

Calistoga Bicycle Plan



Prepared for



City of Calistoga

Prepared for



Napa County Transportation & Planning Agency

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Acknowledgments

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Introduction

Purpose of the Plan

The Calistoga Bicycle Plan was developed as a component of the Napa County Transportation Authority's *Countywide Bicycle Plan Update*. The Plan is intended to guide and influence the development of bikeways, bicycle policies, bicycle programs and bicycle facility design standards to make bicycling throughout Calistoga and Napa County more safe, comfortable, convenient and enjoyable for all bicyclists. The overarching goal of the Bicycle Plan is to increase the number of persons who bicycle throughout Calistoga and Napa County for transportation to work, school, utilitarian purposes, and recreation. Bicycle Plan Maps including the Calistoga Bikeways Map, Up-Valley Bikeways Map, and Countywide Bikeways Map are shown in Figures 1, 2, and 3 respectively.

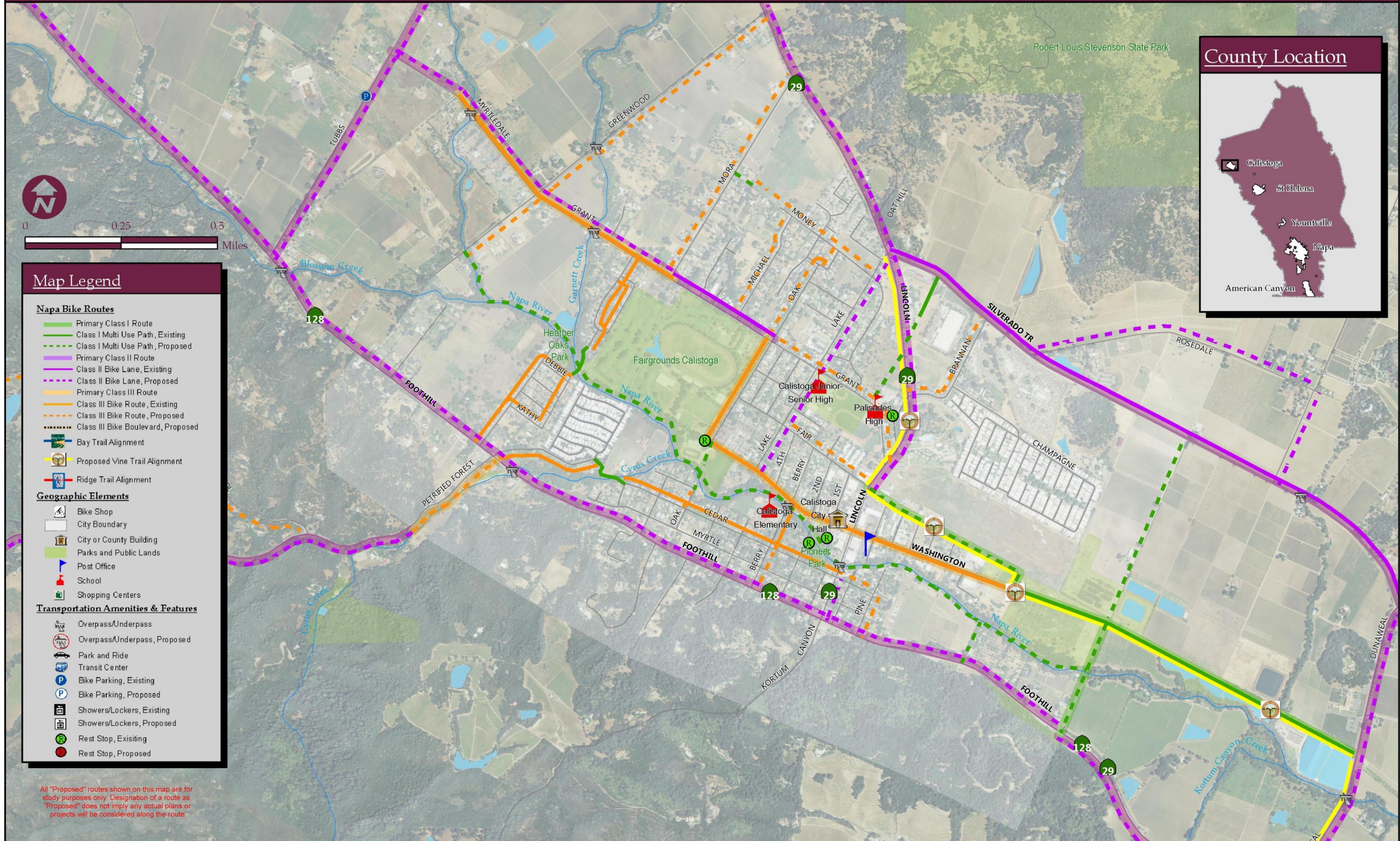
Background

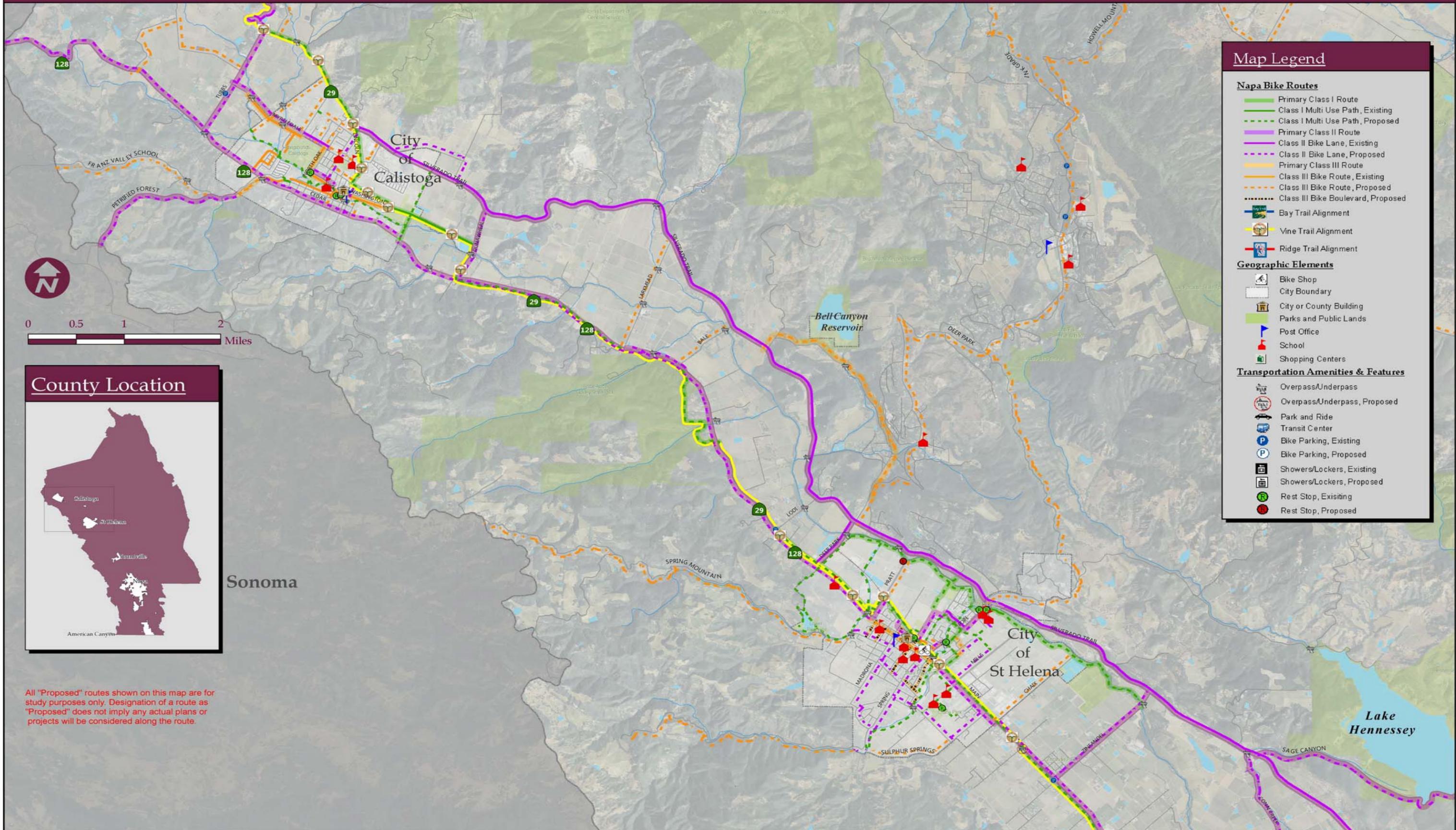
This City's existing Bicycle Transportation Plan was adopted April 3, 2007. The 2007 Bicycle Transportation updated the 1996 Bicycle Transportation Plan. At the September 20, 2010 City Council meeting, the Council directed staff to update the City's Bicycle Transportation Plan (BTP), in coordination with the Countywide Bicycle Transportation Plan being developed by the Napa County Transportation Planning Agency (NCTPA), and initiate the related General Plan Amendments. The City Council found it necessary to take a comprehensive approach to addressing policies, standards, education, and access to improve bicycle transportation and safety across city boundaries and to neighboring counties.

Caltrans Compliance

The Calistoga 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>

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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

Trail Alignments

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

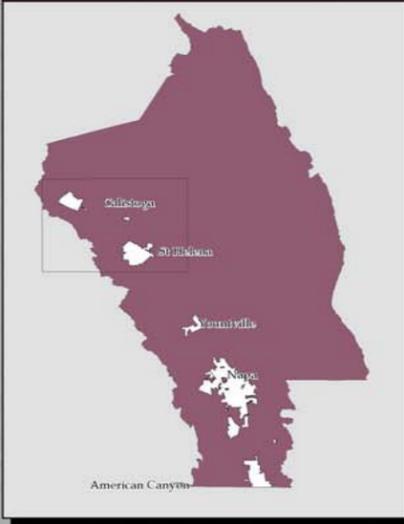
Geographic Elements

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

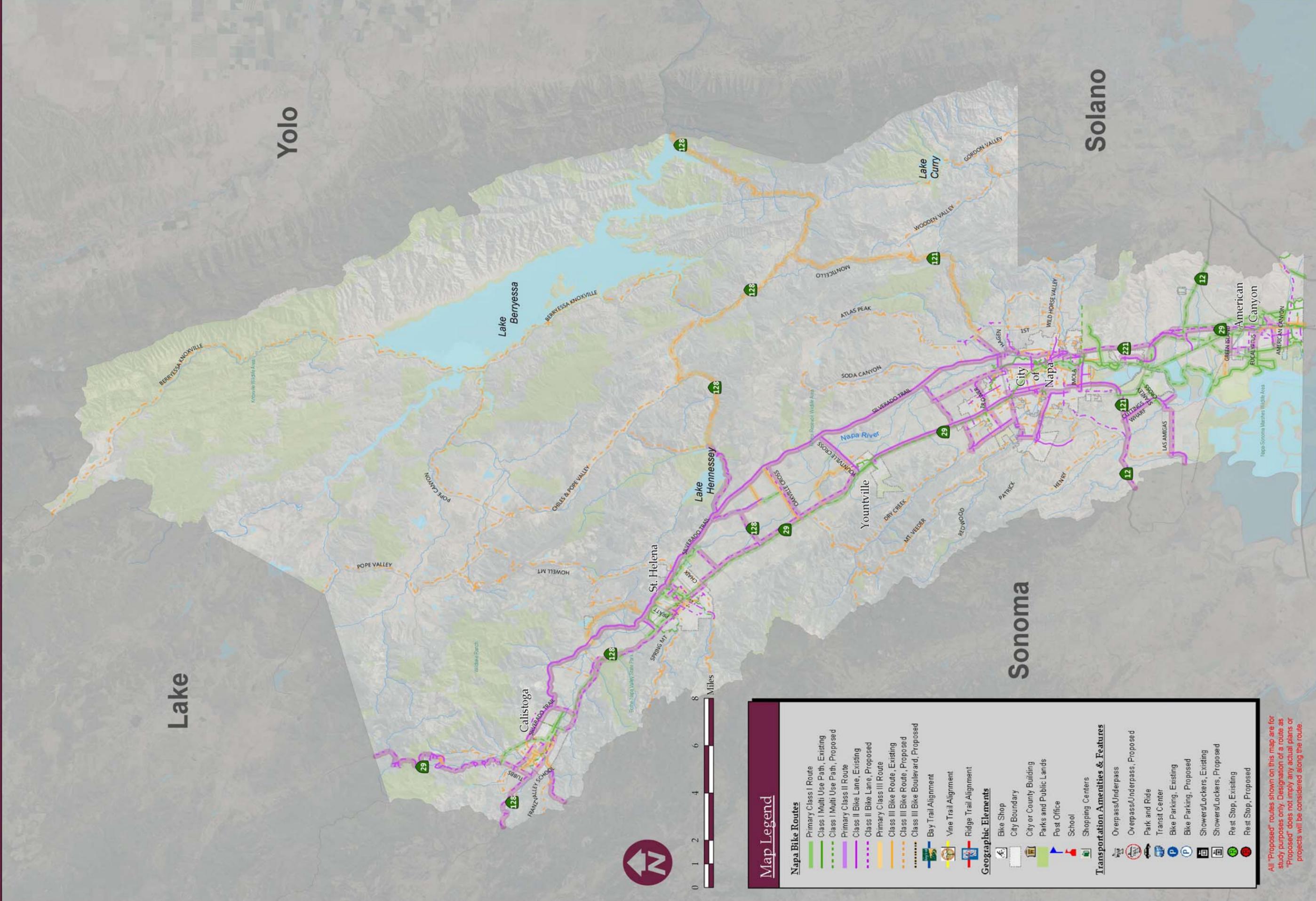
Transportation Amenities & Features

- 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.



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**Table I
Required Bicycle Master Plan Elements**

California Bicycle Transportation Act (1994)	Bicycle Plan Reference
a. Estimated number of existing and future bicycle commuters	Existing – Table 2, Page 11 Proposed – Objective 1, Page 14
b. Map and description of land use settlement patterns	<i>Setting and Land Use</i> , Page 9
c. Map and description of existing and proposed bikeways	Map Figures 1, 2, 3 Existing – <i>Bikeways Inventory</i> , Page 39 Proposed – <i>Proposed Bikeway System</i> , Page 41
d. Map and description of bicycle parking facilities	Figure 1 – <i>Bikeways Map Bicycle Parking</i> , Page 40
e. Map and description of multi-modal connections	Figure 1 – <i>Bikeways Map Multi-Modal Connections</i> , Page 38
f. Map and description of facilities for changing and storing clothes and equipment	Figure 1 – <i>Bikeways Map Shower and Locker Facilities</i> , Page 41
g. Description of bicycle safety and education programs	<i>Safety, Education, and Support Programs</i> , Page 47
h. Description of citizen and community participation	<i>Public Participation</i> , Page 7
i. Description of consistency with transportation, air quality, and energy conservation plans	<i>Coordination and Consistency with Existing Plans and Policies</i> , Page 13
j. Description of proposed projects and implementation priorities	<i>Proposed Bikeway System</i> , Page 42 <i>Table 10 Proposed Bikeways and Project Priorities</i> , Page 42
k. Description of past expenditures and future financial needs for bicycle facilities	<i>Table 15 Historical Expenditures on Bicycle Facilities</i> , Page 59

Public Participation

The Bicycle Plan Update 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, the bicycle community, and interested citizens. The 2011 Napa Countywide Bicycle Plan Update builds upon the efforts of the 2003 Plan and integrates new projects, partnerships, concepts, and programs. Public participation was an important component of the Countywide Bicycle Plan Update. 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 in the Plan Area. 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 and citizen representatives was established to oversee the development and progress of the Plan. Representatives from the Napa County Bicycle Coalition, Vine Trail Coalition, Napa County Safe

Routes to Schools Program, Bay Trail Project, and Napa County Parks and Open Space, bicycle advocates and others also attended Steering Committee meetings.

- *Advisory Committee Meetings* – The project consultant and NCTPA staff attended bicycle or other responsible advisory committee meetings in each participating jurisdiction to kick off 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 and project and program proposals.
- *Public Workshop #1* – The initial public workshop for the Bicycle Plan Update 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* – Public Workshop #2 was held on Saturday, September 24, 2011, from 1:00 to 4:00 p.m. at New Technology High School in the City of Napa. Approximately 50 people attended the workshop, including local agency staff, elected officials, NCTPA board members, local bicycle advocates, and members of public. The purpose of the meeting was to give the public an opportunity to comment on the draft Bicycle Plan Update. The draft Plan was presented and attendees participated in group discussions and mapping exercises. Public comments were recorded and incorporated into the Bicycle Plan Update.
- *City Council Hearings* – In early 2012, the Plan will be presented to the City Council for review and adoption.

Setting and Context

Setting and Land Use

Calistoga is located in the northern-most part of the Napa Valley and is part of the nine-county Bay Area region. Calistoga is at the junction of State highways 29 and 128, 27 miles north of Napa (the County seat) and 76 miles northeast of San Francisco. Calistoga has a total area of 2.5 square miles.

Calistoga is a rural, small town, made up of a vibrant, eclectic main street set within pedestrian-oriented neighborhoods of modestly sized homes and surrounded by wineries, vineyards and other agricultural lands. Intensive agriculture and vacant/low intensity agriculture cover the largest amount of land within the city, comprising a quarter of land within the city limits. Residential uses comprise about one-third of land within the city limits. Parks and public space are also major existing uses within the city limits in terms of area. Commercial development is centered on Lincoln Avenue, which comprises “main street” for the community. Most retail and service establishments are small businesses. The Land Use Designation Map presented below provides the distribution of land use within the City.

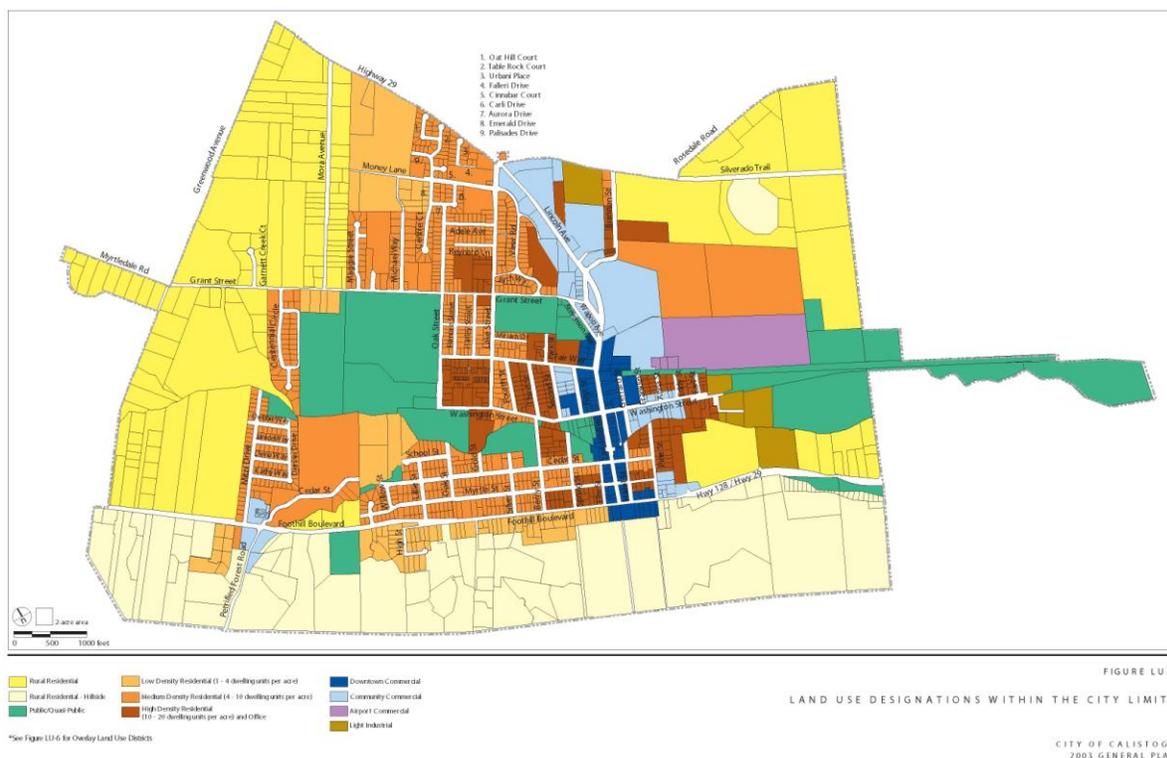


Figure 4 – Calistoga General Plan Land Use Designation Map

Demographics and Commute Patterns

Demographics and travel information for Calistoga were analyzed to identify *mode split* and to evaluate travel time to work. The analysis establishes base data on the existing number of bicycle commuters, and also provides an indication of the number of potential bicycle commuters in the Plan area. This information can then be used by staff and local officials to develop improvement plans and set

Mode Split is a term that describes the number of trips or the percentage of travelers using a particular type of transportation, e.g., walking, bicycling, taking a bus, driving, etc.

priorities, with the objective of increasing the percentage of people who choose to bicycle rather than drive a car or be driven.

A review of available demographic and commute statistics was performed in order to better understand the level of bicycling in Calistoga and Napa County as a whole. Several data sources were reviewed, including California Department of Finance Population Estimates, the Bay Area Travel Survey, and Journey-to-Work (JTW) Data from the US Census Bureau.

Every ten years the US Census Bureau attempts to count every person throughout the nation. As part of this survey process, the agency collects information on the primary mode of transportation used by employed people over the age of 16 to get to work. The collective responses to the Census Bureau's question "How did you usually get to work last week?" form a set of data known as Journey-to-Work (JTW). JTW data is considered the most reliable source of transportation mode choice information available. However, while the JTW provides a glimpse of how Calistoga residents travel to and from work, the data source only provides a partial understanding of the travel characteristics of bicyclists within the community. This is particularly true since it does not reflect multi-modal or non-work trips. For example, survey respondents who typically use more than one method of transportation are instructed to mark the mode used for "most of the distance," thus overlooking bicycling and walking trips to transit. For commuters who do not use the same mode every day, the survey wording leaves the response up to the respondent; and the survey takes place in the month of March, which can be rainy in Napa County and a deterrent to bicycling. Further, the JTW data does not include school, shopping, and recreational trips, which constitute much of the bicycle and pedestrian travel by Calistoga's student and senior populations, and others. Given the substantial growth that has occurred over the last decade in Calistoga, data from the 2000 US Census does not provide an accurate account of current journey to work statistics. However, the 2000 US Census represents the most comprehensive data set available to analyze how Calistoga's residents travel to work. To address this data shortfall, it is recommended that this Plan be amended once the 2010 Census JTW data is released, which typically occurs 24 to 36 months after the Census is completed.

Recommendation

Update Journey to Work Data with 2010 US Census findings once the data is available.

The 2010 California Department of Finance Population Estimates indicates that Calistoga has a population of 5,155 persons. Based on this estimate, the City's population has declined by approximately 35 persons since the 2000 US Census. Population projections from the Association of Bay Area Governments anticipate that Calistoga will add approximately 245 additional residents by the year 2035. According to the 2000 US Census, (the most current Census for which data is available) there are 2,455 workers in Calistoga 16 years old or older. Of these, 2170 work outside the home. Forty three percent, or 999 workers, have a travel time to work of 15 minutes or less. Calistoga has a higher than average rate of workers with a commute time of less than 15 minutes, 43 percent, when compared to the state and nation which are at 25 percent and 30 percent respectively. This indicates that nearly half of the City's workers are employed within the community.

JTW data indicates that 65 percent of workers in Calistoga, or 1,499 persons, drive to work alone. Approximately 1.6 percent, or 37 workers, commute by bicycle, a rate that is higher than the Countywide and statewide averages of 0.8 percent, and also higher than the national average of 0.4 percent. About 15 percent (335 persons) of work trips are taken on foot, the highest walk-to-work rate in Napa County. While approximately 11 percent of workers in Calistoga (258 persons) carpool, the majority of workers drive to work alone. Given Calistoga's climate, topography, and percentage of commuters with a travel time to work of 15 minutes or less compared to the number of existing bicycle and pedestrian commuters, a significant opportunity exists to achieve a greater bicycle mode split. Every

motor vehicle trip or vehicle mile traveled that is eliminated results in less air pollution, reduced green house gas emissions, and lessened traffic congestion.

**Table 2
2000 US Census – Mode Split Data for Calistoga**

	Calistoga		Napa County		California	
Population (2000 US Census)	5,155		124,279		33,871,648	
Employed persons 16 years of age +			58,501		14,525,322	
Mode Split	Percent	Number	Percent	Number	Percent	Number
Mode Split	100.00%	2290	100.00%	57,393	100.00%	14,525,322
Drove Alone	65.4%	1499	72.65%	41,698	71.82%	10,432,462
Bike	1.6%	37	0.83%	479	0.83%	120,567
Walk	14.6%	335	4.14%	2,378	2.85%	414,581
Public Transit	0%	0	1.40%	803	5.07%	736,037
Carpool	11.2%	258	14.84%	8,519	14.55%	2,113,313
Motorcycle	0%	0	0.22%	127	0.25%	36,262
Other	1.8%	41	0.83%	474	0.79%	115,064
Worked at Home	5.2%	120	5.08%	2,915	3.83%	557,036

Source: *United States Census 2000*

Visitors and Tourism

Visitors are another important existing and future user group. The Napa Valley is renowned as a grape growing region making it an international tourist destination. Aside from its scenic qualities, wineries, spas, and restaurants, the Napa Valley is known for its temperate climate, making it ideal for walking and bicycling. The area was one of the first to attract bicycle touring groups, and continues to draw residents and visitors committed to an active lifestyle. Bicycle adventure tourists are a match for the Napa Destination Council’s Targeted Visitor Profile. Other studies have shown that with safe bicycle/pedestrian trails such as the Vine Trail, cycle tourists stay longer, spend more and participate in more activities than non-cycle tourists, including in the shoulder seasons. Ongoing surveys among visitors continue to indicate that bicycling is one of the top 10 reasons tourists choose Napa Valley as their destination.

For several years, the Napa Valley Vine Trail Coalition has been working on developing a 44-mile continuous, Class I trail from Vallejo to Calistoga, including an alignment through the City of Calistoga to the Oat Hill Mine Trail Head. The organization identified the importance of such a trail in providing transportation options, tourism opportunities and to enhance the quality of life for residents throughout the Napa Valley. The trail will offer transportation, recreation, education and healthy lifestyle benefits to residents and the 4.7 million visitors who come to the Valley each year while potentially replacing the need for 150,000 automobile trips in the process. As it provides these benefits, the Vine Trail is expected to generate \$75 million per year in ongoing economic impact as well as providing jobs for 60 people per mile built during construction. The Greenway Feasibility Study projected over 3 million uses per year of a completed regional Vine Trail with about half being residents; half visitors.

Existing Circulation Network

Calistoga is served primarily by Highway 29 (Lincoln Avenue) in the north/south direction and Highway 128 (Foothill Boulevard) in the east/west direction. Calistoga is characterized by an interconnected street system with several breaks that discourage cut-through traffic. Several large streets cross Lincoln Avenue to provide access from residential areas to the downtown core area. The downtown core area is served by a dense grid street system with a single traffic signal located at the intersection of Highway 29 and Washington Street. Calistoga's street system is relatively well connected, but there are noticeable gaps in the vehicular circulation system. There is a lack of connectivity parallel to Lincoln Avenue, forcing most motor vehicle traffic generated in the central city to use Lincoln Avenue through the downtown. There is also a lack of east-west connections perpendicular to Lincoln Avenue in the Gliderport/Lower Washington area. Under the General Plan the City has identified a series of possible improvements to provide greater connectivity with the southern part of the city and planning area, and to allow truck traffic to bypass the downtown. The city will ultimately need one or more new connections from the downtown to Dunaweal Lane and/or to a new "southern crossing" across the river.

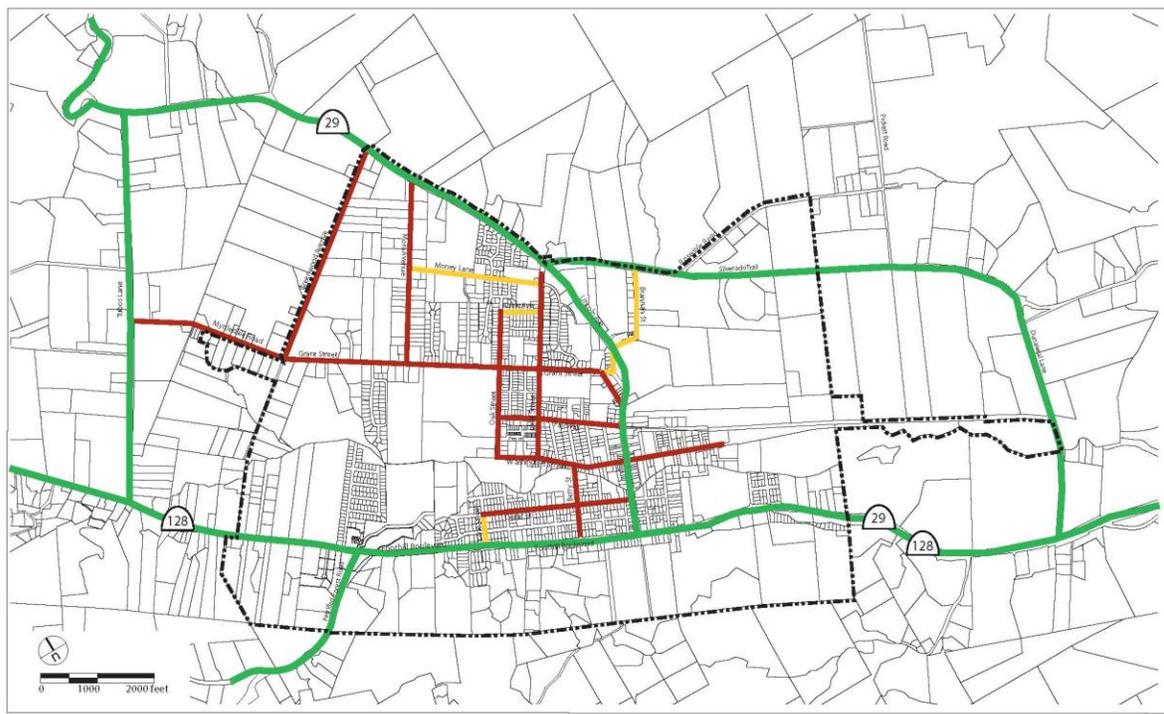


FIGURE CIR-4

EXISTING AND PLANNED STREET CLASSIFICATIONS

CITY OF CALISTOGA
2003 GENERAL PLAN

Figure 5 – Calistoga General Plan Circulation Network

North-South Streets

Major north-south streets in Calistoga include:

- Lincoln Avenue is Calistoga's main downtown street and is part of the State highway system (SR 29).

East-West Streets

Major east-west streets in Calistoga include:

- Foothill Boulevard (State Route 29/128) is a major east-west road that is part of the State highway system. Below Lincoln Avenue, Foothill Boulevard is State Route 29/128. Above Lincoln Avenue, Foothill Boulevard is State Route 128.
- Silverado Trail is a major east-west road that runs parallel to Foothill Boulevard (SR 129/28) below Lincoln Avenue on the east side of Calistoga. Silverado Trail terminates at its intersection with Lincoln Avenue (SR 29).

Other Streets

In addition to the streets listed above, there are a number of local streets with low traffic speeds and volumes that provide direct access to abutting land uses.

Coordination and Consistency with Existing Plans and Policies

There are a number of federal, state, regional, and local plans, policies and standards that govern bikeway development. Preparation of the Bicycle Plan included an extensive review of pertinent planning documents and policies. Brief summaries of these relevant efforts are provided in Appendix A. The Bicycle Plan update was undertaken in context with the policies and standards of the following documents resulting from local efforts.

- City of Calistoga 2003 General Plan Update
- City of Calistoga 2007 Bicycle Transportation Plan

Vision, Goals, Objectives and Policies

The following vision, goal, objectives, and common policies are meant to function as a mutually agreed upon framework applicable to both the primary countywide bicycle *system* and local bicycle *networks*. The policies are designed to guide the development and maintenance of a bicycle *system* throughout Napa County and express the intent of Calistoga, the NCTPA, and its member agencies to enhance bicycle mobility and to improve safety, access, traffic congestion, air quality, and the quality of life throughout Napa County for residents, workers and visitors. In addition to common policies that are mutually agreed to, local policies and implementing programs are included that address issues in Calistoga and complement the common policies.

It is important to note that as projects advance or are developed, local and countywide bicycle policies should be referenced to ensure that both private development and public works projects are consistent with the mutually agreed upon countywide policies, and that plans and development projects in Calistoga implement the full measures of the bicycle plan elements. The common countywide policies were a focal point of the Bicycle Plan effort and appear in the Overview Section of the plan as well.

Definitions

For context, definitions of terms used in this report are provided below.

- *Bicycle “System”* – the whole of all of the components, including both physical and programmatic
- *Bicycle “Network”* – the physical improvements that establish bikeways (Class I, II, or III routes)
- *Goal* – 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.
- *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 the local agency with regard to a particular issue or set of issues.
- *Program* – a specific action to accomplish the policy or objective

Bicycling Vision for the Region

A comprehensive, connected bicycle system is achieved through supportive development patterns and programmatic practices, and will provide people with safe, convenient and enjoyable access throughout all Napa County jurisdictions and to destinations beyond. 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 with a “world class” bicycling system.

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.*

Countywide Objectives

Objective I.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

- I.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]

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

- I.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]

- I.3 Consistent with federal, state and regional directives for “routine accommodation and complete streets”¹, ensure that all transportation projects on designated bicycle routes include, enhance or maintain bicycle transportation facilities. [NCTPA, cities, towns, County]
- I.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]
- I.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]
- I.6 Establish and/or maintain local and countywide bicycle advisory committees to advise staff on bicycle network issues. [NCTPA, cities, towns, County]

Calistoga Policies/Programs

- Cal-I.a Develop and adopt a citywide bicycle plan to improve bicycle safety, and to encourage community members to bike more often. Build on Calistoga’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.
- Cal-I.b Increase the City’s share of walking, bicycling, transit and carpooling trips, in accordance with NCTPA 2035 goals. As a major part of this effort, the City will continue to develop and maintain a safe and integrated bicycle and pedestrian system throughout Calistoga for people of all ages and abilities.
- Cal-I.c Provide a complete bicycle and pedestrian network between residential areas, downtown and other major activity centers identified by the City.
- Cal-I.d Reduce transportation-based GHG emissions from City-controlled sources by employing the following strategies: Complete the City’s bicycle and pedestrian network, which will increase transportation choices in the City and reduce the demand for vehicle travel.
- Cal-I.e Ensure convenient public access between developed areas and Napa River by providing access at frequent intervals.

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

¹ 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

- 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 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.

Calistoga Policies/Programs

Cal-2.a Conduct a study to evaluate City procedures and standards related to right-of-way, on-street parking, engineering details to determine what revisions would be necessary to implement related measures of the Bicycle Plan. (CIR-3.3, A4)

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 and related amenities at major transit stops and transportation centers. [NCTPA, cities, towns, County]
- 3.2 Require local and regional transit agencies to accommodate bicycles on all transit vehicles that serve the general public. [NCTPA]
- 3.3 Plan for additional bicycle storage capacity on transit vehicles to ensure capacity keeps up with

demand. [NCTPA]

- 3.4 Consider a “Safe Routes to Transit” program that prioritizes bicycle and pedestrian access to transit stops and centers. [NCTPA, cities, towns, County]
- 3.5 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]
- 3.6 Develop strategies and work with private landowners/businesses to provide bicycle parking at strategic locations. [NCTPA, cities, towns, County, NCBC]

Calistoga Policies/Programs

Cal-3.a The City shall encourage NCTPA to expand public transportation opportunities to better connect Calistoga residents with larger population and employment centers down-valley. Service should be expanded to more neighborhoods in Calistoga and to provide better service at off-peak hours. (CIR 3.1, P2)

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 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]
- 4.2 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]
- 4.3 Work with businesses and private property owners to provide bicycle parking at existing employment, retail, and commercial sites. [NCTPA, cities, towns, County]
- 4.4 Encourage employers to provide secure indoor and/or covered bicycle parking for their employees. [Cities, towns, County]
- 4.5 Encourage major employers to provide shower and locker facilities for workers. [Cities, towns, County]
- 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 where appropriate. [NCTPA, cities, towns, County]

Calistoga Policies/Programs

- Cal-4.a Ensure the provision of adequate public bicycle parking at important public facilities, parks, libraries, schools, commercial areas and other locations with high bicycle-parking demands.
- Cal-4.b Improve the availability of secure bicycle parking, acknowledging that simple racks may not always be enough.
- Cal-4.c Improve bicycle signage to enhance safety for all who use the City bicycle transportation network.

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.

Calistoga Policies/Programs

- Cal-5.a The City shall continue to use creative solutions to provide safe routes through intersections.
- Cal-5.b Care will be taken in the construction and maintenance of drainage ditches, manhole covers, sewer and drainage grates, and asphalt/concrete interfaces.

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]

Calistoga Policies/Programs

- Cal-6.a Obtain easements or title to land along the Napa River.
- Cal-6.b Develop an institutional structure that includes review and application of applicable and appropriate provisions of this Plan into all proposed development projects.

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 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]
- 7.2 Expand the delivery of Safe Routes to Schools curriculum to all elementary and middle schools annually. [NCTPA, cities, towns, County, School Districts, NCBC]
- 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. [NCTPA, cities, towns, County, School Districts, NCBC]
- 7.4 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]
- 7.5 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]
- 7.6 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]

- 7.7 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]

Calistoga Policies/Programs

Cal-7.a Promote bicycle tourism by showcasing bicycle use and bicycle support facilities throughout the City, which will provide a potential economic base for the City and may ultimately, provide more bicycle facilities within the City.

Cal-7.b Work with the wine and hospitality industries to manage congestion and create and promote car-free tourism services.

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. [County, city and town BACs]
- 8.2 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]
- 8.3 Participating jurisdictions shall update their general plans to incorporate the key contents of this Bicycle Plan. [County, participating cities and towns]
- 8.4 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 Committees to advise staff on bicycle and pedestrian issues. [NCTPA, cities, towns, County]
- 8.5 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]
- 8.6 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]
- 8.7 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]

Calistoga Policies/Programs

Cal-8.a Acknowledge that “traffic calming” of cars - and bicycles where relevant - is an integral element to the success of the bicycling transportation modes.

Cal-8.b Ensure that the BAC remains active and viable participants within the City of Calistoga.

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 on Class II and Class III bikeways to the same standards and condition as the adjacent motor vehicle lanes. [Cities, towns, County]
- 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 in a timely manner. [NCTPA, NCBC, cities, towns, County]
- 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. [Caltrans, cities, towns, County]
- 9.4 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.

Calistoga Policies/Programs

Cal-9.a All on-street construction shall be built and maintained to avoid dangerous conditions. The interface of concrete and asphalt shall be built and maintained smooth and flush.

Cal-9.b Develop a maintenance and operations plan for the City's trail network. Provide a high level of service to users by preventing deterioration, encroachment of vegetation, vandalism and crime. Consider including an Adopt-a-Trail program, and invite local businesses to participate in trail maintenance. Include a funding program to support the plan.

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, 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]

10.2 Encourage multi-jurisdictional funding applications to implement the primary network and countywide bicycle system. [NCTPA, cities, towns, County]

10.3 Promote the availability of adequate regional, state and federal funding sources for bicycle transportation projects. [NCTPA, NCBC, cities, towns, County]

Calistoga Policies/Programs

Cal-10.a Identify and pursue funding opportunities for bicycle projects on the local, state and federal levels.

Cal-10.b Pursue state and federal grant opportunities to fund a Safe Routes to School program.

Bicyclists and Bicycle Facilities

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 11, “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 3.

**Table 3
Bicyclist Types, Preferences and Needs**

Bicyclist Type	Rider Preferences	Rider Needs
Advanced Bicyclist Experienced riders who can operate under most traffic conditions	<ul style="list-style-type: none">• Direct access to destinations• Operate at maximum speed with minimum delays• Sufficient roadway space or shoulder so that bicyclists and motorists can pass without altering their line of travel	<ul style="list-style-type: none">• Establish and enforce speed limits• Provide wide outside lanes (urban)• Provide usable shoulders (rural)
Average Bicyclist 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">• Comfortable access to destinations• Direct route, but on low-speed, low traffic-volume streets or on designated bicycle facilities• Well-defined separation of bicycle and motor vehicles or separate multi-use paths	<ul style="list-style-type: none">• Ensure low speeds on neighborhood streets• Traffic calming• Provide network of interconnected designated bicycle facilities (lanes, multi-use paths, well marked bike routes)• Usable roadway shoulders

Novice Bicyclist

Young children, students, and pre-teen riders whose roadway use is initially monitored by parents, and/or adult bicyclists just beginning to ride

- Access to schools, recreation facilities, shopping, or other residential areas
- Residential streets with low motor vehicle speed limits and volumes
- Well-defined separation of bicycles and motor vehicles or separate multi-use paths
- Ensure low speeds on neighborhood streets
- Traffic calming
- Provide network of designated bicycle facilities (lanes, multi-use paths, well marked bike routes)
- Usable roadway shoulders

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.

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

Bikeway Types



Class I Multi Use Path



Class II Bike Lane



Bicycle Boulevard



Shared Lane Marking



Cycle Track

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.

The Local Bicycle Transportation Network

Existing Conditions

This section describes existing conditions for bicyclists in Calistoga, including opportunities and constraints, a safety analysis, existing programs, bicycle counts, origins and destinations, schools and safe routes, bicycle parking, and a map and inventory of existing bikeways.

Opportunities and Constraints

A variety of issues and opportunities related to bicycling have been identified through the review of existing documents, maps, aerial images, and public input. A discussion of broad opportunities and constraints, such as funding, regional access, and public support and perception, to name a few, are detailed in the NCTPA Overview Plan. Following are some physical and operational constraints specific to Calistoga.

- Caltrans ownership of Lincoln Avenue and Foothill Boulevard limits local control over the ability to provide bicycle facilities.
- Many families live within biking/walking distance of Calistoga's schools.
- A significant portion of Napa County's traffic congestion results from tourists traveling throughout the region.

Safety Analysis

The following section addresses safety conditions for bicyclists in Calistoga 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 in Calistoga for the more recent 10-year period for which collision data was available, a summary of collision findings, a location map of bicycle collisions in Calistoga, 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.

Bicycle Collision Analysis

The bicycle collision history for Calistoga was 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 incidents 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:

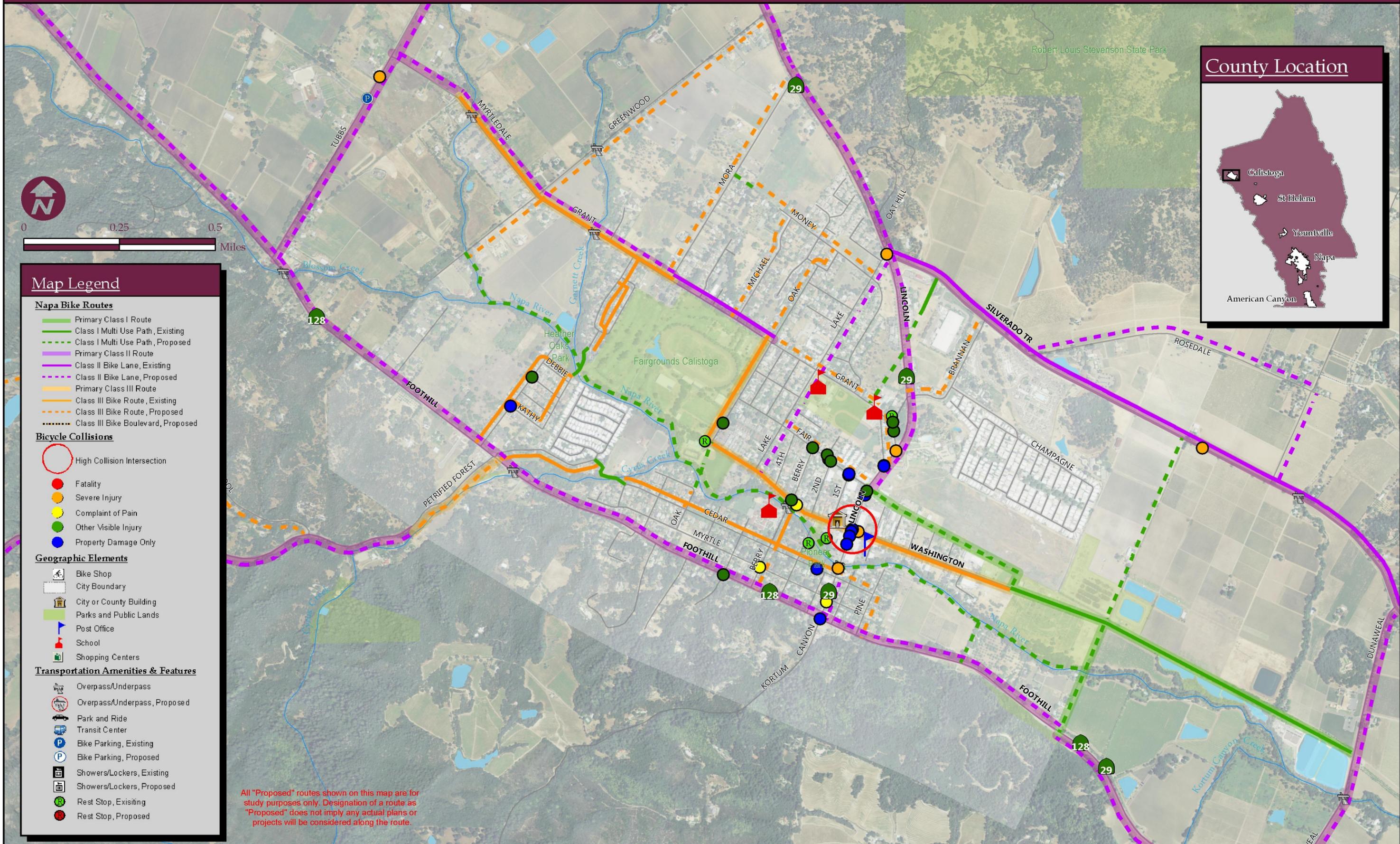
- Collisions:** This information includes an analysis of the major causes of each collision, the locations of collisions, and the seasonal variation of collisions.
- Conditions:** Environmental conditions at or near the collision site at the time of each crash were examined. This included an analysis 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.

During the ten-year review period more than 26,000 collisions were recorded throughout Napa County. Analysis of the data for all jurisdictions combined revealed a rise in the 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 City of Calistoga experienced a total of 972 reported collisions for the ten-year period of 1999 to 2008, of which 21 involved bicycles. Annual bicycle collisions ranged from zero to four collisions per year. The most common primary collision factor reported was “wrong side of the road,” which led to twelve collisions, followed by nine “auto right of way violation” crashes where a bicyclist violated the right of way of a motorist. These two primary collision factors represented over half of all reported bicycle collisions and are both collision types where the cyclist was at fault. The party at fault varied for the remaining collisions, with some indeterminate based upon information provided in the SWITRS database.

For the years of 2006 through 2008, the City of St. Calistoga’s OTS rankings for bicycle collisions varied widely, making it difficult to identify a trend. As previously stated, for smaller cities such as Calistoga, which has a population of approximately 5,155 persons, any small change in annual collisions can result in a large shift in collision ranking, as seen in this data.

City of Calistoga Bicycle Collisions



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

Bicycle Collisions

- High Collision Intersection
- Fatality
- Severe Injury
- Complaint of Pain
- Other Visible Injury
- Property Damage Only

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.

Comparison of Rural and Urban Bicycle Crashes

FHWA Summary Report of Factors Contributing to Pedestrian and Bicycle Crashes on Rural Highways

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 crash data with 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.

Existing Bicycle Safety, Education, and Encouragement Programs

Currently, there are no formal safety or education programs for bicyclists in Calistoga that are delivered by the City. However, in the past on an as-needed basis, bicycle rodeos have been delivered by the Calistoga Police Department to elementary students, and the Department has offered free helmets to those in need.

Safe Routes to School is a national movement with a variety of programs that are designed to improve safety and encourage students to walk and bicycle to school. Such programs work to reduce traffic congestion and improve the health of both children and the environment. The City of Calistoga may pursue funding for these efforts through the state and federal Safe Routes to School programs and can work with the Napa County Office of Education to implement safety and education programs which are currently offered to elementary and middle schools throughout Napa County when requested.

Data Collection Recommendations (Bicycle Counts)

One of the challenges agency staff and local decision makers currently face in the area of bicycle and pedestrian planning is the lack of documentation on usage and demand for bicycle and pedestrian facilities. Without accurate and consistent data, it is difficult to measure the positive benefits of bicycle and pedestrian investments, especially when compared to other types of transportation. Regular bicycle counts are recommended to address the need for data. The first set of bicycle counts conducted in the Plan Area will be used to establish a baseline for bicycling in and around Calistoga. This baseline can then be compared to bicycle counts conducted on a periodic basis so that usage trends can be identified and measured. Note that counts are not meant to establish the number of bicyclists throughout the Plan area, which may be better achieved through a survey of a representative sample of residents, or

through Census results. Instead, they are intended to help identify trends in bicycle use over time. In addition to tracking trends and identifying usage, counts can be used to substantiate the need for additional facilities and support requests for funding, enforcement, maintenance, facility enhancements, and other safety improvements.

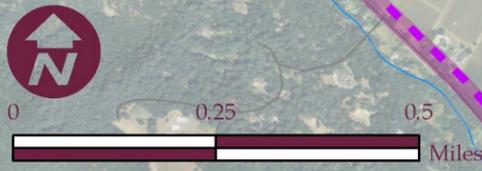
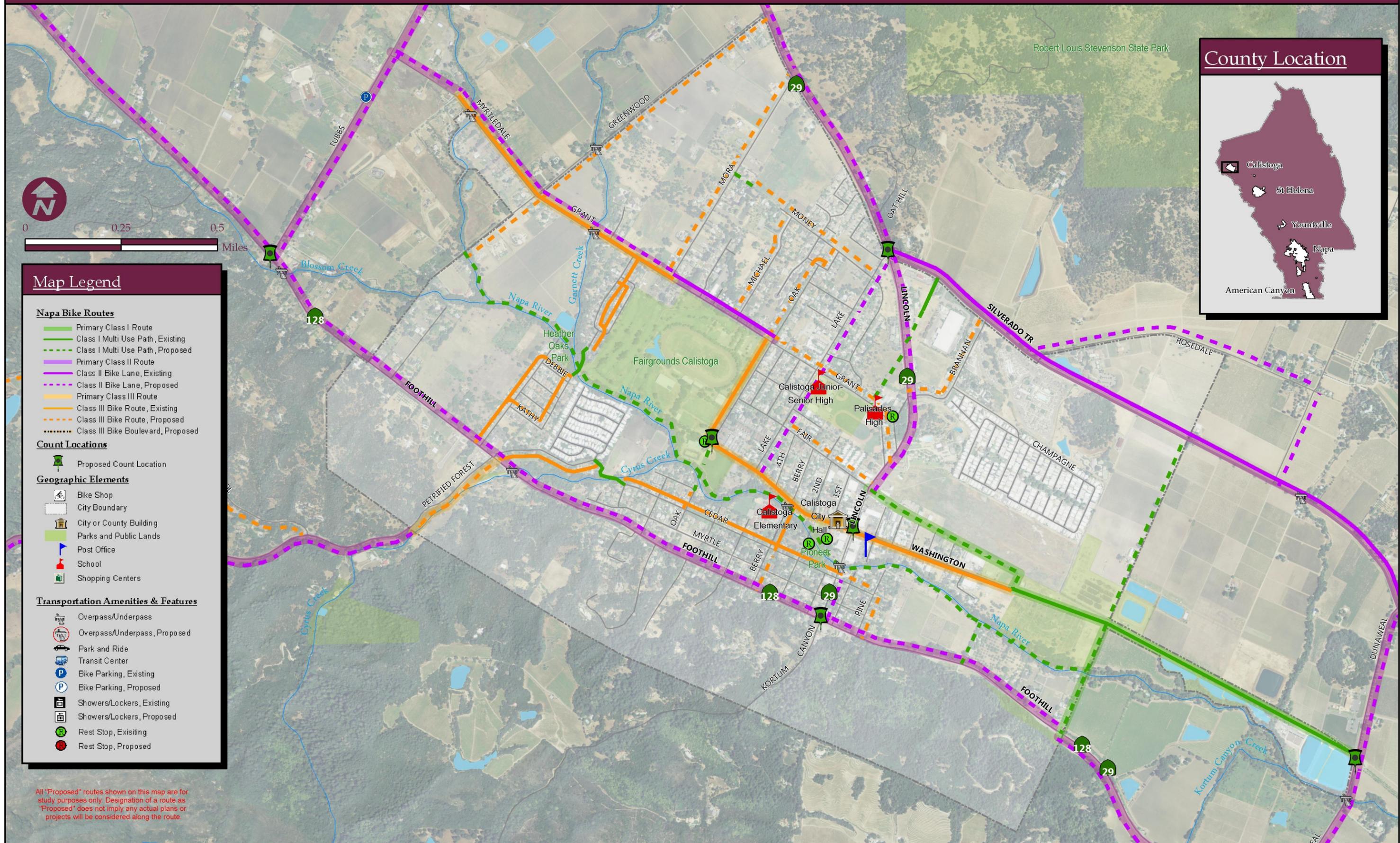
Proposed count locations in Calistoga and the surrounding unincorporated County were identified through this planning process. The basic criteria used to select count locations included points along and intersections of primary streets in the bikeway network, area coverage, population centers, attractors and generators, and community gateways. Proposed count locations in Calistoga are identified in Table 4. Information on standard counting methodologies, recommended count periods, a discussion of ongoing counting efforts at the regional and national levels, and sample standardized count forms from the Metropolitan Transportation Commission and the National Bicycle and Pedestrian Documentation Project are provided in Appendix D.

**Table 4
City of Calistoga – Proposed Bicycle Count Locations**

#	Primary Street	Facility Classification	Cross Street	Facility Classification	Use/ Activity	Notes
1	Silverado Trail	Class II	Brannan Street	Class II	Primary Routes/ Northeast City Limits	
2	<i>Foothill Boulevard (Future)</i>	Class II	Lincoln Avenue	Class II	Primary Routes	
3	Cedar Street	Class III	Berry Street	Class III	Local Route /Crosstown Route	
4	Grant Street	Class II	N. Oak Street	Class II	Primary Route	
5	Washington Street	Class I	Tedeschi Field	Class I	Primary Route	

Notes: *Italics* = Proposed Facility

City of Calistoga Bicycle Count Locations



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

Count Locations

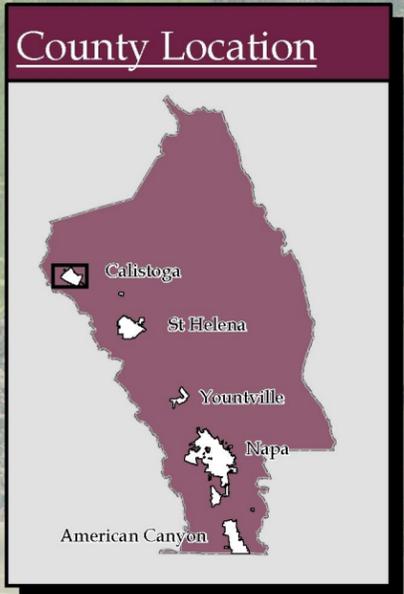
- Proposed Count Location

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.

Origins and Destinations

The following sections identify Calistoga's major origins and destinations for bicycle trips. It is important to identify these facilities in order to understand access needs and existing and potential travel patterns when considering alignments for both the local and primary bikeway networks. Brief descriptions and/or lists of origins and destinations are provided below. Major facilities are mapped on Figure 1, the Calistoga Bikeways Map, to show their relationship to existing and proposed bikeways.

Schools and Safe Routes

Primary and Secondary Schools

The Calistoga Joint Unified School District oversees the City's public school system. The District includes one elementary school, one junior/senior high school, and a continuation high school. The District serves a population of around 850 students. There are also a couple of smaller private preschools located in Calistoga. Table 5 lists the schools located in Calistoga.

Community Facilities and Parks

There are a variety of civic destinations and community facilities located in Calistoga that can be reached by bicycle or on foot. Major community facilities in Calistoga include:

- Calistoga Community Pool
- Napa County Fairgrounds
- Calistoga Post Office
- Calistoga Public Library
- City Hall
- Monhoff Recreation Center
- Calistoga Fire Station
- Calistoga Library

The City of Calistoga maintains seven public parks with a total of approximately 14.19 acres of parkland. A list of existing parks in Calistoga is provided in Table 66.

**Table 5
Calistoga Schools**

School	Grade Levels	Location
Calistoga Elementary School	K-6	1327 Berry Street
Calistoga Junior/Senior High School	7-12	1608 Lake Street
Palisades High School		1507 Grant Street
Highlands Christian	Pre-K	970 Petrified Forest Road
St. Luke's Preschool	Pre-K	1504 Myrtle Street

**Table 6
Existing City of Calistoga Parks**

Category	Park	Number of Acres	Characteristics
Mini	Fireman's Park	0.13	Passive recreation
	Myrtle Street Pocket park	0.12	Passive recreation
Neighborhood	Heather Oak Park	1.64	Playground, walking path and small turf area
	Pioneer Park	1.80	Passive recreation, tot-lot
Community	Little League Field	0.72	Baseball diamond
	Monhoff Center	0.25	Tennis and racquetball
	Logvy Community Park	9.53	Softball/soccer Field, veterans memorial, aquatic center and community garden
Total		14.19	

Source: City of St. Calistoga, 2003 General Plan

Other parks in the vicinity of Calistoga include three state parks; 1) the Robert Lewis Stevenson State Park is 7 miles north of Calistoga offering hiking trails, 2) on the west side of SR 29/128 just south of the city: the 1,900-acre Bothe-Napa Valley State Park offers camping, picnicking, swimming, and hiking trails; and 3) the 0.75-acre Bale Grist Mill State Historic Park, the site of a water powered grist mill that was built in 1846 (California State Parks, 2010).

Bicycle Shops and Manufacturers

Currently there is one bicycle shop located within the City. Calistoga Bike Shop, located on Lincoln Avenue. Calistoga Bike Shop provides self-guided bike tours, bike wine tours, bicycle rentals, sales and service.

Multi-Modal Connections

Bicycles are often used in combination with other modes of transit (such as bus, carpool, ferry, or train) as part of a multimodal trip. Convenient multi-modal connections that are well-integrated into the transportation system are a vital component of a balanced transportation network. Transit has the potential to extend trip ranges for bicyclists to both nearby communities, and destinations outside of Napa County. Multi-modal connections are especially important in Napa County, considering existing barriers to bicycle travel such as distances between communities, existing gaps in the bicycle network between urban areas, 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. Front loading bicycle racks, which typically accommodate two bicycles, are provided on all fixed route transit buses that operate in Napa County. Bicycle 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, however, in the event that it is the last scheduled bus of the day, bicycles are permitted inside the vehicle.

Park and Ride Lots

Currently, there are no formal Park and Ride lots in the City of St. Calistoga; however, public parking is available at 1307 Washington Street (Calistoga Community Center). Bicycle and winery tour companies often use this parking as a staging area, and NCTPA identifies the free parking on Cedar Street as commuter parking for the Vine 29 Express bus.

Bikeways Inventory

Existing bicycle facilities in Calistoga were inventoried by auditing the 2007 Bicycle Plan, field reconnaissance, staff questionnaires and interviews, and through outreach to the public as well as the local Bicycle Advisory Committee. Existing bikeways in Calistoga are listed in and shown on Figure 1: the Calistoga Bikeways Map. Primary and regional bikeways in the vicinity of Calistoga are shown on Figure 2; the Up-Valley Planning Area Bikeway Map. Figure 3, the Countywide Bikeways Map, shows existing and planned bikeways throughout Napa County along with connections to adjacent Counties.

**Table 7
Existing Bikeways**

Project Corridor/Street	Begin Point	End Point	Class	Length (Miles)	Primary Route	SF Bay Area
Class I						
Washington Street	Dunaweal Lane	Tedeschi Field	I	1.0	Yes	No
Cyrus Creek Path	Cedar Street at Willow Street	Cedar Street near Rancho de Calistoga	I	0.10	No	No
Maxfield Path	Fairway Vista Ct.	Denise Drive	I	0.08	No	No
Class II						
Silverado Trail	Calistoga City Limits	Lincoln Avenue	II	0.91	Yes	No
Grant Street	N. Oak Street	Mora Avenue	II	0.31	Yes	No
N. Oak Street	Grant Street	Washington Street	II	0.30	Yes	No
Class III						
Grant Street	Mora Avenue	Calistoga City Limits	III	0.42	Yes	No
Cedar Street	Lincoln Avenue	Willow Street	III	0.59	No	No
Centennial Cir.	Grant Street	Maxfield Path	III	0.32	No	No
Mitzi Drive & Denise Drive	Maxfield Path	Foothill Boulevard	III	0.35	No	No
Cedar Street	Foothill Boulevard	Cyrus Creek Path	III	0.26	No	No
Berry Street	Cedar Street	Washington Street	III	0.14	No	No
Washington Street	N. Oak Street	Tedeschi Field	III	0.87	Yes	No
			Class I	1.08		
			Class II	1.52		
			Class III	2.95		

Bicycle Parking

Bike racks are readily available in Calistoga. Bicycle racks are located in the downtown, schools, civic destinations and within some resorts. The racks are an inverted U design and accommodate two bikes at each location. The rack locations were carefully selected by the City’s Bicycle Advisory Committee in close coordination with the Department of Public Works to allow barrier free travel along the sidewalks as well as easy access from parked vehicles.

The City’s Municipal Code includes the following bicycle parking requirements:

17.36.151 – Bicycle parking.

A. Nonresidential Standard. One bicycle parking space shall be provided for every 10 vehicles spaces required.

B. Multifamily Residential. One bicycle parking space shall be provided for every three dwelling units.

C. Required Facilities. Bicycle parking requirements shall be fulfilled through the installation of lockers, racks, or equivalent structures in or upon which a bicycle may be locked by the user. All racks shall be securely anchored to the ground or building surface. Racks shall be designed to accommodate U-shaped locks.

D. Location. Bicycle parking shall be located in a clearly designed, safe and convenient location. A “safe parking location” is defined as a location whereby activity around bicycle parking is easily observable, conveniently located to the bicyclist’s destination, and adequately separated from motor vehicles and pedestrians. Surfaces around bicycle parking facilities shall be maintained, mud and dust free. (Ord. 638 § 1, 2007).

Shower and Locker Facilities

The City of Calistoga does not require employers to install shower and locker facilities for employees. Large employers and/or business parks often provide these facilities. Public input indicated that additional shower and locker facilities are desired by commuter bicyclists, however, none are proposed at this time.

Proposed Improvements

Proposed bikeway improvements in the Calistoga Bicycle Plan consist of a network of Class I multi-use paths, Class II bike lanes, and Class III bike route projects 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, and regional trails and bikeways. Recommended bicycle support facilities and programs include increasing short- and long-term bicycle parking supplies, improving multi-modal integration, maintenance and monitoring programs, strategies to develop a bicycle counting program, safe routes to school programs, public education, signing and marking enhancements, and a communitywide traffic safety education campaign.

Criteria for Route Selection and Evaluation

The methodology for developing a bikeway network for any community begins with input from the local bicycling community, local planning and engineering staff familiar with the community and the public. Based on input received, existing conditions, project goals, and opportunities and constraints, a network of proposed facilities and programs was prepared. Next, a ranking methodology based on general planning criteria was developed with the Project Steering Committee to prioritize the recommended bikeway projects and programs. A Decision Matrix was used to attach weights to each criterion and determine which recommendations meet the highest number of criteria listed. It is important to note however, that over time changes will occur that may impact project implementation opportunities, and thus projects that may not be heavily weighted could be implemented in the short term due to opportunity, funding availability, political will, or other reasons.

Project ranking criteria include:

Land Use: A project that provides or promotes connections or access to multiple land uses (e.g. primary generators such as dense residential neighborhoods with high numbers of bicycle commuters with areas of dense employment) will rank favorably according to the land use criteria. Facilities that provide intra- or inter-neighborhood access to schools, for shopping trips, access to transit, access to public open space/parks would also rank favorably according to the land use criterion. Longer corridor projects that

“connect” more land uses will tend to rank higher as they are assigned greater points over shorter projects that do not connect generators with destinations, or vice versa.

Current and Latent Bicyclist Demand: Higher points are awarded to those projects that currently have significant usage or latent demand, that is they are likely to generate significant usage based on land uses, population, corridor aesthetics, etc. Justification for this criterion is that corridors or spot locations currently receiving high demand may or may not be optimally designed for safety and functionality and additional improvement would benefit a large number of existing bicyclists. Under latent demand, existing corridors or spot locations may be viewed by a high percentage of potential users as undesirable from a safety or operational perspective, and if safety or functionality is improved, even high use facilities may experience an increase in use levels.

Technical Ease of Implementation: Technical ease of implementation focuses on the actual engineering challenges of a project, emphasizing the point that typical physical requirements of bicycle projects such as parking removal, traffic lane removal, or lane re-striping are not technically challenging from an engineering perspective. Physical solutions are often readily apparent but may require development of political support, addressed under "Political Ease of Implementation," or that specific operational issues be addressed to demonstrate that no negative impacts will occur to other modes. These criteria specifically address the technical and physical aspects of an engineering solution.

Non-Technical Ease of Implementation: Maximum points are assigned for an easy, popular project. If significant neighborhood opposition is a known factor, if support of elected officials is not anticipated, or if other political opposition to a particular aspect of the assumed engineering solution (such as parking removal or agricultural issues) is anticipated, then the project would receive fewer points under this criterion.

Note: *Projects that are supported by current or adopted planning efforts by regional or local agencies receive points under these criteria, for example, projects that are identified in Bay, Ridge, or Vine Trail Studies that have the potential to serve both pedestrians and bicyclists. In addition, projects that are supported by existing or anticipated funding would receive points under this criterion.*

Overcomes Barrier/Connectivity (Safety): Maximum points should be assigned to projects that address a major safety concern for bicyclists using bridges, interchanges, and/or negotiating other environments difficult for bicyclists to navigate. Higher points should be assigned to roadways with high speed, high traffic volume, wide road width, difficult intersections or other obstacles to bicycle travel. Maximum points should be assigned for filling a gap in the existing network.

Public Input: This criterion is based directly on public input received during workshops, results from the surveys, indirect public input through agency staff, and an informal survey of local elected officials. Points are assigned in correlation to the number of comments and perceived interest of workshop attendees.

Proposed Bikeway System

This section describes proposed bicycle improvements in Calistoga including both physical and programmatic improvements. A range of users must be considered in building a bicycle system. Whereas an experienced rider or bicycle commuter might prefer the shortest and fastest on-road route, a young or inexperienced rider will likely prefer a Class I, separated bicycle facility. Bicycle riders of all ages and abilities, and those who are riding for both recreation and transportation to destinations like work and school, must be considered in system improvement and implementation. The proposed bikeway network consists of an interconnected network of Class I pathways, Class II bike lanes, and

Class III bike routes that will close gaps, connect existing facilities, and provide access to areas that are not currently served by bicycle facilities.

Primary Bikeway Network

A new element of this planning effort has been the designation of a 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 map 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.

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.

Proposed Bikeways (Maps, Database, Description)

The proposed bicycle network includes Class I paths, Class II bike lanes, and Class III bike routes in order to maximize connectivity throughout the community and to destinations beyond Calistoga. The proposed network has been planned to provide safe and convenient bicycle access to parks, open spaces, commercial areas, residential neighborhoods and community facilities. Approximately 12.1 miles of bikeways are proposed in Calistoga. Once completed, the network will play a key role in bolstering the City’s efforts to increase the use of bicycles as non-auto modes of transit, and to reduce overall vehicle miles traveled in the City.

Approximately 6.2 miles of Class I pathways are proposed throughout the community, connecting parks and open spaces via multi-use paths that are completely separate from auto traffic. Approximately 3.5 miles of Class II bike lanes are proposed. Class II bike lanes provide a designated lane for bicycle travel along a street or highway, and are proposed along various streets. Key east-west routes include: Lake Street from Washington to Silverado Trail.

Approximately 2.4 miles of Class III routes are proposed throughout the community. Class III bike routes provide for shared use of travel lanes with vehicle traffic. Key Class III bikeways include a north-south route on Washington Street, Cedar and Grant along with an east-west connection at Oak Street.

Bicycle Parking and Support Facilities

Every bicycle trip has two main components: the route selected by the bicyclist and the “end-of-trip” facilities at the destinations. The availability of safe bicycle routes and secure and convenient facilities is critical to promoting greater bike usage in Calistoga . Bicycle facilities can include short- and long-term bicycle parking, showers, lockers and lighting of bicycle parking areas.

Providing short- and long-term bicycle parking at key destinations, such as parks, schools, community facilities, transit stops and shopping areas, will be essential to the development of a complete bicycle system. Parking should be highly visible, accessible and easy to use. In addition, facilities should be located in well-lit areas and covered where possible.

Support facilities for bicyclists should also be provided. Showers are an important amenity for those bicycle commuters with a rigorous commute and/or formal office attire. Lockers provide a secure place for bicyclists to store their helmets and other gear.

**Table 84
Proposed Bikeways and Project Priorities**

#	Project Corridor/Street	Begin Point	End Point	Class	Length (Miles)	Primary Route	SF Bay Area Route	Use	Cost	Priority
Class I Multi-Use Path										
1	Eastern Connection	Silverado Trail	Grant Street	I	0.7	No	No	C/R	350,000	Low
2	Fair Way Extension	Lincoln Avenue	Washington Street	I	1.0	Yes	No	C/R	550,000	High
3	Logvy Park Connection	N. Oak Street	S. Oak Street	I	0.1	No	No	C	500,000	High
4	Money Lane Extension	Michael Way	Mora Avenue	I	0.2	No	No	C	250,000	Low
5	Napa River Connection	Foothill Boulevard	Washington Street	I	0.2	No	No	C/R	500,000	Medium
6	Napa River Trail	Calistoga City Limits	Calistoga City Limits	I	3.0	No	No	C/R	3,000,000	High
7	Southern Crossing	Foothill Boulevard	Silverado Trail	I	1.0	Yes	No	C/R	1,250,000	Low
Class II Bike Lane										
8	Foothill Boulevard	Calistoga City Limits	Calistoga City Limits	II	2.1	Yes	No	C/R	1,500,000	Medium
9	Lake Street	Silverado Trail	Washington Street	II	0.7	No	No	C	243,750	Medium
10	Lincoln Avenue	Silverado Trail	Fair Way	II	0.7	Yes	No	C/R	1,500,000	High
Class III Bike Routes										
11	Berry Street	Washington Street	Foothill Boulevard	III	0.1	No	No	C	500	Medium
12	Brannan Street	Silverado Trail	Lincoln Avenue	III	0.3	No	No	C/R	1,500	Medium
13	Carli Drive	Money Lane	N. Oak Street	III	0.1	No	No	C	500	Low
14	Cedar Street	Lincoln Avenue	Pine Street	III	0.1	No	No	C	500	Low
15	Fair Way	Lake Street	Lincoln Avenue	III	0.2	No	No	C	1,000	Medium
16	Grant Street	Stevenson Avenue	N. Oak Street	III	0.3	No	No	C	1,500	Medium
17	Greenwood Avenue	Grant Street	Napa River	III	0.2	No	No	C/R	1,000	Medium
18	Michael Way	Money Lane	Grant Street	III	0.3	No	No	C	1,500	Low
19	Mora Avenue	Money Lane Extension	Grant Street	III	0.3	No	No	C/R	1,000	Low
20	Oak Street	Napa River	Cedar Street	III	0.1	No	No	C	500	High
21	Oak Street	Carli Drive	Grant Street	III	0.2	No	No	C	1,000	Low
22	Pine Street	Foothill Boulevard	Cedar Street	III	0.1	No	No	C	500	Low

**Table 84
Proposed Bikeways and Project Priorities**

#	Project Corridor/Street	Begin Point	End Point	Class	Length (Miles)	Primary Route	SF Bay Area Route	Use	Cost	Priority
23	Stevenson Avenue	Grant Street	Lincoln Avenue	III	0.1	No	No	C	500	Low
				Class I	6.2			Total	\$9,654,800	
				Class II	3.5					
				Class III	2.4					

Notes: R = Recreation; C = Commute

Safety, Education, and Support Programs

The Calistoga Police Department enforces the California Vehicle Code and traffic laws in Calistoga including bicycle violations.

The 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 all students in Calistoga from second grade through high school on an annual basis.

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 City and Calistoga Joint Unified School District should work together to ensure Safe Routes to Schools programs are delivered to Calistoga's schools.

- *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 City, Calistoga Joint Unified School District, and individual schools should work with the Napa County Office of Education 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 community 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 large employers.

Adult bicyclists account for the majority of bicyclists in the Plan Area. A variety of rider types comprise the “adult bicyclist” category, and 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 Plan Area 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 Calistoga'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 Update has identified the top collision locations for bicyclists throughout the community. Increased law enforcement efforts at these specific locations may help to decrease collisions between motorists and bicyclists. The City's 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.

Implementation

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.

Implementation

Successful implementation of the projects and programs contained in the Bicycle Plan will require ongoing cooperation within and among City departments, other public agencies, and bicycle stakeholders. 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 the City's Capital Improvement Program (CIP) process 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 of the City 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 Plan by resolution
 - a. Approval of the Plan by the Metropolitan Transportation Commission
 - b. Certification of the Plan 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 Committee, Planning Commission, City Council
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

Maintenance and Monitoring

Bicycle system maintenance needs include cleaning/sweeping, asphalt resurfacing, striping maintenance, sign replacement, pavement repairs, signal maintenance, drainage work, refuse removal, graffiti removal, and landscape maintenance. Maintenance of on-street facilities such as Class II bike lanes, Class III bike routes, and bicycle boulevards, is generally treated as a component of typical roadway maintenance

activities which are funded through gas taxes and programmed annually. While some maintenance needs such as re-striping or re-surfacing can be placed on a periodic schedule, other needs such as sweeping, fixing potholes, addressing signal detection sensitivity, and trimming overgrown vegetation require immediate attention. Table 9 provides a recommended timetable for regular maintenance activities associated with the bicycle network.

Table 9
Bicycle System Maintenance

Maintenance Item	Schedule/Frequency
Pavement/pathway sweeping	Monthly – annually as needed
Signal detection sensitivity	Bi-annually – or as needed on a request basis
Trash disposal	Weekly – as needed
Graffiti removal	Weekly – monthly as needed
Potholes	As needed – on a request basis
Sign replacement/repair	1 to 3 years – as needed
Pavement marking replacement	1 to 3 years – as needed
Pavement sealing	Every 5 years – as needed
Lighting (replacement/repair)	Annually – or as needed on a request basis
Clean drainage system	Annually – or as needed on a request basis
Maintain furniture, bus stops, railings	Annually – or as needed on a request basis
Fountain/restroom cleaning/repair	Weekly – monthly as needed
Bridge/Underpass inspection	Annually
Maintain emergency telephones, Closed circuit TV	1 year
Replenish shoulder material	Annually
Landscape Maintenance	
Tree, Shrub, & grass trimming/fertilization	5 months – 1 year
Maintain irrigation lines/replace sprinklers	1 year
Irrigate/water plants	Weekly – monthly as needed
Shoulder and grass mowing	Seasonally as needed
Vegetation maintenance	Annually – or as needed on a request basis
Weed control	Monthly – as needed

Maintenance Recommendations

Recommendation: Ensure that all bikeways and roadway shoulders are included in the City’s street sweeping program and swept as part of routine street sweeping operations. Street sweeper operators should be properly trained to understand the needs of bicyclists and the importance of clearing debris from bikeways.

Recommendation: Ensure that all construction projects

Recommendation

Implement a Maintenance Reporting System

Policy 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 in a timely manner. [NCTPA, NCBC, cities, towns, County]

(roadway and/or road adjacent projects) maintain both a clean swept shoulder and a through right-of-way for bicycles.

Recommendation: Establish a maintenance reporting system as a means to report, track, and respond to routine bicycle maintenance issues in a timely manner. Ensure that the City’s maintenance reporting system is integrated with any countywide efforts to develop a similar program.

Maintenance Costs

Maintenance costs for the bikeway system are generally lumped into two categories. As previously noted, maintenance activities associated with on-street bikeways are typically accommodated as a component of routine street maintenance activities that are programmed annually, while maintenance of off-street bikeways (Class I multi-use paths) and support facilities such as bike lockers and racks is generally funded through local revenues. Given the miles of existing and proposed Class I bikeways in Calistoga , maintenance costs for the bikeway network are a consideration that should not be overlooked. The City’s pathways consist of both concrete and asphalt surfaces. While concrete pathways tend to remain stable and usable overtime, prompt and regular maintenance including pothole repair and seal coats help to preserve and extend pavement life. To address the long-term need for maintenance of the bikeway network, it is recommended that a maintenance budget be established to ensure regular on-going maintenance of the network so that Calistoga’s trails and pathways remain usable by residents over time. Cost assumptions for typical bikeway maintenance activities are presented in Table 100.

**Table 10
Maintenance Cost Assumptions**

Facility Classification	Estimated Annual Cost Per Mile	Notes
Class I	\$8,500	Assumes maintenance associated with Class I trails, trail amenities, and landscaping
Class II	\$2,000	Assumes regular/periodic lane sweeping, sign and stripe/stencil maintenance, signal detection, and minor surface repairs
Class III	\$1,000	Assumes sweeping and minor surface repairs
Sidewalks	\$2,500	Assumes landscape/vegetation maintenance and surface repairs

Monitoring

The projects and programs recommended in this Plan are dynamic and subject to change as bicycling conditions and demands throughout the plan area evolve. Periodically monitoring certain indicators and conditions along the bikeway network will allow the City to assess needs and issues that require attention and/or to adjust plans and project recommendations accordingly. The primary components to monitor include: bicycle collisions, bicycle usage, and safety/security and enforcement. The following monitoring actions are recommended to evaluate the success of the City’s efforts and to ensure implementation of the Bicycle Plan goals over time.

- Collect and analyze collision data on an ongoing basis to assist in the identification of problem locations.

- Conduct and log bicycle counts on an annual or semi-annual basis so that usage trends can be identified and measured.
- Conduct regular meetings with bicycle stakeholders (annually or bi-annually) to solicit feedback on bicycle facilities, network maintenance, promotional and educational activities, and safety/security and enforcement issues.
- Consider the use of periodic public surveys to receive input on bicycle issues from the larger community.

Project Costs

Construction costs for bicycle infrastructure are presented in Table III. Costs estimates were developed by researching the latest unit costs experienced by 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 Facilities². 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.

² Transportation Research Board, National Cooperative Highway Research Program's *Guidelines for Analysis of Investments in Bicycle Facilities*, 2006

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

Capital Project	Unit	Cost
Class I: Multi Use Trail		
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
Class II: Bike Lanes		
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
Class III: Bike Route		
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
Bicycle Parking		
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

A variety of bicycle rack and bicycle locker products and styles are available through local and national manufactures and retailers. The sample "styles" identified in Table II are intended for reference. Local agencies and developers are encouraged to utilize racks and lockers that are effective and appropriate for the context of the respective installation site.

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 122 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 12
Cost Assumptions for Programmatic Improvements**

Program/Project Name	Lead Agency	Partner Agencies	Estimated Cost	Estimated Annual Maintenance Cost	Potential Funding Source
Napa Bike Program – Education and Encouragement Activities					
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 Bicycle 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 12
Cost Assumptions for Programmatic Improvements**

Program/Project Name	Lead Agency	Partner Agencies	Estimated Cost	Estimated Annual Maintenance Cost	Potential Funding Source
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	Part of annual operating costs
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	Regional Grants

Project Prioritization and Phasing

Project implementation priorities are identified in Table 12, the proposed project list. Projects are categorized as High, Medium, or Low to both indicate priority and provide flexibility in phasing and implementation. Project prioritization was developed using the qualitative analysis detailed in the “Criteria for Route Selection and Evaluation” section. Project ranking and prioritization scores are presented in Appendix E. It is important to note that the prioritization of projects and phasing of improvements are presented as guidelines, as flexibility is essential in the implementation of planned bikeway projects and programs in order to capitalize on opportunities as they arise.

Past Expenditures

Since completion of the 2007 Bicycle Plan, the City of Calistoga has spent approximately \$40,000 on the construction of bicycle facilities. Additional funds have been spent on design, administration, environmental clearance, and maintenance activities. Project improvements are listed in Table 13.

**Table 13
Historical Expenditures on Bicycle Facilities**

Project/Road	Description	Cost Estimate	Fiscal Year (FY)
Lincoln Avenue Bicycle Parking Project	Installation of bicycle racks at various locations along Lincoln Avenue	\$5,000	2010/11
Grant Street & N. Oak Street striping	Re-striping of Grant Street Class II and new Class II striping on N. Oak Street	\$2,884	2011
N. Oak Street and Washington Street Intersection Improvements	Improve Safety at Intersection	\$20,000	2011
Citywide Bike Maps 1 st & 2 nd Editions	Prepared Citywide Bike Maps	\$4,000	2008 & 2011
Employee Bicycle Incentive Program	Purchase 3 Bikes, 3 Bike Lockers and 3 Racks for Employee Use	\$8,500	2009/2010
Countywide Greenway Feasibility Study	Feasibility of Countywide Class I multi use pathway from the Baylink Ferry terminal through Napa Valley	\$20,000	2009/2010

Funding Resources

There are a number 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
- 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, 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.

Costs and Implementation

This section provides an overview of the costs, implementation strategies, and actions that are necessary to implement the projects and programs that have been identified in this Plan.

Project Costs

Planning level cost estimates were developed for this effort. Bicycle project cost estimates were developed by utilizing available information on each proposed project including segment length, corridor condition, and other available information. Each segment was evaluated according to an estimated cost-

per-mile based on the recommended facility type. Unit costs were developed by researching the latest unit costs experienced by local agencies in Napa County and the North Bay; and were reviewed by agency staff for verification.

Proposed projects and programs in this Plan have been analyzed to determine financing requirements, and to allow the entities to budget their resources and target available funding sources. It is important to note that the majority of funding for the projects contained in this Plan is expected to be derived from competitive funding sources that require a combination of sound applications, local support, and lobbying on the regional and state level. To help with project implementation, potential funding sources for improvement projects have been identified in Table 12. Figure 8 displays a calendar overview of primary competitive source programs to provide an understanding of funding program timelines. Since the programs are dynamic, often changing annually, the calendar is formatted on a quarterly basis. It provides a twelve-week time to provide guidance on when calls for projects are typically released and application deadlines occur. Summaries of funding programs including weblinks are provided in Appendix F.

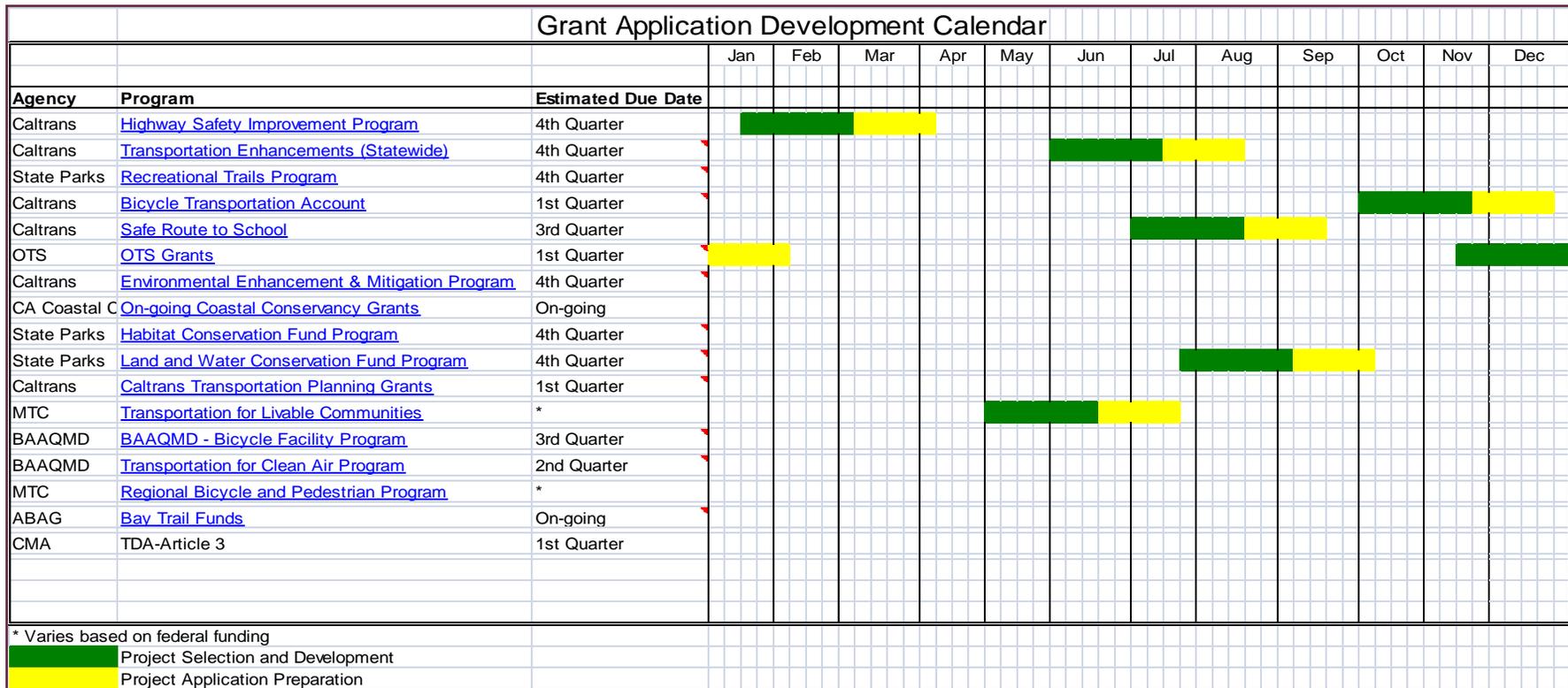


Figure 8 – Grant Application Development Calendar

Definitions, Terms, and List of Acronyms

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
SUMMARIES of RELEVANT PLANNING DOUMENTS AND POLICIES

Appendix A – Existing Plan and Policy Review

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 21st 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

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

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

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_hm/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

Director's Policy 22 (DP-22), "Director's Policy on Context Sensitive Solutions"

Directors 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%20TIP/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

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

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.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

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 or construct trail segments; 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 290 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

- Duhig Road: Napa/Sonoma County line to SR 12/121
- SR12/121: Duhig Road to Cuttings Wharf Road
- Cuttings Wharf Road: SR 12/121 to Napa River
- Las Amigas Road: Duhig Road to Cuttings Wharf Road
- Old Sonoma Road: SR 12 to South Freeway Drive
- SR 121: SR 29 to SR 221
- SR 221/SR 29: SR 121 to Napa/Solano County line
- Along Napa River: From Napa Valley College to Napa Municipal Golf Course
- Wetlands Edge Pathway: Eucalyptus Drive to American Canyon Road

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.

- Proposed Trail: Along Napa River From Maxwell Bridge to Napa Valley College
- Proposed Trail: Napa Municipal Golf Course to Napa/Solano County line

<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

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

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

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 Calistoga

Calistoga General Plan – Relevant Community Identity Element Policy

- P4. New developments should provide accessible public and semi-public areas and efficient and inviting pedestrian and bicycle connections to existing Calistoga streets.

Calistoga General Plan – Relevant Circulation Element Policy

- P1. The City shall balance the need to increase motor vehicle capacity with concerns for bicycle and pedestrian circulation and commercial viability. (Page CIR-25)
- P2. Since Lincoln Avenue is Calistoga's main street and serves pedestrian and commercial purposes as much as it does motorized vehicles, it is inappropriate to establish any LOS standard for Lincoln Avenue between Foothill Boulevard and Wapoo Avenue. Instead, the City shall evaluate traffic on Lincoln Avenue on an on-going basis, seeking to balance vehicular, parking, bicycle and pedestrian needs. (CIR-26)
- P3. Schools should be sited in a way that allows for the safe use of existing and planned pedestrian trails and bicycle routes and minimizes the need for students to cross arterial streets. (CIR-33)
- P1. Bicycling shall be considered an essential and integral part of the city's circulation network (page CIR-34).

Calistoga General Plan – Relevant Open Space and Conservation Element Policy

- P5. The following setback standards shall continue to apply to all undeveloped waterway areas:
- For minor tributaries, a minimum of 30-foot setbacks shall be required from the top of the high bank.
 - For the Napa River, a minimum setback of 30 feet from the top of the high bank shall be limited to access for maintenance, erosion control, and pedestrian/**bicycle pathways**.
 - Within setback zones, the enforcement of prohibitions on grading, earthmoving, vegetation removal, livestock grazing, disposal of waste, and the construction of structures, including cross fences shall be continued. (Page OSC-46)

- P3. The City shall promote decreased reliance on motor vehicle travel through effective land use policies, improved public transit and facilities to accommodate bicycle and pedestrian modes of travel. (OSC-60)

APPENDIX B
BIKEWAY TYPE DESIGN DETAILS

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.

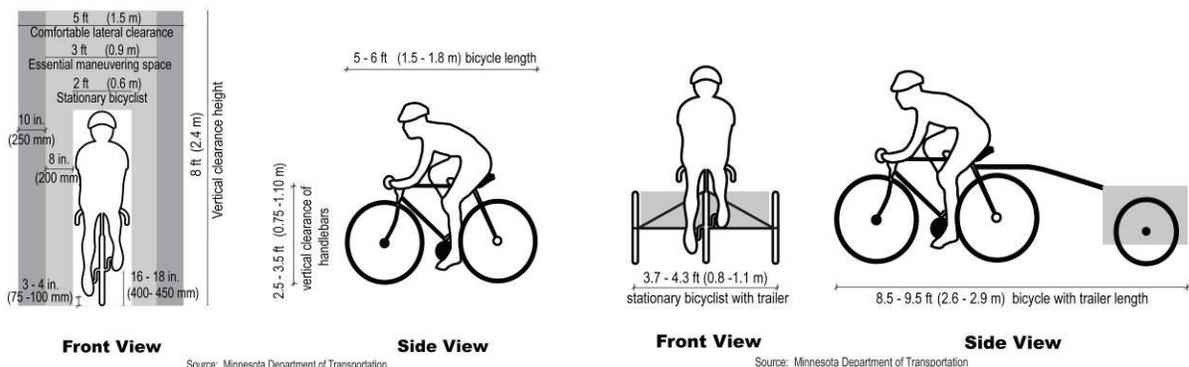
- *NACTO Urban Bikeway Design Guide*, National Association of City Transportation Officials, 2011
<http://nacto.org/cities-for-cycling/design-guide/>
- *APBP Bicycle Parking Guidelines*, 2nd Edition, Association of Pedestrian and Bicycle Professionals, 2010
<http://www.apbp.org/?page=Publications>

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,



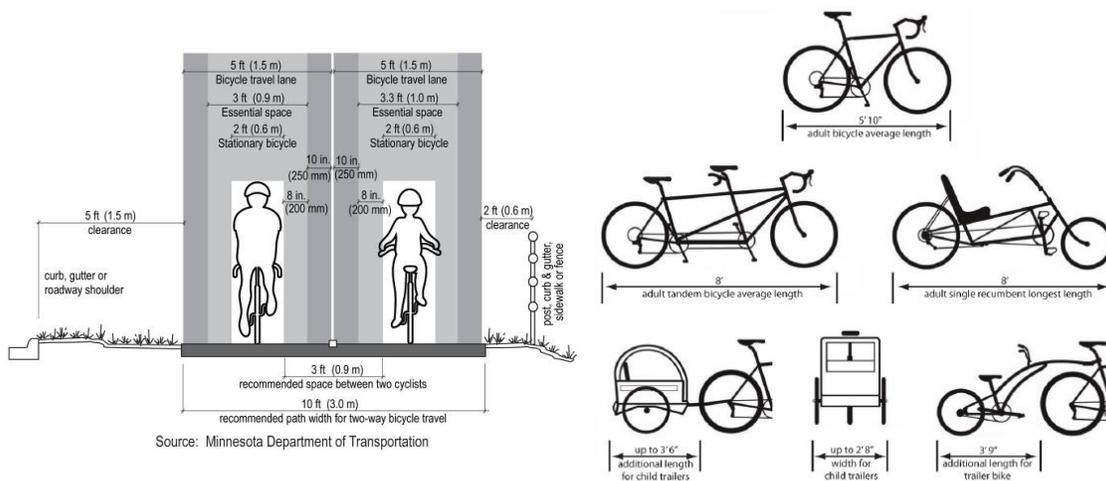
ten feet of horizontal clearance is recommended to allow two opposing bicyclists enough space to pass each other comfortably. On pathways, more width may be needed to allow bicyclists to react to unexpected maneuvers of another bicyclist or other user types such as in-line skaters, persons with pets, 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

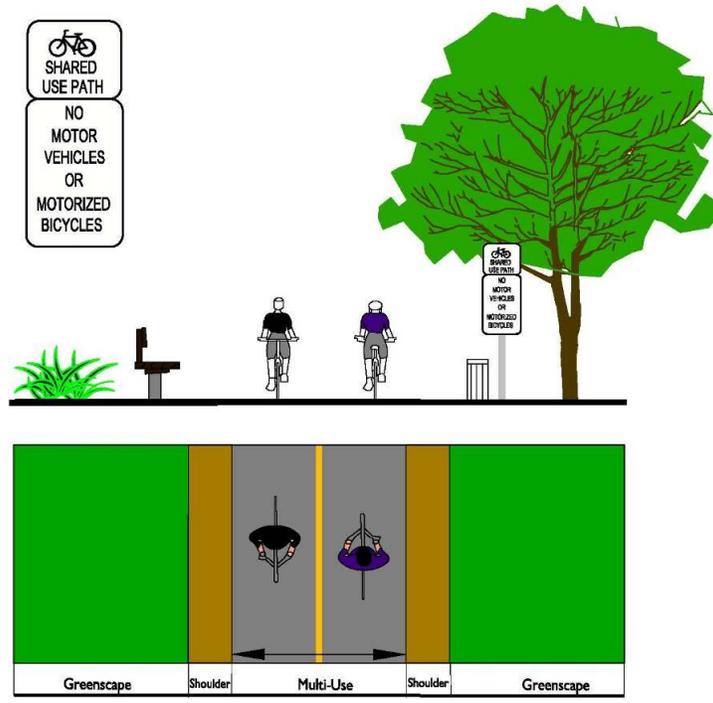
Typically called a “bike path” or “multi-use path,” a Class I bikeway provides for bicycle travel on a paved right-of-way completely separated from any street or highway. The recommended design width of a Class I path is dependent upon anticipated usage:

- 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.

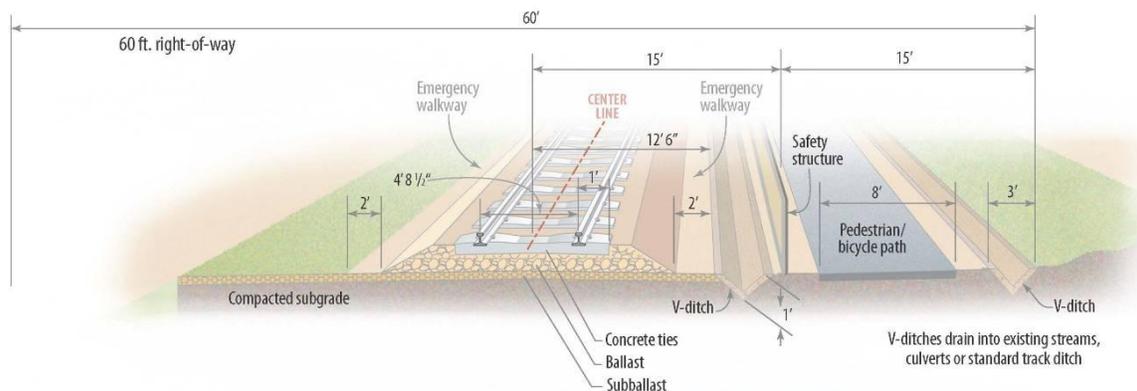
3. When on railroad property, RWT planners should adhere to the request or requirements for fencing by the railroad company. Fencing and/or other separation techniques should be a part of all RWT projects.
4. Trail planners should minimize the number of at-grade crossings, examine all reasonable alternatives 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



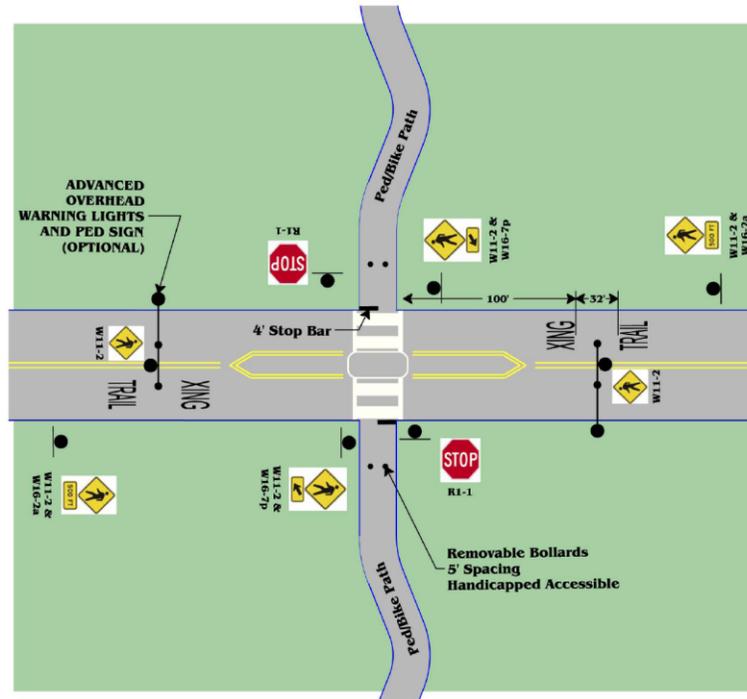
Source: Sonoma Marin Area Rail Transit

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

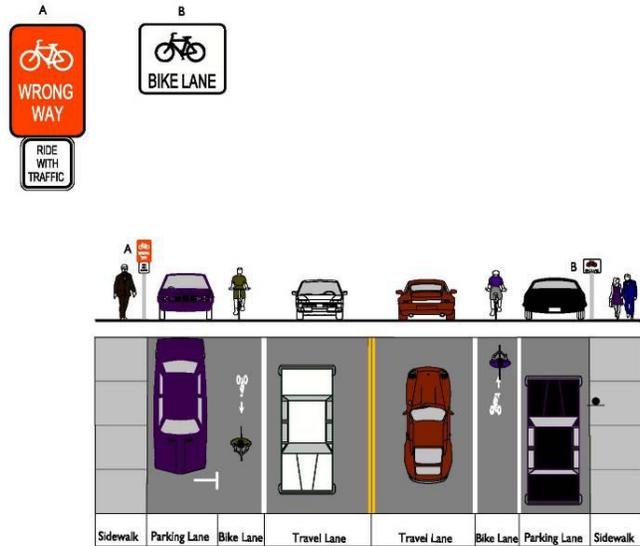
- 11' minimum for a shared bike/parking lane where parking is permitted but not marked on streets without curbs or 12' for a shared lane adjacent to a curb face.

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

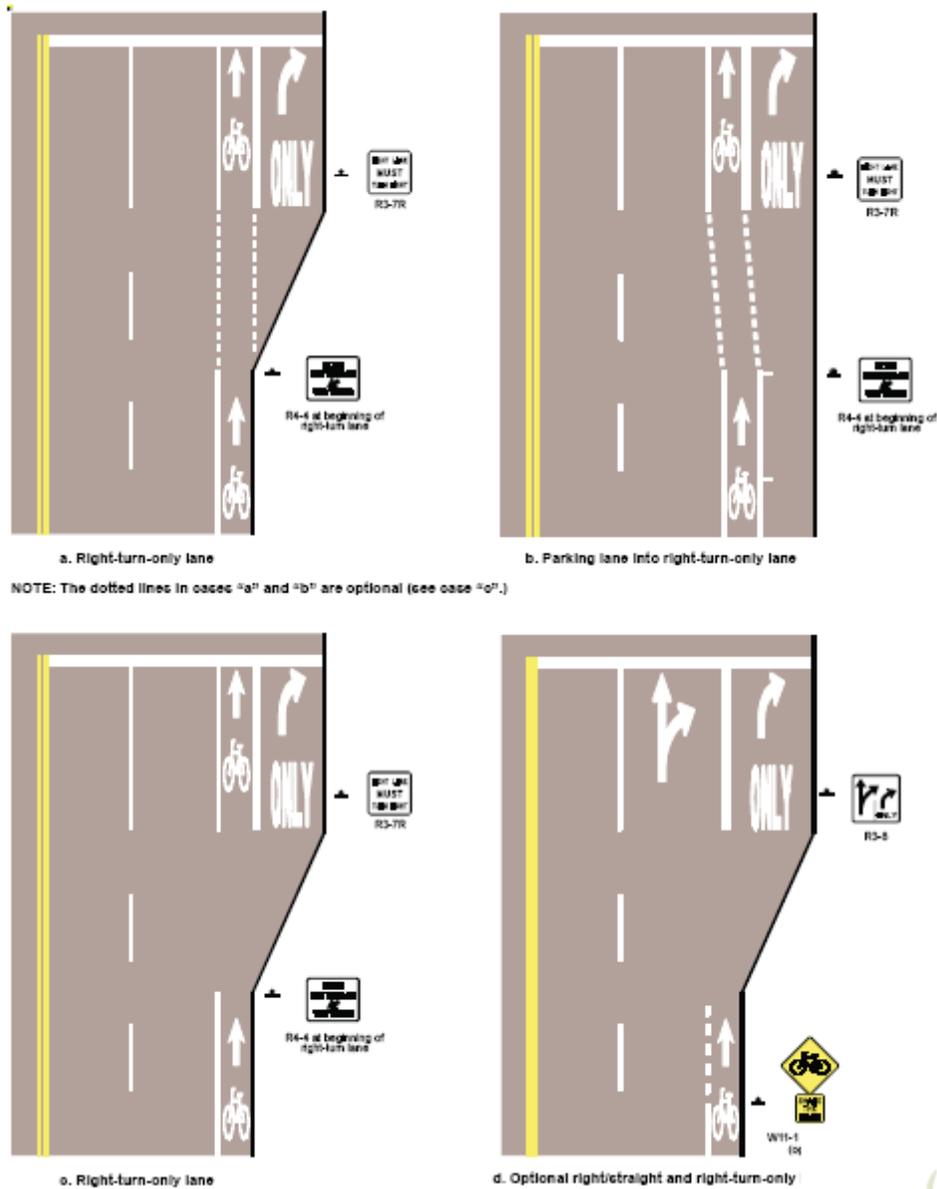
Parked vehicles can pose a serious hazard to bicyclists. Conflicts can occur during parking maneuvers and bicyclists are especially vulnerable to being hit by an opening door. On streets with parked vehicles, experienced bicyclists will generally ride three or four feet away from parked vehicles even 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.

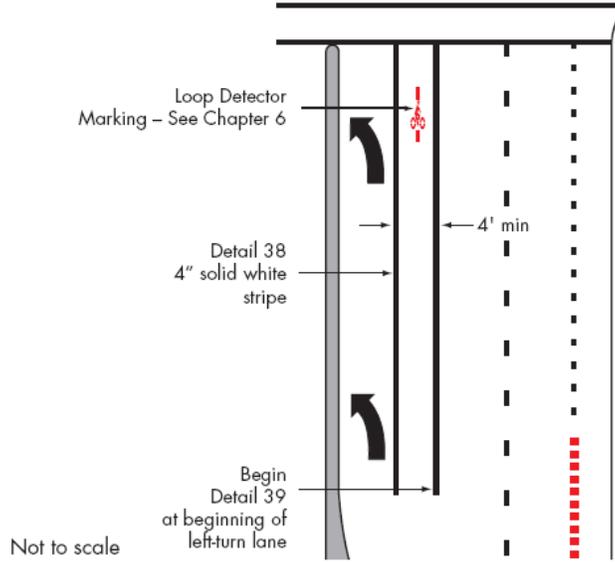


Bike Lanes approaching Right-Turn Only Lanes
 Source: *Guide for the Development of Bicycle Facilities*, AASHTO

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



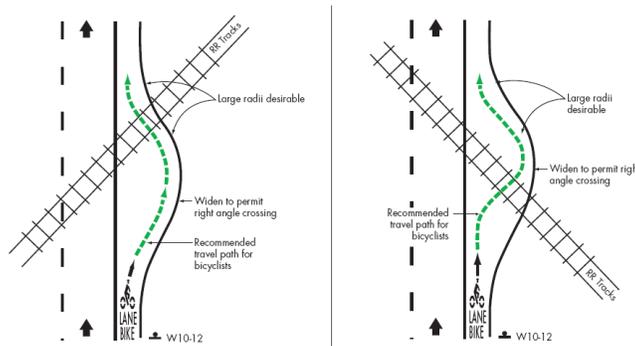
Bike Lane Striping at a Left-Turn Only Lane
 Source: VTA Bicycle Technical Guidelines

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*

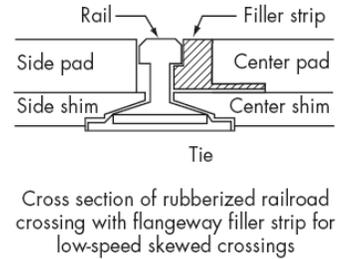
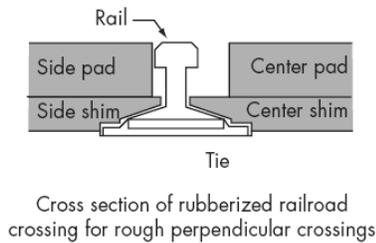
Where the angle of the tracks is not 90 degrees, additional pavement shall be provided so that bicyclists can approach the crossing at 90 degrees as depicted in Figure 1003.6A of the Highway Design Manual. Warning signs should be installed at skewed railroad crossings.



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.

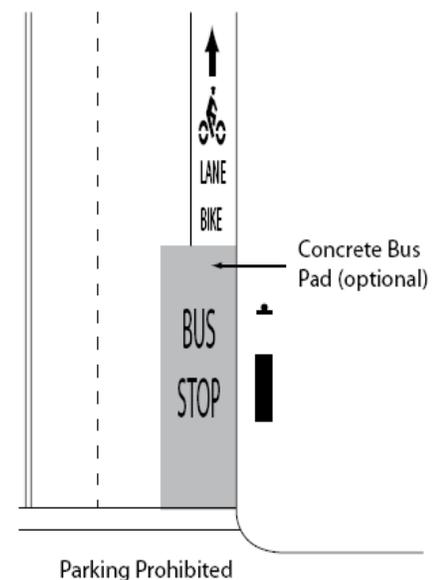
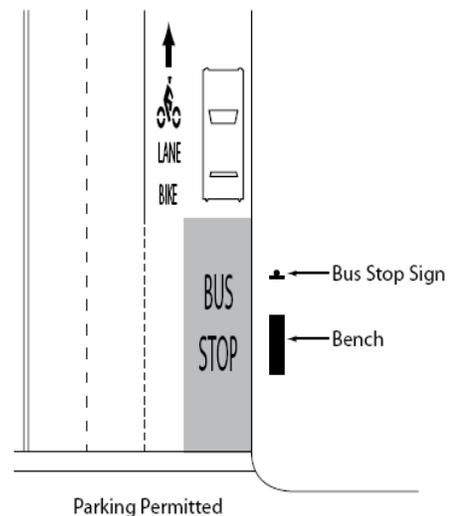
The purpose of each of these alternatives is to let bikes know to expect vehicles crossing their lane, let cars know to expect buses, and let buses know to look out for bikes. Using a dashed or dotted line may be an attempt to tell motorists that cyclists may be leaving the bike lane to pass a bus, or 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.

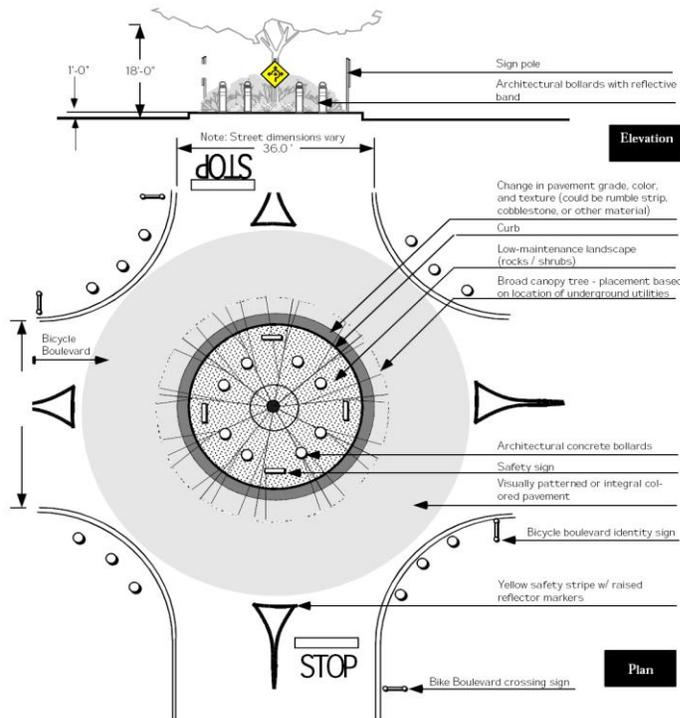
12' is the minimum width on State Highways without obtaining a Design Exception.

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.

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).

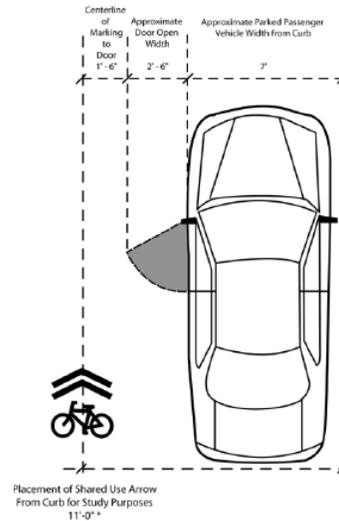
Signalized Intersections

Signal Detection

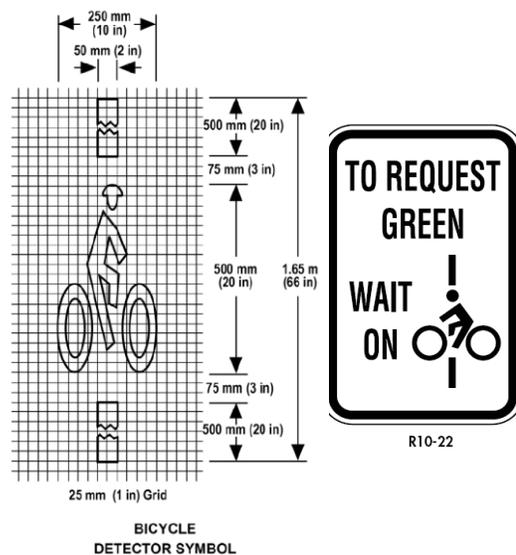
Actuated traffic signals pose a significant barrier to bicyclists when the detectors do not sense the presence of a bicycle. Bicyclists are then forced to wait for a vehicle to actuate the signal, dismount and use the intersection as a pedestrian, or proceed against the red light. A variety of signal 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.

Positional Layout of Shared Lane Markings

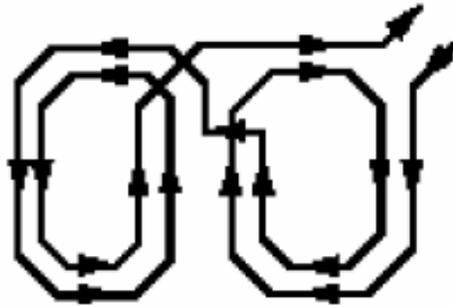


Source: San Francisco Bicycle Design Guidelines



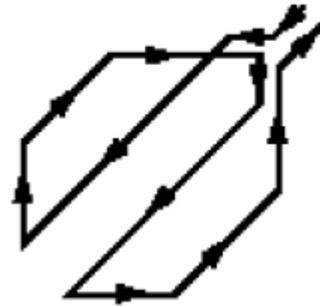
Inductive loops are still the most common technology employed. Two types of inductive loop detectors are typically used; the Diagonal Quadrupole Loop – Type “D” is typically used in vehicle lanes, and the Quadrupole Loop – Type “C” is typically used in bike lanes. The bicycle detection symbol may be 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

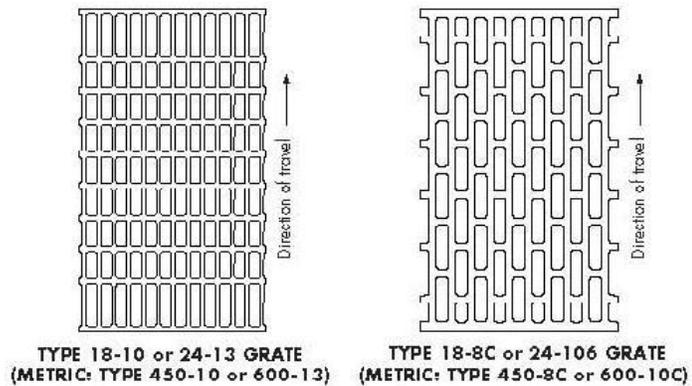


Photo: New York City, NY

Design Elements

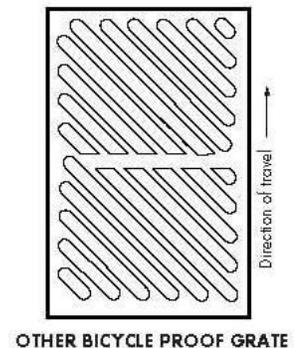
Drainage Grates

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).

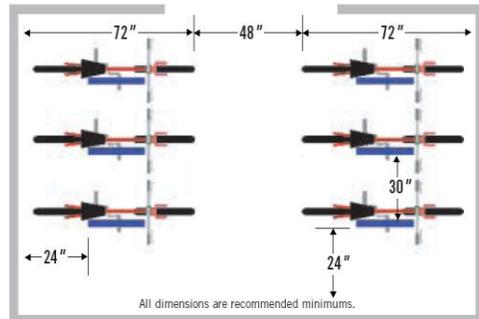
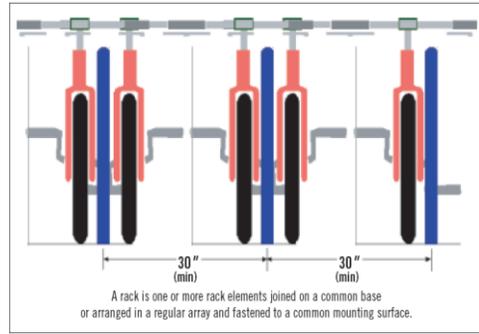
Bike Parking

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

OTS COLLISION RANKINGS, CHARTS AND GRAPHS

READING AND UNDERSTANDING THE OTS RANKINGS

- ▶ [What are the OTS Rankings?](#)
- ▶ [How are the OTS Rankings determined?](#)
- ▶ How to Read and Understand the OTS Rankings
 - ▶ [Top Horizontal Bar](#)
 - ▶ [Center Table](#)
 - ▶ [Bottom Table](#)

What are the OTS Rankings?

The OTS Rankings were developed so that individual cities could compare their city's traffic safety statistics to those of other cities with similar-sized populations. Cities could use these comparisons to see what areas they may have problems in and which they were doing well in. The results helped both cities and OTS identify emerging or on-going traffic safety problem areas in order to help plan how to combat the problems and help with the possibility of facilitating grants. In recent years, media, researchers and the public have taken an interest in the OTS Rankings. It should be noted that OTS rankings are only indicators of potential problems; there are many factors that may either understate or overstate a city/county ranking that must be evaluated based on local circumstances.

NOTE: City rankings are for incorporated cities only. County Rankings include all roads – state, county and local – and all jurisdictions – CHP, Sheriff, Police and special.

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How are the OTS Rankings determined?

- Victim and collision data for the rankings is taken from the latest available California Highway Patrol (CHP) Statewide Integrated Traffic Records System (SWITRS) data.
- Victim and collision rankings are based on rates of victims killed and injured or fatal and injury collisions per "1,000 daily-vehicle-miles-of-travel" (Caltrans data) and per "1,000 average population" (Department of Finance data) figures. This more accurately ensures proper weighting and comparisons when populations and daily vehicle miles traveled vary.
- DUI arrest totals and rankings are calculated for cities only and are based on rates of non-CHP DUI arrests (Department of Justice data). This is so that local jurisdictions can see how their own efforts are working.
- Counties are assigned statewide rankings, while cities are assigned population group rankings.

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How to Read and Understand the OTS Rankings

Top Horizontal Bar:

- Agency – local jurisdiction that the data applies to.
- Year – the year the data represents. The rankings are updated once per year when all component statistics and data have been reported.
- County – county in which the city is located.
- Group – Cities are grouped by population:
 - Group A – 13 cities, populations over 250,000
 - Group B – 55 cities, population 100,001-250,000
 - Group C – 103 cities, population 50,001-100,000
 - Group D – 97 cities, population 25,001-50,000
 - Rankings for smaller cities are not included on-line, but are available through the OTS Public Affairs Office.
- Population – estimates matched to "Year"
- DVMT – Daily Vehicle Miles Traveled. Caltrans estimate of the total number of miles all vehicles traveled on that city's streets on an average day during that year.

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Center Table:

IMPORTANT NOTE #1: The figures in the two ranking columns show as two numbers divided by a slash. The first number is that city's ranking in that category. The second number is the total number of cities/counties within that "Group". For instance, if you see "22/55", that means that city ranks 22nd out of 55 cities of similar size.

IMPORTANT NOTE #2: OTS Rankings are calculated so that the higher the number of victims or collisions per 1000 residents in a population group, the higher the ranking. Number 1 in the rankings is the highest, or "worst." So, for Group B, a ranking of 1/55 is the highest or worst, 27/55 is average, and 55/55 is the lowest or best.

- Type of Collision – This column delineates the different types of collisions OTS has chosen to show in the rankings. These represent the types with larger percentages of total killed and injured and areas of focus for the OTS grant program. Motorcycles were added in 2008.
- Victims Killed and Injured – This column shows the number of fatalities and injuries aggregated. Damage-only or fender-bender collisions are not included.
- Ranking by daily vehicle miles traveled – This column weighs this city against all others in the Group when looking at DVMT. Cities of like size may have widely varying rates of traffic, a factor which can be meaningful on a local basis. Significant differences between this and the population column must be evaluated based on local circumstances.
- Ranking by population – This column weighs this city against all others in the Group based on population. Population can be a meaningful basis for comparison. Significant differences between this and the Daily Vehicle Miles Traveled column must be evaluated based on local circumstances.
- Total Fatal and Injury – The total number of victims involved in all collisions where there were fatalities and/or injuries in that city/county.
- Alcohol Involved – Collisions in which there were victims killed or injured where a party (driver, pedestrian, bicyclist) was classified as "Had Been Drinking."
- HBD Driver <21 – Collisions in which there were victims killed or injured where a driver who was under the age of 21 had been drinking.
- HBD Driver 21-34 – Collisions in which there were victims killed or injured where a driver who was between the ages of 21 and 34 had been drinking.
- Motorcycles - Collisions in which there were victims killed or injured and a motorcycle was involved.
- Pedestrians - Collisions in which there were victims killed or injured and a pedestrian was involved.
- Pedestrians <15 - Collisions in which there were victims killed or injured and a pedestrian under the age of 15 was involved.
- Pedestrians 65+ - Collisions in which there were victims killed or injured and a pedestrian age 65 and older was involved.
- Bicycles - Collisions in which there were victims killed or injured and a bicyclist was involved.
- Bicycles <15 - Collisions in which there were victims killed or injured and a bicyclist under age 15 was involved.
- Composite – Figures which show rankings only, an aggregate of several of the other rankings (HBD 21-34, HBD Under21, Alcohol Involved victims plus Hit & Run, Nighttime and Speed collisions). These figures are a means to give an indication of over-all traffic safety.

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Bottom Table:

- Speed Related – Collisions in which there were victims killed or injured where speed was the primary factor.
- Nighttime (9:00pm - 2:59am) – Collisions in which there were victims killed or injured that occurred between those hours, which are prime hours for DUI, speeding and drowsy driving crashes.
- Hit and Run – Collisions in which there were victims killed or injured and a driver left the scene.
- DUI Arrests – DUI arrest figures are shown for cities only, not counties.

The first figure gives the total number of DUI arrests for the year on city streets. The second number shows the percentage of the city's estimated licensed drivers that was arrested for DUI during that year. The current statewide average is .90%. Local percentages shown give an indication of how cities compare against the average. Lower than .90% means lower than the state average and higher than .90% means higher than the state average. However, differences can be from many factors and must be evaluated based on local circumstances.

Cities often use this measure to determine how to adjust their DUI enforcement activity. When increased DUI enforcement is combined with education and public information campaigns, it can lead to a reduction of the incidence of DUI.

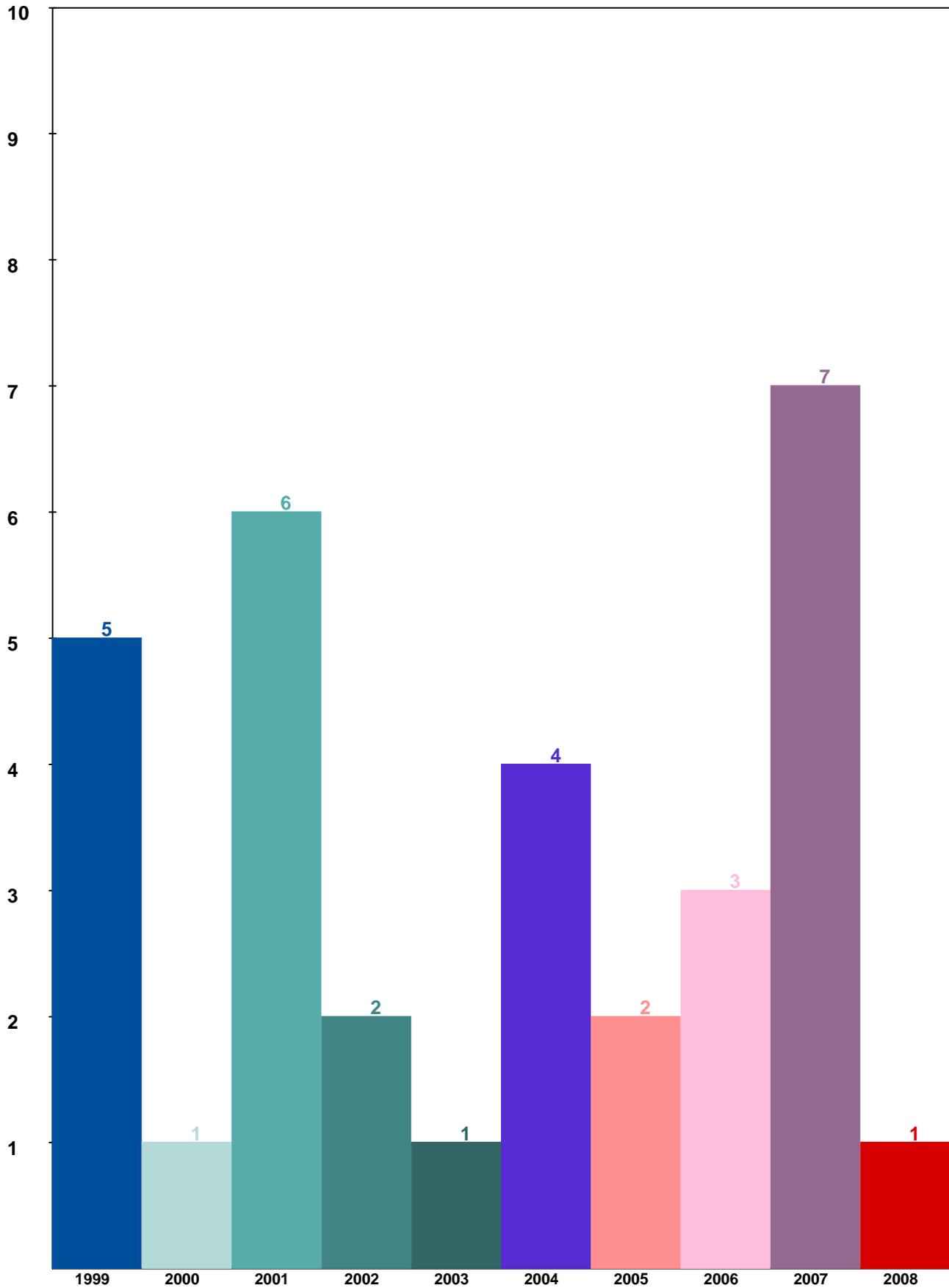
“0” Note: Cities reporting 0 victims and/or collisions for a category or 0 DUI arrests are ranked using the variable upon which the ranking is based. For example, if 10 of 97 cities in population group D reported 0 hit-and-run fatal and injury collisions when ranking by per “1,000 average population,” the city with the highest population of these 10 cities would be ranked 97/97, and the city with the lowest population of these 10 cities would be ranked 88/97. The same methodology has been applied when ranking per “1,000 daily-vehicle-miles-of-travel” and per “estimated average number of licensed drivers.”

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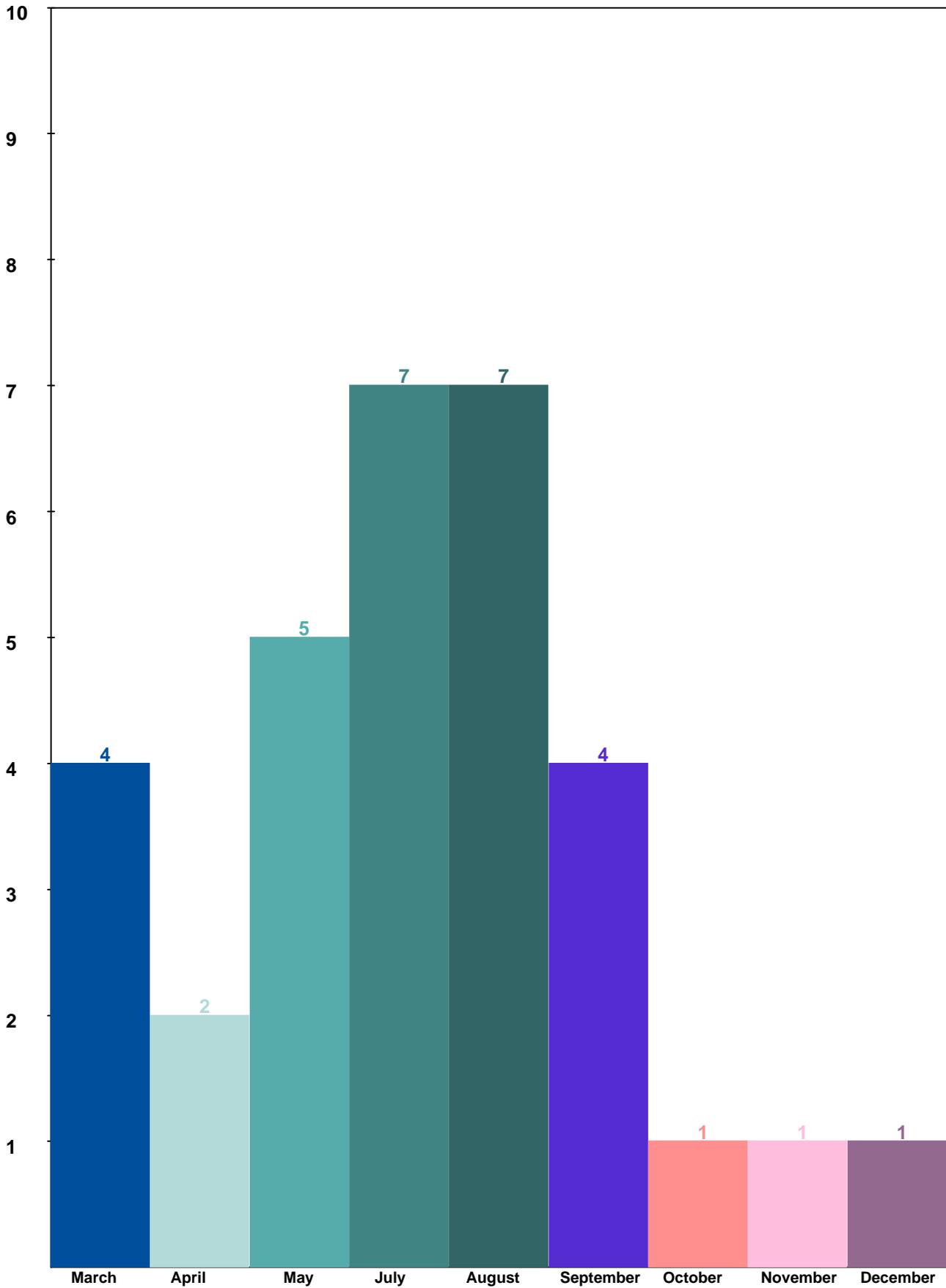
NAPA BICYCLE STUDY CALISTOGA

Collisions by Year 1/1/1999 to 12/31/2008 Total Collisions: 32



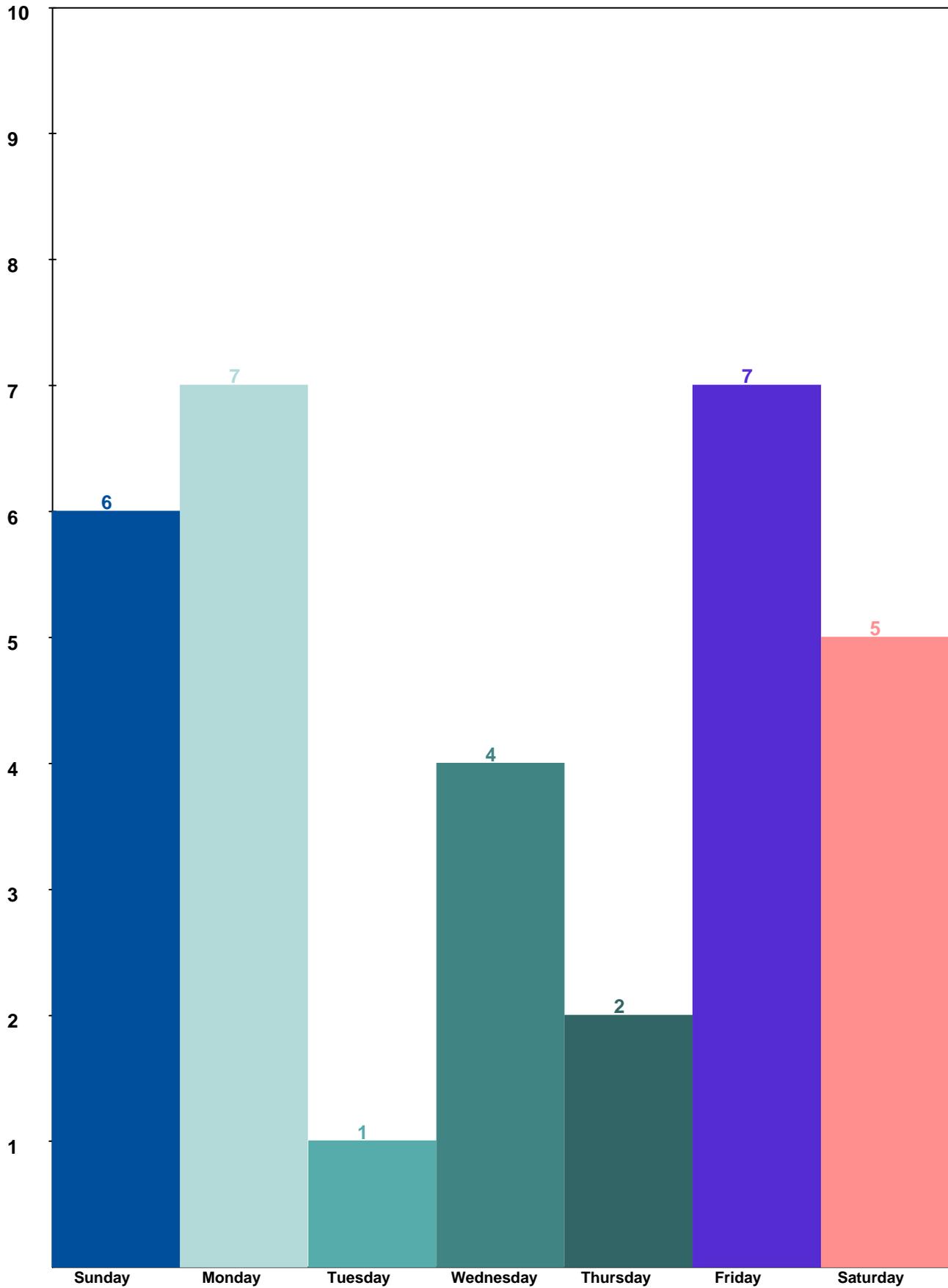
NAPA BICYCLE STUDY CALISTOGA

Collisions by Month 1/1/1999 to 12/31/2008 Total Collisions: 32



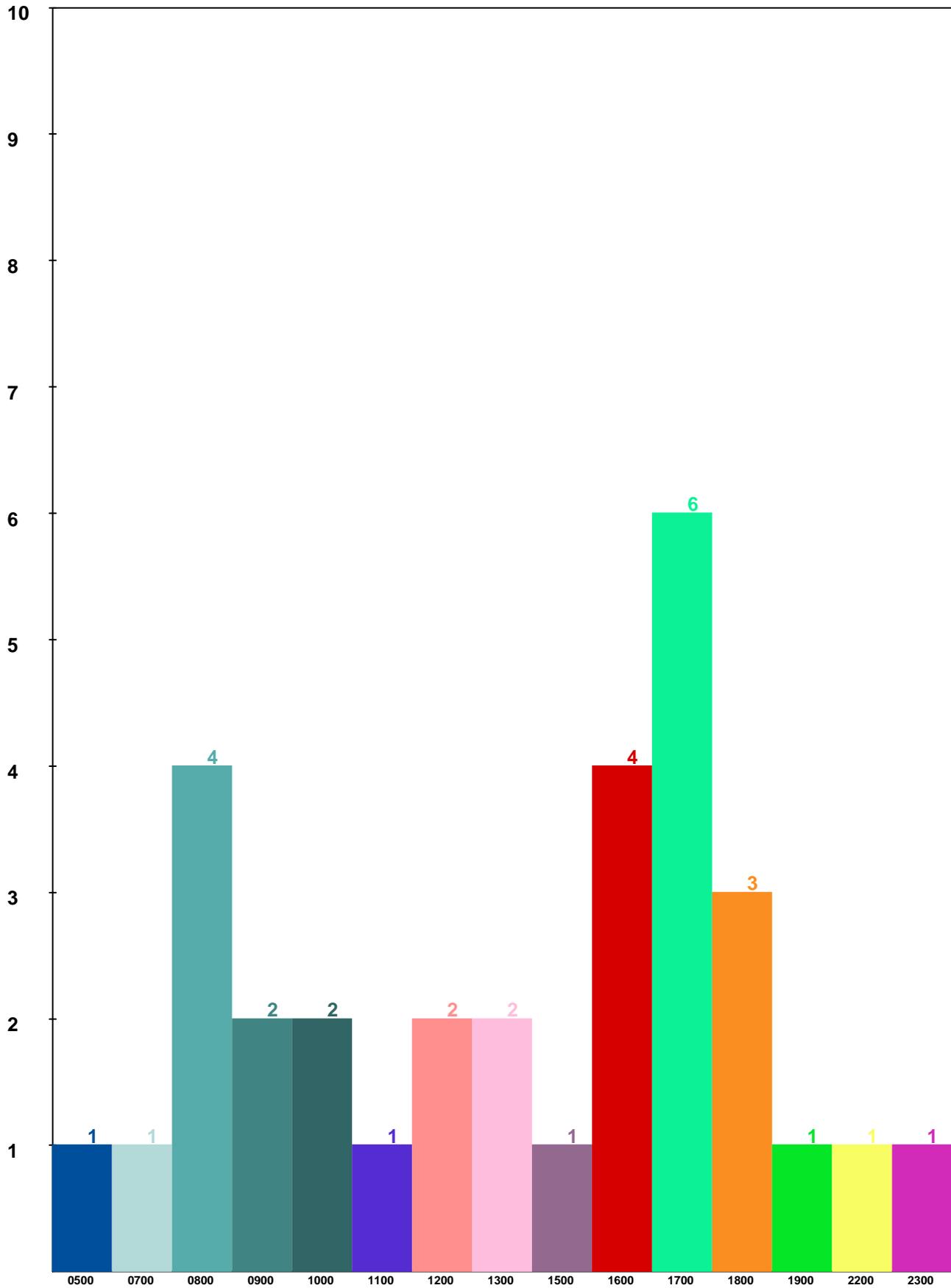
NAPA BICYCLE STUDY CALISTOGA

Collisions by Day of Week 1/1/1999 to 12/31/2008 Total Collisions: 32



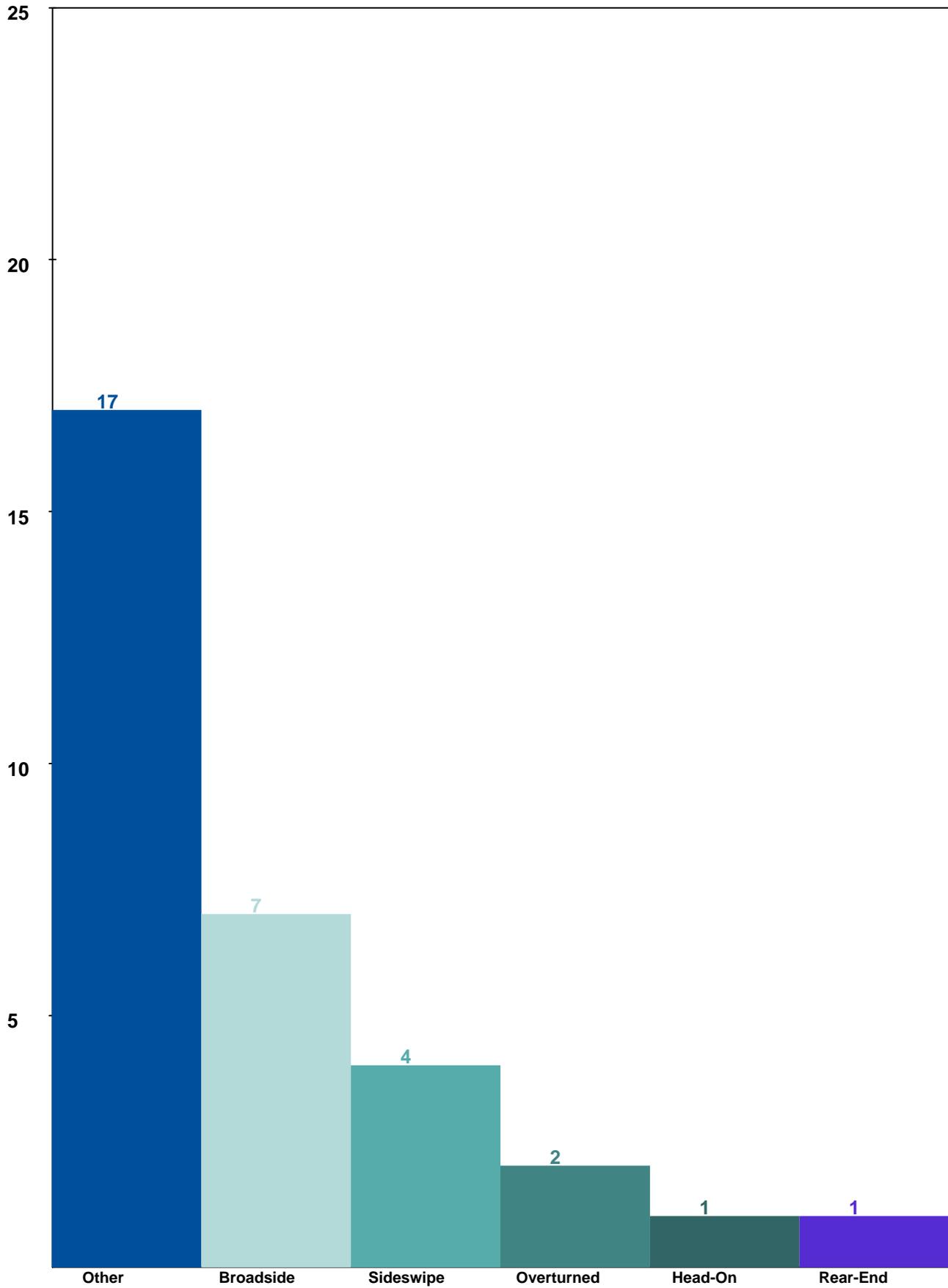
NAPA BICYCLE STUDY CALISTOGA

Collisions by Hour 1/1/1999 to 12/31/2008 Total Collisions: 32 (Unkown Time: 0)



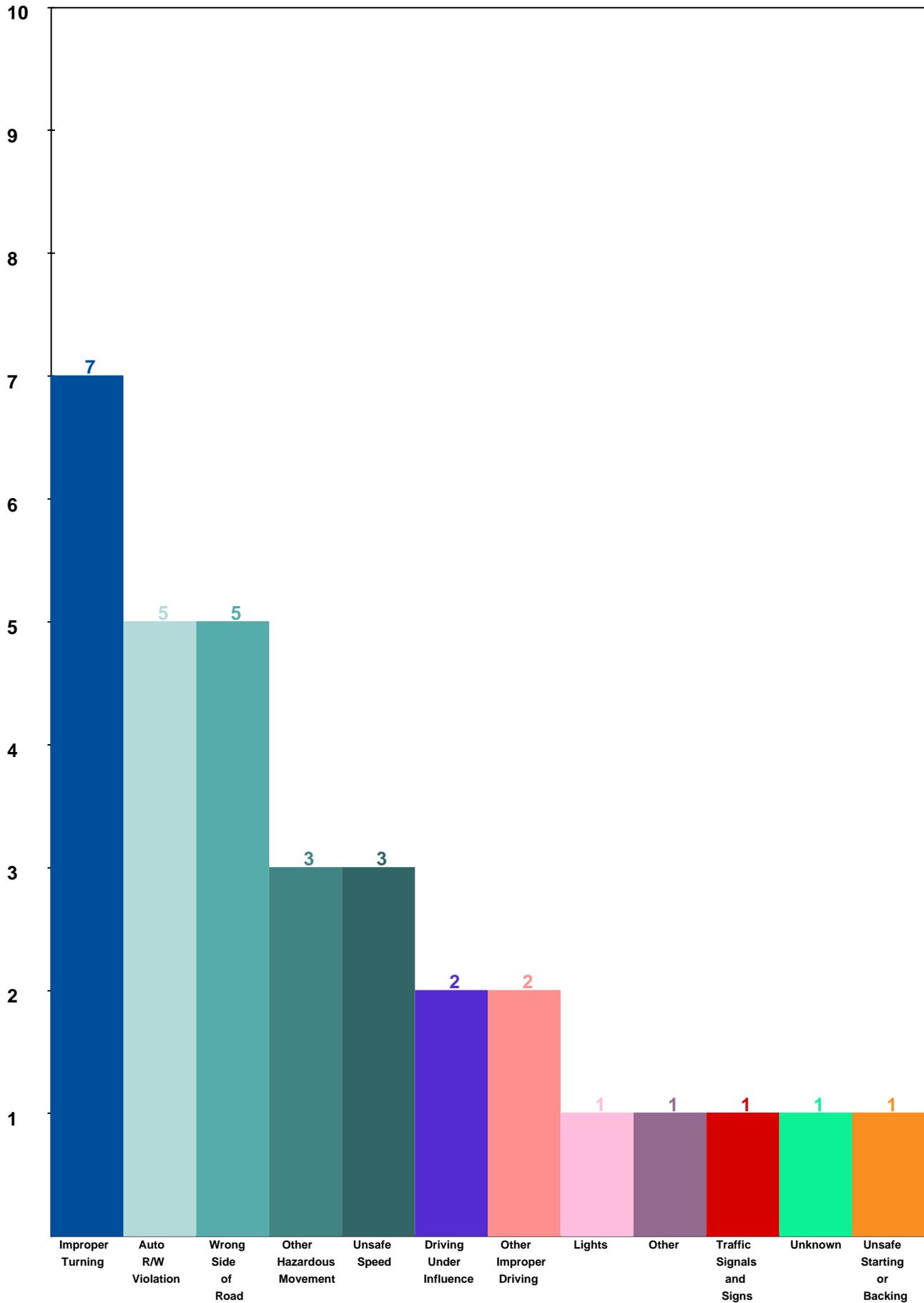
**NAPA BICYCLE STUDY
CALISTOGA**

Collision Type 1/1/1999 to 12/31/2008 Total Collisions: 32



NAPA BICYCLE STUDY CALISTOGA

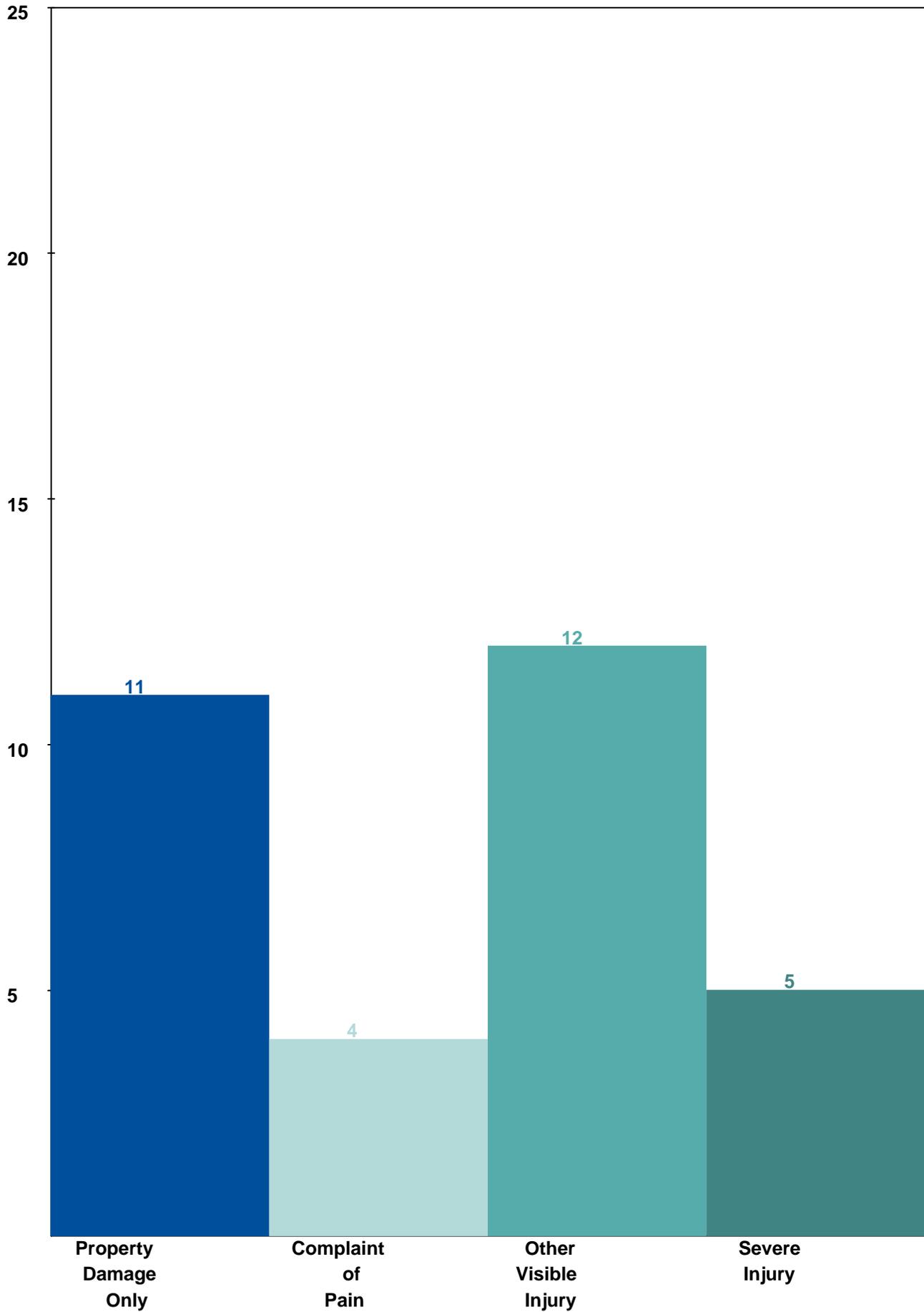
Primary Collision Factors 1/1/1999 to 12/31/2008 Total Collisions: 32



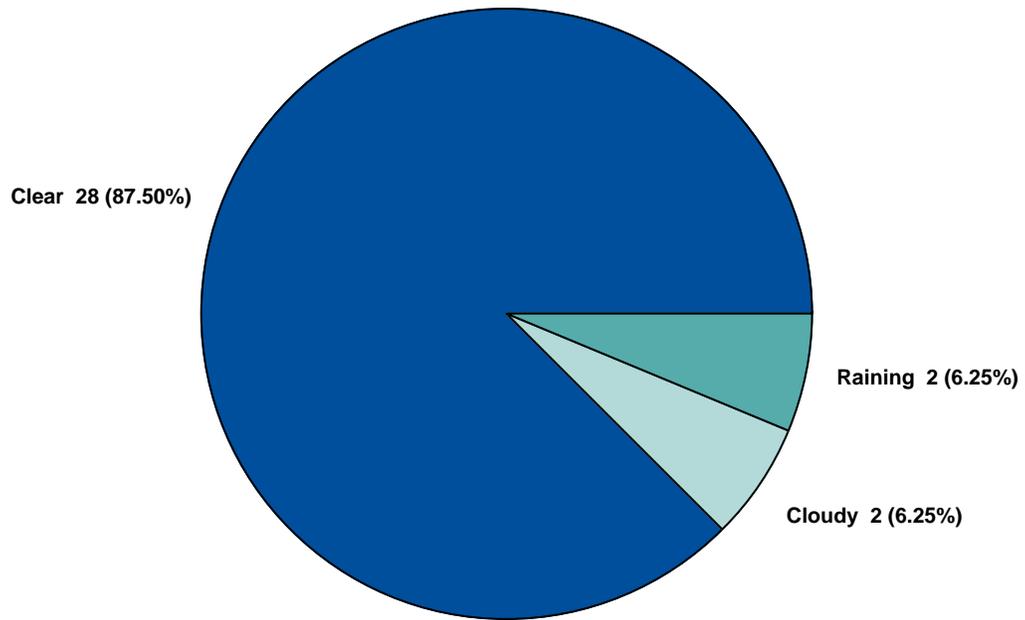
NAPA BICYCLE STUDY

CALISTOGA

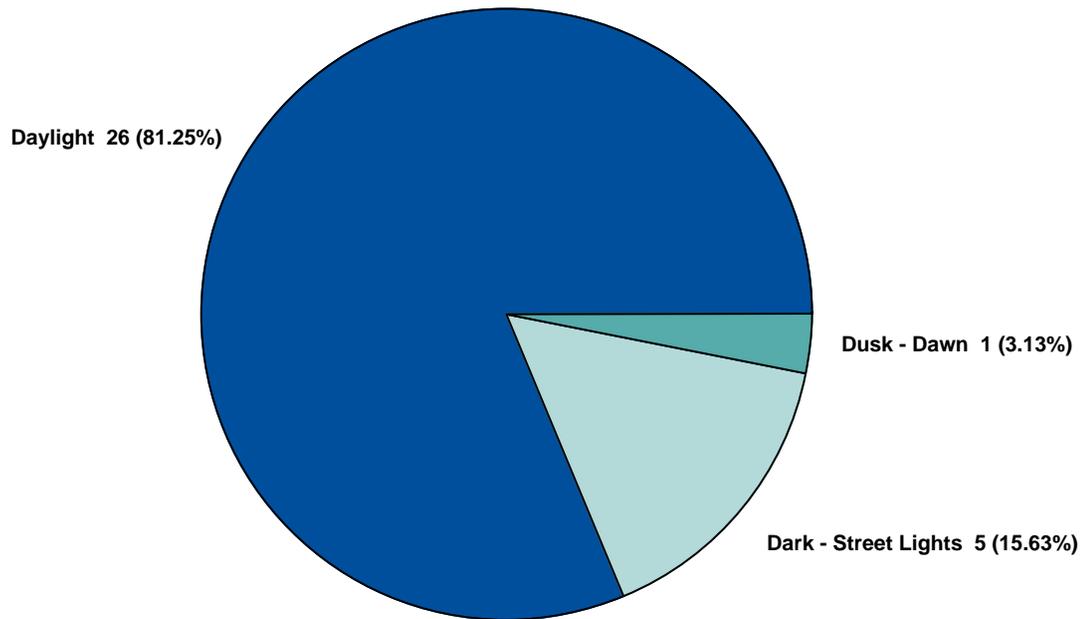
Extent of Injury 1/1/1999 to 12/31/2008 Total Collisions: 32



NAPA BICYCLE STUDY CALISTOGA



Weather



Lighting Conditions

OFFICE OF TRAFFIC SAFETY - 2006 RANKINGS

AGENCY	NCIC	COUNTY	GROUP POPULATION (AVG)	DVMT
CALISTOGA	2801	NAPA COUNTY	F	5,277

TYPE OF COLLISION	VICTIMS KILLED AND INJURED	RANKING BY DAILY VEHICLE MILES TRAVELED	RANKING BY AVERAGE POPULATION
Total Fatal and Injury.....	18	15/74	38/74
Alcohol Involved.....	1	32/74	48/74
HBD Driver <21.....	0	32/74	38/74
HBD Driver 21-34.....	0	45/74	48/74
Pedestrians.....	1	26/74	44/74
Pedestrians <15.....	0	34/74	42/74
Pedestrians 65+.....	0	31/74	39/74
Bicyclists.....	3	4/74	10/74
Bicyclists <15.....	1	7/74	9/74
Composite		13/74	32/74
COLLISIONS			
Speed Related.....	6	8/74	19/74
Nighttime.....	2	7/74	17/74
Hit and Run.....	0	53/74	57/74
DUI ARRESTS	40	1.26%	38/69

OFFICE OF TRAFFIC SAFETY - 2007 RANKINGS

AGENCY	NCIC	COUNTY	GROUP	POPULATION (AVG)	DVMT
CALISTOGA	2801	NAPA COUNTY	F	5,280	17,462

<u>TYPE OF COLLISION</u>	VICTIMS KILLED AND INJURED	RANKING BY DAILY VEHICLE MILES TRAVELED	RANKING BY AVERAGE POPULATION
Total Fatal and Injury.....	17	18/73	35/73
Alcohol Involved.....	6	3/73	6/73
HBD Driver <21.....	0	28/73	30/73
HBD Driver 21-34.....	0	44/73	48/73
Pedestrians.....	0	58/73	61/73
Pedestrians <15.....	0	37/73	39/73
Pedestrians 65+.....	0	29/73	30/73
Bicyclists.....	3	5/73	14/73
Bicyclists <15.....	0	35/73	39/73
Composite		7/73	19/73
	COLLISIONS		
Speed Related.....	3	20/73	38/73
Nighttime.....	1	20/73	38/73
Hit and Run.....	3	2/73	4/73
DUI ARRESTS	58	1.83%	50/70

OFFICE OF TRAFFIC SAFETY - 2008 RANKINGS

AGENCY	NCIC	COUNTY	GROUP	POPULATION (AVG)	DVMT
Calistoga	2801	NAPA COUNTY	F	5,304	17,225

<u>TYPE OF COLLISION</u>	VICTIMS KILLED AND INJURED	RANKING BY DAILY VEHICLE MILES TRAVELED	RANKING BY AVERAGE POPULATION
Total Fatal and Injury.....	7	34/73	56/73
Alcohol Involved.....	0	55/73	57/73
HBD Driver <21.....	0	28/73	32/73
HBD Driver 21-34.....	0	32/73	37/73
Motorcyclists	0	42/73	46/73
Pedestrians.....	0	57/73	61/73
Pedestrians <15.....	0	31/73	39/73
Pedestrians 65+.....	0	34/73	37/73
Bicyclists.....	0	56/73	60/73
Bicyclists <15.....	0	34/73	44/73
Composite		33/73	25/73
	COLLISIONS		
Speed Related.....	3	12/73	27/73
Nighttime.....	0	61/73	63/73
Hit and Run.....	0	50/73	56/73
DUI ARRESTS	63	1.98%	56/70

APPENDIX D
MTC and NATIONAL BICYCLE and PEDESTRIAN
DOCUMENTATION PROJECT INFORMATION

Appendix D – Bicycle Counts

Count Methodologies

Metropolitan Transportation Commission

In 2003, the Metropolitan Transportation Commission (MTC) funded the Bicyclist and Pedestrian Data Collection and Analysis Project. The project resulted in the *Handbook for Bicyclists and Pedestrian Counts*, for use by local agencies throughout the Bay Area. The Handbook presents guidelines and standard methodologies for conducting counts of bicyclist and pedestrian activity. MTC's bicycle count methodology was developed to attain a consistent regional bicycle count and analysis procedures so that trends in usage can be documented throughout the Bay Area. The counting strategy outlined in the Handbook provides an easy and inexpensive method of conducting bicycle and pedestrian counts on a regular basis. The level of detail to be extracted during routine counts is kept to a minimum to reduce ambiguity while still providing useful data. The methodology is not unlike a typical traffic count which reveals little more than the time of day, and direction of travel. Collection of data regarding the motorist's age, trip purpose, length of trip, etc. is relatively rare. Using the procedures outlined in MTC's Handbook and any subsequent updates will ensure consistent results among local agencies for the development of a count database, as well as with larger efforts conducted by MTC throughout the region. Count procedures and instructions provided by MTC can be found on MTC's website via the following web link: <http://www.mtc.ca.gov/planning/bicyclespedestrians/counts.htm>

National Bicycle and Pedestrian Documentation Project

The National Bicycle and Pedestrian Documentation Project (NBPDP) is an annual bicycle and pedestrian count and survey effort sponsored by the Institute of Transportation Engineers Pedestrian and Bicycle Council. The goals of the NBPDP are to: (1) Establish a consistent national bicycle and pedestrian count and survey methodology; (2) Establish a national database of bicycle and pedestrian count information generated by these consistent methods and practices; and (3) Use the count and survey information to begin analysis on the correlations between local demographic, climate and land-use factors and bicycle and pedestrian activity. More information about the project can be found at: <http://bikepeddocumentation.org/>

Recommendations

In order to supplement US Census Journey to Work (JTW) data, to attain a better understanding of existing usage and travel patterns, and to be able to project demand, regular bicycle counts (on an annual or bi-annual basis as needed), are recommended as a programmatic improvement. Periodic counts should be coordinated through a central clearing house such as the NCTPA or the Napa County Bicycle Coalition and conducted in each jurisdiction within the plan area. Counts may be conducted by volunteers, interns, and others as appropriate.

Recommended Count Locations

Count locations were selected using the following criteria:

1. To ensure a balanced geographical representation of the count locations.
2. To capture inter-jurisdiction activity at community gateways.
3. The intersection of primary bicycle routes.

4. Proximity to major destinations such as downtowns, civic destinations, employment centers, transit facilities, schools, etc.
5. Location on the regional or local bicycle network (existing or proposed)

Recommended count locations are catalogued in a database by jurisdiction in Attachment A, and shown graphically on maps in Attachment B. Count locations generally consist of street intersections and/or pathway/street intersections. Each count location is identified by its primary street and cross street, and includes notations about the existing and/or proposed bikeway facilities at the site. Additional details are provided about the general type of bicycle use or activity expected in the area along with notes specific to the site or future uses in the vicinity of the count location where appropriate. Over time, additional data fields may be built into the database such as Average Daily Traffic Volumes, traffic speeds, street widths, pavement conditions, etc.

Count Periods

Bicyclist and pedestrian counts can be conducted during each season of the year: fall, spring, summer and winter. However, counts during the winter months are often avoided due to poor weather conditions and extended holiday-related vacations. The second week in September is the official annual National Bicycle and Pedestrian Count and survey week. Counts are also conducted optionally for the National Bicycle and Pedestrian Count program during the second week of January, the second week of May, and the first week of July.

Prior to conducting counts, school districts and/or institutions within each jurisdiction should be contacted to verify when schools will be in session to avoid spring and winter breaks and special school events. Counts at locations that are not near schools can be accurately conducted during the summer months. In Napa, summertime conditions typically represent peak travel volumes. It should be noted that counting periods should be as condensed as much as possible to ensure the most consistent conditions.

Counts should be conducted during non-holiday weeks on Tuesdays, Wednesdays or Thursdays and the Saturdays preceding or following the count week. If counts must be conducted during holiday weeks, the actual holiday day should be avoided, and the Tuesday after Monday holidays and the Thursday before Friday holidays should also be avoided.

Counts should be conducted during standard peak commute hours. Typically, the weekday morning peak occurs between 7:00 and 9:00 AM, the weekday evening peak occurs between 4:00 and 6:00 PM, and the weekend midday peak occurs on Saturdays between 12:00 noon and 2:00 PM. Time periods may be adjusted to account for local considerations, and supplementary counts may be conducted to capture specific activities, such as school commutes.

Recommendation: It is recommended that bicycle counts conducted throughout the Plan area be consistent with MTC's guidelines and conducted in accordance with the National Bicycle and Pedestrian Documentation Project so that they may be coordinated with regional and national databases.

BICYCLE-PEDESTRIAN COUNT INTERSECTION PROFILE

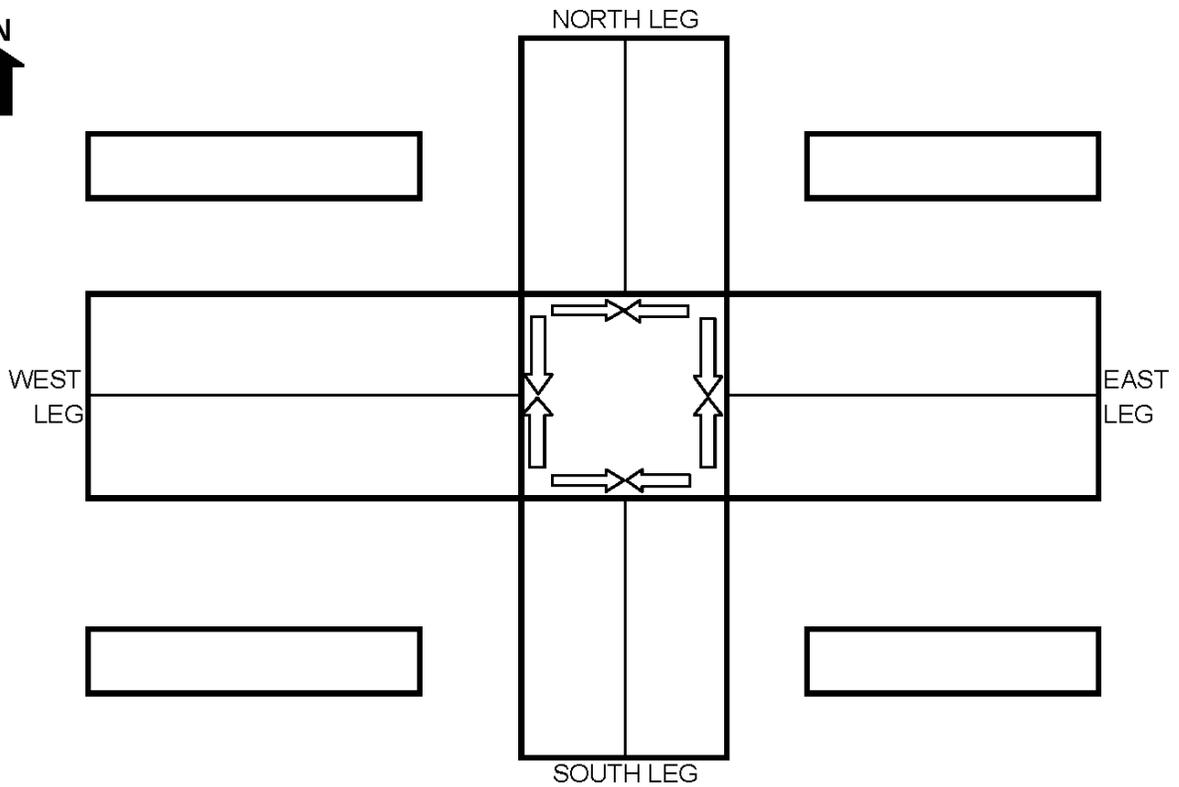
DATE: _____ NAME: _____

INT #: _____

N/S STREET: _____

E/W STREET: _____

CITY: _____ COUNTY: _____



NOTE: Include names of residential or commercial buildings or land uses in boxes

MTC Count Forms

PAGE TWO - INTERSECTION PROFILE

INT #: _____

		NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
PHYSICAL FEATURES		YES-#	NO	YES-#	NO	YES #	NO	YES-#	NO
SIDEWALKS									
CROSSWALKS									
BIKE LANES									
RAISED MEDIAN									
RAISED MEDIAN-WHEELCHAIR RAMP									
PAINTED MEDIAN									
CURB CUTS									
INTERSECTION CONTROLS		YES-#	NO	YES-#	NO	YES #	NO	YES-#	NO
STOP SIGNS									
SIGNALS									
LANE CONFIGURATION-PHASING		YES-#	NO	YES-#	NO	YES #	NO	YES-#	NO
DEDICATED LEFT TURN LANE									
PROTECTED LEFT TURN SIGNAL									
DEDICATED RIGHT TURN LANE									
PROTECTED RIGHT TURN SIGNAL									
SHARED LANES (T-L, T-R OR L-T-R)									
# OF EXCLUSIVE THRU LANES									
TOTAL NUMBER OF LANES									
PEDESTRIAN/BICYCLE SIGNALS		YES-#	NO	YES-#	NO	YES #	NO	YES-#	NO
WALK/DON'T WALK									
PEDESTRIAN SYMBOLS									
PEDESTRIAN SCRAMBLE									
PEDESTRIAN COUNTDOWN									
AUDIBLE SIGNAL (NON COUNTDOWN)									
ADA PUSH BUTTON (LARGER)									
NON ADA PUSH BUTTON									
BICYCLE PUSH BUTTON									

MTC Count Forms

**TRAFFIC RESEARCH & ANALYSIS, INC.
BICYCLE-PEDESTRIAN COUNT SUMMARY**

DATE: _____ **COUNTY:** _____ **NAME:** _____ **INT #:** _____ **N/S STREET:** _____ **CITY:** _____ **E/W STREET:** _____

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	PED.	BICYCLE	PED.	BICYCLE	PED.	BICYCLE	PED.	BICYCLE
7:00								
7:15								
7:30								
7:45								
8:00								
8:15								
8:30								
8:45								
A/M TOTAL								

4:00								
4:15								
4:30								
4:45								
5:00								
5:15								
5:30								
5:45								
P/M TOTAL								

2:00								
2:15								
2:30								
2:45								
3:00								
3:15								
3:30								
3:45								
MID TOTAL								

STANDARD SCREENLINE COUNT FORM

Name: _____ Location: _____

Date: _____ Start Time: _____ End Time: _____

Weather: _____

Please fill in your name, count location, date, time period, and weather conditions (fair, rainy, very cold). Count all bicyclists and pedestrians crossing your screen line under the appropriate categories.

- Count for two hours in 15 minute increments.
- Count bicyclists who ride on the sidewalk.
- Count the number of people on the bicycle, not the number of bicycles.
- Pedestrians include people in wheelchairs or others using assistive devices, children in strollers, etc.
- People using equipment such as skateboards or rollerblades should be included in the "Other" category.

	Bicycles		Pedestrians		Others
	Female	Male	Female	Male	
00-:15					
15-:30					
30-:45					
45-1:00					
1:00-1:15					
1:15-1:30					
1:30-1:45					
1:45-2:00					
Total					

STANDARD BICYCLE INTERSECTION COUNT FORM

Name: _____ Location: _____

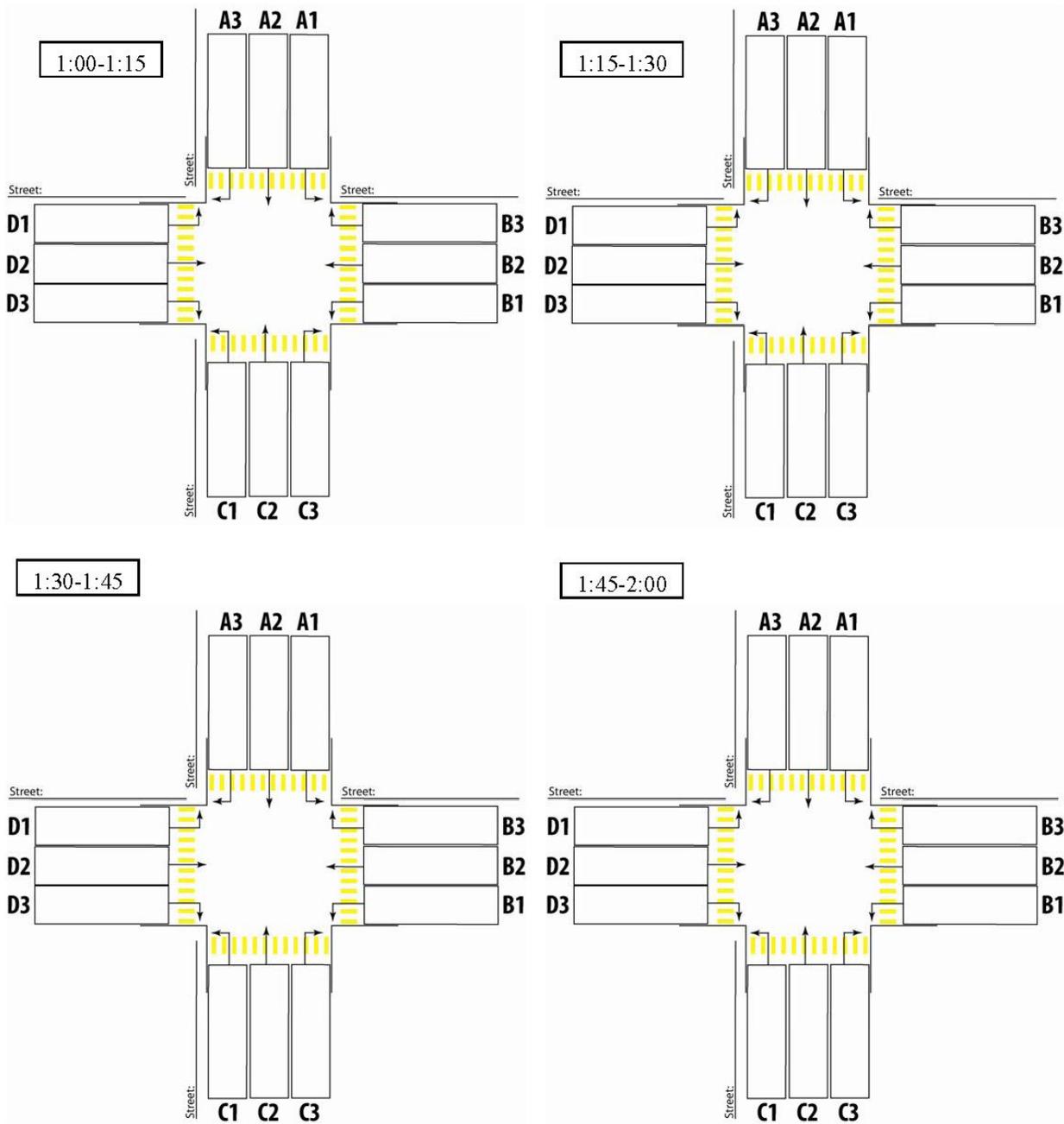
Date: _____ Start Time: _____ End Time: _____

Weather: _____

Please fill in your name, count location, date, time period, and weather conditions (fair, rainy, very cold). Count all bicyclists crossing through the intersection under the appropriate categories.

- Count for two hours in 15-minute increments.
- Count bicyclists who ride on the sidewalk.
- Count the number of people on the bicycle, not the number of bicycles.
- Use one intersection graphic per 15-minute interval.

The form consists of four identical intersection diagrams arranged in a 2x2 grid, each representing a 15-minute interval. Each diagram shows a four-way intersection with streets labeled A1, A2, A3 (top), B1, B2, B3 (right), C1, C2, C3 (bottom), and D1, D2, D3 (left). A north arrow is located between the top two diagrams. Each diagram includes a time interval box in the top left corner: 00-:15, 15-:30, 30-:45, and 45-1:00. Yellow dashed lines with arrows indicate the direction of traffic flow on each street.



Notes:

STANDARD BICYCLE INTERSECTION COUNT TALLY SHEET

Time Period	Bicycle Counts											
	Leaving Leg A			Leaving Leg B			Leaving Leg C			Leaving Leg D		
	A1	A2	A3	B1	B2	B3	C1	C2	C3	D1	D2	D3
00-:15												
15-:30												
30-:45												
45-1:00												
1:00-1:15												
1:15-1:30												
1:30-1:45												
1:45-2:00												
Total												
Total Leg:												
Street Name A to C:							Location 1 (Total Leg A + Total Leg C) =					
Street Name B to D:							Location 2 (Total Leg B + Total Leg D) =					

APPENDIX E
FUNDING PROGRAM SUMMARIES

Appendix E – Summary of Funding Programs

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.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 Link: 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

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

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

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

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

 **BAY AREA AIR QUALITY MANAGEMENT DISTRICT** 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.