relevant Goals: (Page 12-11)

Develop a System of Interconnected Bicycle and Pedestrian Trails. The City is committed to providing residents and visitors with opportunities to walk or bicycle throughout the City and the Napa Valley region, while promoting citywide efforts to encourage participation in active, healthy alternate modes of transportation.

PRI.E – Develop a comprehensive network of bicycle and pedestrian trails that links the City’s parks and enhances bicycle and pedestrian connectivity throughout the City and the region. (Page 12-15)

PR4.C – Identify locations to accommodate active recreational uses to meet citywide needs. Potential locations include: (Page 12-21)

- Bicycle and pedestrian trails, interpretive areas, trail heads, and comfort stations along York and Sulphur creeks and the Napa River; and
- A community park at the City-owned Lower Reservoir area.

PR6.1 – Promote walking and bicycling as safe and convenient modes of transportation. (Page 12-26)

PR6.2 – Develop a comprehensive network of bicycle and pedestrian trails to enhance bicycle and pedestrian connectivity throughout the City and the region. (Also see the Community Design Element, Topic Area 4) (Page 12-26)

PR6.3 – Promote the inclusion of bicycle and pedestrian trails, and bicycle lanes throughout the City, as well as connections to regional trail systems, such as the Napa Valley Vine Trail. (Page 12-26)

PR6.A – Develop and adopt a citywide bicycle and pedestrian master plan to improve bicycle and pedestrian safety, and to encourage community members to walk and bike more often. Build on St. Helena’s existing partnership with the Napa County Transportation and Planning Agency (NCTPA) to ensure that the City’s master plan is consistent with countywide transportation planning efforts. (Also see the following elements: Circulation, Topic Area 2; Open Space and Conservation, Topic Area 2) (Page 12-27)

PR6.B – Develop guidelines for the design, construction and maintenance of bicycle and pedestrian trails in St. Helena. Include guidelines for installing context-sensitive and solar lighting, and mitigating noise impacts from the trails. Include guidelines for wayfinding and interpretive exhibits that use signs, art and other visual clues to enhance users’ experiences. Highlight the rich history of the City and provide education and information for users. Coordinate the guidelines with Napa County or regional trail connections. (Page 12-27)

PR6.C – Develop and adopt an ordinance that requires new development and redevelopment projects to provide bicycle and pedestrian improvements and amenities. (Page 12-27)

PR6.E – Coordinate with countywide efforts to establish regional trail systems through the City limits. (Page 12-28)

## **Existing Plan and Policy Review – County of Napa**

### Napa County General Plan

*Policy AG/LU-104* – The following conditions shall be applied as appropriate to future development to improve the flow of traffic on Hwy 29:

- Consolidation of driveways
- Construction of parallel roads
- Contribution on a fair-share basis towards construction of a continuous center turn lane

Bicycle and pedestrian connectivity to the City of St. Helena, pedestrian access to bus stop locations, and dissemination of information about the availability of transit services shall also be considered as possible conditions. (Page AG/LU-60)

*Policy CIR-1* – Consistent with urban-centered growth policies in the Agricultural Preservation and Land Use Element, new residential and commercial development shall be concentrated within existing cities and towns and urbanized areas where sufficient densities can support transit services and development of pedestrian and bicycle facilities. (Page CIR-9)

*Policy CIR-2* – The County will work with the cities and town through the Napa County Transportation and Planning Agency to coordinate seamless transportation systems and improve the efficiency of the

transportation system by coordinating the construction of planned roadway, bicycle, pedestrian, and other transportation systems. (Page CIR-9)

*Policy CIR-13 (part)* – Widen Jamieson Canyon Road (Route 12) by adding one additional vehicular travel lane and room for a class II bike lane in each direction. Construct a safety median barrier in the centerline, straighten unsafe curves, lower the grade where possible, install turn lanes for safety and to allow for parcel access as appropriate, and allow a Ridge Trail crossing for pedestrian, equestrian, and bicycle use. (Page CIR-13)

*Goal CIR-3* – The County’s transportation system shall encompass the use of private vehicles, local and regional transit, paratransit, walking, bicycling, air travel, rail, and water transport. (Page CIR-17)

*Policy CIR-26* – Increase the attractiveness and use of energy-efficient forms of transportation such as public transit, walking, and bicycling through a variety of means, including promoting transit-oriented development in existing municipalities and urbanized areas and the use of transit by visitors to Napa County. (Page CIR-17)

*Policy CIR-28* – The County supports programs to reduce single-occupant vehicle use and encourage carpooling, transit use, and alternative modes such bicycle, walking, and telecommuting, and shall seek to maintain total trips in the County using travel modes other than private vehicles (transit, walking, bicycling, public transit, etc.) at least at the 2006 levels. (Page CIR-18)

*Policy CIR-29* – As a major employer, the County of Napa shall demonstrate leadership in the implementation of programs encouraging the use of alternative modes of transportation by its employees, as well as the use of alternative fuels. Example programs may include:

- Preferential carpool parking and other ridesharing incentives;
- Flexible working hours or telecommuting where consistent with job duties and customer service needs;
- A purchasing program that favors hybrid, electric, or other non-gasoline vehicles;
- Assisting in the development of demonstration projects for alternative fuel technologies such as ethanol, hydrogen, and electricity;
- Secure bicycle parking; and
- Transit incentives. (Page CIR-18)

*Policy CIR-31* – The County shall work with the Napa County Transportation and Planning Agency and other transit agencies in adjoining counties to develop effective connections between public transit in Napa County and regional transportation networks (BART, Baylink ferry, airports, etc.) via rail, bus, bicycle, and other means to serve the needs of local residents, commuters, and visitors. (Page CIR-19)

*Policy CIR-32* – All developments along fixed transit routes shall provide appropriate amenities designed to encourage carpooling, bicycle, and transit use. Typical features could include public bus turnouts/access located in coordination with the Napa County Transportation and Planning Agency, bicycle lockers, and carpool/vanpool parking. (Page CIR-19)

*Action Item CIR-32.1* – Update the County Zoning Code to include requirements and standards related to carpooling, bicycling, and transit amenities in development projects. (Page CIR-19)

*Policy CIR-33* – Pedestrian and bicycle access shall be integrated into all parking lots where feasible and appropriate and considered in the evaluation of development proposals and public projects. (Page CIR-19)

*Policy CIR-34* – Where they are not needed for other transportation purposes and where such use would implement the Napa Countywide Bicycle Plan or other County-adopted master plan, newly abandoned rail rights-of-way shall be used for alternative uses such as public transit routes, bicycle paths,

or pedestrian/hiking routes, provided that they are compatible with adjacent uses and sufficient funding is available for right-of-way acquisition, construction, and long-term maintenance. (Page CIR-19)

*Policy CIR-35* – The County shall work with the Napa County Transportation and Planning Agency, the incorporated cities and town, other agencies, and development projects to work toward implementation of the Napa Countywide Master Bicycle Plan. (Page CIR-19)

*Policy CIR-36* – The needs of pedestrians and bicyclists shall be routinely considered and, where possible, accommodated in all roadway construction and renovation projects. (Page CIR-19)

*Policy CIR-37* – Where sufficient right-of-way is available, bicycle lanes shall be added to county roadways when repaving or upgrading of the roadway occurs, provided that the bicycle facility would implement the Countywide Bicycle Master Plan. Additional paving shall be provided only where the facility meets the “Regional Assessment System” adopted by the Napa County Transportation and Planning Agency. The County shall encourage Caltrans to follow these same guidelines on state highways in Napa County. (Page CIR-19)

*Policy ROS-15 (part)* – The County, in coordination with and generally by working through the Napa County Regional Park and Open Space District, shall plan for and reserve land for recreational facilities and encourage non-commercial recreational development, including both parks and a comprehensive system of trails, in a manner and to the extent consistent with agricultural, water quality, and natural resource protection goals and the Trails Policy contained in this Element (Policy ROS-10). The following recreational opportunities are the County of Napa’s priorities (not necessarily in the order shown), which shall be addressed in greater detail in a park and recreation master plan to be prepared by the Napa County Regional Park and Open Space District:

- Complete the San Francisco Bay Trail through Napa County, including both bicycle lanes and paths and, where possible, recreational alignments in close proximity to the Bay, the Napa River, and associated wetlands, including a recreational alignment between the cities of American Canyon and Napa adjacent to existing and planned tidal wetlands west of the Napa County Airport.
- Support efforts by the City of American Canyon and the Napa County Regional Park and Open Space District to provide public access to the Newell Preserve and an off-street trail system linking the Newell Preserve and the Napa River.
- Provide increased points of public access to the Napa River for nature-based recreation.
- Implement sections of the proposed Bay Area Ridge Trail, with the ultimate objective of a continuous regional trail.
- Implement sections of a Napa Valley Crest Trail that provides scenic overlooks and recreational opportunities among the ridge lands surrounding the Napa Valley, with the ultimate objective of a continuous trail that serves as one spine of an integrated trail network.
- Complete the Lake Berryessa Trail.
- Provide more opportunities for walking, riding, bird watching, and environmental education in the publicly owned marshes in the southern area of the county.
- Investigate the feasibility of a non-motorized trail, and implement sections as opportunities arise, connecting the communities of the Napa Valley.
- Repair, restore, and operate the Oat Hill Mine Road as a non-motorized public recreational trail.
- Connect scattered, landlocked, and discontinuous public lands through selective acquisitions from and/or land exchanges with willing landowners to provide habitat corridors, facilitate a connected system of trails, and improve the effective use and stewardship of existing public lands.
- Coordinate with the Blue Ridge-Berryessa Natural Area (BRBNA) Partnership in identifying and implementing a system of recreational trails within Napa County and connecting to adjacent counties. (Page ROS-14)

*Policy ROS-23* – A system of scenic roads, bicycle routes, and hiking trails should connect existing cities, town and other local population centers to outdoor recreation and open space resources and facilities. (Page ROS-37)

*Policy ROS-24 (part)* – A range of recreation opportunities should be provided to serve the diverse recreational interests of children, adults, seniors, families, people with disabilities, and individuals.

- a) Where possible, recreational opportunities, and particularly those which are youth oriented, should be provided within walking or bicycle distance, or accessible by public transit, of population centers. (Page ROS-37)

From the Napa County Airport Area Specific Plan and EIR

*Circulation Goal 1c* – Accommodate industrial and other land uses permitted in the planning area with a logical integrated transportation system incorporating vehicular, rail, air, pedestrian, and bicycle facilities. (Page 36)

*Circulation Goal 3c* – Require the development, maintenance, and improvement of planning area bicycle lanes to comply with standards established in Sections 2375 and 2376 of the Streets and Highway Code. (Page 39)

## Appendix B

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### Bikeway Type Design Details



## Appendix B – Design Standards for Class I, II, and III Bikeways

### Introduction

The bicycle design guidelines presented in this section are intended to provide guidance to staff, policy makers, developers, and the public for the development, retrofit, and maintenance of bicycle facilities in Napa County. The guidelines are a combination of the minimum bicycle facility standards defined in Chapter 1000 of the Caltrans *Highway Design Manual* (HDM) and the *California Manual on Uniform Traffic Control Devices* (CA MUTCD), along with recommended standards contained in the American Association of State Highway and Transportation Officials' (AASHTO) *Guide for the Development of Bicycle Facilities*. Standards and guidelines from these resources have been assembled to improve the quality of consistency of Napa's countywide bikeway system. In addition to the standardized treatments, there are several creative solutions drawn from 'best practices' used in other locations throughout the state and nation that provide promising results, but remain experimental at this time. While 'best practice' or non-standard features have been identified at the request of the BAC, it should be noted that implementation of non-standard treatments should be done under the guidance and permission of State and Federal authorities.

The following resources, which provide detailed design guidance for the development of bikeways and bicycle parking facilities, are recommended to supplement the design information presented below.

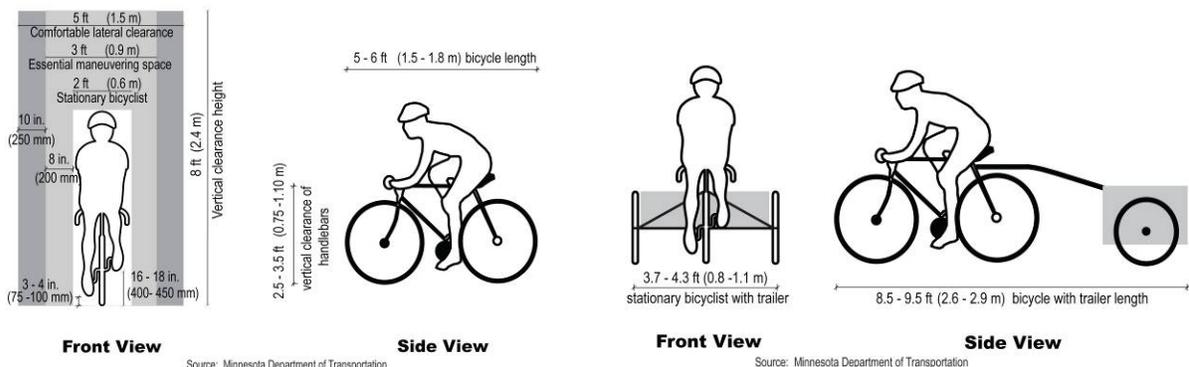
- *NACTO Urban Bikeway Design Guide*, National Association of City Transportation Officials, 2011  
<http://nacto.org/cities-for-cycling/design-guide/>
- *APBP Bicycle Parking Guidelines*, 2<sup>nd</sup> Edition, Association of Pedestrian and Bicycle Professionals, 2010  
<http://www.apbp.org/?page=Publications>

### Bicycle Characteristics

To understand the needs of bicyclists, and help encourage and accommodate safe bicycling within the plan area, it is important to have an understanding of the dimensions of typical bicycles as well as the operational characteristics of bicyclists. These design factors are critical in planning and designing both on-road and off-road bicycle facilities.

#### Horizontal Clearance

The images below show the dimensions and operating space of a typical bicyclist. The width of a stationary bicyclist is approximately 2.0 feet, and a moving bicyclist generally requires a 3.0-foot operating envelope in order to maintain their balance. To ride comfortably and avoid fixed objects (curbs, potholes, debris, automobiles, etc.) as well as other facility users including bicyclists, pedestrians, strollers, or in-line skaters, a bicyclist requires an operating envelope of five feet. If space is restricted, such as in a tunnel or on a bridge,



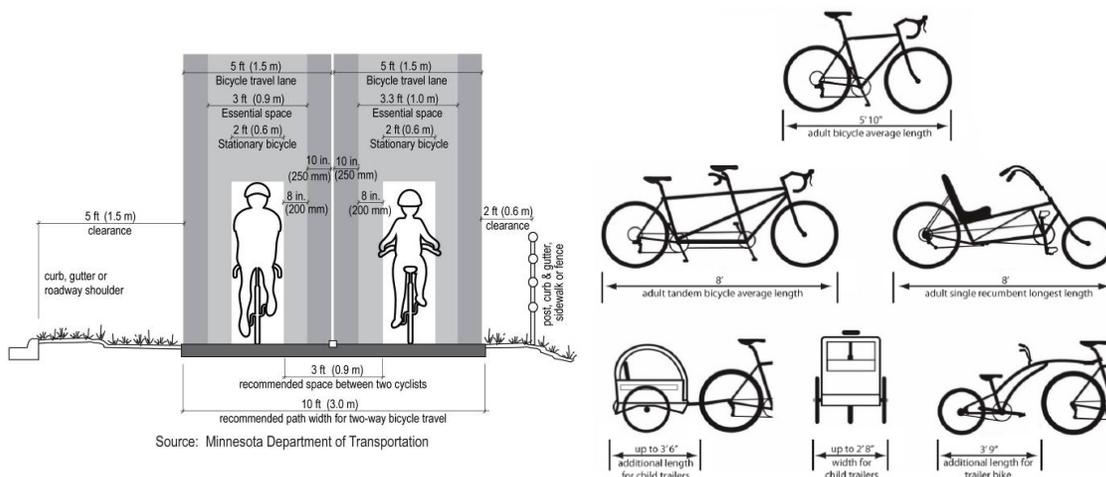
ten feet of horizontal clearance is recommended to allow two opposing bicyclists enough space to pass each other comfortably. On pathways, more width may be needed to allow bicyclists to react to unexpected maneuvers of another bicyclist or other user types such as in-line skaters, persons with pets, etc. Given the popularity of multi-use pathways, other users and their dimensions and operational characteristics should be considered in addition to typical bicyclists when designing these facilities.

### Vertical Clearance

A bicyclist's vertical design height is eight feet. While even the tallest bicyclists would not be expected to reach this height when riding a bicycle; however, vertical clearance is essential to allow sufficient space for bicyclists pedaling upright or passing under an overpass. To accommodate maintenance and/or emergency vehicles in underpasses and tunnels, and to allow for overhead signing vertical clearance should be a minimum of ten feet.

### Travel Speeds

An average bicyclist travels at a rate of speed between 12 and 19 mph. Advanced bicyclists and can maintain speeds of 20 mph or better on flat terrain in windless conditions. On descents, bicyclists can reach speeds 30 mph or greater.



## **Bicycle Facility Design Standards**

According to Caltrans, the term “bikeway” encompasses all facilities that provide primarily for bicycle travel. The three standard classes include:

- Class I Bike Path
- Class II Bike Lanes
- Class III Bike Routes

### Class I Bikeway

The following section includes recommended design standards and best practice information for Class I bikeways:

- Rails with Trails
- Rails-to-trails
- Under-crossings

- Rivers with Trails
- Mid-block Crossing

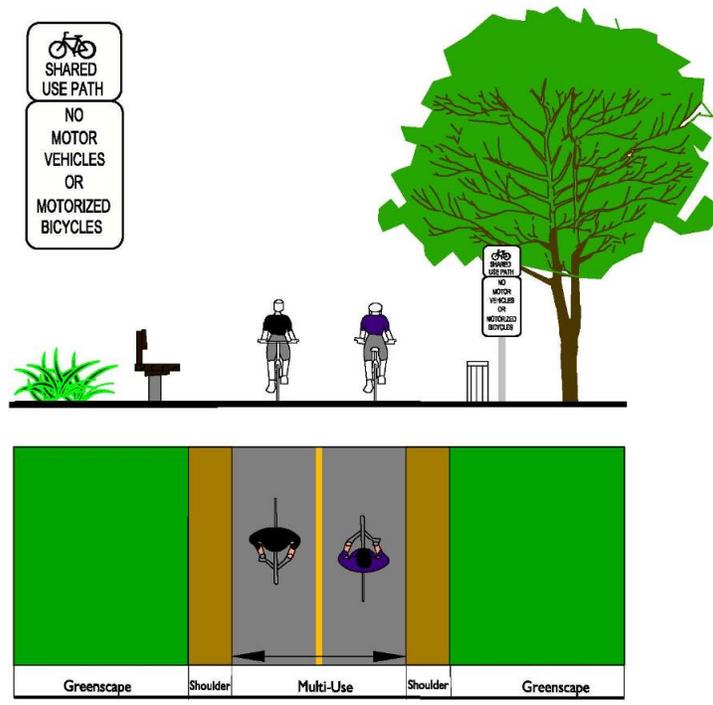
Typically called a “bike path” or “multi-use path,” a Class I bikeway provides for bicycle travel on a paved right-of-way completely separated from any street or highway. The recommended design width of a Class I path is dependent upon anticipated usage:

- 8 feet (2.4 m) is the minimum width for Class I facilities;
- 10 feet (3.0 m) is the recommended minimum width for a typical two-way Class I path; and
- 12 feet (3.6 m) is the preferred minimum width, if heavy mixed bicycle and pedestrian use is anticipated

Typically, 25 feet of right-of-way is preferred to accommodate a Class I bikeway, including the pathway surface, required shoulders, signage, amenities, landscaping, and offsets. However, pathway implementation can be achieved in constrained corridors of 15 feet or less where necessary.

*Guidelines:*

1. Paths should be constructed with adequate sub grade compaction to minimize cracking and sinking (stabilization fabric is recommended), and should be designed to accommodate appropriate loadings, including maintenance trucks and emergency vehicles.
2. A minimum 2-foot wide graded area must be provided adjacent to the path to provide clearance from trees, poles, walls, guardrails, etc. Wider shoulders on one or both sides of the path are recommended where feasible to accommodate pedestrians and help reduce pathway conflicts.
3. A 2% cross slope shall be provided to ensure proper drainage.
4. A yellow centerline stripe is recommended to separate travel in opposite directions.
5. Pathway lighting should be provided where commuters will be expected during dark or nighttime hours.
6. Pathway/roadway intersections require engineering review to ensure appropriate safety features are incorporated. Pathways that cross roadways with average traffic volumes of 20,000 vehicles per day or greater generally require signalization or grade separation.
7. Landscaping should generally be low water consuming native vegetation. Vegetation that produces minimal debris is recommended to reduce maintenance needs.
8. Barriers at pathway entrances (bollards, gates, etc.) should be clearly marked with reflectors and be ADA accessible (minimum five feet clearance).
9. Bridges and/or other structures should be designed to accommodate appropriate vehicle loadings. The width of structures should be the same as the approaching trail width, plus minimum two-foot wide clear areas.
10. To minimize potential conflicts, pedestrian traffic should be directed to the right side of pathway with signing and/or stenciling.
11. Staging areas and/or trailhead parking including restrooms, drinking fountains, and secure bicycle parking should be provided at appropriate locations.



### Class I Bike Path: Rail-with-Trail

Rail with trail (RWT) describes any shared use path or trail located on or directly adjacent to an active railroad corridor. No national standards or guidelines dictate RWT facility design. Therefore design guidance is pieced together from existing standards for Class I bikeways, railroad requirements, and pedestrian, road and highway design resources. In order to achieve safe and attractive designs, it is important for trail designers to work closely with railroad planning, operations, and maintenance staff.

#### *General Design Guidelines:*

1. RWT designers should maximize the setback between any RWT and active railroad track. The setback distance between a track centerline and the closest edge of the RWT should correlate to the type, speed, and frequency of train operations, as well as the topographic conditions and separation techniques.
2. Subject to railroad and State and Federal guidelines and the advice of engineering and safety experts, exceptions to the recommended setbacks may include:
  - a. Constrained areas (bridges, cut and fill areas)
  - b. Low speed and low frequency train operations

In these cases and in areas with a history of extensive trespassing, fencing or other separation technique is recommended.

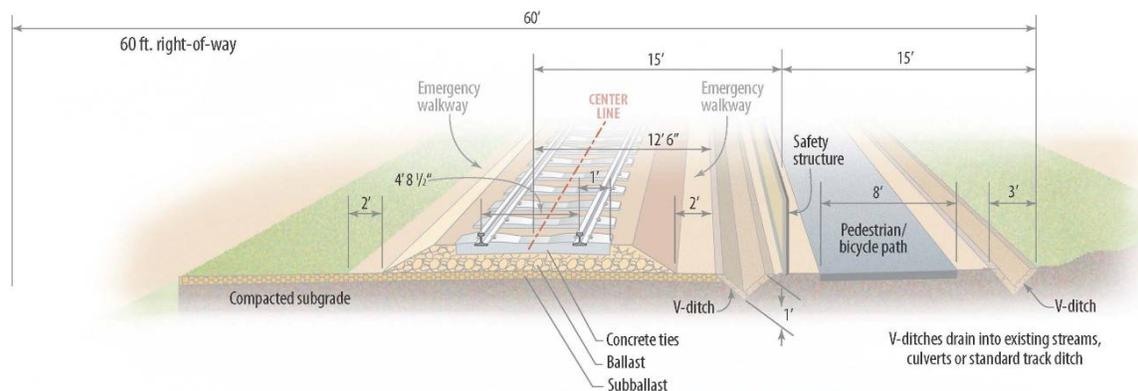
3. When on railroad property, RWT planners should adhere to the request or requirements for fencing by the railroad company. Fencing and/or other separation techniques should be a part of all RWT projects.
4. Trail planners should minimize the number of at-grade crossings, examine all reasonable alternatives to new at-grade track crossings, and seek to close existing at grade crossings as part of the project.

5. RWT proposals should include a full review and incorporation of relevant utility requirements for existing and potential utilities in the railroad corridor.
6. Trails should divert around railroad tunnels; if they need to go through a single-track railroad tunnel, they likely are not feasible due to extremely high cost.

For a comprehensive understanding of Rail-with-Trail issues, design guidelines, and recommendations, refer to FHWA's "Rails-with-Trails: Lessons Learned."

Source: *Rails-with-Trails: Lessons Learned*, Federal Highway Administration; *Pedestrian and Bicycle Facilities in California – Technical Reference and Technology Transfer Synthesis*, California Department of Transportation

## Typical section of track with pathway



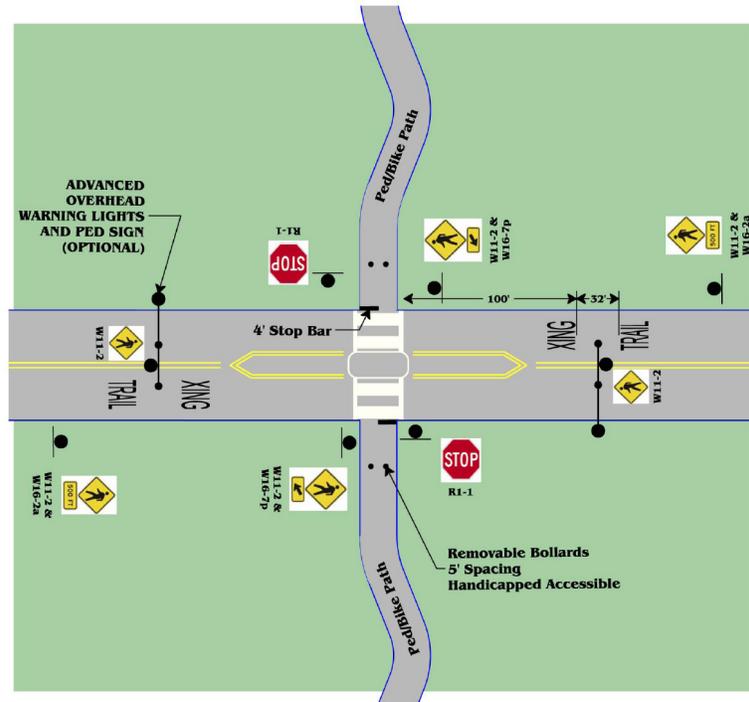
Source: Sonoma Marin Area Rail Transit

### Class I Bike Path Mid-Block Crossing

At-grade path crossings with streets, highways, or driveways should be limited to the maximum extent possible. To ensure safety, the design of at-grade crossings should feature traffic calming and crossing improvements such as: curb extensions, marked crosswalks, pedestrian refuge medians, and traffic control or warning devices. Stop or yield controls should be used for either trail users or street traffic or both, depending on right-of-way, traffic volumes and other safety issues.

*Guidelines:*

1. Pathways should intersect roadways as close to 90 degrees as possible.
2. Warning and stop or yield signage should be installed along pathway to alert users to impending roadway intersection.
3. Midblock crossings should not be installed close to intersections. If a pathway emerges within 300 feet or less of an intersection, consideration should be given to re-routing the path to the intersection for crossing.



Sample crossing treatment on a two-lane collector street

### Class II Bikeway – Bike Lanes

The following section includes recommended design standards and best practice information for Class II bikeways:

- On-Street Parking
- Right turn lanes
- Left turn lanes
- Railroad tracks

A Bike Lane is defined as a portion of the roadway or highway that has been designated by striping, signage, and pavement markings for the preferential or exclusive use of bicyclists. Bike lanes enable bicyclists to ride along a roadway or highway without interference from prevailing traffic conditions. Bike lanes increase safety by facilitating predictable behavior and movements between bicyclists and motorists. Bike lanes typically run in the same direction of traffic, although they may be configured in a contra-flow direction along one-way streets for system connectivity where necessary.

#### *Guidelines:*

Class II bike lanes shall be one-way facilities, running with the direction of traffic. (Contra-flow bike lanes may be installed on one-way streets where necessary.)

Where on-street parking is allowed, Class II bike lanes must be striped between the parking area and the travel lanes.

The width of the bike lanes vary according to parking and street conditions:

- 4' minimum if no gutter exists, measured from edge of pavement;
- 5' minimum with normal gutter, measured from curb face; or 3' measured from the gutter pan seam;
- 5' minimum when parking stalls are marked; and

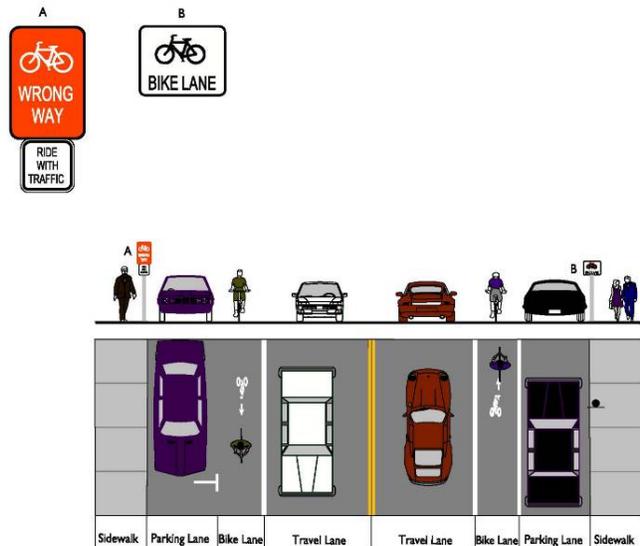
- 11' minimum for a shared bike/parking lane where parking is permitted but not marked on streets without curbs or 12' for a shared lane adjacent to a curb face.

#### Bike Lane striping standards:

- Bicycle lanes shall be comprised of a 6 inch solid white stripe on the outside of the lane, and a 4 inch solid white stripe on the inside of the lane.
- The inside 4 inch stripe of the bicycle lane should be dropped 90-180 feet prior to any intersection where right turns are permitted, and the outside 6 inch stripe should be dashed in this location.
- Bicycle lanes shall never be striped to the right of a right-hand turn lane

#### Bicycle lane signage standards:

- The R81 bicycle lane sign shall be placed at the beginning of all bicycle lanes, on the far side of arterial street intersections, at all changes in direction and at a maximum of 0.6 mile intervals, however, reassurance signs may be placed at 200 to 500 foot intervals.
- Standard signage is shown in Chapter 9 of the 2010 edition of the CA MUTCD.



#### Class II Bike Lanes with On-Street Parking

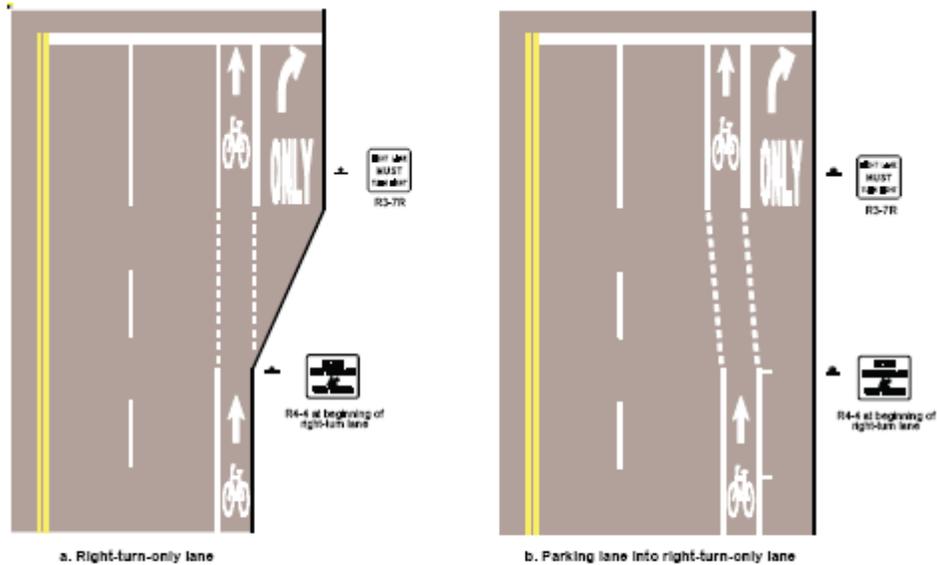
Parked vehicles can pose a serious hazard to bicyclists. Conflicts can occur during parking maneuvers and bicyclists are especially vulnerable to being hit by an opening door. On streets with parked vehicles, experienced bicyclists will generally ride three or four feet away from parked vehicles even if it means riding in a travel lane. To help maximize separation between bicyclists and parked vehicles, the following techniques may be employed:

- Minimize the parking lane width. This technique may be used in conjunction with widening the bike lane. Research suggests that the narrower the parking lane, the closer vehicles park to the curb. The traditional eight-foot wide parking lane can be reduced to seven feet or narrower where acceptable to help achieve this result.
- Parking stall markings. Marked parking spaces with cross hatches indicating the parking lane limits may help guide drivers closer to the curb.
- Angled parking should be avoided in areas of high bike traffic. If angled parking is used a four-foot buffer is recommended to provide maneuvering space for bicyclists, and/or reverse angle parking should be considered so that drivers back into spaces, which provides drivers greater visibility of bicyclists when entering and leaving the space.

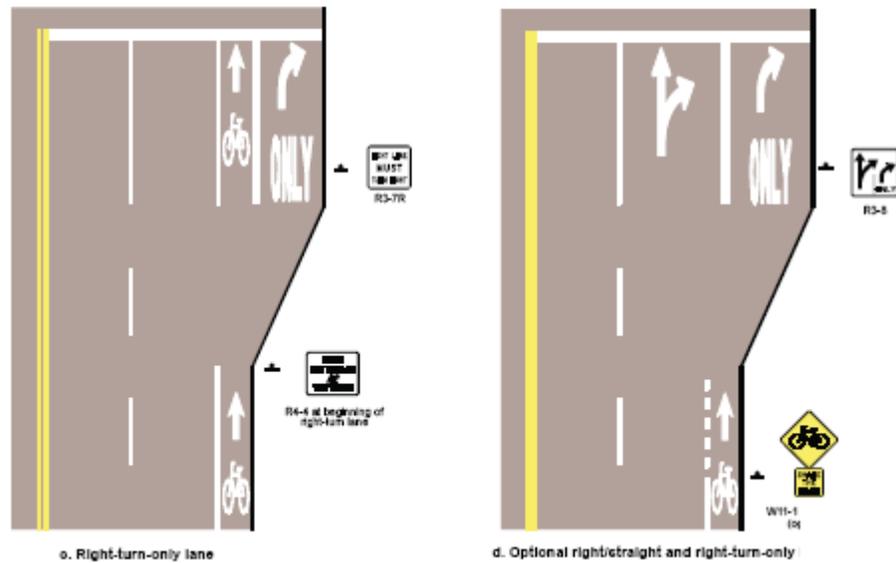
#### Class II Bike Lanes Approaching Intersections

##### *Right Turn Lanes*

Bike lanes approaching intersections should dash the solid bike lane line for the last 100 to 200 feet in advance of the intersection. Dashing is preferable to dropping the bike lane stripe because it alerts bicyclists and right-turning motorists of the weave. Further, the treatment encourages bicyclists to wait in the proper location to be detected when signal detection is provided.



NOTE: The dotted lines in cases "a" and "b" are optional (see case "d".)

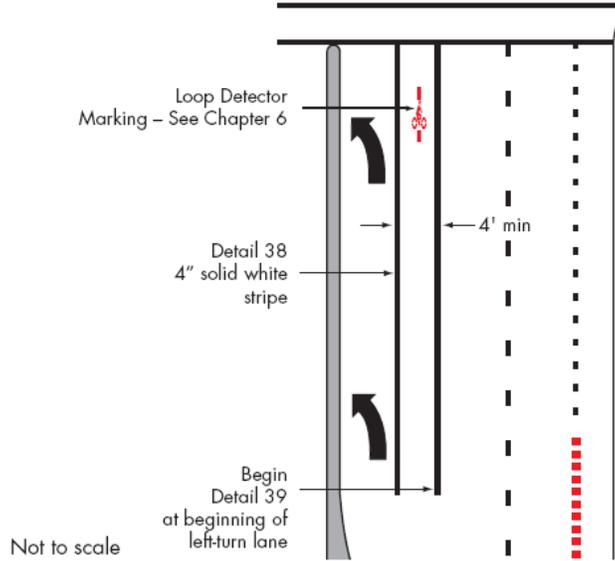


Bike Lanes approaching Right-Turn Only Lanes  
 Source: *Guide for the Development of Bicycle Facilities*, AASHTO

### Left Turn Lanes

Left turns at intersections present difficulty to bicyclists in two ways: conflicts with left-turning motorists and the difficulty experienced by a bicyclist in executing a left turn. Improper left turns by motorists are often one of the chief causes of collisions at intersections. Often motorists are concentrating on finding a gap in vehicular traffic that they fail to notice oncoming bicycle traffic. Potential counter measures include:

- Provide left-turn pockets
- Provide protected left-turn signal phasing



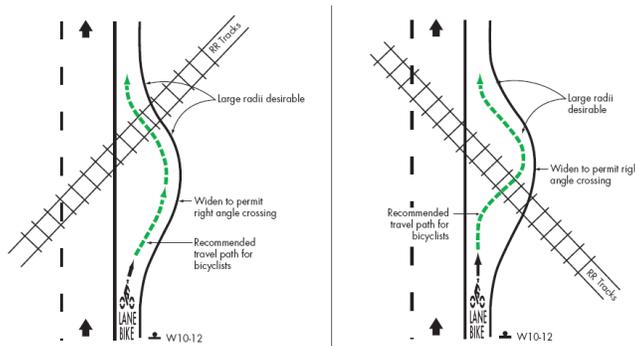
Bike Lane Striping at a Left-Turn Only Lane  
 Source: VTA Bicycle Technical Guidelines

Class II Bike Lanes: Railroad Tracks

All railroad crossings should be made as bicycle-safe as possible. Optimizing bicycle safety at railroad crossings involves three issues:

1. *The Angle of the Crossing*

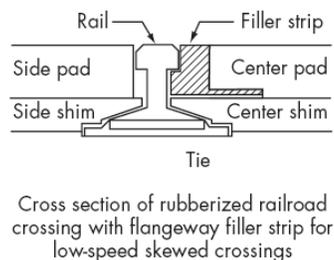
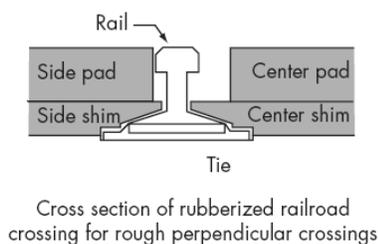
Where the angle of the tracks is not 90 degrees, additional pavement shall be provided so that bicyclists can approach the crossing at 90 degrees as depicted in Figure 1003.6A of the Highway Design Manual. Warning signs should be installed at skewed railroad crossings.



Bikeway Crossing Skewed Railroad Tracks

2. *The Smoothness of the Crossing*

The surface of the crossing should be designed such that the rails are as flush as possible with the surrounding pavement with minimal gaps between the roadway and the flangeway. Rubber or concrete crossing materials last longer than wood or asphalt and accordingly require less maintenance.



### 3. The Gap Between the Flangeway and Roadway

On low-speed lightly traveled railroad tracks, commercially available flangeway fillers can eliminate the gap next to the rail.

#### Bike Lane Treatments at Bus Stops and Pullouts

Currently, no formal standard exists for the bike lane treatments at bus stops and pullouts. Therefore, the design is up to the local agency. The most common practice allows buses to cross through the bike lane to reach the curb. Treatments for this type of practice include bike lanes where both the inside and outside lanes are broken, or lanes where only the inside lane exists and it too is broken. Another alternative eliminates the bike lane completely, and then starts it again downstream of the bus stop.

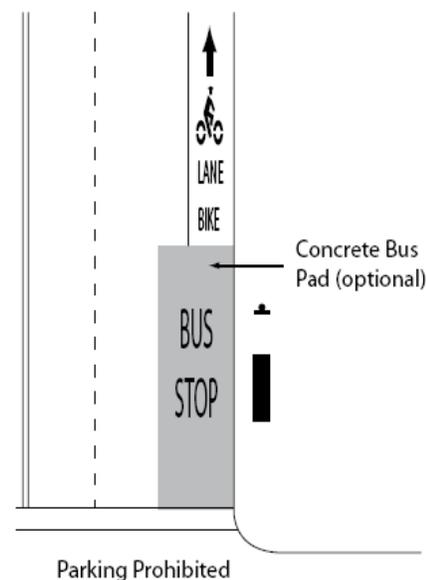
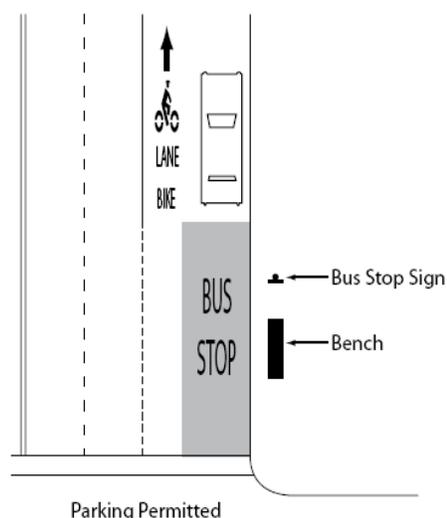
The purpose of each of these alternatives is to let bikes know to expect vehicles crossing their lane, let cars know to expect buses, and let buses know to look out for bikes. Using a dashed or dotted line may be an attempt to tell motorists that cyclists may be leaving the bike lane to pass a bus, or to make it legal for the bus to encroach on the dedicated lane. The dashed lines in the bike lanes also inform the bicyclist that motor vehicles may be crossing the bike lane and to use extra caution.

#### Class III Bikeway – Bike Route

The following section includes recommended design standards and best practice information for Class III bikeways:

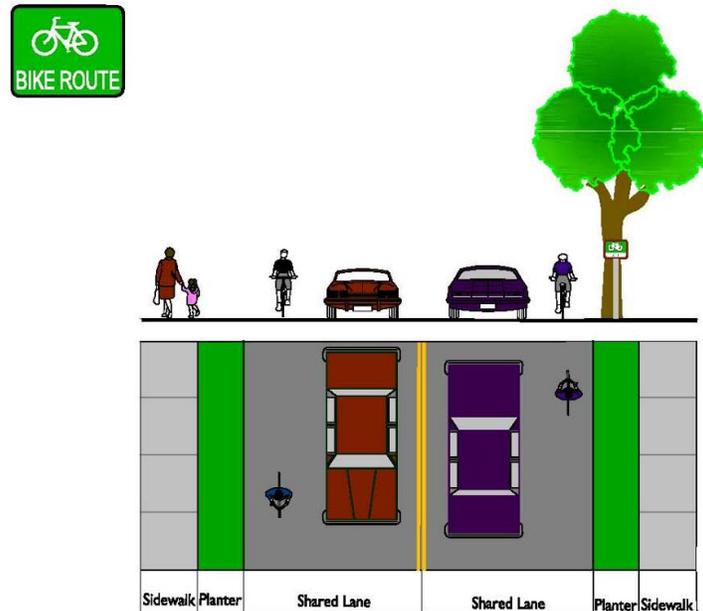
- Wide Curb Lane
- Bicycle pavement markings “Sharrow” Lanes
- Bicycle Boulevard

Referred to as a “bike route,” a Class III bikeway provides a route for bicyclists, which is identified by signing. On-street Class III bikeways are shared with motorists, may provide a designated route through areas not served by Class I or II facilities, or connect discontinuous segments of a bikeway. Class III facilities can be shared with pedestrians on a sidewalk; however, this practice is not recommended.



Bike Lane Treatments at Bus Stops (Far Side Stop)

The *Highway Design Manual* does not provide recommended minimum widths for Class III bikeways, however, when encouraging bicyclists to travel along selected routes, traffic speed and volume, parking, traffic control devices, and surface quality should be acceptable for bicycle travel. A wide outside traffic lane (14-15') is preferable to enable cars to safely pass bicyclists without crossing the centerline.



### Class III Bike Route: Wide Curb Lane

On all streets, but especially where shoulder bikeways or bike lanes are warranted but cannot be provided due to severe physical constraints, a wide outside lane may be provided to accommodate bicycle travel. A wide lane usually allows an average size motor vehicle to pass a bicyclist without crossing over into the adjacent lane. Wide curb lanes are generally appropriate to accommodate bicyclists, whether or not the street is considered a bikeway.

Bike lanes should resume where the restriction ends. It is important that every effort be made to ensure bike lane continuity. Practices such as directing bicyclists onto sidewalks or other streets for short distances should be avoided, as they may introduce unsafe conditions. For curb lanes 16 ft or wider, the edge line should be striped.

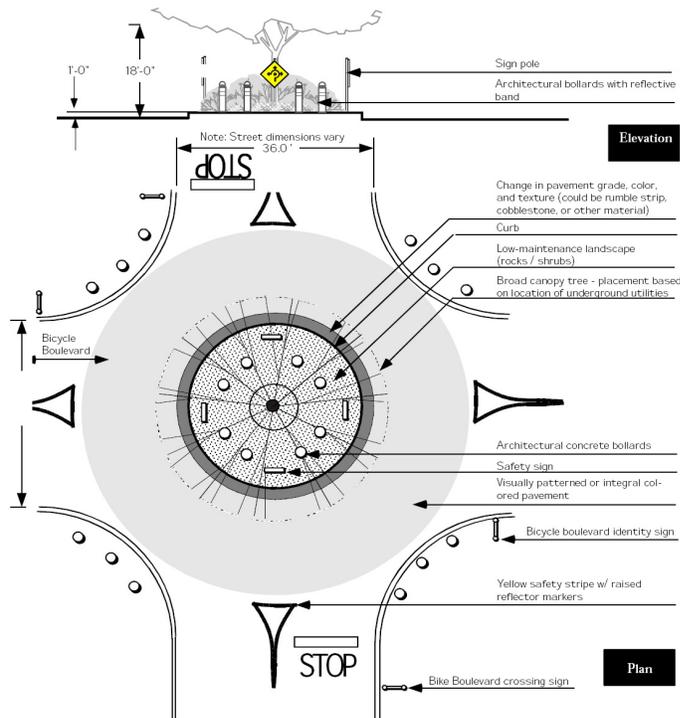
12' is the minimum width on State Highways without obtaining a Design Exception.

### Class III Bike Route: Bicycle Boulevards

A variation of the Class III bike route known as a 'Bicycle Boulevard' has gained significant interest in California in recent years. Bicycle boulevards are generally comprised of low-volume residential streets that parallel major streets. Bicycle Boulevards are designed to give priority to bicyclists through various design techniques that reduce through traffic volumes and provide crossing enhancements for bicyclists at major intersections. Generally, bicycle boulevards include one or more of the following criteria:

- Low traffic volumes;
- Traffic calming devices to discourage non-local motor vehicle traffic;
- Priority for bicycles by assigning right-of-way to the bicycle boulevard at intersections wherever possible;

- Traffic control to help bicycles cross major streets (i.e. bicycle sensitive detectors at signals);
- Distinct “look” to alert bicyclists and motorists that the route is a priority for bicyclists (special signs, pavement markings, etc.); and
- By emphasizing bicycle use over automobiles, the walking environment for pedestrians along bicycle boulevards is also improved.



Sample Bicycle Boulevard treatments from Berkeley, CA

### Class III Bike Route: Shared Lane Markings “Sharrows”

The shared lane marking (SLM), known as “shared roadway bicycle marking” in the MUTCD, and as “sharrows” by the bicycling public, is a pavement legend which may be placed in the travel lane adjacent to on-street parking. The purpose of the marking is to provide positional guidance to bicyclists on roadways that are too narrow to be striped with bike lanes. Unlike bike lanes, a SLM does not designate a particular part of the street for the exclusive use of bicyclists. It is simply an informational marking to guide bicyclists to the best place to ride on the road to avoid the “door swing” of parked cars, and to help motorists expect to see and share the lane with bicyclists. The marking gives bicyclists freedom to move further to the left within a travel lane rather than brave the door zone, squeezed between moving and parked cars. The marking is usually repeated every several hundred feet. Without such markings, bicyclists might seek refuge on the sidewalk, ride in a serpentine pattern between parked vehicles, or travel in the wrong direction. Perhaps the most important benefit of SLM is that they send a message to cyclists and drivers alike that bikes belong on the road.

### **Shared Lane Marking**



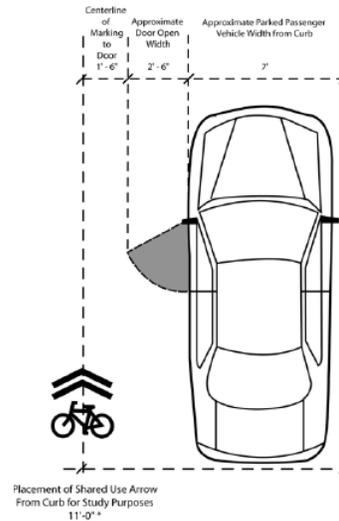
The SLM consists of a standard bicycle symbol combined with chevron arrows.

Shared Lane Markings were approved for use in California in 2007 after device testing was performed by the City of San Francisco. While the version of the 2010 MUTCD adopted by California specifies that the device is to be used only where there is existing on-street parallel parking (Section 9C.103), the national MUTCD provides for use of the device on streets without on-street parking. Further, jurisdictions around the nation are recognizing the benefit of utilizing the device in locations where it may not be obvious where cyclists should be riding, such as at intersections with multiple turn lanes, as a guide marking through intersections (similar to skip lines), and as a guide-marking between bikeways.

### Marking Placement

**Laterally** – According to the California MUTCD guidelines, SLM shall be placed so that the centers of the markings are a minimum of 11 feet from the curb face or edge of paved shoulders, and the distance may be increased beyond 11 feet. According to the National MUTCD, if SLM are used on a street without parking, the markings should be placed far enough from the curb to direct cyclists away from gutters, seams, and other obstacles, or near the center of the lane if the lane is less than 14 feet wide.

### Positional Layout of Shared Lane Markings



Source: San Francisco Bicycle Design Guidelines

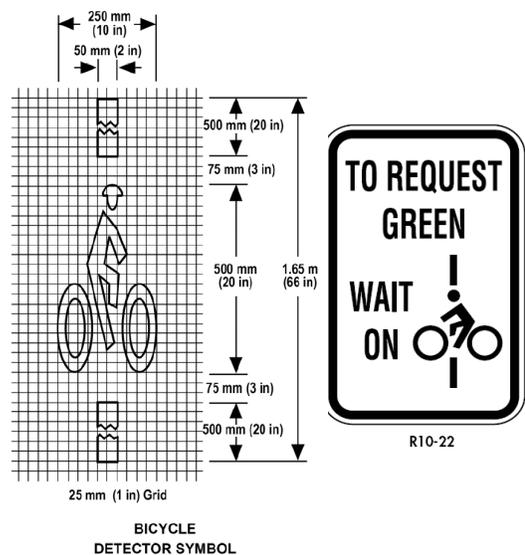
**Longitudinally** – SLM should be placed immediately after intersections and spaced at intervals of 250 feet. The longitudinal spacing of the markings may be increased or decreased as needed for roadway and traffic conditions (Source: 2010 CA MUTCD).

### Signalized Intersections

#### Signal Detection

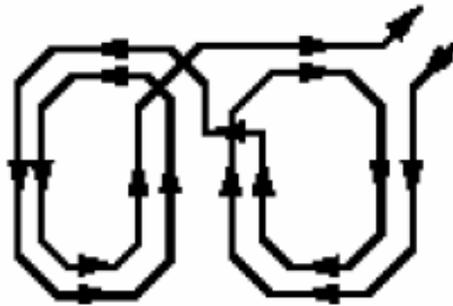
Actuated traffic signals pose a significant barrier to bicyclists when the detectors do not sense the presence of a bicycle. Bicyclists are then forced to wait for a vehicle to actuate the signal, dismount and use the intersection as a pedestrian, or proceed against the red light. A variety of signal detection technologies are currently available including inductive loop detectors which utilize an electromagnetic field to sense the presence of vehicles, video detection which senses the presence of vehicles optically, and a new technology – magnetometers – which uses magnetic anomaly detection.

Each of these technologies is suitable for the detection of bicycles, and bicycle detection should be provided at all traffic signal installations. Efforts need to be made to ensure that signal detection devices are capable of detecting a bicycle and detectors need to be located in the bicyclist's expected path, including left-turn lanes and shoulders. Marking the road surface to indicate the optimum location for bicycle detection is helpful to the bicyclist so that they may position themselves properly to trigger the traffic signal.



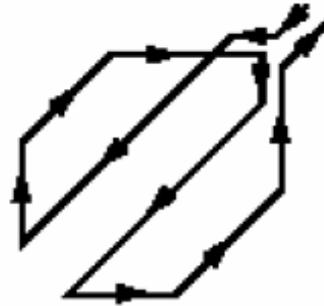
Inductive loops are still the most common technology employed. Two types of inductive loop detectors are typically used; the Diagonal Quadrupole Loop – Type “D” is typically used in vehicle lanes, and the Quadrupole Loop – Type “C” is typically used in bike lanes. The bicycle detection symbol may be used to show a bicyclist where to stop in a bike lane or traffic lane to be detected.

**Quadrupole Loop  
Type “C”**



Used in bike lane. Detects strongly in center.  
Sharp cut-off sensitivity

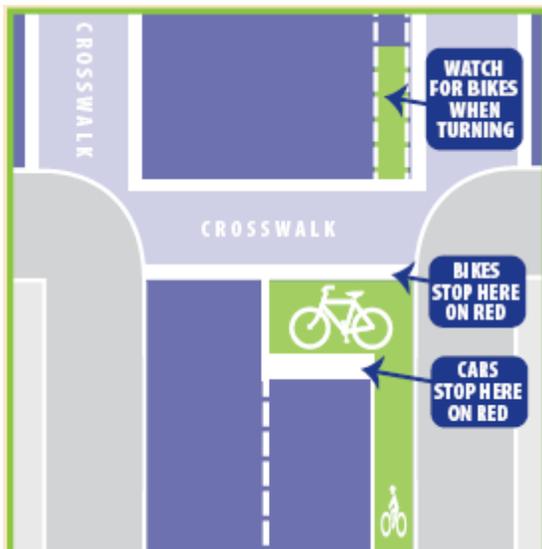
**Quadrupole Loop  
Type “D”**



Used in vehicle & “shared lanes”  
Sensitive over whole area  
Sharp cut-off sensitivity

### Bike Boxes

Bike boxes provide a reservoir for bicyclists in front of vehicle traffic at intersections. Cars wait behind the box, allowing bikes to come to the front of vehicular traffic and position themselves for turning and through movements. Bike boxes give bicyclists greater visibility, a head start through intersections, and help to reduce conflicts between turning bicycles and vehicles by clearly delineating the location for movements to occur. Bike boxes or “advanced stop lines” also provide a buffer between vehicles and pedestrians or bicycles crossing the street. Using colored surfacing for bike boxes should make them more prominent and thus making encroachment by motor vehicles less likely.



Source: Portland Office of Transportation

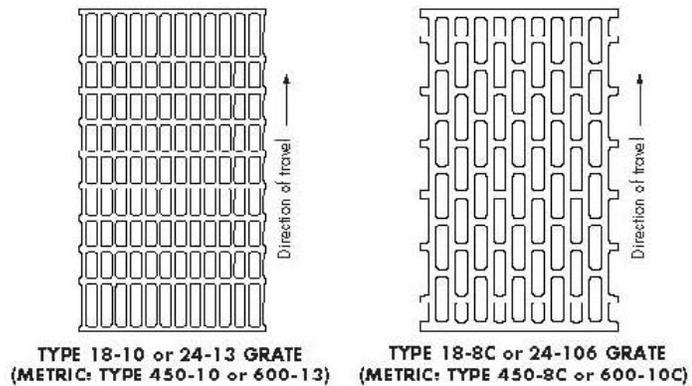


Photo: New York City, NY

## Design Elements

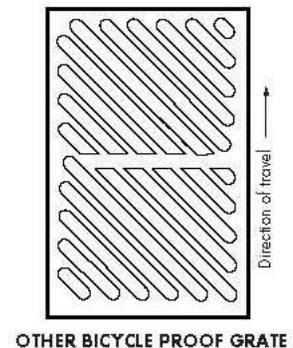
### Drainage Grates

The function of drainage grates is to drain storm water quickly from the roadway and to provide access to the storm water system. Gutters are sloped to direct water flow into the inlet. This keeps water from ponding at the longitudinal joint and undermining the pavement. Improperly designed drainage grates can catch bicycle tires and cause bicyclists to lose control of their bicycle. Because of this, cyclists may veer into traffic lanes to avoid grates and utility covers. Properly designed grates and utility covers allow cyclists to maintain their direction of travel without catching tires or being forced into travel lanes.



Optimally the roadway should be designed so that the bicyclist does not have to traverse the grate per HDM Section 837.2. On roadways with curb and gutter, the grate should not be wider than the gutter pan. If the gutter pan needs to be widened to accommodate a large drainage grate, the taper should be on the outside edge.

On roads with bike lanes, the roadway shall be designed such that the minimum asphalt concrete pavement width of 48 inches is maintained between the bike lane stripe and the edge of the gutter lip. If 48 inches of asphalt cannot be maintained, then a curb face inlet design for the drainage grate should be considered (see Section 3.2.1).



On roadways with shoulders, the grate should be placed outside the travel path of the bicyclist, i.e. 48 inches of clear pavement should be maintained between the shoulder stripe and the left edge of the drainage grate. If 48 inches cannot be provided within the existing shoulder width, the shoulder can be widened to accommodate the grate, with the taper on the outside edge, or a narrower grate should be selected. See also Section 7.4.2 and Figure 7-13.

Only drainage grates depicted in Caltrans Standard Plans D77B-Bicycle- Proof Grate Details or otherwise known to be bicycle-safe may be used on all roadways per HDM 837.2. Regardless of type of roadway or placement on the roadway, all grates on the roadway should be bicycle-proof.

### Pavement Marking Materials

Paint is the least recommended marking material due to its low reflectivity and low skid resistance, plus it needs to be reapplied every 12 to 24 months, increasing maintenance costs. Durable pavement markings are preferred. They should be reflectorized and be capable of maintaining an appropriate skid resistance under rainy or wet conditions to maximize safety for bicyclists. The minimum coefficient of friction should be 0.30 as measured with California Test 342 to test surface skid resistance. Pavement marking tape or thermoplastic is recommended.

### *Pavement Marking Tape*

Type I Tape such as 3M Stamark TM tape Series 380I and Series 420 is the least slippery (and most long-lasting) pavement marking. Type I tape is cost-effective when placed after resurfacing, since it lasts as long as (or longer than) the pavement itself. The skid resistance of 3M Stamark TM Series 420 tape is 55 BPN with a retained value of 45 BPN; the equivalent coefficient of friction is not available.

### *Thermoplastic*

Thermoplastic is optimized when the composition has been modified with crushed glass to increase the coefficient of friction and the maximum thickness is 100 mils (2.5 mm).

### *Pavement Markers*

Pavement markers, whether raised reflective markers (Type C, D, G or H) or non-reflective ceramic pavement markers (Type A or AY, otherwise known as Bott's dots) present a vertical obstruction to bicyclists, and shall not be used as bike lane stripes. When necessary as a fog line or adjacent to the edge line, the Type C or G reflective markers should be placed to the left of the line outside the shoulder area, and ideally the shoulder should be at least 4 feet wide. Where raised markers cross a bike lane or extensions thereof through intersections a gap of 4 feet should be provided as a clear zone for bicyclists. At gore areas (e.g. Standard Plan A20C) and other locations with channelizing lines, (e.g. Standard Plan A20D) if raised reflective markers are used to supplement the striping, extra lane width shall be provided in the areas where bicycles travel to provide bicyclists with more latitude to avoid the markers. (See also Section 7.2).

### Roadway Surface Obstacles

Manhole covers and utility plates present obstacles to bicyclists due to their slipperiness and change in surface elevation with the surrounding pavement. While covers and plates can be replaced with less slippery designs, as discussed below, to minimize their adverse impacts on bicyclists, it is best to design the roadway so that they are not located within the typical path of bicyclists riding on the roadway. Therefore, new construction should not place manhole and other utility plates and covers where bicyclists typically ride i.e. within the six feet adjacent to the curb (or between 8 and 13 feet from curb if parking is permitted).

Wet utility covers and construction plate materials can be very slippery. Plain steel plates have a coefficient of friction of 0.012, which is unacceptably slippery and should never be used on the roadway. The coefficient of friction on all utility covers and steel plates placed on a roadway or highway or shoulder should be a minimum of 0.35. An example of an effective method for covers and plates (both steel or concrete) to have acceptable skid resistance is for the manufacturer to imprint waffle shaped patterns or right-angle undulations on the surface. The maximum vertical deviation within the pattern should be 0.25 inch (6 mm).

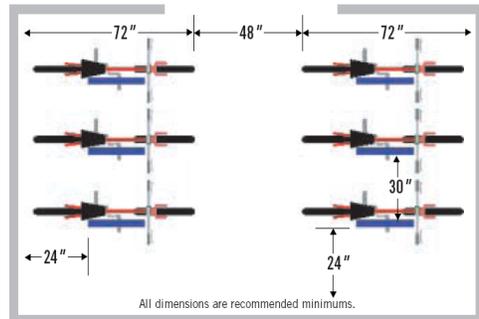
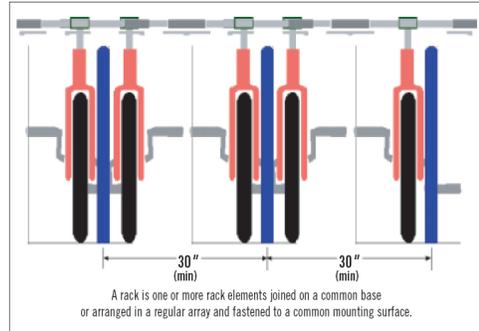
### Bike Parking

As bicycle use becomes more prevalent in throughout the Plan Area, there will be more demand for adequate bicycle parking. Bicycle parking can be typified as either short- or long-term. Short-term parking generally consists of bicycle racks located conveniently to destinations such as at shopping centers, civic destinations, and schools. Long-term parking is designed to accommodate those who are expected to park for more than two hours. Long-term parking provides security and weather protection. It typically includes covered parking areas, bike lockers and/or bike lids, storage rooms, or secure areas such as "cages" or "corrals" that can only be accessed by bicyclists.

Bicycle parking should be provided at all public destinations, including transit centers and bus stops, community centers, parks, schools, downtown areas, and civic buildings. All bicycle parking should be in a safe, secure, covered area (if possible), conveniently located to the main building entrance.

#### *Bicycle Parking Placement – Type and Location*

- **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. 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. The rack element (part of the rack that supports the bike) must keep the bike upright by supporting the frame in two places allowing one or both wheels to be secured. Inverted “U,” “A,” and post and loop racks are recommended designs. Wave type racks that are found in many locations throughout the County are not recommended because they require excessive space and are so often used improperly.
- **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. Long-term parking should always be protected.
- **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 too prevent conflicts with others. If it becomes too difficult for a bicyclist to easily lock their bicycle, they may park it elsewhere and the bicycle capacity is lowered. Racks should be placed in a position where they do not block access to and from building entrances, stairways, or fire hydrants. Empty racks must not pose a tripping hazard for visually impaired pedestrians. Position racks out of the walkway’s clear zone (space reserved for walking). Likewise, bicycle racks placed along a sidewalk should be oriented parallel with the street, so parked bicycles do not intrude into the walkway’s clear zone. A row of inverted “U” racks should be situated on 30” minimum centers. Ideally, racks should be located immediately adjacent to the entrance to the building it serves, but not in a spot that may impede upon pedestrian flow in and out of the building.



Source: APBP Bike Parking Guidelines



## Appendix C

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### Summary of Funding Programs



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## Appendix C – Summary of Funding Programs

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The following section presents a general description of funding programs that can be used to implement the projects contained in this plan.

### Federal Funding Programs

Approximately every six years, the U.S. Congress adopts a surface transportation act — Congress's authorization to spend tax dollars on highways, streets, roads, transit and other transportation related projects. The most recent surface transportation act is titled the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). SAFETEA-LU ended on September 30, 2009. To date the U.S. Congress has yet to enact a new authorization act. Instead, it has passed several extensions to SAFETEA which run through September 30, 2011 to continue the flow of funding to transportation programs. It is now anticipated that the passage of the new act will be completed by this date.

Federal funding through SAFETEA-LU and its future successors will provide much of the funding available for transportation projects in this Plan. SAFETEA-LU contains several major programs, which are highlighted below, that may be used to fund transportation and/or recreation improvements in this Plan. SAFETEA-LU funding is administered through the state (Caltrans or Resources Agency) and regional governments such as the Metropolitan Transportation Commission (MTC). Most, but not all, of the funding programs are transportation versus recreation oriented, with an emphasis on (a) reducing auto trips and (b) providing an intermodal connection. Funding criteria often includes project listing in a Regional Transportation Improvement Plan, completion and adoption of a bicycle master plan, quantification of the costs and benefits of the system (such as saved vehicle trips and reduced air pollution), proof of public involvement and support, National Environmental Policy Act (NEPA) compliance, and commitment of some local resources. In most cases, SAFETEA-LU provides matching grants of 80 to 90 percent, but prefers to leverage other moneys at a lower rate.

Web Link: <http://www.fhwa.dot.gov/safetealu/index.htm>

#### Congestion Mitigation and Air Quality Improvement Program / Surface Transportation Program

The majority of federal transportation funds flow to the states in the form of Congestion Mitigation & Air Quality Improvement Program (CMAQ) Funds and Surface Transportation Program (STP) Funds. In California these funds are administered by Caltrans, however, Caltrans assigns a significant portion of two of the programs to MTC and other regional planning agencies to be used at their own discretion subject to federal regulations. Using these sources, MTC develops and administers its own funding programs, including the Transportation for Livable Communities Program and the Regional Bicycle and Pedestrian Program to target Bay Area transportation needs.

Web Link: <http://www.mtc.ca.gov/funding/STPCMAQ/>

#### Highway Safety Improvement Program

Section 1401 of the Safe, Accountable, Flexible Efficient Transportation Equity Act - Legacy for Users (SAFETEA-LU) amended Section 148 of Title 23 to create a new, core Highway Safety Improvement Program. This new Highway Safety Improvement Program (HSIP) replaces the Hazard Elimination Safety Program, (23 U.S.C §152). This new stand-alone program reflects increased importance and emphasis on highway safety initiatives in SAFETEA-LU. It replaces the current statutory requirement that States set aside 10 percent of their Surface Transportation Program (STP) funds for carrying out the rail-highway crossings and hazard elimination programs. Funds can be used for safety improvement projects

on any public road or publicly owned bicycle or pedestrian pathway or trail. A safety improvement project corrects or improves a hazardous roadway condition, or proactively addresses highway safety problems that may include: intersection improvements; installation of rumble strips and other warning devices; elimination of roadside obstacles; railway-highway grade crossing safety; pedestrian or bicycle safety; traffic calming; improving highway signage and pavement marking; installing traffic control devices at high crash locations or priority control systems for emergency vehicles at signalized intersections, safety conscious planning and improving crash data collection and analysis, etc. The States that adopt and implement a strategic highway safety plan are provided additional flexibility to use Highway Safety Improvement Program (HSIP) funds for public awareness, education, and enforcement activities otherwise not eligible if they are consistent with a strategic State highway safety plan and comprehensive safety planning process.

Web Link: <http://www.dot.ca.gov/hq/LocalPrograms/hsip.htm>

### Transportation Enhancements



Transportation Enhancements (TE) are transportation-related activities that strengthen the cultural, aesthetic, and environmental aspects of the Nation's transportation system. Similar to CMAQ and STP funds, MTC develops and administers its own funding programs using TE funds to target Bay Area transportation needs. TE funds help to make up regional funding programs such as the Transportation for Livable Communities Program and the Regional Bicycle and Pedestrian Program.

Web Link: <http://www2.dot.ca.gov/hq/TransEnhAct/TransEnact.htm>

### National Recreational Trails Program

The Recreational Trails Program (RTP) provides funds to states to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. Examples of trail uses include hiking, bicycling, in-line skating, equestrian use, and other non-motorized as well as motorized uses.

Recreational Trails Program funds may be used for:

- Maintenance and restoration of existing trails;
- Development and rehabilitation of trailside and trailhead facilities and trail linkages;
- Purchase and lease of trail construction and maintenance equipment;
- Construction of new trails (with restrictions for new trails on federal lands);
- Acquisition of easements or property for trails;
- State administrative costs related to this program (limited to seven percent of a State's funds); and
- Operation of educational programs to promote safety and environmental protection related to trails (limited to five percent of a State's funds).

Web Links: [http://www.parks.ca.gov/?Page\\_id=24324](http://www.parks.ca.gov/?Page_id=24324)

<http://www.fhwa.dot.gov/environment/rectrails/index.htm>

## State Funding Programs

### State Highway Operations Protection Program

The State Highway Operations Protection Program (SHOPP) is a multi-year program of capital projects whose purpose is to preserve and protect the State Highway System. Funding is comprised of state and federal gas taxes. SHOPP funds capital improvements relative to maintenance, safety, and rehabilitation of state highways and bridges that do not add a new traffic lane to the system. Just over \$1 billion is allocated to SHOPP annually. Funding is based on need, so there are no set distributions by county or Caltrans district. There are no matching requirements for this program. Projects include rehabilitation, landscaping, traffic management systems, rest areas, auxiliary lanes, and safety. Caltrans Projects are “applied” for by each Caltrans District. Each project must have a completed Project Study Report (PSR) to be considered for funding. Projects are developed in fall every odd numbered year.

Web Link: <http://www.dot.ca.gov/hq/transprog/shopp.htm>

### State Transportation Improvement Program



The State Transportation Improvement Program (STIP) is a multi-year capital improvement program of transportation projects on and off the State Highway System. The STIP is funded with revenues from the state Transportation Investment Fund and other federal funding sources. STIP programming generally occurs every two years. The programming cycle begins with the release of a proposed fund estimate in July of odd-numbered years, followed by California Transportation

Commission (CTC) adoption of the fund estimate in August (odd years). The STIP program represents the lion’s share of California’s state and federal transportation dollars. The amount of funds available for the STIP is dependent on the state budget, and therefore, funding levels fluctuate from year to year. The majority of the program’s funds are earmarked for improvements determined by locally adopted priorities contained in Regional Transportation Improvement Programs (RTIP). RTIPs are submitted by regional transportation planning agencies from around the state. STIP funds can be used for a wide variety of projects, including road rehabilitation, road capacity, intersections, bicycle and pedestrian facilities, public transit, passenger rail and other projects that enhance the region’s transportation infrastructure.

Regional Transportation Planning Agencies (RTPAs), such as MTC, are allocated 75 percent of STIP funding for regional transportation projects in their Regional Improvement Program (RIP). Caltrans is allocated 25 percent of STIP funding for interregional transportation projects in the Interregional Improvement Program (IIP).

Web Link: <http://www.mtc.ca.gov/funding/STIP/>

### Bicycle Transportation Account



The state Bicycle Transportation Account (BTA) is an annual statewide discretionary program that is available through the Caltrans Bicycle Facilities Unit for funding bicycle projects. The BTA provides state funds for city and county projects that improve safety and convenience for bicycle commuters including: New bikeways serving major transportation corridors; New bikeways removing travel barriers to potential bicycle commuters; Secure bicycle parking at employment centers, park-and-ride lots, rail and transit terminals, and ferry docks and landings; Bicycle-carrying facilities on public transit vehicles; Installation of traffic control devices to improve the safety and efficiency of bicycle travel; Elimination of

hazardous conditions on existing bikeways; Planning; Improvement and maintenance of bikeways; Project planning; Preliminary engineering; Final design; Right of way acquisition; Construction engineering; and Construction and/or rehabilitation among other items. To be eligible for Bicycle Transportation Account (BTA) funds, a city or county must prepare and adopt a Bicycle Transportation Plan (BTP) that addresses items a – k in *Streets and Highways Code* Section 891.2. BTP adoption establishes eligibility for five consecutive BTA funding cycles. Funding is available on a statewide basis. \$7.2 million was available for FY 2010/11.

Web Link: <http://www.dot.ca.gov/hq/LocalPrograms/bta/btawebPage.htm>

### Safe Routes to School



There are currently two Safe Routes to School funding programs in California. In 1999 the State legislature enacted a State Safe Routes to School (SR2S) program through a set-aside of federal transportation funds. The program has since been re-authorized three times and will run through 2013. In the meantime, the federal government created a Safe Routes to School (SRTS) with the passage of SAFETEA-LU. Both programs are meant to improve school commute routes through construction of bicycle and pedestrian safety and traffic calming projects. The State program provides funding for projects that address school commutes for students in grades K-12, the federal program provides funding for projects that address school commutes for students in grades K-8. Both programs require a local match. While both programs fund construction improvements, the federal program also includes a programmatic element that will fund activities related to education, enforcement, or encouragement.

Web Link: <http://www.dot.ca.gov/hq/LocalPrograms/saferoutes/saferoutes.htm>

### Office of Traffic Safety



The California Office of Traffic Safety (OTS) has the mission to obtain and effectively administer traffic safety grant funds to reduce deaths, injuries and economic losses resulting from traffic related collisions in California. OTS distributes federal funding apportioned to California under the National Highway Safety Act and SAFETEA-LU. Grants are used to mitigate traffic safety program deficiencies, expand ongoing activity, or develop a new program. Grant funding cannot replace existing program expenditures, nor can traffic safety funds be used for program maintenance, research, rehabilitation, or construction.

OTS grants address several traffic safety priority areas including Pedestrian and Bicycle Safety. Eligible activities include programs to increase safety awareness and skills among pedestrians and bicyclists. Concepts may encompass activities such as safety programs, education, enforcement, traffic safety and bicycle rodeos, safety helmet distribution, and court diversion programs for safety helmet violators.

Web Link: <http://www.ots.ca.gov/>

### Environmental Enhancement and Mitigation Program



Environmental Enhancement and Mitigation Program (EEMP) funds are allocated to projects that offset environmental impacts of modified or new public transportation facilities including streets, mass transit guideways, park-n-ride facilities, transit stations, tree planting to equalize the effects of vehicular emissions, and the acquisition or development of roadside recreational facilities, such as trails. State gasoline tax monies

fund the EEMP. The EEMP program represents an opportunity to fund improvements as mitigation to highway work in the SR 12, 29, and 128 corridors, as well as other highway facilities in Napa County.

Web Links: [http://resources.ca.gov/grant\\_programs.html](http://resources.ca.gov/grant_programs.html)

<http://www2.dot.ca.gov/hq/LocalPrograms/EEM/homepage.htm>

### California State Coastal Conservancy



The California State Coastal Conservancy manages several programs that provide grant funds for coastal trails, access, and habitat restoration projects. The funding cycle for these programs is open and on-going throughout the year. Funds are available to local government as well as non-profits. The Conservancy may be a funding source for bicycle facilities that improve access to Napa's rivers and creeks.

Web Link: <http://www.scc.ca.gov/Programs/guide.htm>

### Habitat Conservation Fund



The Habitat Conservation Fund (HCF) provides \$2 million dollars annually in grants for the conservation of habitat including wildlife corridors and urban trails statewide. Eligible activities include property acquisition, design, and construction. The HCF is 50% dollar for dollar matching program. California Environmental Quality Act (CEQA) compliance is required. Urban projects should demonstrate how the project would increase the public's awareness and use of park, recreation, or wildlife areas.

Web Link: [http://www.parks.ca.gov/?page\\_id=21361](http://www.parks.ca.gov/?page_id=21361)

### Land and Water Conservation Fund



Administered by CA State Parks, the Land and Water Conservation Fund is offered annually to cities, counties and districts. Funds can be used to acquire or develop outdoor recreation areas and facilities. Communities can use these funds to build trails, picnic areas, and preserve natural and cultural areas.

Web Link: [http://www.parks.ca.gov/?page\\_id=21360](http://www.parks.ca.gov/?page_id=21360)

### Caltrans Transportation Planning Grants



Caltrans Transportation Planning Grants are intended to promote strong and healthy communities, economic growth, and protection of our environment. These planning grants (Environmental Justice: Context-Sensitive Planning, Community-Based Transportation Planning, Partnership Planning, and Transit Planning) support closer placement of jobs and housing, efficient movement of goods, community involvement in planning, safe and convenient pedestrian and bicycle mobility and access, smart or strategic land use, and commute alternatives.

Web Link: <http://www.dot.ca.gov/hq/tpp/grants.html>

## **Regional Funding Programs**

### Regional Transportation Improvement Program

The Regional Transportation Improvement Program (RTIP) funds are a portion of the State Transportation Improvement Program. The Metropolitan Transportation Commission, acting as the Regional Transportation Planning Agency in the nine-county Bay Area, is responsible for allocating Napa County's share of the funding.

Web Link: <http://www.mtc.ca.gov/funding/STIP/>

### Transportation for Livable Communities

MTC's Transportation for Livable Communities (TLC) Program was created to support community-based transportation projects that revitalize downtown areas, commercial cores, neighborhoods and transit corridors by enhancing their amenities and ambiance and making them places where people want to live, work and visit. The TLC Program supports the region's FOCUS Program by investing in Priority Development Areas, designated areas in which there is local commitment to developing housing, along with amenities and services, to meet the day-to-day needs of residents in a pedestrian-friendly environment served by transit. TLC provides funding for planning and capital improvement projects that provide for a range of transportation choices, support connectivity between transportation investments and land uses, and are developed through an inclusive community planning effort.

Web Link: [http://www.mtc.ca.gov/planning/smart\\_growth/tlc\\_grants.htm](http://www.mtc.ca.gov/planning/smart_growth/tlc_grants.htm)

### Regional Bicycle and Pedestrian Program

The Regional Bicycle and Pedestrian Program (RBPP) was created by the MTC in 2003 through a set-aside of federal funds to fund construction of the Regional Bicycle Network, regionally-significant pedestrian projects, and bicycle and pedestrian projects that serve schools and transit. MTC has committed \$200 million in the Transportation 2030 Plan to support the regional program over a 25-year period (\$8 million each year). The program is administered through County Congestion Management Agencies (CMAs; NCTPA in Napa County).

Web Link: <http://www.mtc.ca.gov/planning/bicyclespedestrians/regional.htm#bikepedprog>

### TDA Article 3

Transportation Development Act (TDA) Article 3 funds are generated from State gasoline sales taxes and are returned to the source counties from which they originate to fund transportation projects. Article 3 funds provide a 2 percent set aside of the County TDA funds for bicycle and pedestrian projects. Eligible projects include right-of-way acquisition; planning, design and engineering; support programs; and construction of bicycle and pedestrian infrastructure, including retrofitting to meet ADA requirements, and related facilities. Each year NCTPA approves a Program of Projects for Napa County, which is submitted to MTC for approval.

Web Link: <http://www.mtc.ca.gov/funding/STA-TDA/>

### Lifeline Transportation Program

The Lifeline Transportation Program (LTP) was established to fund projects that result in improved mobility for low-income residents of the nine San Francisco Bay Area counties. Lifeline funds may be used for either capital or operating purposes. Eligible capital projects include (but are not necessarily

limited to) purchase of vehicles, provision of bus shelters, benches, lighting, sidewalk improvements or other enhancements to improve transportation access for residents of low-income communities. A local match of a minimum of 20% of the total program cost is required.

Web Link: <http://www.mtc.ca.gov/planning/lifeline/>

### Safe Routes to Transit

Funded through Regional Measure 2, this competitive program is designed to promote bicycling and walking to transit stations by funding projects and plans that make important feeder trips easier, faster, and safer. The program is administered by the Transportation and Land Use Coalition (TALC). TALC is a Bay Area partnership of over 90 groups that develops and forwards a range of projects, programs, and campaigns supporting sustainability and equity in the land use, housing, and transportation arenas.

Web Link: [http://www.transcoalition.org/c/bikeped/bikeped\\_saferoutes.html#application](http://www.transcoalition.org/c/bikeped/bikeped_saferoutes.html#application)

### Bay Trail

The Association of Bay Area Governments (ABAG) sponsors the San Francisco Bay Trail project. As funds become available, the Bay Trail Project administers grant programs to fund planning and construction of the Bay Trail. Grant monies are available for planning studies, trail design work, feasibility studies, and construction of new Bay Trail segments and associated amenities including bike lane striping, sidewalk construction and improvements to roadway bicycle routes. The deadline for the program is on-going until program funds are programmed. While a local match is not required, it is encouraged. Grant awards generally range from \$150,000-\$500,000.

Web Link: <http://baytrail.abag.ca.gov/grants.html>

### Transportation Fund for Clean Air



The Transportation Fund for Clean Air (TFCA) is a grant program funded by a \$4 surcharge on motor vehicles registered in the Bay Area. The program generates approximately \$22 million per year in revenue and consists of two parts: Program Manager Funds (60 percent of revenues), which guarantees a calculated percentage to each county, and Regional Funds (40 percent of revenues), which are allocated on the basis of regional competition. The program's goal is to implement cost-effective projects that will decrease motor vehicle emissions. The fund covers a wide range of project types, including purchase or lease of clean fuel buses, purchase of clean air vehicles, ridesharing programs to encourage carpool and transit use, bicycle facility improvements such as bike lanes, bicycle racks, and projects to enhance the availability of transit information. Applications for the Regional Funds are made directly to BAAQMD. The Program Manager Funds are administered by NCTPA.

Web Link: <http://www.baaqmd.gov/Work.aspx>

### BAAQMD Bicycle Facility Program

The Bay Area Air Quality Management District's (Air District's) Bicycle Facility Program (BFP) provides grant funding to reduce motor vehicle emissions through the implementation of new bikeways and bicycle parking facilities in the Bay Area. The BFP is funded through the Transportation Fund for Clean Air (TFCA) program. Proposed projects must comply with Board-adopted policies and be located within the Air District's boundaries. Eligible project types include: Class I – Bicycle Paths; Class II –

Bicycle Lanes; Class III – Bicycle Routes; Bicycle Lockers and Racks; Secure Bicycle Parking; and Bicycle Racks on Public Transportation Vehicles.

Web Link: <http://www.baaqmd.gov/Divisions/Strategic-Incentives/Bicycle-Facility-Program.aspx>

## **Local Funding Programs**

### Direct Local Jurisdiction Funding

Local jurisdictions can fund bicycle and pedestrian projects using a variety of sources. A city's general funds are often earmarked for non-motorized transportation projects, especially sidewalk and ADA improvements.

Future road widening and construction projects are one means of providing bike lanes and sidewalks. To ensure that roadway construction projects provide these facilities where needed, appropriate, and feasible, it is important that an effective review process is in place so that new roads meet the standards and guidelines presented in this Plan.

### Impact fees

Another potential local source of funding is developer impact fees, typically tied to trip generation rates and traffic impacts produced by a proposed project. A developer may reduce the number of trips (and hence impacts and cost) by paying for on- and off-site pedestrian and bikeway improvements, which will encourage residents to walk and bicycle rather than drive. In-lieu parking fees may be used to help construct new or improved bicycle parking. A clear connection between the impact fee and the mitigation project must be established.

### Special Taxing Districts

Special taxing districts, such as redevelopment districts, can be good instruments to finance new infrastructure – including shared use trails and sidewalks – within specified areas. New facilities are funded by assessments placed on those that are directly benefited by the improvements rather than the general public. In a “tax increment financing (TIF) district, taxes are collected on property value increases above the base year assessed property value. This money can then be utilized for capital improvements within the district. TIFs are especially beneficial in downtown redevelopment districts. These districts are established by a petition from landowners to a local government. The districts can operate independently from the local government and some are established for single purposes, such as roadway construction.

### Other

Local sales taxes, fees, and permits may be implemented, requiring a local election. Parking meter revenues may be used according to local ordinance. Volunteer programs may substantially reduce the cost of implementing some of the proposed pathways. Use of groups such as the California Conservation Corp which offer low-cost assistance will be effective at reducing project costs. Local schools or community groups may use the bikeway or pedestrian project as a project for the year, possibly working with a local designer or engineer. Work parties may be formed to help clear the right of way where needed. A local construction company may donate or discount services. A challenge grant program with local businesses may be a good source of local funding, where corporations “adopt” a bikeway and help construct and maintain the facility.