NVTA

Napa Countywide Bicycle Plan

FINAL PLAN

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Chapter 1: Introduction

The Napa Valley Transportation Authority (NVTA) and the jurisdictions of Napa County are seeking to improve the bicycling environment for all residents and visitors by identifying key infrastructure, programs, and policies in this plan. The first countywide bicycle plan was adopted in 2003, and the most recent update was made in 2012. The 2019 Napa Countywide Bicycle Plan (referred to as the "Plan") builds upon the bicycle recommendations presented in the 2012 Napa Countywide Bicycle Plan. The field of bicycle planning and design has changed significantly in the last seven years, and this Plan incorporates those current best practices. This Plan approaches the bicycling environment with an eye toward making bicycling possible for a large part of the population, not only those who already ride or are already comfortable riding in most traffic conditions.

New funding sources at the county, regional, and state scale have become available for projects and programs in the last few years. For example, local jurisdictions have a great opportunity for implementing bicycle facilities as part of road resurfacing and rehabilitation projects under Measure T, a local ½ cent sales tax measure for streets and roads rehabilitation, repair and maintenance. The Equivalent Funds (equal to 6.67% of annual Measure T revenue from other non-competitive sources) countywide collective match for shared-use paths (Class I bicycle facilities), provides the opportunity for implementing off-street trails, providing increased safety and connectivity. This Plan can help jurisdiction staff pursue funding and coordinate other planned projects with bicycle infrastructure to efficiently build out the bicycle network.

Bicycling is an important part of the Napa Valley landscape. Residents use bikes to get to destinations throughout the county, whether to work, or to school and shopping. The County's beautiful rural roads attract recreational bicyclists for group rides and events. Residents and visitors also take advantage of the Vine Trail to enjoy a relaxed, off-street ride for recreation or transportation. When completed, the Vine Trail will form a fully connected north-south active transportation corridor through the Napa Valley, from Calistoga to the Vallejo Ferry Terminal in Solano County. Planning and construction of the Vine Trail brings together staff from jurisdictions throughout the county, private land owners, and dedicated advocates. Partnership is also key in the county's Safe Routes to School program.

This foundation of cooperation will serve NVTA, jurisdiction staff, and community stakeholders well as they move forward together to implement the recommendations of this Plan. Improving the bicycling environment will help more people choose to bike on the streets and trails of Napa County, ultimately serving NVTA's goals for countywide transportation: reducing growth in vehicle miles traveled, shifting travel from single occupancy vehicles to other modes, and reducing energy use and GHG emissions and congestion.

COUNTY CONTEXT

Napa County is located in the northern San Francisco Bay Area. As a world-famous wine-producing region, the County has several million visitors annually and is characterized by numerous wineries and vineyards, restaurants, and other tourist destinations. The primary land use is agricultural and outdoor activities such as hiking, mountain biking, and walking or biking along the Napa Valley Vine Trail are

popular with both residents and visitors. The region's temperate climate makes these outdoor activities accessible nearly year-round.

Napa County includes six jurisdictions: The City of American Canyon located in the southern portion of the Valley; the City of Napa is the largest jurisdiction and is in central Napa Valley; The Town of Yountville, City of St. Helena, and City of Calistoga in northern Napa Valley. Napa County is predominantly rural, and the unincorporated areas outside of the jurisdictions are managed by the County. The County and local jurisdictions have installed a variety of bicycle facility types; however, the overall bicycle network is primarily comprised of bicycle lanes (Class II) and bicycle routes (Class III).

HOW WAS THIS PLAN DEVELOPED?

This update to the 2012 Napa Countywide Bicycle Plan began in May 2017 and is the culmination of a year and a half of community engagement paired with a data-driven analysis of existing conditions and needs. The engagement and analysis informed the development of the 2019 goals, policies, network approach, and bicycle facility recommendations.

Figure 1.1. Bicyclists on the Napa Valley Vine Trail in the City of Napa

The process to develop this Plan included many stakeholders. The development of the Plan was initiated and managed by the **Napa Valley Transportation Authority** (NVTA). Several additional entities provided valuable input into the plan development process including:

- Staff from the **Cities of American Canyon, Napa, St. Helena, and Calistoga, the Town of Yountville, and Napa County** (referred to as the "jurisdictions") provided strategic guidance on the existing conditions analysis and bicycle network approach and development.
- The **Napa County Bicycle Coalition**, the bicycle advocacy organization for Napa Valley and partner organization for the Napa County Safe Routes to School program, assisted in organizing bicycling field visits in each jurisdiction for the project team. The organization encouraged participation in online tools, participation in outreach events, and provided valuable input on the proposed bicycle network.
- The **Napa Valley Vine Trail Coalition** (NVVTC) is a nonprofit organization focused on raising funds and awareness of a 47-mile active transportation corridor currently under development that will connect the Vallejo Ferry Terminal in Solano County to Calistoga in northern Napa County (see Figure 1.1). NVVTC offered important guidance on the Vine Trail.

- The **NVTA Active Transportation Advisory Committee,** NVTA's primary committee advising the NVTA Board on active transportation matters was instrumental in providing feedback and review of the Plan throughout the planning process.
- The City of Napa **Bicycle and Trails Advisory Commission,** A group with extensive knowledge of the current bicycle network, programs and policies, provided important review and feedback for the Plan.

Public Input Summary

Throughout the process, NVTA sought ideas from the community on current bicycling conditions and needed improvements. Several common themes and priorities emerged from the community's feedback, including a desire for:

- Well-maintained bikeways suitable for a wide range of riders
- Connections to schools, parks, trails, and commercial areas
- Recreational bikeways along rural routes
- Effective signal detection for bicycles
- Colored paint for bicycle lanes[1]
- Appropriate bicycle infrastructure on roadways, especially those with high speed and traffic volumes

The community's input was essential to ensuring the Plan's recommendations meet the needs of Napa Valley residents. Highlights of the outreach efforts are discussed in this section. Additional information can be found in the individual jurisdiction plans (see Chapters 6-11) and Appendix B: Community Outreach Summary.

Online Outreach

NVTA launched an online interactive map, called a "WikiMap," to gather input about the existing bicycle network. The WikiMap was available from July to October 2017. Users were asked to identify routes they already ride, where they would like to ride, and any barriers to biking.

The map, shown in Figure 1.2, was created for the entire county, and respondents could zoom to comment on specific jurisdictions. The map was available as a link from the project webpage and participation was encouraged through public outreach events. Community members provided just over 200 map comments, entering valuable input about the state of bicycling in Napa County and specific areas to address in this Plan.

[1] See Appendix A: Facility Design Toolkit for discussion of using colored paint to denote conflict areas.

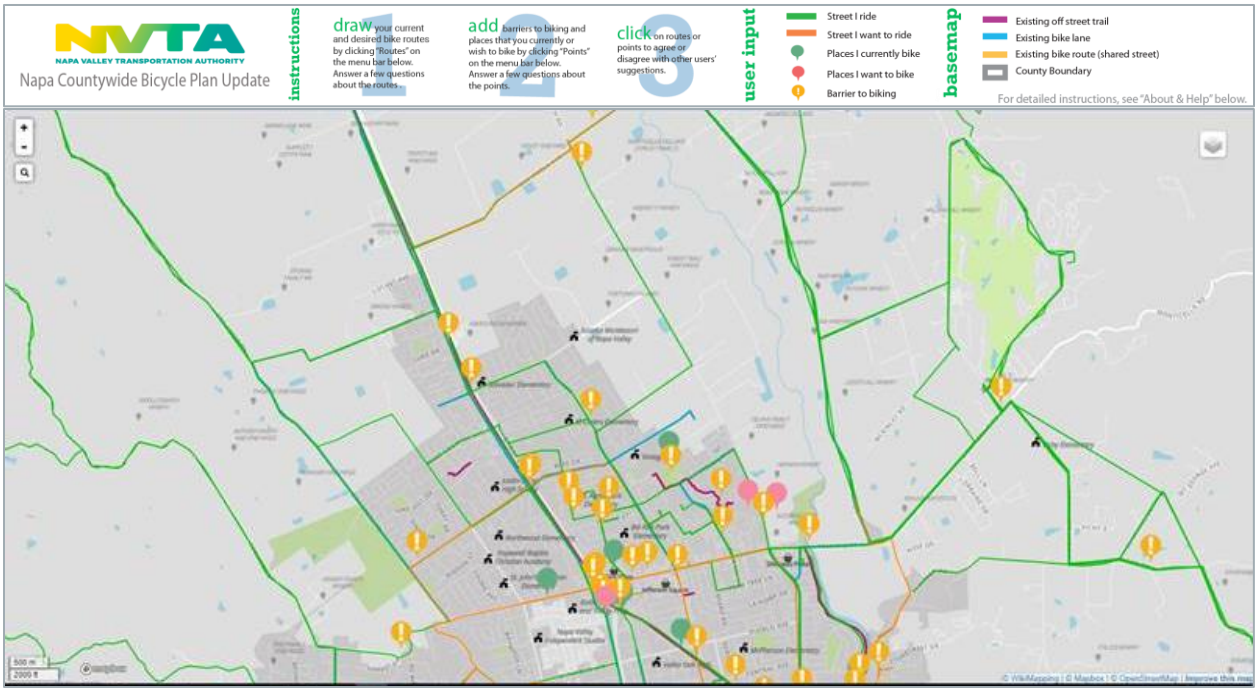

Figure 1.2. Online WikiMap interface

In addition to the initial WikiMap, NVTA also hosted an online map for residents to review the recommended bicycle network facilities. This map showed draft recommended bike facilities throughout the county and allowed users to agree or disagree that the recommendation was appropriate in that location. Approximately 330 comments were received and reviewed by staff in each jurisdiction for possible changes to the recommended network.

Community Outreach Events

Several community outreach events were held to solicit input on existing and proposed facilities and share ideas. The first event was held at the **Napa PorchFest** on July 30, 2017, in the City of Napa. Attendees shared feedback on the existing conditions maps and participated in a "What Type of Rider Are You" activity. This activity asked participants to self-identify as one of four types of riders: Interested but Concerned, Enthused and Confident, Strong and Fearless, or Not Interested or Able. This spurred community members to think about their own individual approaches to bicycling and enabled the project team to get a snapshot of the Napa Valley population and its composition with respect to bicycling. Different types of bicyclists, or bicyclists-to-be, require different types of infrastructure to choose bicycling for their trip.

The second event was held as a part of **BikeFest**, an annual event sponsored by the Napa County Bicycle Coalition, on May 5, 2018, at the Oxbow Commons in the City of Napa. During the event, participants were invited to "Build their Own Street" by choosing different foam-board components, such as bike lanes, sidewalks, medians, and roadways (see Figure 1.3). This activity helped participants consider the tradeoffs of dedicating space to different modes or uses and allowed them to express their priorities.

Figure 1.3. A family participating in the "Build Your Own Street" activity at the BikeFest event in the city of Napa.

Through a dot voting exercise, over 70 participants shared their priorities for the bicycle network (see Figure 1.4). The most important priority was high-quality, high-comfort bikeways; bikeways that connect to schools, parks, and trails and recreational bikeways along rural roads tied as the second most important. Respondents also indicated that bikeways that connect to commercial areas were very important.

Other common themes and interests included:

- Installing bicycle detection at signals
- Installing green paint in conflict areas
- Improving safety
- Installing separated bikeways on high-speed, high-volume streets, especially on or along major thoroughfares, rural streets, and neighborhood streets with speeding issues

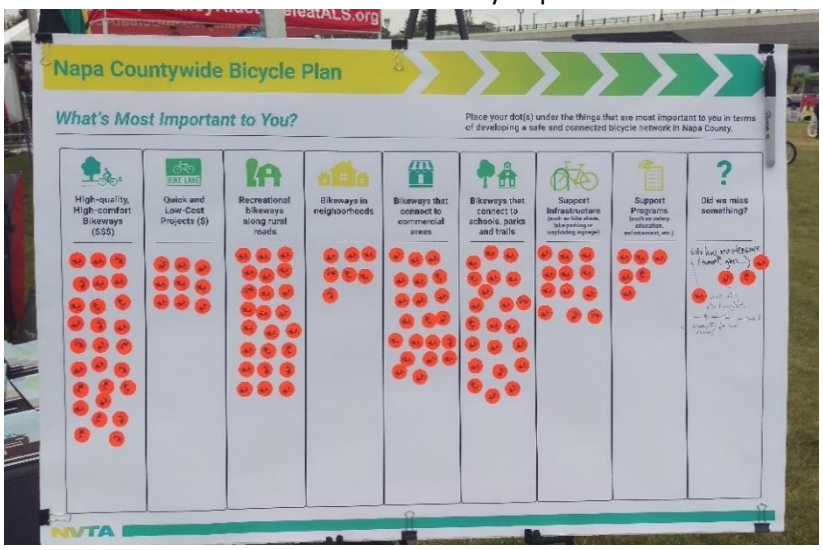

Figure 1.4. Responses to "What's Most Important to You?"

NVTA staff held an open house event on June 19, 2018 to seek feedback about draft bikeway network recommendations. Attendees reviewed the plan process to date, viewed a presentation of current best practices in bicycle facilities planning (see Figures 1.5 and 1.6), and provided comments on the proposed network.

Figure 1.5 NVTA Bike Plan Open House

Figure 1.6 NVTA Bike Plan Open House

Committees

Throughout the process, three established NVTA committees provided guidance and feedback on the existing conditions, proposed bicycle network, and proposed support programs. These committees included:

- **Active Transportation Advisory Committee** (ATAC) - Focuses on bicycle and pedestrian issues throughout the county and includes 11 members who live or work within Napa County representing each jurisdiction within the County.
- **Citizens Advisory Committee** (CAC) - Composed of 19 members; six members are appointed by the elected boards of Napa County's jurisdictions: the cities of American Canyon, Calistoga, Napa and St. Helena; the Town of Yountville; and Napa County.
- **Technical Advisory Committee** (TAC) - Includes representatives from the Napa County Public Works Department and staff from each Napa County jurisdiction.

PLAN ORGANIZATION

This Plan is organized into 11 chapters and nine appendices.

Chapter	Focus
Chapter 1	Introduction to the Plan
Chapter 2	Plan goals and policies and relationship to existing plans
Chapter 3	Existing bicycle environment in Napa County
Chapter 4	Countywide recommendations for bikeways and programs
Chapter 5	Implementation and funding strategy
Chapter 6	City of Calistoga Bicycle Plan
Chapter 7	City of St. Helena Bicycle Plan
Chapter 8	Town of Yountville Bicycle Plan
Chapter 9	City of Napa Bicycle Plan
Chapter 10	City of American Canyon Bicycle Plan
Chapter 11	Unincorporated Napa County Bicycle Plan
Appendix	Focus
Appendix A	Bicycle Facilities Toolkit, a guide for implementing bicycle facilities and improvements
Appendix B	Summary of the public and stakeholder engagement that guided the Plan recommendations
Appendix C	Overview of relevant plans and policies related to bicycling in Napa County
Appendix D	Strategies for developing a bicycle count program
Appendix E	Full list of Proposed Bicycle Network projects
Appendix F	Summary of the Plan's fulfilment of Caltrans Active Transportation Program (ATP) grant requirements
Appendix G	Facility Cost Estimate Details
Appendix H	Level of Traffic Stress Methodology
Appendix I	Glossary of Terms
Appendix J	Resolution of Adoption of this Plan

Chapter 2: Goals and Policies

COUNTYWIDE VISION AND GOALS

The Countywide vision statement, goals, and policies were developed to guide the Plan recommendations and will be used to evaluate progress. These were collaboratively developed by NVTA staff, the NVTA Technical Advisory Committee (TAC), NVTA Active Transportation Advisory Committee (ATAC), City of Napa Bicycle and Trails Advisory Commission and the Napa County Bicycle Coalition.

Vision Statement

Napa County's vision is to be a bicycle-friendly community with a world-class bicycling system for all ages and abilities. The comprehensive, connected bicycle system will provide people with safe, convenient and enjoyable access to destinations throughout all Napa County jurisdictions and beyond. Residents and visitors will enjoy bicycling for everyday commuting, non-work trips and recreation. Bicycling contributes to a high quality of life, promotes health and will help achieve a 10 percent mode share in Napa County by 2035.

Goals and Policies

The goals and policies developed for the 2019 Plan will guide Napa County communities in improving the bicycling environment for residents and visitors.

Table 2.1. Goals and Policies of the Plan

Goals		Policies
Connectivity	Develop a well-designed low Level of Traffic Stress (LTS) connected bicycle network	• Build and maintain a local and countywide bicycle transportation and recreation network that connects Napa County's incorporated cities/town and unincorporated communities and provides access to public transportation and community destinations. • Develop and maintain continuous low Level of Traffic Stress (LTS) bicycle facilities of all types to provide accessible intra-city connections that serve as the framework of the Countywide Bikeway System. • Prioritize coordination and completion of regionally significant primary bikeways including the Napa Valley Vine Trail, the Bay Trail and the Ridge Trail, and local connections to those facilities. • Provide secure bicycle parking at public and private destinations throughout Napa County. • Integrate the bicycle network and bicycle facility amenities into land use decisions and developments.
Equity	Improve bicycle access for disadvantaged and/or underserved communities	• Implement projects that improve access for disadvantaged and/or underserved communities, particularly those reliant on walking, biking and transit for transportation.

Goals		Policies
Safety	Improve safety for all ages and abilities	• Work to reduce the number and severity of bicycle collisions. • Work to reduce bicycle fatalities to zero by 2035. • Improve locations that have high incidences of bicycle collisions, and/or impediments or conflicts to bicyclists. • Implement Complete Streets policies that ensure accommodation and enable safe access for users of all ages and abilities. • Implement appropriate, well-designed bicycle facilities using accepted design standards, including intersection and other crossing improvements.
Education & Encouragement	Increase mode share of bicycling	• Encourage education programs for all users of the roadway in all jurisdictions and school districts. • Develop programs and public outreach materials to promote safety and the positive benefits of bicycling.

SERVING ALL TYPES OF BICYCLISTS

Many factors contribute to people choosing to ride a bicycle, with a major factor being the rider's perception of safety. A rider's perception of an unsafe route can be related to numerous things but is most often related to riding adjacent to high-traffic and high-speed roadways or crossing busy intersections with little or no separation from vehicles. Research has found that a large percentage of the American population is interested in bicycling for transportation but does not currently do so because they believe the routes they would need to travel are unsafe or feel uncomfortable. Many people feel safer and more comfortable riding on low-traffic, low-speed streets or on facilities that provide protection or physical separation from fast-moving traffic.[2] Most people in the U.S. – between 50 and 60 percent – have little tolerance for interacting with motor vehicle traffic unless volumes and speeds are very low (see Figure 2.1).[3] This group of riders is referred to as "Interested but Concerned," reflecting both their interest in bicycling for transportation as well as concerns about safety and comfort when interacting with motor vehicle traffic.

This framework of rider types was used to assess the existing bicycle network and to select recommended facility types for the 2019 Plan. This rider type has the highest potential for increasing bicycle mode share if facility types that support and encourage biking are available.

[2] Source: Dill, J. McNeil, N. "Revisiting the Four Types of Cyclists: Findings from a National Survey" Transportation Research Board 95th Annual Meeting, 2016.

[3] Studies, such as the one referenced above, show that approximately one third of the adult population is not currently interested in bicycling or able to bicycle.

LEVEL OF TRAFFIC STRESS (LTS)

Bicycle planners and designers use Level of Traffic Stress (LTS) as the measure of a street's suitability for Interested but Concerned riders and potential riders. LTS measures how people feel when they are bicycling. The proximity, volume and speed of traffic can impact how people feel while riding which means specific types of bicycle facilities are more appropriate to specific types of roads than others. For instance, a standard bike lane may have a low level of traffic stress for most riders when it's on a 30mph street with fewer than 6,000 vehicles per day. That same bike lane on a 40mph street with more traffic volume will not be comfortable for many riders. When someone considers riding a bike for their trip, they may not choose to do so if part of their trip is on a "high-stress" street.

High-stress intersections can also prevent people from choosing to ride a bike. These are locations where a small street crosses a large one without traffic control for the major street. These locations interrupt an otherwise low-stress, comfortable ride by causing a rider to need to wait for a gap in traffic, gauge the speed of passing vehicles, and cross a longer distance while traffic is still proceeding, or perhaps detour a longer distance from their desired destination. Signalized intersections can also be stressful when bike lanes stop in advance of the intersection, or when they are located inappropriately to the right of a right turn lane.

To learn more about the Level of Traffic Stress Methodology and how LTS impacts connectivity, see Appendix H. This appendix includes a memo outlining how LTS is conducted, what assumptions were made for analysis in Napa County, and results from the low-stress connectivity analysis.

Comfort Typology of Bicyclists

Design User Profile	Non-Bicyclist	Interested but Concerned	Somewhat Confident	Highly Confident
Bicycling Preferences	Uncomfortable bicycling in any condition, have no interest in bicycling, or are physically unable to bicycle.	Often not comfortable with bike lanes, may bike on sidewalks even if bike lanes are provided; prefer off-street or separate bicycle facilities or quiet or traffic-calmed residential roads. May not bike at all if bicycle facilities do not meet needs for perceived comfort.	Generally prefer more separated facilities, but are comfortable riding in bicycle lanes or on paved shoulders if need be.	Comfortable riding with traffic, will use roads without bike lanes.
Percent of General Public	31-37%	51-56%	5-9%	4-7%

Figure 2.1 Types of Bicyclists and Level of Stress Tolerance

RELATIONSHIP TO EXISTING PLANS AND POLICIES

Napa County and its jurisdictions have a host of adopted plans and policies that affect the County's and jurisdictions' bicycle projects, investments, and priorities. This section briefly summarizes key plans and policies. A full review of plans and policies and their relationship to this Plan can be found in Appendix C: Plans and Policies Review.

NVTA Countywide Transportation Plan (2014)

The *Napa Countywide Transportation Plan – Vision 2040: Moving Napa Forward* is a long-range transportation plan that sets goals, strategies, and investments for all modes of transportation for the next 25 years. The Plan identifies a constrained transportation project list for the county, which includes 17 projects that specifically aim to improve bicycling in the county. The Plan also identifies linkages between expanding the bicycle network and programs (e.g., Safe Routes to School, Complete Streets, bikeshare, separating pedestrians and bicyclists from the roadway) and the broader economic development, transportation demand management, environmental, health, and placemaking goals for the county.

SR 29 Gateway Corridor Implementation Plan (2014)

In 2014, NVTA created a vision and implementation plan for the southern section of State Route 29 (SR 29). This 17-mile segment of SR 29 is a "gateway" to Napa Valley as well as a regional corridor for pass-through traffic. The Plan includes options for increasing active transportation facilities within the SR 29 corridor. Currently, the corridor provides paved shoulders for bicycling in some sections. The Plan recommends bicycle facility improvements as shown in Table 2.2.

Table 2.2. Bicycle Recommendations in the 2014 SR 29 Gateway Corridor Implementation Plan

SR 29 Gateway Corridor Segment	Proposed Improvement
SR 37 to American Canyon Road	Shared-Use Path - Class Is, separated from automobile travel lanes by a landscape strip
Napa Junction Road to South Kelly Road	Shared-Use Path - Class Is, separated from automobile travel lanes by a landscape strip
American Canyon Road to Napa Junction Road	Two Options: 1. Bike Lane - Class IIs along the local access lanes 2. Modified boulevard concept that would continue the Class I paths
South of SR 37	Cycling access to Downtown Vallejo and the ferry terminal along Sonoma Blvd (facilities are specified in the Sonoma Blvd Specific Plan)
Between the Ferry Terminal and the SR 29/SR 37 intersection	Class I facilities along SR 37 and Harbor Drive
North of South Kelly Road	Improving to an 8' shoulder (striped to Class II) in addition to improved access to the Vine Trail via Airport Blvd

Caltrans District 4 Bicycle Plan (2018)

The 2018 Caltrans District 4 Bicycle Plan is a strategic planning document that identifies and prioritizes bicycle investments on State-owned transportation infrastructure. It is part of the statewide *Toward an*

Active California effort (see below), which seeks to improve multimodal access, improve health outcomes, and reduce traffic congestion, among other goals. In Napa County, projects are identified at intersections with and along state-owned roadways including SR 29, SR 12, SR121, SR 128, and SR 221.

Toward an Active California: State Bicycle + Pedestrian Plan (2017)

Toward an Active California: State Bicycle + Pedestrian Plan offers a visionary and comprehensive policy to support active modes of transportation throughout the state. The Plan's vision states that "by 2040, people in California of all ages, abilities, and incomes can safely, conveniently, and comfortably walk and bicycle for their transportation needs." The plan focused on four areas of policy and recommendations:

- Safety: Reduce the number, rate, and severity of bicycle and pedestrian involved collisions
- Mobility: Increase walking and bicycling in California
- Preservation: Maintain a high-quality active transportation system
- Social Equity: Invest resources in communities that are most dependent on active transportation and transit

The Plan was released concurrently with major new funding from SB1 (Road Repair and Accountability Act of 2017), which provides an additional $1 billion for investments over the next ten years.

Chapter 3: Existing Bicycling Environment

This chapter provides an overview of bicycling conditions throughout Napa County, as well as localized efforts to support bicycling through policies and programs. This Plan's recommendations for the bicycle network and support programs are drawn from the information analyzed and presented in this chapter.

CONTEXT FOR BICYCLING

Napa County is predominantly rural, and the five cities and town of Napa County – American Canyon, Napa, Yountville, St. Helena, and Calistoga – hug the western area of the county and are located along State Routes 29 (SR 29) and 128 (SR 128) (See Figure 3.1 Jurisdictions of Napa County).

The City of Napa is the county seat and the largest city, with a population of approximately 80,000. As one of the older communities in the area, Napa has a traditional, dense downtown retail core with a grid of relatively narrow two-lane streets, and older neighborhoods nearby downtown with similar street patterns. It also has established suburban areas somewhat farther from downtown, which are characterized by low-density, residential land uses served by larger arterial-style streets.

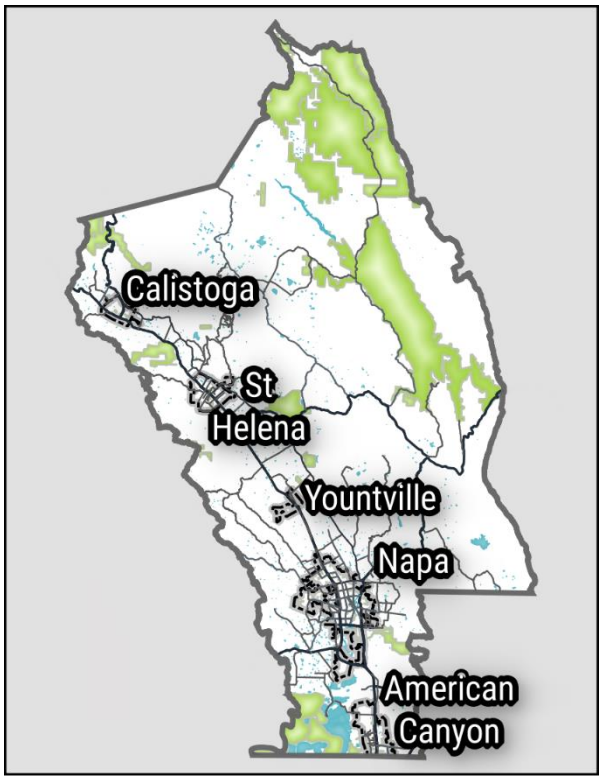

Figure 3.1. Jurisdictions of Napa County.

The City of American Canyon is the second largest city in Napa County. The population is approximately 20,000, and most of its growth has occurred in the last 25 years, after the city's incorporation in 1992. It is composed primarily of low-density single-family neighborhoods connected with wide multi-lane arterials.

American Canyon serves as a commuter community along SR 29, with some residents traveling to the larger employment centers of the central Bay Area for work. SR 29 bisects the City of American Canyon and creates barriers to permeability between the west and east sides of the roadway, especially for people walking and biking. While American Canyon currently lacks a traditional downtown, new developments along SR 29 are creating retail and entertainment destinations for the community, some with integrated residential development. Most of this new development housing is on the east side of SR 29, and older neighborhoods and industrial development are on the west side of the corridor.

The majority of the local workforce live in the cities of Napa and American Canyon and commute to the "Upper Valley" communities of Yountville, St. Helena, and Calistoga. The 2014 Napa Valley Travel

Behavior Study found that 55 percent of the study's sample traveled within the county (both their origins and destinations were within Napa County).[4]

The Cities of Napa and American Canyon also have Napa County's two Priority Development Areas (PDAs). PDAs are areas throughout the Bay Area region that were identified in Plan Bay Area[5] as candidates for sustainable residential and jobs growth, infill development, and investment. The PDA in the City of Napa is located in downtown and along Soscol Avenue between Imola Avenue and First Street, and the PDA in the City of American Canyon is located along State Route 29 between Green Island Road and the Solano County line.[6]

The Town of Yountville is home to 3,000 people (approximately 1,200 residents live at the Veterans Home of California in western Yountville), and is located five miles north of Napa off SR 29. It has a series of low-volume, low-speed streets connecting its residential areas to the commercial core along Washington Street.

The City of St. Helena is located 15 miles north of Napa in the heart of Napa Valley. It is a small city with a population of approximately 6,000. It is served by a network of low-volume local streets as well as SR 128/29, which is the main street through its downtown. St. Helena is predominantly residential, except for the areas immediately adjacent to SR 128/29, including a small industrial/office park at the southeast end of the city.

The City of Calistoga, at the north end of Napa Valley is a community of 5,000 people. Its small, traditional downtown is located on Lincoln Avenue (SR 29). Similar to St. Helena, the highway is the city's main street. Narrow residential streets connect the city's neighborhoods, though the Napa River creates a barrier between the north and south ends of town.

The unincorporated areas of Napa County are largely rural and agricultural with a few small communities, including Angwin and Pope Valley. Many narrow roads with low traffic volumes are located throughout the unincorporated areas. Due to the efforts of farmers and Napa County residents, much of the land in these rural areas is designated as agricultural preserve, and the Land Trust of Napa County is actively securing easements and using other tools to preserve the natural landscape.

CHARACTERISTICS OF BIKE TRIPS

Understanding the reasons that people bike in Napa County is fundamental to creating a network that existing users can continue to use and people new to bicycling can begin to experience. Existing bicycle network usage will inform the Plan recommendations.

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[4] Napa County Travel Behavior Study, 2014. Available online at: http://www.nvta.ca.gov/sites/default/files/Napa%20County%20Travel%20Behavior%20Study.pdf

[5] Plan Bay Area is the long-range regional plan for transportation and land use in the Bay Area's nine counties.

[6] For more information about Priority Development Areas and the locations in Napa County, and throughout the Bay Area, visit: http://gis.abag.ca.gov/website/PDAShowcase/

Trip Purpose

Bicycle trips can be broken down into two main categories: transportation and recreation. The former are trips taken by people bound for a destination, the latter simply for enjoyment or exercise. Currently, better data is available about transportation trips than recreation, and this information is presented below.

Transportation Trips

Generally, a drive of less than 10 minutes equates to a bike ride of less than 30 minutes and is considered "bikeable." Per the 2016 U.S. Census American Community Survey 5-year Summary, all cities except for American Canyon have over 20 percent of workers with commutes less than 10 minutes (not including those who work from home). Viewed through that lens, the county's commute trends show an impressive potential for bike commuting. Some residents within the cities and Napa County (approximately 0.8 percent) choose to bicycle to work, and data is readily available regarding residents' commuting mode choice from the U.S. Census' American Community Survey (ACS). However, work-related trips only comprise 10 to 15 percent of all household trips; the remaining 85 to 90 percent of trips are made to visit friends and family or for errands, entertainment, outings, and recreation. [7] While data is not readily available, it is safe to assume that Napa County residents are more likely to bike for non-work trips because non-work destinations, such as a retail shop or a friend's house, are likely to be located closer to home.

Only the cities of Calistoga and Napa have bicycle commute percentages over one percent, and the overwhelming majority of residents drive to work (see Table 3.1). However, current commuting patterns do indicate opportunities for mode shift.

Table 3.1. Commute Characteristics in Napa County[8]

	Automobile /Motorcycle	Public Transportation	Bicycle	Walk	Work from Home	Commute <10 minutes
American Canyon	93.9%	1.5%	0.4%	0.7%	3.3%	9%
Calistoga	76.7%	0.0%	1.6%	14.6%	5.2%	31%
City of Napa	90.8%	1.8%	1.1%	2.1%	3.5%	20%
St. Helena	82.2%	1.3%	0.3%	7.2%	8.0%	34%
Yountville	88.3%	0.9%	0.7%	3.3%	6.8%	22%
Napa County Total	87.7%	1.4%	0.8%	4.1%	5.1%	21%

[7] Range references the National Household Travel Survey (15 percent) and California Household Travel Survey (9.9 percent).
[8] 2016 U.S. Census American Community Survey 5-year summary.

Some bicycle trips in the county are also related to school travel. In 2012, a parent survey was conducted as a part of the Napa County Safe Routes to School program. Of the respondents, four percent of students bike to and from school. However, the majority of school trips were made via the family vehicle (68 percent). Data on modal splits related to school travel has not been collected since this 2012 survey but will be a part of the new Safe Routes to School program led by the Napa County Office of Education and the Napa County Bicycle Coalition.

Tourism and Recreation Trips

While bicycling for transportation is an important element to plan for in Napa County, recreational bicycling likely accounts for a larger portion of trips. Recreational trips are not captured in available data about mode split. However, people on bikes can readily be seen throughout Napa County, especially on weekends. These recreational riders include:

- Confident recreational road bicyclists who typically take longer rides along rural roads and are comfortable riding near higher-speed and/or higher-volume traffic,
- Mountain bikers/gravel riders who ride on the unpaved trails in the county, and
- Neighborhood and shared-use path riders, including individuals, groups, or families who ride for enjoyment and exercise but are not comfortable riding near higher-speed, higher-volume traffic.

Today, many of these recreational riders drive to the start of their rides. Some riders may be traveling from nearby counties, or if they are Napa County residents, their ride's starting location may be further than a bikeable distance from home. Others may not be comfortable bicycling on the roads between home and the trailhead.

Tourism is a major industry for the county and must be accounted for in bicycle planning and implementation efforts. Napa County receives 3.5 million visitors annually; 80 percent of visitors are from the United States, and 20 percent are international. Just over a third of the visitors stayed overnight within Napa County on their trip; the rest visited Napa County as a day trip.

In 2016, Visit Napa Valley, the official tourism marketing organization, conducted a visitor survey to better understand the types of visitors that come to the area, where they visit within the county, and what they do during their visit.[9] Four percent of the respondents reported that they were planning to bike, or had already biked, on their trip. This equates to nearly 150,000 visitors annually biking within the county who may be unfamiliar with the area and its bike network, or with biking in general.

How Many People Bike Today?

Some work has been done in the past few years by multiple parties to understand how many people are bicycling in Napa County, but there is currently no comprehensive program for counting bicyclists in the county. The Vine Trail Coalition maintains continuous counters at three locations along the trail to

[9] Visit Napa Valley (2017). 2016 Napa Valley Visitor Industry Economic Impact. Viewed at https://www.visitnapavalley.com/articles/post/visit-napa-valley-releases-the-2016-napa-valley-visitor-industry-economic-impact-visitor-profile/ on April 2, 2018.

monitor trail usage. Between January 2018 and December 2018, counters recorded the following approximate average daily counts[10]:

- 240 bicyclists daily north of Imola Avenue in Napa (near South Napa Century Center)
- 150 bicyclists daily at Salvador Avenue in Napa
- 180 bicyclists daily at north end of trail in Yountville

Peak usage days reached high counts of approximately 470, 360, and 600 bicyclists at the above locations, respectively. The Vine Trail counters also indicate that seven in ten users are locals, and weekend days have much higher ridership, accounting for nearly 40 percent of weekly ridership.

Additionally, NVTA has periodically conducted manual counts at select locations throughout the county. The most recent bicycle and pedestrian counts are from September 2015 and were taken at 21 locations in the Napa County municipalities and unincorporated areas. Appendix D contains recommendations for an ongoing NVTA count program.

Considerations for the Bicycle Plan

Work-related trips: The Plan must acknowledge that many commute trips for Napa residents are longer than a bikeable distance and so should focus on connections to transit services that serve employment centers.

Nonwork-related trips: Many trips are not work-related and are for purposes of running errands, visiting friends or family, entertainment, outings, and recreation. These trips have a large potential for mode shift since they tend to be shorter.

School-related trips: Development of a student or parent survey to understand travel choices can be part of a Safe Routes to School program.

Bicycle tourism: A complete bicycle network for Napa County will need a strong emphasis on wayfinding, amenities and facilities for a broad spectrum of riding abilities to account for visitors' needs.

Bicycle ridership data: Development of an ongoing data collection strategy can help the county's jurisdictions and agencies better understand changing ridership over time, help interpret collision data by estimating exposure, and potentially help quantify mode shift when paired with other data.

[10] Counts are extrapolated from total average daily users multiplied by 0.6, the approximate percentage of users who are bicyclists (as opposed to pedestrians).

COLLISION TRENDS

One of the goals of this Plan is to improve safety for bicyclists, including a commitment to eliminating bicycle fatalities by 2035, and decreasing the overall number and severity of collisions. Understanding the current safety conditions and locations of high-injury corridors and intersections can support decisions on the location and type of infrastructure improvements to construct and how to prioritize the allocation of funding resources.

The data used in this analysis includes all reported crashes in Napa County involving at least one bicycle that resulted in an injury between 2006 and 2013.[11] It is important to note that bicycle crashes are known to be under-reported. For example, single-bicycle crashes not involving a motor vehicle are not captured in public crash databases, even though they can be severe. Additionally, instances where both parties do not report the crash are not included. The number of unreported crashes in Napa County is unknown; a study conducted by the Federal Highway Administration found that 33 to 57.5 percent of all bicycle crashes potentially go unreported.[12]

As shown in Table 3.2, between 34 and 60 bicycle crashes occurred in Napa County each year from 2006 through 2013, or around thirty-five crashes annually per 100,000 residents. Of these crashes, six resulted in fatalities. Bicycle crashes accounted for an average of approximately five percent of all Napa County injuries and just under seven percent of its traffic fatalities and overall collisions.

Table 3.2. Crash totals and severity in Napa County, 2006-2013 (Source: TIMS)

Year	Number of Crashes	Number of Bicyclist Injuries				Fatal
		Severe	Other Visible	Complaint of Pain	Total[13]	
2006	56	10	31	14	59	1
2007	54	6	31	17	55	0
2008	60	7	33	20	64	0
2009	34	5	14	14	36	1
2010	45	7	23	14	46	1
2011	41	7	25	9	43	0
2012	49	7	24	16	50	2
2013	51	8	29	13	52	1

[11] The data used in this analysis is from the Transportation Injury Mapping System (TIMS) database, produced by SafeTREC at University of California, Berkeley. This database compiles collision data from the California Highway Patrol's Statewide Integrated Traffic Records System for all injury crashes, excluding those reported as property damage only.

[12] Federal Highway Administration. Injury to Pedestrians and Bicyclists: An Analysis based on Hospital Emergency Department Data. FHWARD-99-078. 1999.

[13] Total crashes may not equal the sum of the injury type reported because only one "injury severity" is reported per crash; however, more than one bicyclist may be involved in a crash.

Location

Most (58 percent) of the bicycle crashes in Napa County occur in the City of Napa. Table 2.3 shows the number of reported bicycle crashes in each individual jurisdiction over the 2006 to 2013 time period. Figures 3.2-6 shows an overview of crash locations which indicates a clear clustering of crashes in those areas with higher ridership: within the cities and along known recreational riding routes in the unincorporated areas of the county. A closer look at each jurisdictions' crash history is presented in the individual jurisdiction plans. Those plans identify high-crash streets where a larger number of crashes have occurred, indicating that people are riding bicycles in these locations, and that safety issues may exist.

Table 3.3. Number and Location of Reported Bicycle Crashes in Napa County, 2006-2013 (Source: TIMS)

Location	Number
American Canyon	18
Calistoga	16
Napa	227
St. Helena	20
Yountville	1
Unincorporated Areas	108
Napa County (total)	390

Figure 3.2. Locations of Bicycle Crashes in Napa County, 2006-2013 – Northwest (Source: TIMS)

Figure 3.3. Locations of Bicycle Crashes in Napa County, 2006-2013 – Northeast (Source: TIMS)

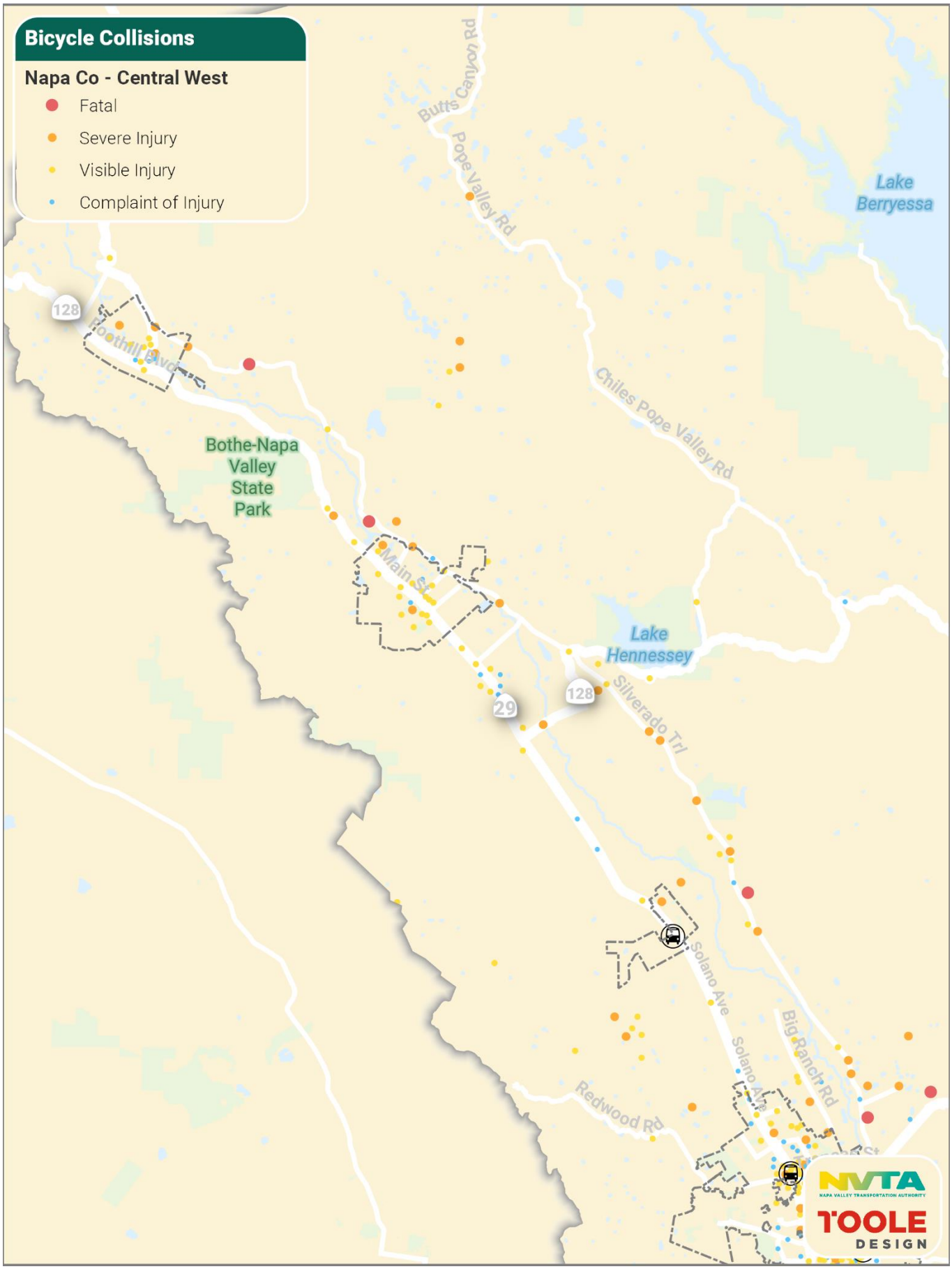

Figure 3.4. Locations of Bicycle Crashes in Napa County, 2006-2013 – Central West (Source: TIMS)

Figure 3.5. Locations of Bicycle Crashes in Napa County, 2006-2013 – Central East (Source: TIMS)

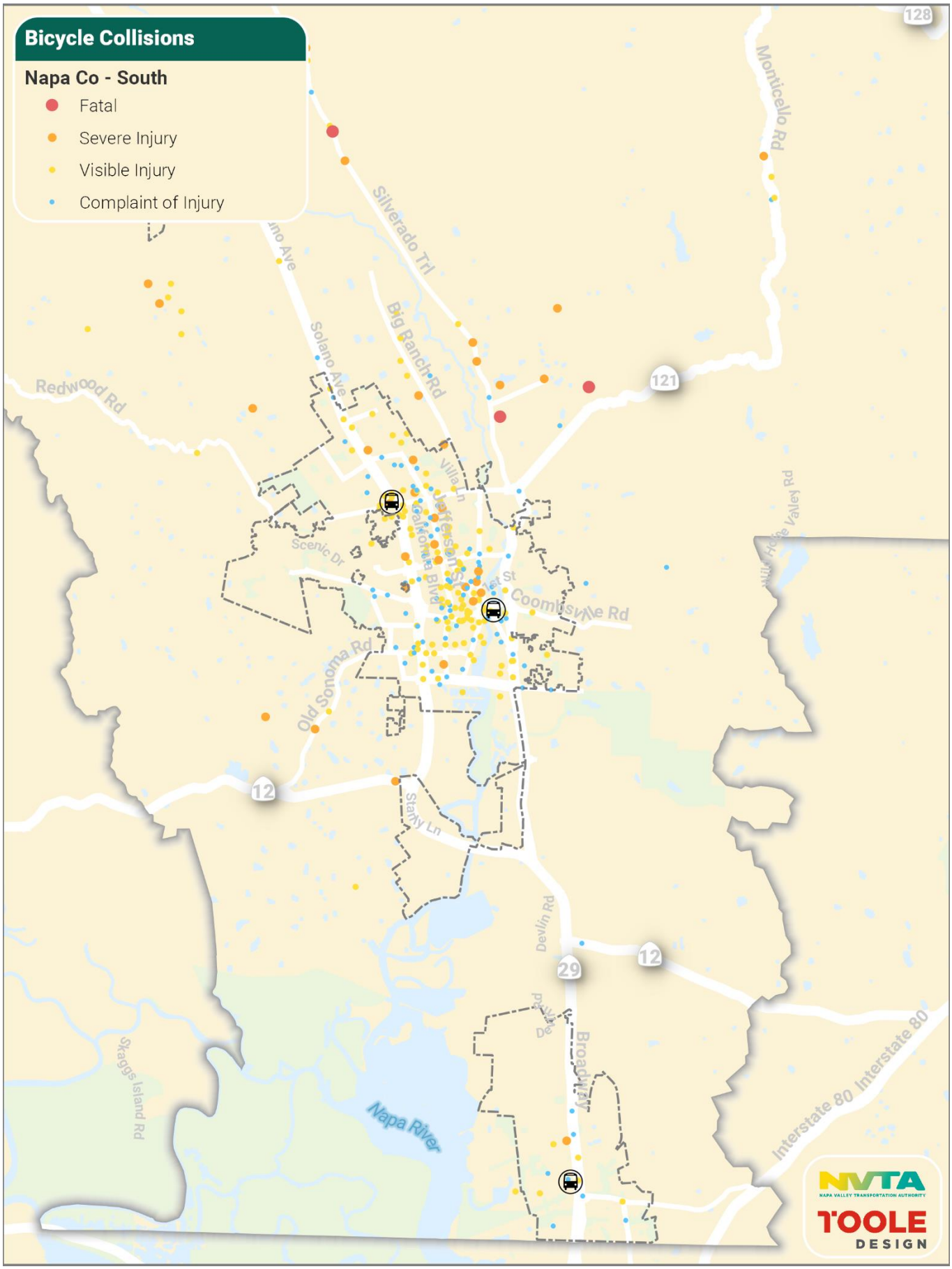

Figure 3.6. Locations of Bicycle Crashes in Napa County, 2006-2013 – South (Source: TIMS)

DEMOGRAPHICS

In Napa County, children under 18 years of age comprise a significant number (26 percent) of those injured in bicycle crashes, as shown in Figure 3.7. In general, children are especially vulnerable road users due to their size (and therefore, driver difficulty in seeing them) and limited ability to judge speed and risk. A much smaller percentage of injury crashes in the unincorporated areas involved children than in the cities. This finding matches expectations since most of the riding in unincorporated areas is done by adult riders on longer recreational trips, whereas child bicyclists commonly ride in their neighborhoods.

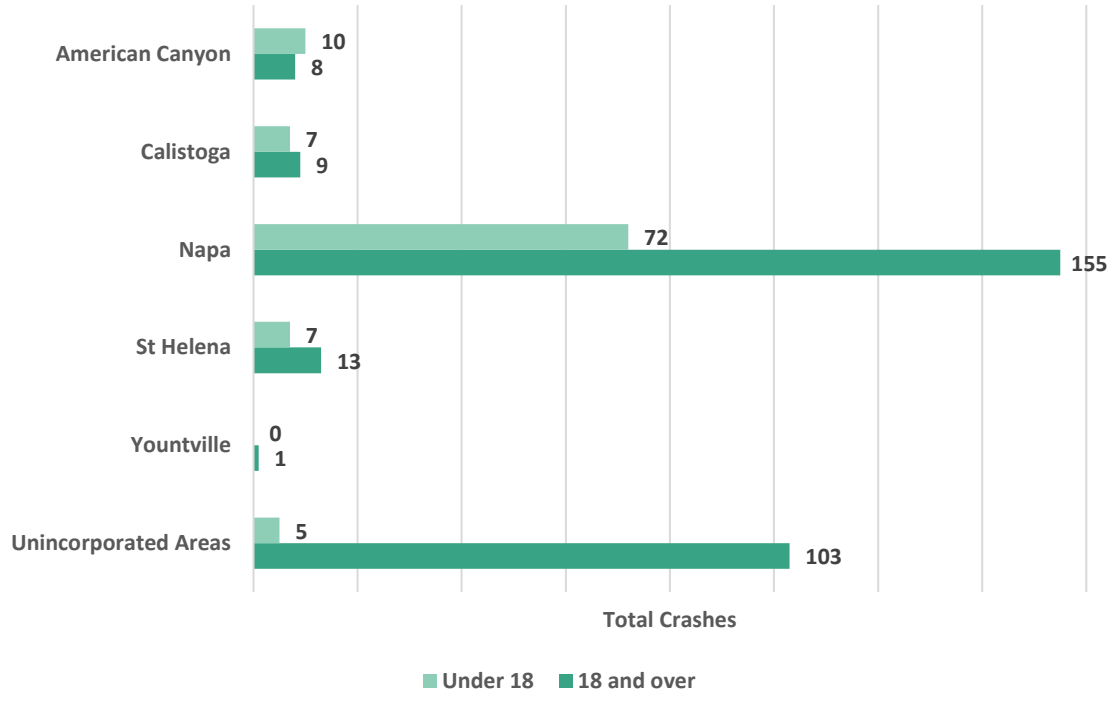

Figure 3.7. Number of Bicycle Crashes by Age in Napa County, 2006-2013 (Source: TIMS)

Daily and Seasonal Trends

Bicycle collisions in Napa County are most common on Fridays, but otherwise occur with consistent frequency throughout the week. Most crashes (86 percent) occurred during daylight hours. Regarding seasonal trends, crashes are more common in the summer months and less common in the winter, consistent with the prevalence of bicycling throughout the year. May and October have the highest crash frequency.

Primary Collision Factors

Table 3.4 indicates the most common primary collision factors for bicycle crashes in Napa County. The bicyclist being on the "Wrong Side of Road" resulted in the most injuries. This usually implies that the bicyclist was traveling in the opposite direction of traffic, often on a sidewalk and was struck while in a pedestrian crossing or driveway. While the responsibility for this type of crash is assigned to the

bicyclist, bicyclists in this situation are often trying to get to a location that cannot be accessed with bike facilities. As a result, they use other modal facilities or existing bike facilities in the wrong direction. Some bicyclists may also not be fully informed about their rights and responsibilities as a road user and understand that they are required to ride in the same direction as other vehicle traffic.

"Improper Turning" led to nearly all the reported fatalities. "Automobile Right of Way" (bicyclist not yielding) and unsafe speeds were also common reasons for collisions. Unfortunately, making infrastructure or programmatic recommendations is difficult for the primary collision factors labeled "Unknown," "Other Hazardous Conditions," and "Other Than Driver" because descriptions are not provided.

Table 3.4. Primary Collision Factors for Reported Bicycle Crashes in Napa County,2006-2013 (Source: TIMS)

Primary Collision Factor	Injury	Killed	Total
Bicyclist on Wrong Side of Road	93	0	93
Improper Turning	73	5	78
Automobile Right of Way (bicyclist not yielding)	71	1	72
Unsafe Speed (of vehicles)	45	0	45
Unknown	24	0	24
Traffic Signals and Signs (disregarded)	22	0	22
Other Hazardous Violation	20	0	20
Other Than Driver (or Pedestrian)	16	0	16
Driving or Bicycling Under the Influence of Alcohol or Drug	10	0	10

Considerations for the Bicycle Plan

Prioritize investments for high-crash locations: Streets with a large number of bicycle crashes indicate where people are already riding and investments could improve safety. These streets will be included in the bicycle network for improvements and could be prioritized for implementation.

Bikeway facility selection and education based on collision factors: Each of the high-frequency collision factors points to a need for both infrastructure and education. Suitable infrastructure can help make bicyclists' movements more predictable and keep them separated from automobile traffic. Education can help all parties understand rules and responsibilities, as well as proper use of infrastructure to help avoid collisions.

Vision Zero: Numerous communities within the Bay Area have adopted Vision Zero policies and are developing action plans. These policies set communities on a path toward safer roadways for all users and may be a beneficial framework for reducing fatal and severe bicycle crashes.

Safe routes to school: The high percentage of children involved in crashes in the incorporated areas indicates a need for both infrastructure and education. Education recommendations can be aimed at child bicyclists, parents, and drivers.

Vision Zero is a strategy to eliminate all traffic fatalities and serious injuries, while increasing safe, healthy equitable mobility for all. Though people walking and biking are generally most severely impacted by traffic crashes, Vision Zero applies to all modes.

BICYCLE FACILITIES AND NETWORK

Investments in Napa County's bicycle network over several decades has resulted in a continually expanding system. Napa County's bicycle network includes shared routes, bike lanes and shared-use paths. Table 3.5 details the total mileage of each facility type within the cities, town, and unincorporated areas of Napa County.

Table 3.5. Bicycle Network Mileage

Jurisdiction	Facility Type	Existing Mileage	Total Mileage
City of American Canyon	Vine Trail (Class I)	2.4	13.1
	Shared-Use Paths (Class I)	7.3	
	Bike Lanes (Class II)	1.6	
	Bike Routes (Class III)	1.8	
City of Calistoga	Vine Trail (Class I)	1.0	6.0
	Shared-Use Paths (Class I)	0.4	
	Bike Lanes (Class II)	1.0	
	Bike Routes (Class III)	3.6	
City of Napa	Vine Trail (Class I)	7.0	49.0
	Shared-Use Paths (Class I)	7.9	
	Bike Lanes (Class II)	28.5	
	Bike Routes (Class III)	5.6	
City of St. Helena	Vine Trail (Class I)	-	2.5
	Shared-Use Paths (Class I)	1.0	
	Bike Lanes (Class II)	1.3	
	Bike Routes (Class III)	0.2	
Town of Yountville	Vine Trail (Class I)	1.3	4.1
	Shared-Use Paths (Class I)	1.2	
	Bike Lanes (Class II)	1.2	
	Bike Routes (Class III)	0.5	

Jurisdiction	Facility Type	Existing Mileage	Total Mileage
Unincorporated Napa County	Vine Trail (Class I)	3.8	67.5
	Shared-Use Paths (Class I)	7.7	
	Bike Lanes (Class II)	54.3	
	Bike Routes (Class III)	1.7	
Countywide		**TOTAL**	**142.2**

Napa County also contains 18 miles of the existing Bay Trail. The San Francisco Bay Trail is a planned 500-mile walking and cycling path around the entire San Francisco Bay running through all nine Bay Area Counties and 47 cities. The mission of the Bay Trail Project is a fully separated, paved pathway as close to the shoreline as possible. The trail currently varies between natural and paved surfaces. The Bay Trail Project has funded ten trail or bike lane projects in Napa County, and anticipates a new program and call projects in the near future. Table 3.6 contains existing and planned Bay Trail mileage in Napa County.

Table 3.6. Bay Trail Mileage in Napa County

Facility Type	Existing Mileage
Paved Trails*	10.5
Natural surface	7.5
TOTAL	**18**

*The mileage for paved trails is also included in Table 3.5 under the "Shared-Use Paths (Class I)" category.

A map of the existing network in Napa County shown in Figures 3.8-12. Subsequently, the most common types of bicycle facilities are reviewed, focusing on their potential application within Napa County. Many facility types already exist within the county, but some have not yet been implemented and will be part of this Plan's recommendations.

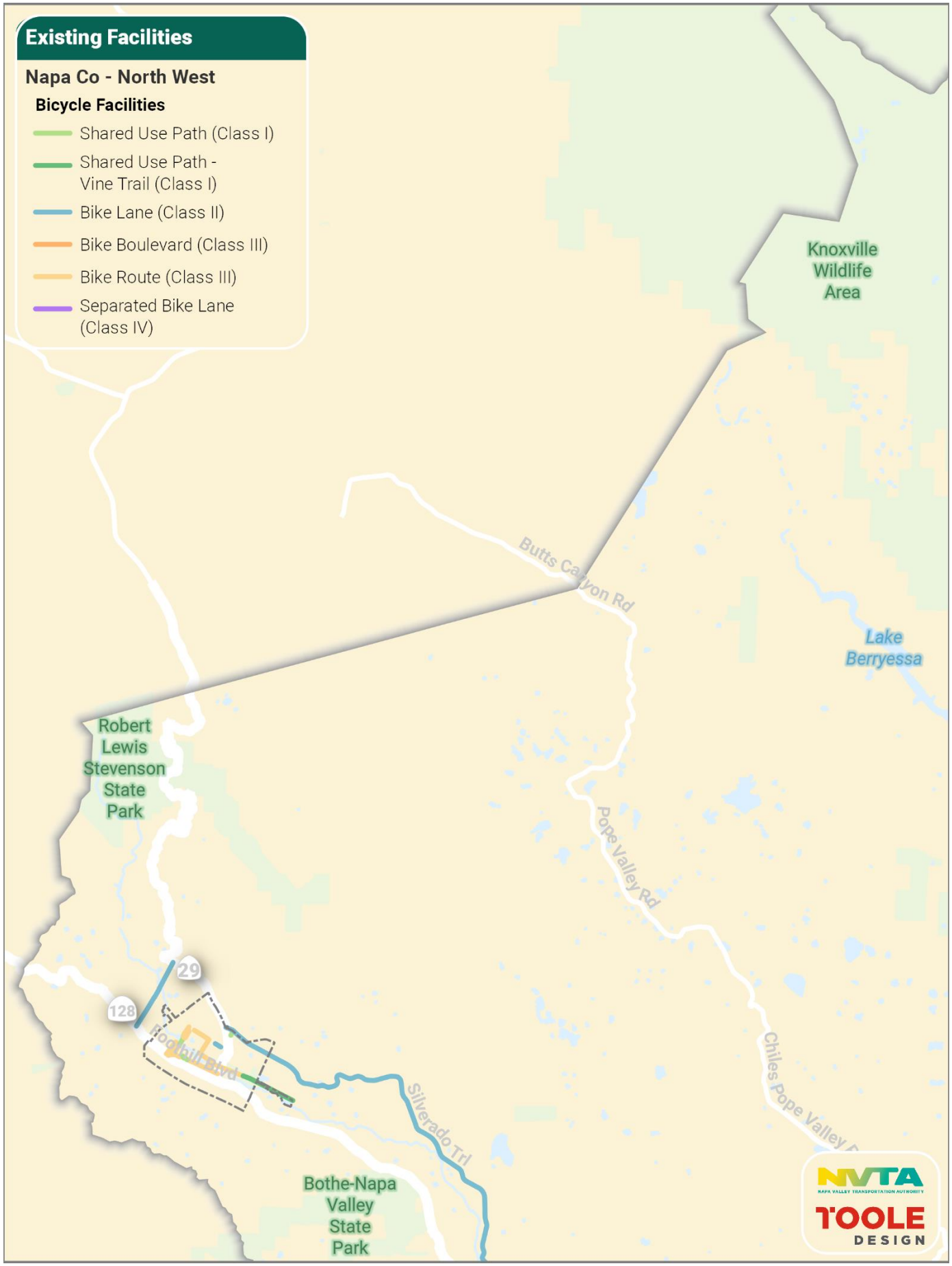

Figure 3.8. Existing Bicycle Facilities in Napa County – Northwest

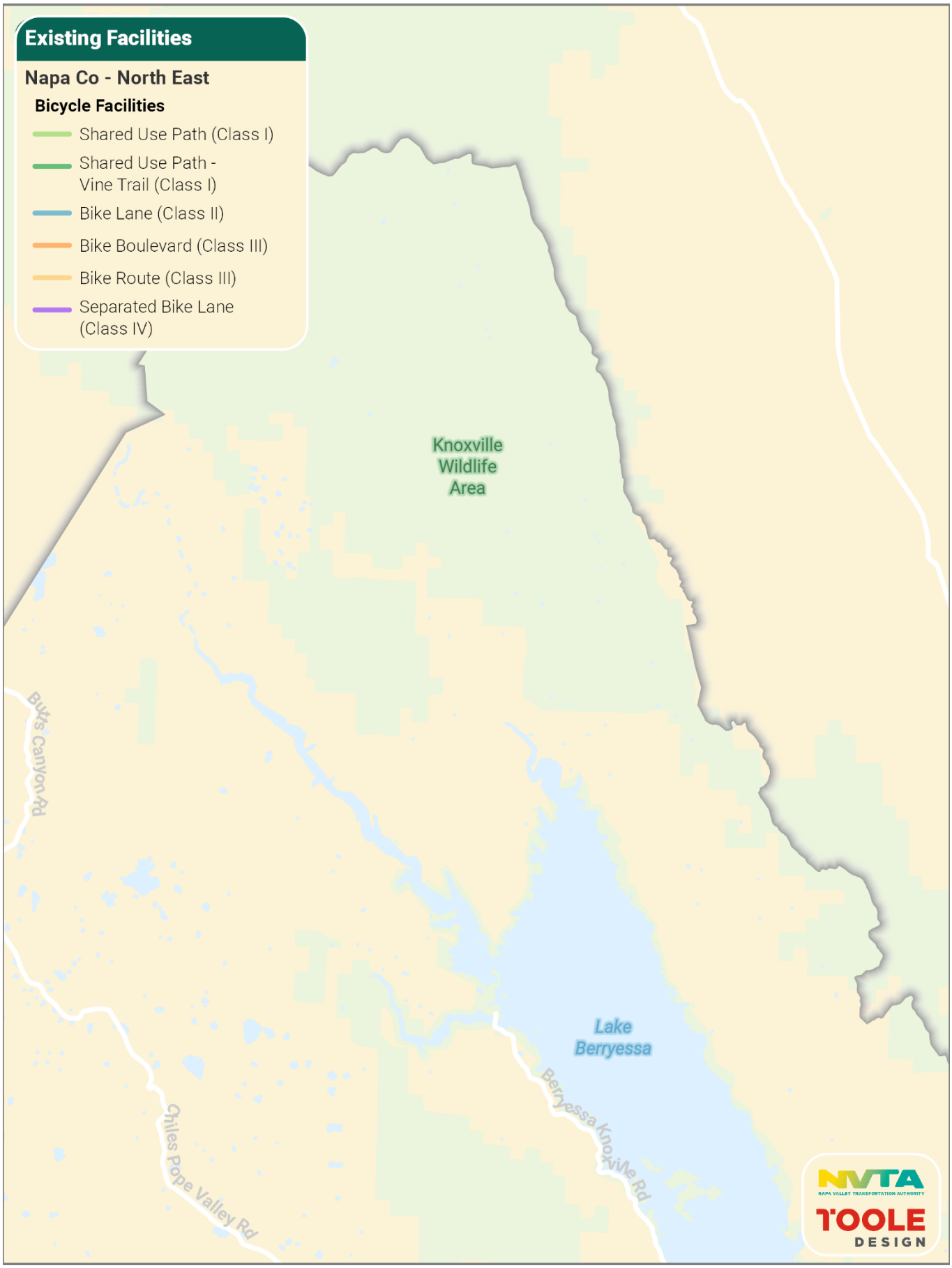

Figure 3.9. Existing Bicycle Facilities in Napa County – Northeast

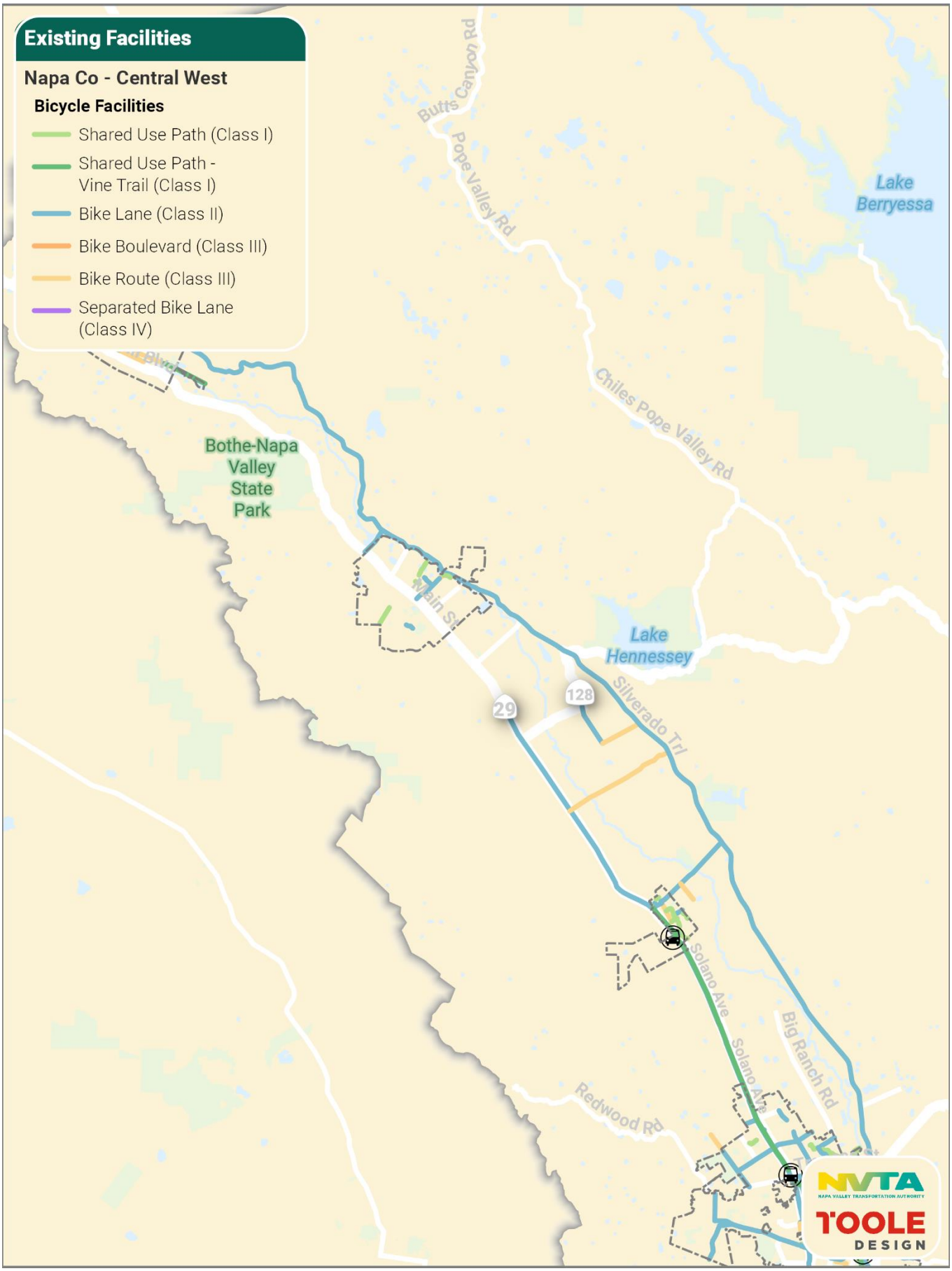

Figure 3.10. Existing Bicycle Facilities in Napa County – Central West

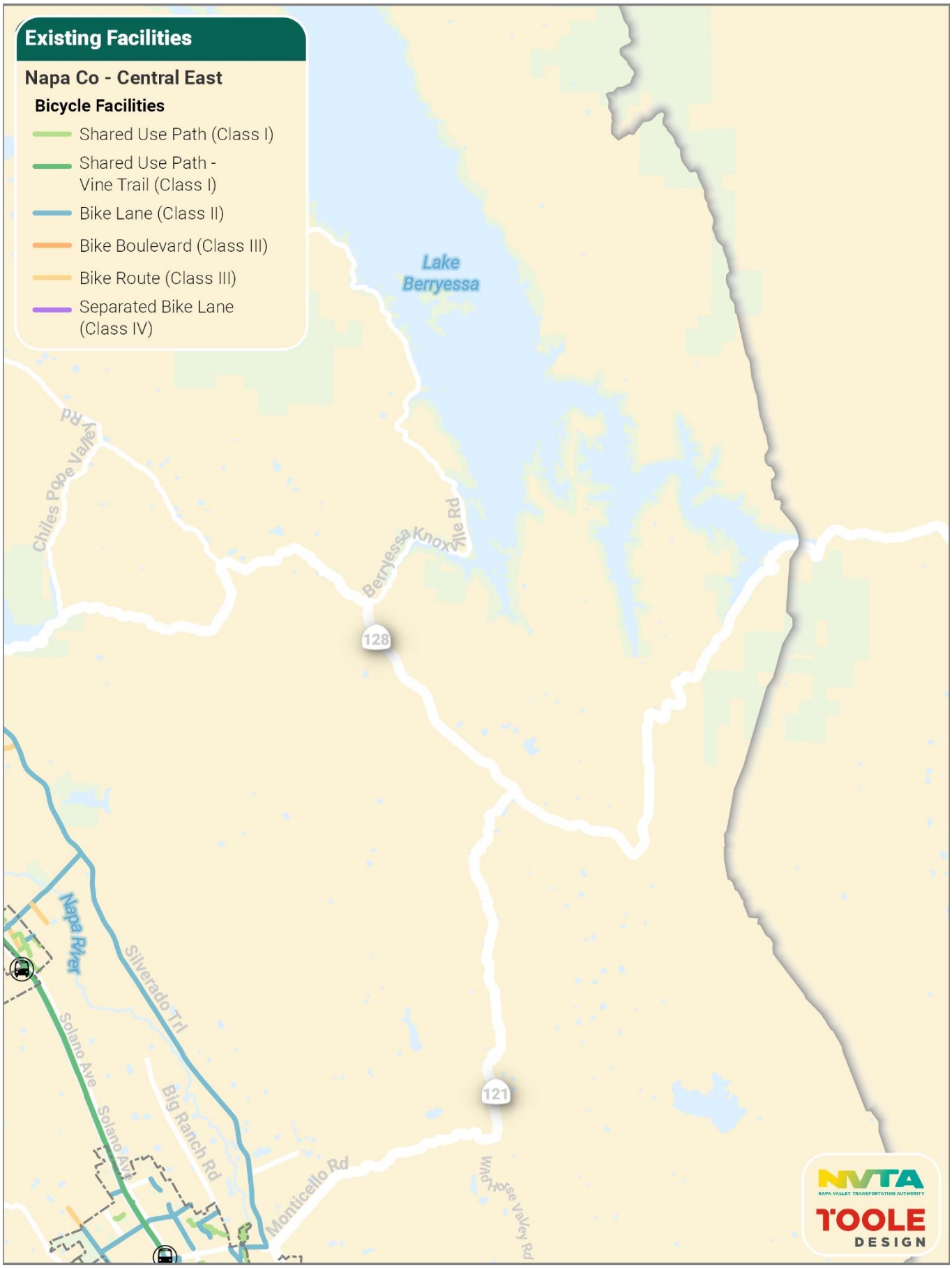

Figure 3.11. Existing Bicycle Facilities in Napa County – Central East

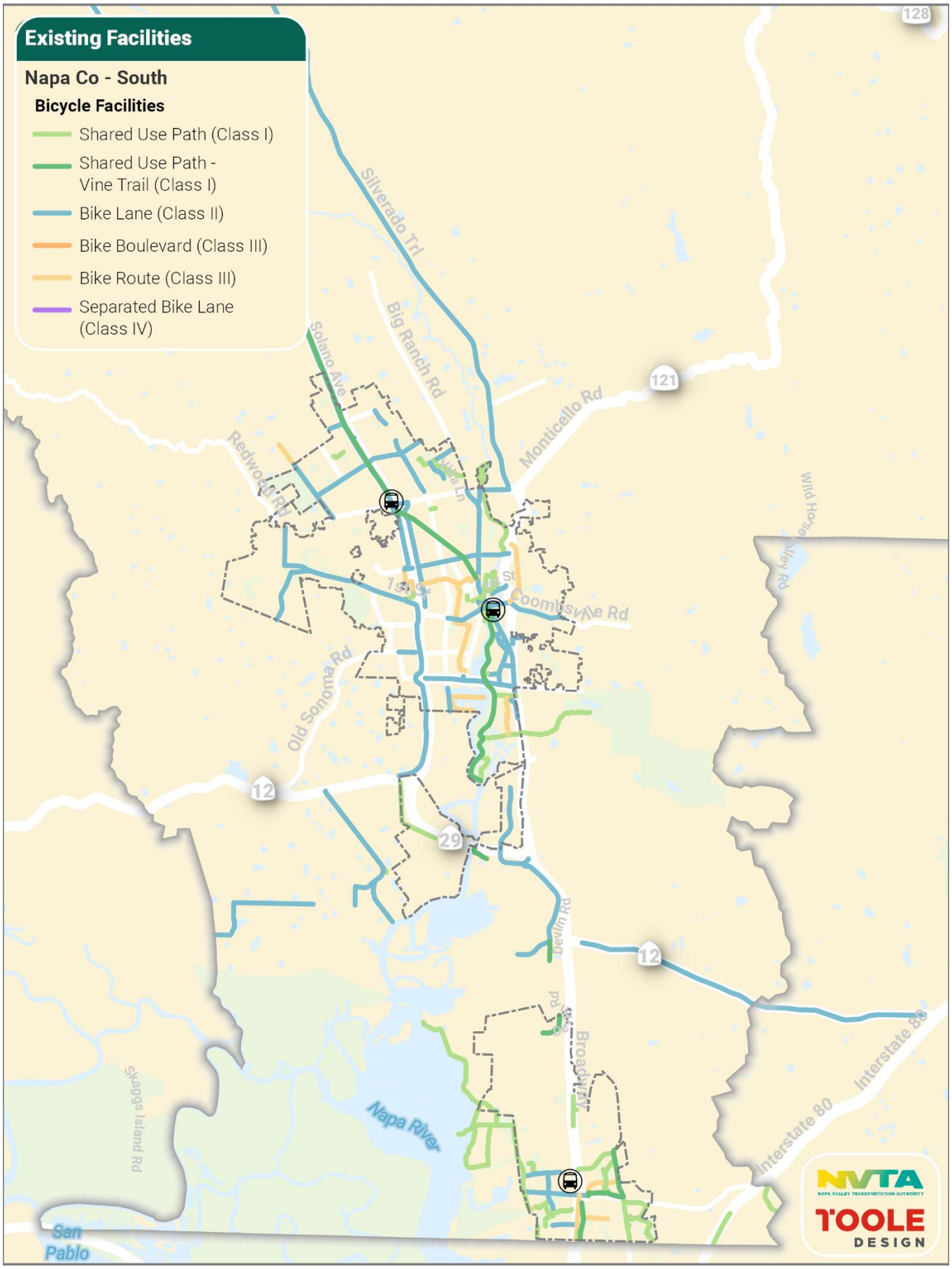

Figure 3.12. Existing Bicycle Facilities in Napa County – South

Facility Types

This section includes an overview of bicycle facility types and their application in Napa County.

Shared-Use Path (Class I) are two-way paved facilities, physically separated from motor vehicle traffic and used by bicyclists, pedestrians, and other non-motorized users. Shared-use paths are often located in an independent alignment, such as a greenway, though sometimes they are located adjacent to roadway. Shared-use paths provide low-stress facilities for bicyclists.

Figure 3.13. Neighborhood connection in Calistoga

Some trails in Napa County, although technically not standard shared-use paths provide connections within neighborhoods or as cut-throughs to destinations (see Figure 3.13) and are identified in this plan. Although some of these shared-use paths are substandard in width compared to best practices for Class I design, they are separated from automobile traffic and provide important desired connections within the bicycle network.[14]

The Vine Trail is a key shared-use path that is becoming the backbone of Napa County's low-stress bicycle network. The largest completed segment currently connects the Town of Yountville to Kennedy Park at the south end of Napa. Additional small segments have been built elsewhere, and the completed Vine Trail will connect all Napa County jurisdictions as part of a 47-mile active transportation corridor between the Vallejo Ferry Terminal and Calistoga. The Napa Valley Vine Trail Coalition and NVTA are actively working on planning, design, and construction of trail segments throughout the county.

Many of Napa County's existing shared-use paths connect to the existing and future Vine Trail and natural areas. In addition to providing connectivity to the Vine Trail, these paths connect comfortable neighborhood streets together.

Examples of Shared-Use Path (Class I) in Napa County:

- Vine Trail (approximately 12 miles over all segments)
- Wetlands Edge Road Trail (1.37 miles), part of the Bay Trail (18 miles in Napa County)
- Connector path between Fairway Vista Ct. and Denise Dr. in Calistoga (0.10 miles)

[14] Eight feet is the typical recommended minimum for any shared-use path. Some small connector paths in the county are as narrow as four feet.

Bike Lanes (Class II) provide an exclusive space for bicyclists in the roadway and are established by painting lines and symbols on the roadway surface. Bike lanes are for one-way travel and are typically provided in both directions on two-way streets and/or on one side of a one-way street (see Figure 3.14).

Figure 3.14. Bike Lane - Class II in St. Helena

Bike lanes are the most common facility type in Napa County. Most bike lanes are located on major connector routes, such as Silverado Trail, or on major arterials within Napa County jurisdictions, such as Soscol Avenue in Napa and American Canyon Road in American Canyon.

Bike lanes create a lower-stress riding environment on streets with a maximum posted speed limit of 30 miles per hour and traffic volumes between 3,000 and 6,000 vehicles per day. Many of the bicycle lanes in Napa County are on roadways with higher speeds which can result in a stressful bicycling environment for many bicyclists, including Interested but Concerned bicyclists. Some of these facilities are well used, however, by the many Napa County residents and visitors who are more comfortable with bicycling in high-speed environments.

Bike lanes may also be painted for greater visibility to drivers and bicyclists. One of two painted bike lanes in Napa County is located on Valley View Street in St. Helena (see Figure 3.15). Another painted bike lane is located on SR 29 at Whitehall Lane; the bicycle lane crosses skewed railroad tracks at this location, and the painted bike lane provides an easily understandable route for bicyclists to cross the tracks at a safer angle (see Figure 3.16). This facility was implemented by Caltrans.

Figure 3.15. Painted bike lane on Valley View St in St. Helena

Examples of Bike Lane - Class IIs in Napa County:

- Grant Street in Calistoga (0.3 miles)
- Silverado Trail from Calistoga to Napa (approximately 26 miles)
- Pope Street in St. Helena (0.85 miles)

Buffered Bike Lanes (Class II) are implemented by painting or otherwise creating a flush buffer zone between a bicycle lane and the adjacent travel lane (see Figure 3.17). While buffers are typically used between bike lanes and motor vehicle travel lanes to increase bicyclists' comfort, they can also be installed between bicycle lanes and parking lanes to reduce conflicts with opening car doors. When located on streets with moderate traffic volumes and speeds, buffered bike lanes provide a lower-stress riding environment for bicyclists. No buffered bike lanes exist today in Napa County.

Bike Routes and Bicycle Boulevards are two types of Class III facilities in Napa County. This Plan Update will include Class III Rural Routes and Class III Bicycle Boulevards as facility types, but this section describes the existing conditions in the county where bike routes are applied more broadly than in rural areas.

Bike routes are designated with pavement markings or signage to indicate a shared lane environment between bicyclists and drivers. While signage and markings support wayfinding and indicate bicyclist positioning on shared streets, bicycle routes do not provide any protection or separation between people driving and people bicycling. When located on streets that have high traffic speeds and/or volumes, bike routes are uncomfortable and most people will choose not to ride on them.

Currently, bike routes are located on a range of roadway types from local, urban streets (see Figure 3.18) to low-volume rural roads (see Figure 3.19). These routes connect to destinations such

Figure 3.16. Painted bike lane on SR 29

Figure 3.17. Buffered bike lane in Seattle, WA

Figure 3.18. Bike route in St. Helena

as shopping, schools, parks, or other bicycle facilities. Most bicycle routes in Napa County are in the City of Napa, where they comprise much of its downtown network. The City of Calistoga also has a network of bicycle routes that connect to existing trails and bicycle lanes throughout the city.

Bicycle boulevards are also indicated with pavement markings and signage, but are specifically located on low-speed, low-volume streets, often in residential neighborhoods. Bicycle boulevards are designed to prioritize bicycle through-travel, while reducing motor vehicle through traffic volumes and maintaining relatively low speeds. When paired with intersection treatments that help riders cross major intersections, bicycle boulevards are an attractive, low-stress facility (see Figure 3.20).

Figure 3.19. Bike route along rural Silverado Trail

Bicycle boulevards are located on a limited number of streets in Napa County and do not include traffic calming or traffic diversion to lower speeds and volumes. These bicycle boulevards also do not cross major roadways and do not have treatments to facilitate bicyclists' movement through large, unsignalized intersections.

Figure 3.20. Crossing island help reduce stress for bicyclists when crossing intersections. Example in Portland, OR.

Examples of Class III Bicycle facilities in Napa County:

- North Oak Street in Calistoga (Bike route, 0.31 miles)
- Oakville Cross Road in the unincorporated area of Napa County (Bike route, 1.5 miles)
- Franklin Street in Napa (Bicycle boulevard, 0.77 miles)

Separated Bike Lanes (Class IV) are an exclusive bikeway facility type that combines the user experience of a shared-use path with the on-street elements of a conventional bike lane (see Figure 3.21). They are recommended for roadways with speeds higher than 30 miles per hour and motor vehicle volumes over approximately 6,500 vehicles per day. Separated bike lanes are physically separated from motor vehicle traffic with a vertical element and are distinct from the sidewalk. They can be located at street level within the curbs, at an intermediate level, or at sidewalk level, see Figure 3.22 below. Numerous options are available for creating separation between modes, ranging from low-cost paint and plastic flexpost installations, to more robust curb-separated lanes. Separated bike lanes provide a low-stress riding environment to all bicyclists. No separated bike lanes currently exist in Napa County.

Figure 3.21. Separated bike lane in Berkeley, CA

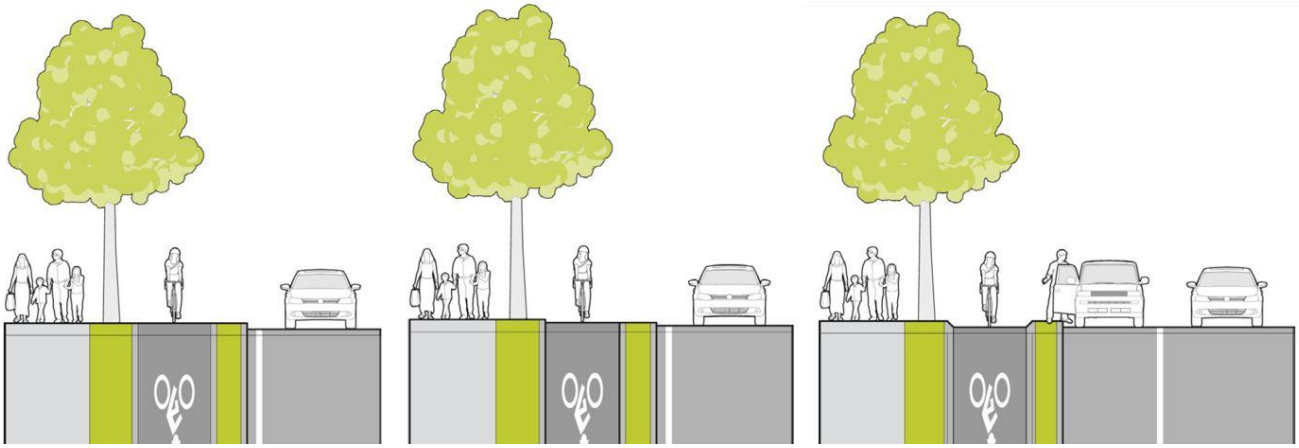
Figure 3.22 Sidewalk level, intermediate level, and street level separated bike lanes, left to right.

Network Connectivity

The purpose of a bicycle network is to safely connect people to places. This is done through having facilities that feel comfortable to ride, that also connect to one another, and to important destinations. To work toward meeting this Plan's goal of shifting trips to bicycling, a safe, connected network must be in place that serves a wide range of riders.

A brief overview of each community's connectivity is provided below, and greater detail is available in the jurisdictional plans (see Chapter 6-11).

- **Calistoga's** bike network mostly consists of bike routes, which offer shared street experiences for drivers and bicyclists. These routes are along local and collector streets in the city and provide connections to trails and recreational routes. Bike lanes exist along the city's portion of the Silverado Trail and a small section of Grant Street. Some community-created wayfinding exists to help route bicyclists to facilities, but it does not feature destination or distance information (see Figure 3.23). The low-speed, low-volume nature of most of Calistoga's streets means that connectivity to destinations is generally good.

Figure 3.23. Bicycle route wayfinding in Calistoga

- **St. Helena** has limited bike facilities. In addition to some short trail and bike route connections, the city has bike lanes along Silverado Trail, Pope Street, and a short segment of Valley View Street. Green painted bike lanes were installed on Valley View Street near St. Helena Primary School. These green bike lanes were implemented because of the poor sight line where the road curves on Valley View Street. Overall, many local streets in the city are already comfortable for riding, but they are not signed or marked as bicycle facilities and may not be considered to be part of the network. Additionally, connections to local schools and St. Helena's Main Street destinations could be improved.
- Most of **Yountville's** bike facilities are shared-use paths. The Vine Trail is located along the western edge of the town and has one connection to downtown and residential neighborhoods, in addition to the north and south end points in town. Other trails connect streets in residential areas but are fairly narrow. Bike lanes are marked on Finnell Road and Yountville Cross Road to provide access to the regional Silverado Trail bike facilities. Yountville's commercial areas and the local school could be better served by the bikeway network.

- **Napa** has the most developed bicycle network in the county and includes bicycle lanes along major roads such as Browns Valley Road, Soscol Avenue, and Lincoln Avenue. In the downtown area, a small network of bike routes/boulevards serves local destinations. Three main segments of the Vine Trail are within city limits. The cross-town commuter path, a portion of the Vine Trail from Redwood Road to near Soscol Avenue, provides cross-town access in the northern part of the City. A separate segment along the east bank of the Napa River at the southern end of the city connects downtown and neighborhoods to the commercial development in South Napa and on to Kennedy Park and Napa Valley College. Additionally, the Vine Trail connects north from Napa at the Redwood Park and Ride to Yountville. Many existing bike lanes are located on roads that connect to destinations, such as shopping centers at major intersections; however, a number of these streets present stressful riding environments with high-volume, higher-speed traffic.
- **American Canyon's** bicycle network consists mostly of shared-use paths bordering and within green spaces and parks, such as the Wetlands Edge Road Trail, part of the Bay Trail. These trails also connect schools and neighborhoods. There are bike lanes on West American Canyon Road, Benton Way, and Elliot Drive to connect the central area of the city to paths along the perimeter. While Benton Way and Elliot Drive are comfortable bicycle facilities for a range of riders, the bike lanes on American Canyon Road, especially near/crossing SR 29, are a high-stress facility due to high traffic volumes and speeds.
- **Unincorporated Napa County** has concentrated bicycle infrastructure that connects the towns from north to south. The Bay Trail also has significant existing and planned mileage within unincorporated areas of Napa County. A few bike routes exist north of Yountville to help connect users to Silverado Trail. Silverado Trail has a bike lane for the majority of its length with a narrow shoulder in some constrained locations. Some sections feature raised dots along the edge line to alert drivers while allowing bicyclists to ride in the full width of the bike lane without impedance from a rumble strip. Most other bike routes in the unincorporated areas have signage, but no roadway markings.

Considerations for the Bicycle Plan

Facility choice: The Plan should provide guidance on appropriate facility choice for roadways that will create a low-stress riding environment that attracts riders of all abilities and comfort levels.

Connectivity: The recommended network must consider locations important to community members, such as schools, shopping centers, libraries and parks and transit hubs.

BICYCLE PROGRAMS

Napa County has several bike programs. These programs have diverse audiences, ranging from bike safety education for students to bike rental opportunities for tourists.

Safe Routes to School

Napa County established its Safe Routes to School program in 2010. Like its national counterpart, Napa County's program is designed to create safe, convenient, and fun opportunities for children to walk and bike to and from school. The goal of the program is to increase students' walking and bicycling rates to school in order to combat childhood obesity, improve air quality and reduce vehicle congestion around schools, and provide students with a mode of transportation that fosters self-reliance and independence.

Figure 3.24. Napa County Safe Routes to School Training

The Safe Routes to School program is promoted through educational events, student prizes, and safety projects with school staff and volunteers, police departments, public health staff, and City traffic managers (see Figure 3.24). In previous years, the program was managed jointly between NVTA and the Napa County Office of Education (NCOE). For the 2018-2020 school years, the program is operated jointly by the Napa County Bicycle Coalition (NCBC) and NCOE with funding and management support of NVTA. As part of the current program, NCBC is conducting infrastructure reviews for walking and bicycling at all Napa County schools, with in-depth reviews at 13 high-need schools that will make recommendations for improving the safety of children walking and biking to school.

Safety Education

The Napa County Bicycle Coalition, a bicycling advocacy organization in Napa County, works to identify issues affecting bicyclists and find solutions by promoting bicycle infrastructure and safety throughout the county. The Coalition also organizes bike-related events, such as BikeFest, an annual community event in celebration of all things bike-related, which includes bike safety demonstrations, skills workshops/bike rodeo and an on-street ride for kids known as KIDical Mass (see Figure 3.25).

Figure 3.25. KIDical Mass Bike Tour and Safety Education during BikeFest

Bike Rental

Napa County is home to many hotels and bed and breakfasts catering to tourists. Many of these lodgings supply their guests with hourly or daily bike rentals.

In addition, the county has numerous bike shops and bike tour companies that rent out bikes to those looking to explore the area on two wheels. Napa Valley Bike Tours has installed nine bike rental "pods" throughout the county; all are located on private property and are available to the public. Several are located on resort and hotel properties in Napa County that cater to tourists looking for additional flexibility in where and when to rent a bike (see Figure 3.26).

Figure 3.26. Napa Valley Bike Tours Self-Serve Spinway Bike Rental Station in Napa

Considerations for the Bicycle Plan

Program responsibilities: The Plan must address the various roles of NVTA, jurisdictions, and community partners in execution of bicycle programs.

Program content: Safety education is an important base for bicycle-related education, but the plan must build on existing themes to include messaging to all road users and education about infrastructure.

KEY OPPORTUNITIES

Napa County is well on its way in working toward the goals of this Plan: connectivity, equity, safety, and education and encouragement. Work done by agencies, community governments, residents, advocates, and business leaders sets the stage for the recommendations that follow in this Plan. Those recommendations will focus on the following key opportunity areas:

Connect the existing network: The Vine Trail, Bay Trail, and other shared-use paths, bike lanes on streets with moderate speeds and volumes, and bike routes on local streets are the foundation for a countywide low-stress network. Bicycle network recommendations will connect these existing facilities.

Upgrade high-stress facilities: Communities have implemented bicycle facilities where people want to ride already, but some are high-stress. Bike network recommendations will highlight where high-stress bike facilities can be upgraded to provide low-stress bicycling that will attract more people to ride.

Focus on safety: Network prioritization will include consideration of bicycle crash history, and facility recommendations, both along roads and at intersections, will address crash causes.

Chapter 4: Proposed Bicycle Network and Programs

This Plan's proposed bicycle network represents the desirable and appropriate facility for each of the streets within the study network. Construction of the entire proposed network will take place over time, often occurring as part of other resurfacing, reconstruction or development projects, though some recommendations will require standalone capital projects. Considerations of ease of implementation, anticipated prioritization, or timeline are addressed in Chapter 5: Implementation Strategy.

The proposed Bicycle Network was developed based on a data-driven analysis, best practices in planning for a safe, connected bicycle network, and jurisdictional staff and community input. This chapter provides an overview of how the proposed network was developed. The proposed network for each jurisdiction is discussed in the individual jurisdiction plans (see Chapters 6-11).

HOW THE NETWORK WAS DEVELOPED

Street Selection

The streets in the proposed bicycle network were selected as a part of a data-driven process. Streets considered for bicycle facilities were included based on data from several sources:

- All existing bicycle facilities
- The 2012 Plan network, including Class I paths
- Comments received on the WikiMap
- Review of Strava heat map data for rural recreational routes[15]
- Review of bicycle collision data
- Consideration of access to destinations such as schools, retail, transit hubs and parks

This network was reviewed and edited by NVTA and jurisdiction staff to ensure streets and paths were appropriate and consistent with other plans. This "study network" was reviewed in further detail following the steps below.

Facility Selection

Each street included in the proposed network was assessed based on best practice understanding of bicycle planning and design. The determination of whether a particular facility type is suitable for a given roadway was based on the following criteria:

1. The network should be usable by bicyclists of all ages and abilities, and the types of infrastructure should be targeted toward the expected user group (e.g., lower-stress facilities within urban/suburban areas where less experienced riders may make short trips vs. higher-stress facilities in rural areas frequented by confident recreational bicyclists).
2. Facility type should match with roadway and traffic characteristics, to allow the safest (real and perceived) facility for the road type, considering limitations such as road width.

[15] Strava is an app used primarily by recreational bicyclists to track their rides. Approximate volumes of rides on a given road are shown on a heat map available at https://www.strava.com/heatmap.

3. Consistent facility types should be provided for a given route where feasible, and where roadway types warrant similar facilities.

Facility selection was based on roadway and traffic characteristics, including: posted speed, number of travel lanes, available roadway width, and field observations. Additional input from jurisdiction staff was also considered.

Generally, recommendations adhered to guidance in the draft Bicycle Facilities Toolkit for this Plan, including Figure 4.1.[16] This facility selection guidance is based upon the comfort level of an Interested but Concerned rider, representing the largest segment of the population.

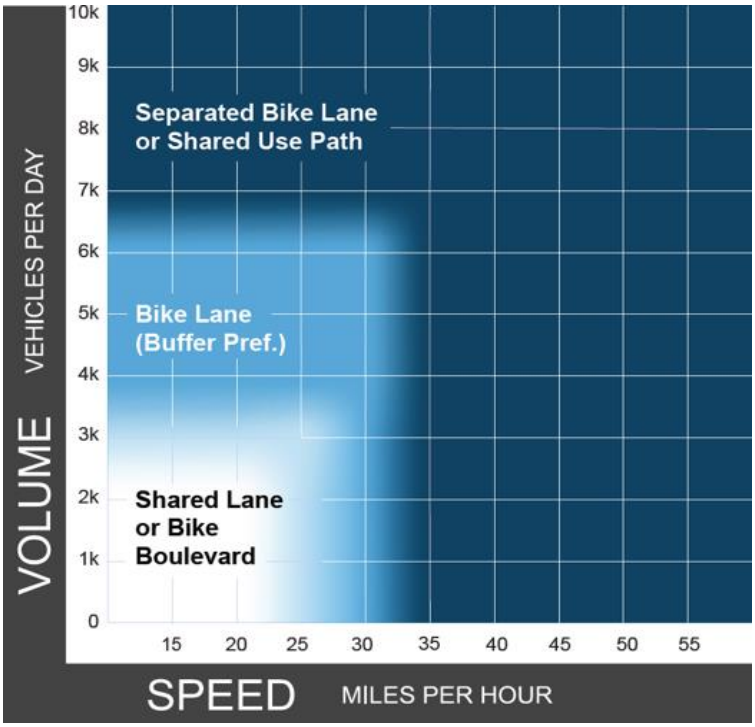

Figure 4.1. Facility selection guidance based on speed and volume

Recommendations that are exceptions to this selection guidance include most of the rural roads in Unincorporated Napa County where it is assumed that people bicycling will be more experienced and have a higher tolerance for proximity to fast-moving traffic. There are a limited number of other project recommendations that may not result in a low-stress riding experience, but nearly all of the recommended facilities would contribute to building a low-stress bicycle network throughout Napa County.

PROPOSED BICYCLE NETWORK

A bicycle network in Napa County will accommodate the largest number of people if it provides facilities that serve Interested but Concerned riders. Given the right bicycle facilities, education, and encouragement, these residents and visitors may choose to ride a bicycle for transportation and recreation. Facilities that serve this group will also serve more confident bicyclists.

The proposed bicycle network includes over 450 miles of new facilities, as detailed in Table 4.1. Maps of the recommended network are provided in each of the individual jurisdiction plans in Chapter 6-11.

[16] The chart in Figure 4.1 will be included in the AASHTO *Guide for the Development of Bicycle Facilities* which is currently under development.

Table 4.1. Proposed Bicycle Network

Facility Type	Proposed Mileage	Existing Mileage	Total Future Mileage
Vine Trail (Shared-Use Path Class I)	27.4	15.5	42.9
Shared-Use Paths (Class I, excluding Vine Trail)	52.0	25.4	77.4
Bike Lanes (Class II)	86.8	87.8	174.7
Bike Boulevards (Class III)	37.4	-	37.4
Bike Routes (Class III)	243.4	13.5	256.9
Separated Bike Lanes (Class IV)	0.9	-	0.9
Corridor Study (not included in total)[17]	13.2	-	13.2
Total Network	**459.3**	**142.2**	**602.4**

The construction of these proposed facilities will create a safe, connected, and comfortable bicycle system to link to community destinations, such as schools, transit, trails, and retail areas. There are an additional 79 miles of proposed shared-use path (Class I) in this plan that will provide short- and long-distance off-street connections in Napa County communities. This Class I mileage includes planned segments of the Bay Trail in the southern portion of Napa County as well as other shared-use path projects throughout the rest of the county.

The proposed bicycle network also provides connections in unincorporated areas and to adjacent jurisdictions through rural bike routes (Class III). Typically, these facilities serve more confident bicyclists since they are on high-speed roads with little to no separation between bicyclists and automobiles. Recommendations about the process for implementing these facilities are included in Chapter 5.

Proposed Regional Trails

In addition to the proposed network of this plan, two major regional trail efforts exist that pass through Napa County: the Bay Trail and the Bay Area Ridge Trail. Each of these long-distance recreational trails has their own planning effort that works in collaboration with jurisdictions throughout the Bay Area. Portions will be implemented as Class I facilities and in some instances overlap with the Vine Trail, and portions may continue to be unpaved trails. Their mileages are not included in the table above unless a designated portion of one of these trails was already included in the 2012 Bicycle Plan as a Class I recommendation.

[17] Some streets in the City of Napa are recommended for corridor studies to determine the appropriate bicycle facility type and means of implementation because their current configuration and operations are too complex for a determination to be made within the course of this Plan Update.

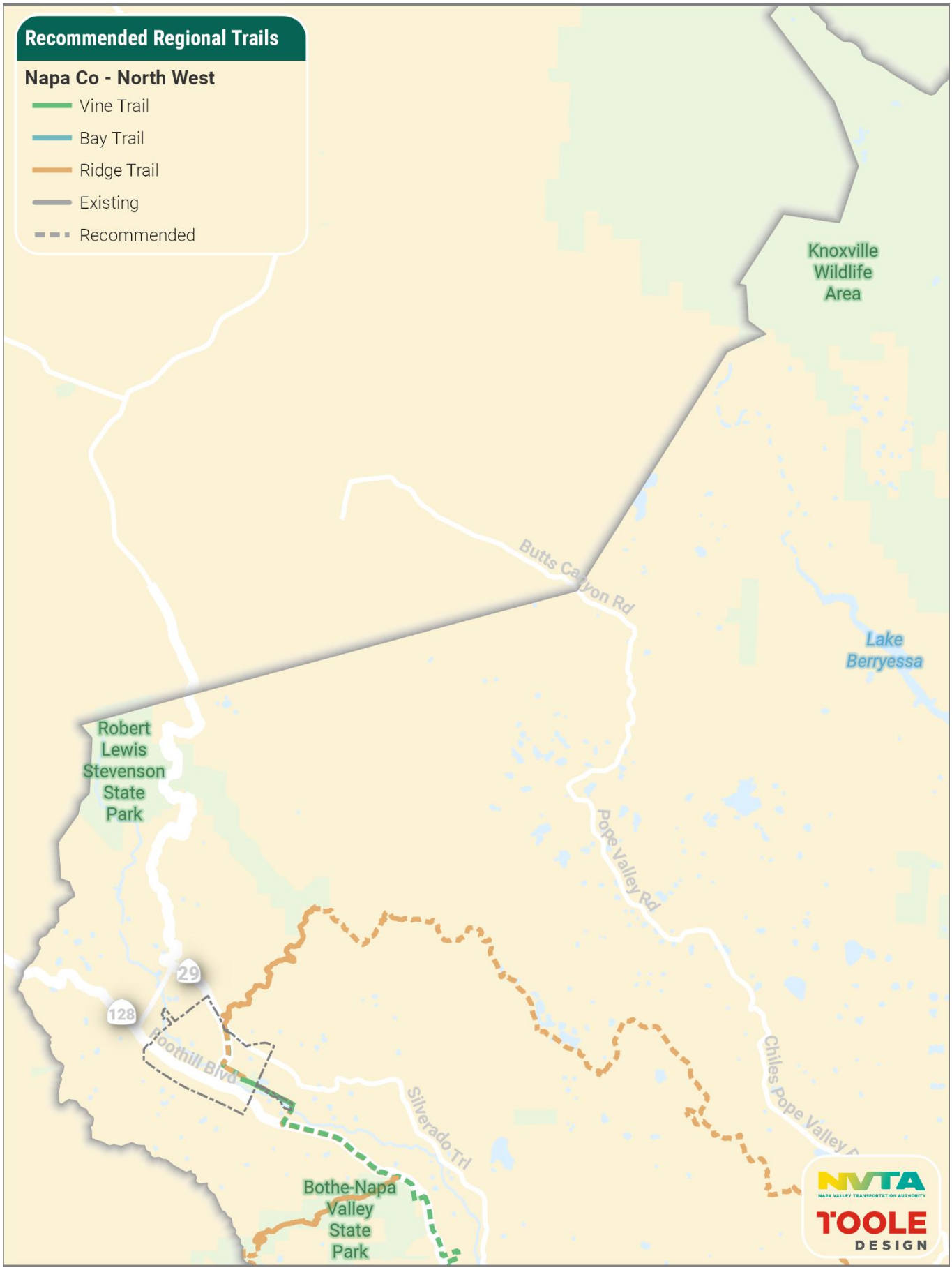

Figure 4.2. Proposed Regional Trails in Napa County – Northwest

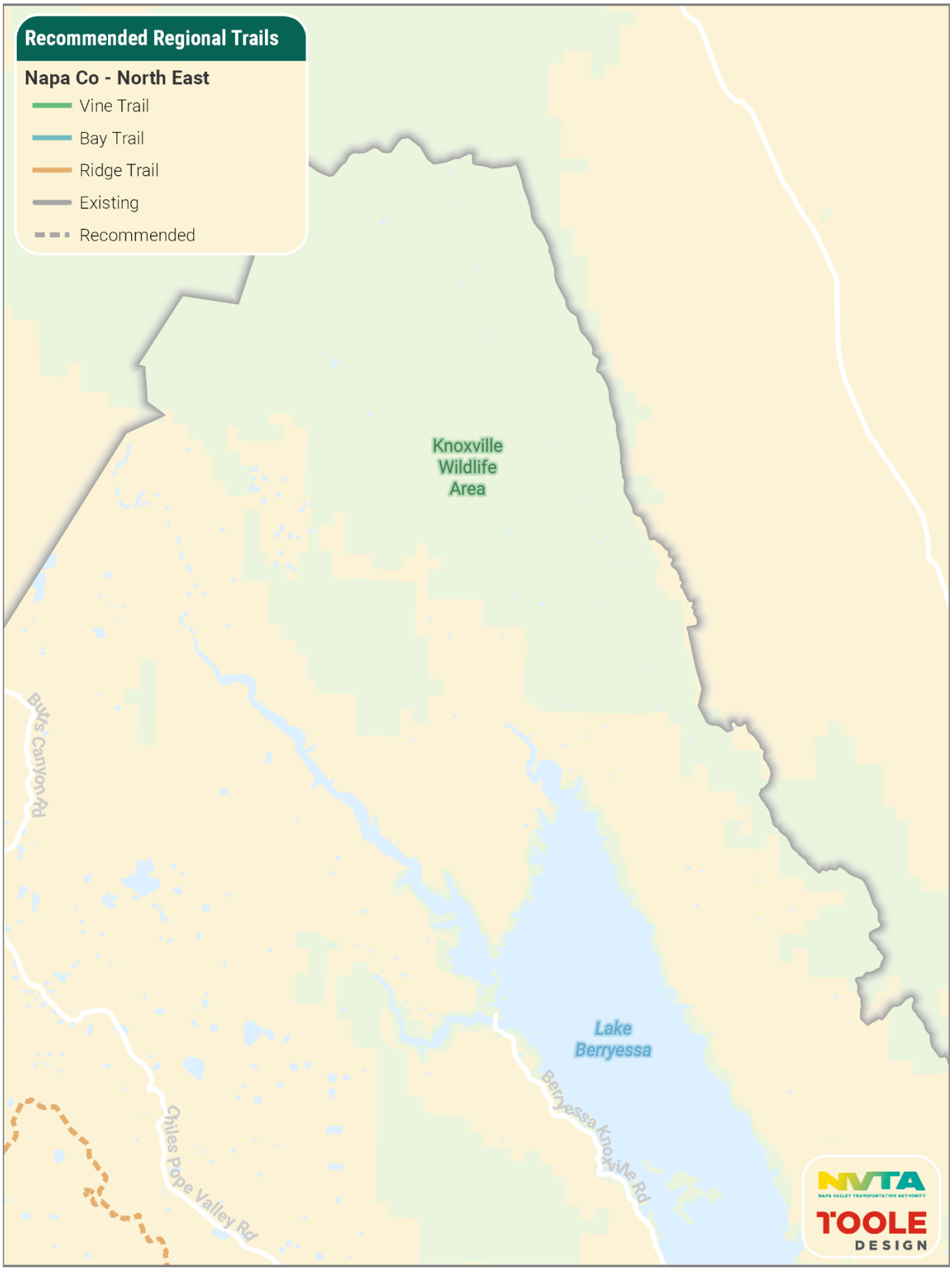

Figure 4.3. Proposed Regional Trails in Napa County – Northeast

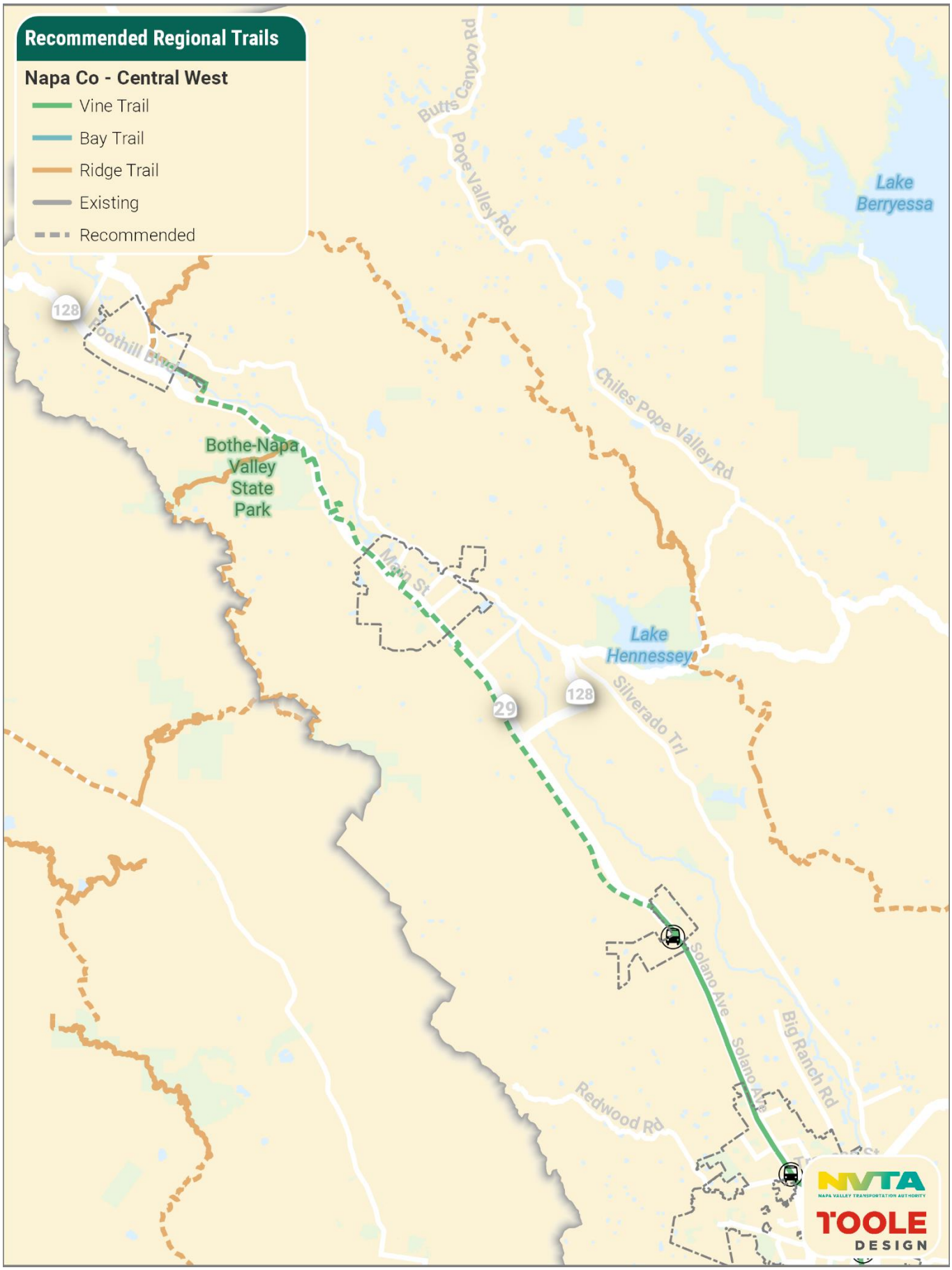

Figure 4.4. Proposed Regional Trails in Napa County – Central West

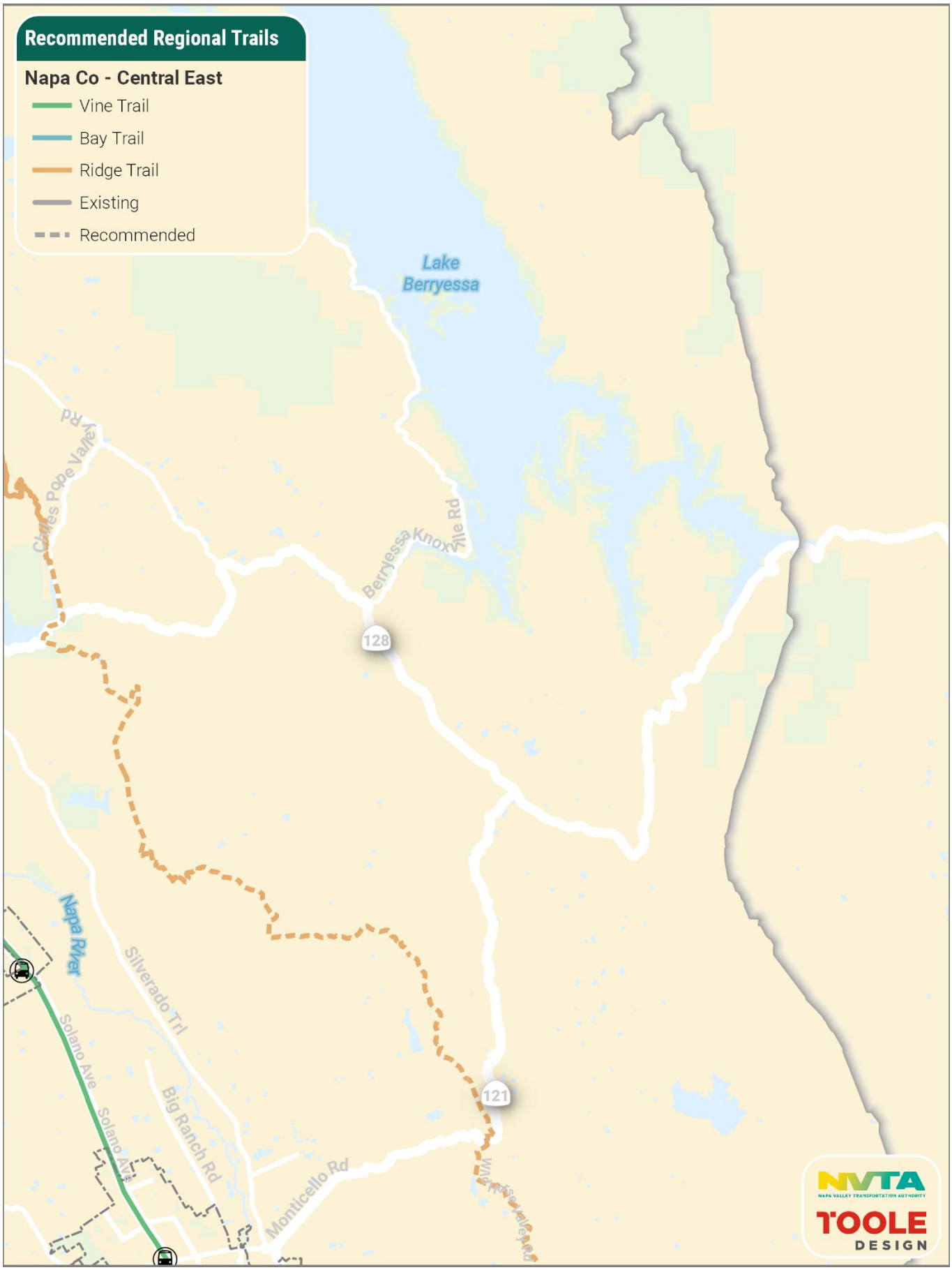

Figure 4.5. Proposed Regional Trails in Napa County – Central East

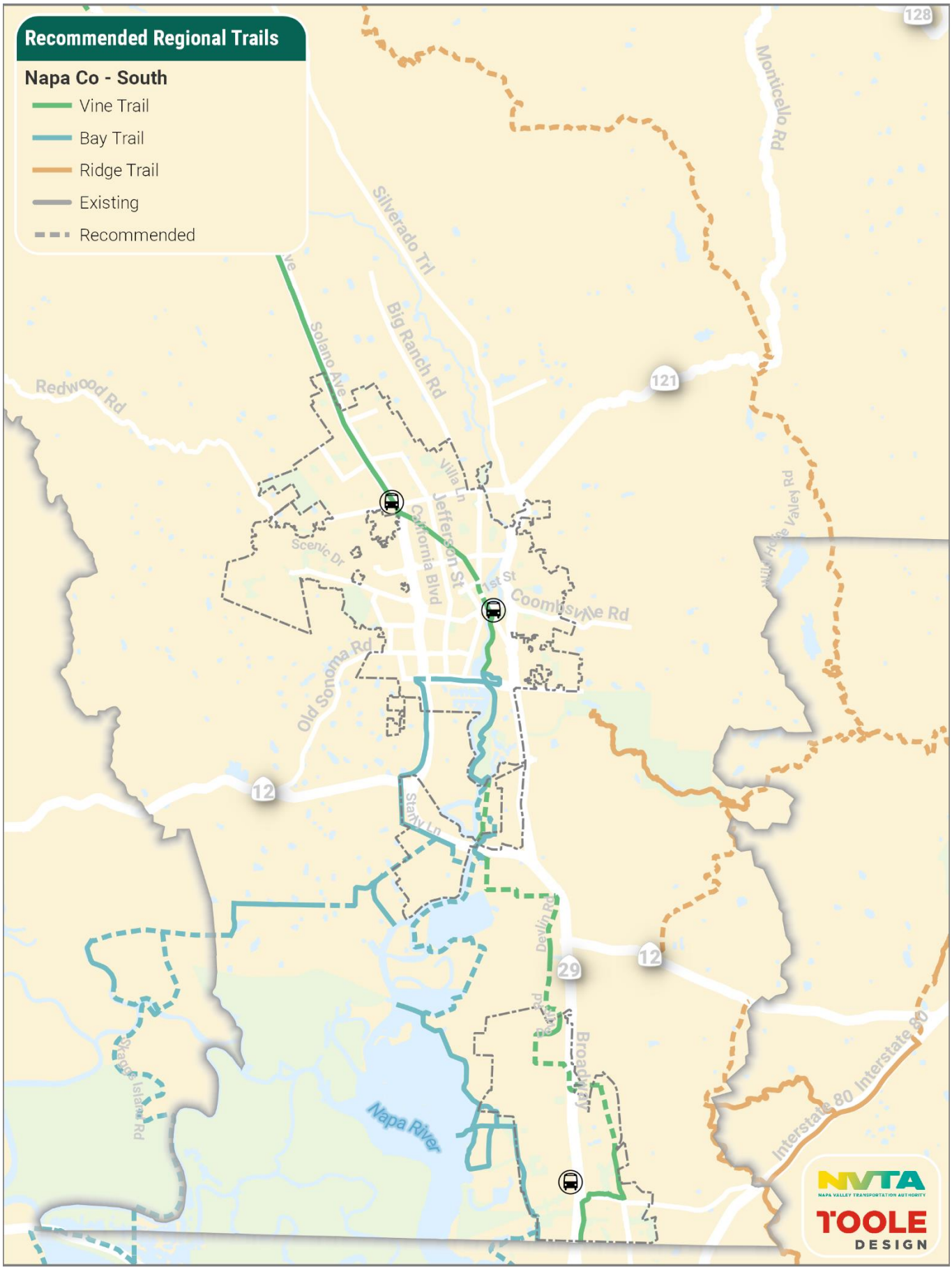

Figure 4.6. Proposed Regional Trails in Napa County – South

PROPOSED SUPPORT PROGRAMS AND POLICIES

Policies and support programs are key components of a welcoming, bicycle-friendly community. Along with bike network investments, programs and policies will help Napa County communities realize the Plan's goals of connectivity, equity, safety, and education and encouragement. Generally, policies are set by local or state government, while programs are led by or executed in partnership with external organizations or agencies such as advocacy organizations or school districts.

The programs and policies presented in Table 4.2 are proposed to be implemented by NVTA. Proposed programs and policies for each jurisdiction are outlined in the jurisdictional plans (Chapters 6-11).

The League of American Bicyclists categorizes the five aspects of a Bicycle Community as follows:

Engineering: Creating safe and convenient places to ride and park

Encouragement: Creates a strong bike culture that welcomes and celebrates bicycling

Education: Gives people of all ages and ability levels the skills and confidence to ride

Enforcement: Ensures safe roads for all users

Evaluation and Planning: Plans for bicycling as a safe and viable transportation option

Table 4.2. Recommended NVTA Support Policies and Programs

Support Policies/Program	Description	Plan Goals
Vision Zero Policy	Adopt a countywide Vision Zero policy and develop an action plan for implementing Vision Zero. Identify opportunities for funding for Vision Zero efforts, such as developing a Countywide database to inventory collision data and environmental factors, undertaking a comprehensive analysis to understand collision patterns, and facilitating an outreach process to identify community safety priorities and determine where to focus safety investments and improvements.	Safety
Existing Bikeways Policy	Develop a policy which specifies that existing bikeways should not be removed, unless an improved bikeway is being installed.	Connectivity; Safety
Bicycle Voucher Program (Bucks for Bikes)	Provides up to $100 voucher for new bicycle purchased for commuting	Education & Encouragement
Bicycle Parking Program	Develop a bike parking program in which businesses, or others as appropriate, may apply for funds from NVTA for the purchase of bicycle racks and/or lockers.	Education & Encouragement
Bike Share Program	Pursue opportunities for creating a Bike Share program designed to encourage making short distance trips by bicycle and to provide a transportation alternative for zero vehicle households	Education & Encouragement /Equity
Wayfinding	Create and install countywide bicycle wayfinding to help bicyclists navigate the roadway network with confidence and find their way past barriers, such as complex intersections or high-stress streets. Coordinate wayfinding across County jurisdictions.	Education & Encouragement

Support Policies/Program	Description	Plan Goals
Bicycle Friendly Community Status	Create a coordinated countywide effort towards applying for, and achieving, Bicycle Friendly Community status from the League of American Bicyclists. (The City of Calistoga became a Silver Bicycle Friendly Community in 2013, and the City of Napa became a Bronze Bicycle Friendly Community in 2016.)	Education & Encouragement
Bicycle Count Program	Develop bicycle count strategies that are implementable in the short-term and assist NVTA as it measures progress towards achieving the goal of 10 percent mode shift by 2035. See Appendix D for bicycle count program recommendations.	Safety; Education & Encouragement
Data Sharing Program	Maintain a comprehensive database of bikeways throughout Napa County and, to track progress, develop a process for jurisdictions to share updated project implementation/data with NVTA once projects are completed.	Connectivity
Dedicated Bicycle Staff	Identify a staff member at NVTA who is responsible for bicycle planning and the implementation of bicycle facilities and dedicate a percentage of their time to these efforts.	All
Dedicated Safe Routes to School funding	Pursue coordination of sources to ensure consistent funding for Safe Routes to School programming throughout the County's school districts.	Safety; Education & Encouragement
Bikeway Maintenance	Prioritize maintenance of roadways and removal of debris where bicycle facilities are present	Safety & Encouragement

PERFORMANCE MEASURES

NVTA intends to monitor progress on the implementation of this Plan over time. Performance measures will be used to evaluate how implementation is progressing, whether policies are being established and implemented as planned, and whether plan goals are being achieved. Performance measures for the proposed bicycle network are presented in Table 4.3. Due to varying constraints, some targets may be more difficult to meet than others.

Table 4.3. Performance Measures

Plan Goal	Performance Measure	Performance Reporting
Connectivity	Number of bicycle facility projects constructed per year	Establish a construction pace of one bicycle capital project per year per smaller jurisdictions, two per year in American Canyon, and three per year in the City of Napa and Napa County. (Includes projects implemented with Measure T repaving/rehabilitation)
	Development of practice to review Bicycle Plan for all projects	Establish a formal practice of reviewing Bicycle Plan for all street resurfacing or construction projects, and development review applications
	Level of stress for bicyclists	By 2035 increase by 20% the mileage of roadways that have low levels of stress for bicyclists

Plan Goal	Performance Measure	Performance Reporting
Equity	Projects located in or serving Communities of Concern, other known areas of non-automobile ownership, or areas with historically less bicycle infrastructure	All projects are evaluated for location relative to equity areas, and at least one implemented each year within Napa County.
	Education and encouragement materials/programs created for underserved groups	Creation of programming and materials in partnership or reviewed by community groups that serve underserved populations; Creation of programming and materials in languages other than English
Safety	Number of reported bicycle collisions	Reduce the number of reported bicycle collisions by 50% from 2013-2016 average by 2029
	Number of serious injury and fatal bicycle collisions	Reduce the number of serious injury and fatal bicycle collisions to zero by 2035
Education & Encouragement	Number of bicycle commuters	Increase bicycle mode share to 10% by 2035
	Number of Bicycle Friendly Community applications	All Napa County communities have applied for Bicycle Friendly Community status by 2024
	Number of students reached by SRTS programming	All K-8 schools within Napa County participate in SRTS programming by 2024

NVTA should devote staff time to creating an annual report that provides an update on the measures listed above and on progress toward implementation of plan infrastructure, policy, and program recommendations. Coordination will be necessary with the various jurisdictions to track several of these measures, and coordination will be necessary with the NCBC and NCOE regarding the Safe Routes to School reporting. This annual report will keep NVTA and its jurisdiction partners accountable for implementation of these Plan recommendations and continued improvement to the bicycling environment within Napa County.

Chapter 5: Implementation Strategy

The infrastructure recommendations of this Plan will be implemented over time by the various jurisdictions within Napa County. Many on-street projects will be implemented as part of other resurfacing or construction projects. Generally, shared-use paths will be stand-alone projects, sometimes completed in coordination with new development in an area, and sometimes completed over a long period of time in segments as funding is available for these higher-cost facilities. Physical and environmental constraints can also impact the choice of implementation method and influence project phasing.

IMPLEMENTATION METHODS

The means by which bicycle infrastructure is implemented vary depending on the facility type. This section discusses typical methods by which individual Napa County jurisdictions will grow their bicycle networks. The network recommendations of this plan are suited to the streets where they are located, but specific recommendations as to how each facility should be implemented will be determined by implementing agencies. Jurisdiction staff can consult this overview and the Facility Toolkit in Appendix A for further guidance.

Resurfacing and Restriping

One of the best opportunities Napa County jurisdictions have for implementing on-street bike facilities is the Measure T resurfacing and rehabilitation program. Resurfacing and rehabilitation entails paving some or all of an existing street section. In these cases, the addition of bike facilities may be accomplished simply through striping. Restriping also works within the existing street section width, but projects of this type can involve removing and replacing existing roadway striping to reconfigure the street for a bike facility.

Both methods allow for the reconfiguration of existing roadway space, which can take the form of narrowing travel lanes, or reallocating travel lanes or parking lanes to accommodate bike lanes or Class IV separated bike lane facilities. Each individual street will need to be studied at the time of implementation, and a community discussion about reallocation of space may be needed. Class III bicycle boulevard markings, shared lane markings, vertical traffic calming, and bikeable shoulders can also be implemented in conjunction with resurfacing and restriping.

Reconstruction

Street reconstruction projects also provide an opportunity to implement bike facilities. Reconstruction projects address a greater depth of the roadway, often fixing more significant maintenance and quality issues than what can be addressed through resurfacing. For bike facility implementation, the key difference is that some reconstruction projects can involve moving curbs to accommodate bike facilities or to implement traffic calming measures such as chicanes, curb extensions, or tighter curb radii. Reallocation of roadway space, as addressed above, and construction of vertical traffic calming elements is also possible with reconstruction projects. Most on-street recommendations in this plan can be implemented without acquisition of additional right-of-way, but where that is required, a project will require reconstruction rather than resurfacing.

In some cases, reconstruction offers the opportunity to reconfigure intersections so they work better for bicyclists. For example, removal of slip lanes can benefit bicyclists by removing a point of potential conflict with automobiles. Class IV separated bike lanes and shared-use paths can also be implemented in reconstruction projects where the roadway edge is being addressed.

Construction

In this Plan context, "construction" refers to standalone projects. These are Shared-Use Path - Class I projects outside the right-of-way, or those that, while in the right-of-way, can be implemented outside the existing street. Construction projects can also include new bridges and underpasses intended for bicyclist and pedestrian travel, such as the planned SR 29 Bicycle and Pedestrian Undercrossing project in the City of Napa.

Minor construction may include roadway widening to accommodate bike lanes or shoulders along a roadway. This can occur along the entire length of the facility or at select locations with poor sightlines, where spot widening would provide dedicated space for bicyclists, helping lower the chance of collisions.

Approaches for Specific Facility Types

Bicycle Boulevards (Class III)

Bicycle boulevards are intended to provide a continuous low-speed, low-volume riding experience for bicyclists. Streets in this Plan that are recommended for bike boulevards are, in many cases, already comfortable places to ride a bike for most people. However, where these streets cross major streets without signals or all-way stop signs, additional treatments may be needed to provide a seamless bicycling experience. When implementing bike boulevards, jurisdictions should focus first on these intersections. Without additional accommodation, bicyclists need to wait for a gap in high-volume, higher-speed traffic to cross these streets. Such challenging crossings present a barrier that may keep someone from making a trip by bike. Crossing improvements for bicyclists can take the form of bike crossing warning signage, rectangular rapid flashing beacons, pedestrian hybrid beacons, curb extensions, and median islands.

Offset crossings are also a key issue along bike boulevard routes. In cases where the route jogs along a major street, jurisdictions should note the location of existing traffic control and consider design treatments that allow riders to cross at that location. One technique used in bike boulevard design is a two-way bike facility on one side of the street between the offset streets (see Figure 5.1).

Figure 5.1. Two-way bike facility in Fort Collins, Colorado

Additional measures to be considered when designing for bike boulevard implementation are:

- Wayfinding to direct riders along local street routes with numerous turns
- Diversion of through traffic at intersections to maintain low traffic volumes

Information on these implementation tools is provided in Appendix A.

Rural Bike Routes (Class III)

Rural bike routes in this Plan are largely intended for the "Somewhat Confident" and "Highly Confident" rider types. As such, they do not provide a great deal of separation from traffic, but there are a few key implementation approaches that can improve the riding environment, even on high-speed streets.

Jurisdictions should begin improving rural bike routes by identifying locations where sightlines are challenging. These most often occur at the crests of hills or on tight curves. Installation of warning signage indicating bicyclists on the roadway is recommended as a first step toward improving bicyclist safety at these locations (see Figure 5.2). Beyond that, spot widenings for bikeable (minimum three-foot) shoulders should be considered in these locations. Many of Napa County's rural roads will have topography challenges at the roadway edge which may limit the ability to widen shoulders.

Figure 5.2. MUTCD W11-1 Bicycle Warning Sign

Where rural bike routes are adjacent to city and town boundaries or they enter or exit more developed areas, such as near Angwin, or, application of shared lane markings should be considered as well. Some of these rural bike routes may also warrant temporary signage during known recreational riding events to alert drivers to the presence of a significant number of bicyclists.

Improving Existing Bike Lanes (Class II)

There are numerous existing bike lanes in Napa County that could be improved with recommended treatments from the Facility Toolbox, especially near intersections. When resurfacing streets with existing bike lanes, jurisdictions should consider application of treatments such as appropriate placement of bike lanes with respect to turn lanes, highlighted marking of conflict areas, and continuation of bike lanes through intersections to indicate riders' path of travel.

PROJECT PHASING

All jurisdictions within Napa County have limited funding for implementing the facilities recommended in the bicycle network of this Plan. While the 6.67 percent (collective) Equivalent Funds requirement for Class I under the Measure T ordinance is a known current source of funding[18], this Plan recognizes that availability of other needed funds is uncertain at this time. In light of this, jurisdictions should bear several implementation approaches and priorities in mind when phasing projects.

Individual projects in this Plan consist of a network recommendation that is defined by the following criteria:

- Within one jurisdiction
- Consisting of one facility type
- Located on one street

Each project may be implemented one at a time, though implementing adjacent bicycle boulevard projects along a single route would be advantageous for bicycle connectivity.

Immediate-Term

Every jurisdiction's Measure T five-year repaving plan has been reviewed against the recommended bicycle network, and overlaps are indicated in the individual jurisdiction plans. These on-street bicycle facility recommendations should be reviewed immediately for potential integration into striping plans.

[18] In order for Project Sponsors to receive Measure T revenues, jurisdictions collectively must demonstrate that at least 6.67% of the amount (referred to as "Equivalent Funds") of Measure T revenues received each year is being committed to Class I facilities identified in the adopted Countywide Bicycle Plan/Active Transportation Plan, using funds not derived from the Measure T Ordinance.

Short- and Medium-Term

All other planned street resurfacing and reconstruction projects should be reviewed against the recommended bike network. Another early step in the implementation of the bicycle plan should be to answer the following questions about each project:

- Does a facility consist only of striping and signage that can be added at any time?
- Does a facility necessitate further community dialog regarding reallocation of street space?
- Does a project need significant funding that must be obtained through a competitive process (i.e., grant)?
- Does a project necessitate acquiring additional right-of-way?
- Are there any environmental concerns about a project location?

These questions can help direct staff to understand which projects are more readily implementable.

Additionally, public input received over the course of this Plan process indicates greater interest in connecting to certain destinations including: schools, parks, trailheads, and community centers. The locations of these destinations, as well as other known bicycle traffic generators such as hotels with bike rental schemes should be considered when selecting projects for earlier implementation.

Long-Term

Some projects, such as many Class I shared-use paths, will necessarily require a more sustained effort to come to fruition. While it may take a longer time to implement these projects, jurisdictions should begin to consider the steps toward construction of these projects so they are prepared for grant applications or inserting funding into capital improvement plans, including the 6.67 percent Equivalent Funds commitment submitted every other year with the 5-year Measure T paving program.

Connectivity Improvements from Phased Implementation

As stated, the planned bicycle facilities for Napa County are intended to create the most low-stress network that conditions allow. Implementation of on-street facilities such as bike boulevards (Class III) and bike lanes (Class II) will significantly improve the connectivity of the bicycle network for riders of all ages and abilities. Focusing first on intersection treatments at locations where these facilities cross high-speed, high-volume streets without a traffic signal will most quickly improve connectivity.

While shared-use paths (Class I facilities) provide a low-stress riding environment for all types of bicyclists, their implementation requires more investment and often more planning than on-street facilities. The connectivity improvements provided by these higher-cost, higher-effort facilities supplement improvements from on-street facilities, but it is understood that these improvements are more likely to be long-term projects.

COST ESTIMATION

Planning-level cost estimates were developed for the projects recommended in this Plan to help jurisdictions plan for budgeting and to provide information for grant applications. As noted, each of the facility types recommended can be implemented in several different ways. High- and low-end cost estimates are provided for Class II and Class IV facilities based on differing means of implementation.

There will also be variations in the actual facilities themselves: for instance, different rural bike route sections may have two spot shoulder widenings per mile or none. Similarly, a Class I path may be anywhere from eight to twelve feet depending upon available space and projected volumes, and a bike boulevard may include intersection improvements ranging from low-cost wayfinding signage to more expensive construction of a median island and installation of rectangular rapid flashing beacons. The cost estimates provided assume an average level of treatment and will need more refinement when projects move to design.

Further detail about assumptions included in the per-mile estimates in Table 5.1 are included in Appendix G.

Table 5.1 Planning Level Cost Estimates for Bicycle Facilities[19]

Facility Types	High/Low	Cost per Mile
Shared-Use Path – Class I		$ 1,170,000.00
Bicycle Lanes - Without Buffer – Class II	Low	$ 60,000.00
Bicycle Lanes - Without Buffer – Class II	High	$ 190,000.00
Bicycle Lanes - With Buffer – Class II	Low	$ 90,000.00
Bicycle Lanes - With Buffer – Class II	High	$ 230,000.00
Bike Boulevards (Shared Lanes) – Class III		$ 120,000.00
Rural Routes (Shared Lanes) – Class III		$ 40,000.00
Separated Bike Lanes – Buffer + Posts – Class IV		$ 110,000.00
Separated Bike Lanes - Concrete Curb – Class IV		$ 750,000.00

[19] Planning level cost estimates do not include the cost of right-of-way acquisition which can significantly increase the per-mile cost of facility implementation.

FUNDING OPPORTUNITIES

Grants present an opportunity to secure funding for implementing the Proposed Bicycle Network, and the jurisdiction's General and Capital Improvement Program (CIP) funds can be used to leverage regional, state, and federal funding. See Table 5.2 for a summary of available grants.

Table 5.2. Potential funding sources for bicycle programs and projects

Funding Sources	Administering Agency	Availability of Funding	Notes	Eligible Improvements	Eligible for Measure T Equivalent Funds	Weblink
Countywide Funding Sources						
One Bay Area Grant (OBAG) 2 Program	Napa Valley Transportation Authority	OBAG current round of funding funds projects from 2017/18 - 2021/22	Infrastructure projects that reduce vehicle trips, including pedestrian and bicycle facilities. Funded by the federal Surface Transportation Program and Congestion Mitigation and Air Quality Improvement (CMAQ) Program.	Bikeways and crossing improvements.	Yes	https://mtc.ca.gov/our-work/fund-invest/federal-funding/obag-2
Measure T Equivalent Funds	Napa Valley Transportation Authority	Varies-Other non-Measure T funds (Gas tax, general funds etc.) from non-competitive sources	Supplementing Measure T, jurisdictions (collectively) are required to commit funds from other sources equivalent to 6.67% of the annual Measure T revenue collected	Funds the construction or maintenance of Class I facilities	N/A	http://www.nvta.ca.gov/measure-t
Measure T	Napa Valley Transportation Authority	Funding allocated to municipal and county governments in Napa County	Funded through a half-cent sales tax	Measure T funds local street and road rehabilitation and supporting infrastructure. Jurisdictions are subject to complete streets requirements so when upgrades are appropriate, Class 2 and 4 facilities can be funded with Measure T.	N/A	http://www.nvta.ca.gov/measure-t
Transportation Development Act Article 3	Metropolitan Planning Commission/ Napa Valley Transportation Authority	Annual/Allocation -NVTA programs funds for three years. Current program is FY 2018-19 through 2020-21	Funds plans (once every 5-years per jurisdiction), safety education (not more than 5% of total annual allocation), and design and construction of capital projects. Each county coordinates a consolidated annual request for projects to be funded in the county.	Bikeways, crossing improvements and safety/education/training programs for school children and the general population.	Yes	https://mtc.ca.gov/our-work/fund-invest/investment-strategies-commitments/transit-21st-century/funding-sales-tax-and-0

Funding Sources	Administering Agency	Availability of Funding	Notes	Eligible Improvements	Eligible for Measure T Equivalent Funds	Weblink
Transportation Fund for Clean Air (TFCA) Program Manager Funds (40%)	Bay Area Air Quality Management District/NVTA	Annual-NVTA now programs funds for three years-Funds are currently programmed for FY2019-20 through 2021-22	Funds projects that improve air quality. Must meet cost-effectiveness requirements	Bicycle and pedestrian projects-capital projects only	Yes	http://www.baaqmd.gov/grant-funding/public-agencies/regional-fund
Regional Funding Sources						
Regional Active Transportation Program	Metropolitan Transportation Commission	Varies; the last "Cycle" of projects (Cycle 3.5) was accepted in August 2017	Consolidation of several older grant programs, including State SR2S and Bicycle Transportation Account. Funds a wide range of capital and non-capital projects. Both programs give some preference to projects in disadvantaged communities. The state program is competitive among jurisdictions statewide; the regional program is competitive among Bay Area jurisdictions.	Bikeways, crossing improvements and most programmatic activities.	No	www.mtc.ca.gov/funding/ATP
Transportation Fund for Clean Air Regional Fund (60%)	Bay Area Air Quality Management District	Annually (last submittals were due in April 2017)	Funds bicycle facilities, including paths, lanes, routes, lockers and racks. The Regional Fund is competitive among Bay Area jurisdictions	Bikeways and bicycle crossing improvements.	No	www.baaqmd.gov/grant-funding/publicagencies/regional-fund
Bicycle Rack Voucher Program	Bay Area Air Quality Management District	Ongoing; last cycle closed in June 2016	Vouchers for up to $60 per bicycle parking space created (up to $15,000 per applicant per year. Racks must be installed within one-tenth of a mile of at least one major activity center and maintained in service for at least three years. Available only to public agencies.	Bicycle parking racks	No	http://www.baaqmd.gov/grant-funding/public-agencies/brvp
State Funding Sources						
State Active Transportation Program	Caltrans	Varies; next call for projects will be in Spring 2020.	Consolidation of several older grant programs, including State Safe Routes to School and Bicycle Transportation Account. Funds a wide range of capital and non-capital projects. Both programs give some	Bikeways, crossing improvements and most programmatic activities.	No	www.dot.ca.gov/hq/LocalPrograms/atp

Funding Sources	Administering Agency	Availability of Funding	Notes	Eligible Improvements	Eligible for Measure T Equivalent Funds	Weblink
			preference to projects in disadvantaged communities. The state program is competitive among jurisdictions statewide; the regional program is competitive among Bay Area jurisdictions.			
California Office of Traffic Safety grants	California OTS	Annually	For traffic-safety education, awareness and enforcement programs aimed at drivers, pedestrians and cyclists.	Certain activities under the SR2S, safety/education and enforcement programs.	No	www.ots.ca.gov/Grants/default.asp
California State Parks Recreational Trails Program (RTP)	California Department of Parks and Recreation and Caltrans Active Transportation Program	Next cycle is scheduled for 2019.	Applicants are required to provide a 12 percent match.	Recreational trails and trail-related projects, including Class I bicycle paths	No	https://www.parks.ca.gov/?page_id=24324
Highway Safety Improvement Program	Caltrans	Varies; most recent call for projects was in spring 2018 with projects selected in November 2018	For projects and programs that reduce traffic fatalities and serious injuries by correcting or improving a specific problem. Highly competitive at the state level.	Safety-related pedestrian, bikeway and crossing projects. Certain activities under the SR2S, safety/education and enforcement programs; also, certain spot improvements.	No	www.dot.ca.gov/hq/LocalPrograms/hsip.html
Affordable Housing and Sustainable Communities Program	California Strategic Growth Council	Annually; last call for projects will close February 2019	Projects that facilitate compact development, including bicycle infrastructure and amenities, with neighborhood scale impacts. Available to government agencies and institutions (including local government, transit agencies and school districts), developers and non-profit organizations.	Bikeways and crossing improvements, particularly those in the area covered in specific plans	No	www.sgc.ca.gov/Grant-Programs/AHSCProgram.html

Chapter 6: City of Calistoga Bicycle Plan

SECTION 1: INTRODUCTION

Plan Introduction

The Calistoga Bicycle Plan is intended to guide development of infrastructure, programs, and policies that improve the bicycling environment for all residents and visitors in this Napa Valley community. Calistoga's plan will help the City work toward the adopted goals for bicycling in Napa County: connectivity, equity, safety, and education and encouragement. Planning and design for bicycling has evolved since adoption of Calistoga's Active Transportation Plan in 2014, and this Plan update brings the latest best practices to bear on recommendations for implementation by City staff.

Area Overview

The City of Calistoga is located in the northern-most part of the Napa Valley and is part of the nine-county San Francisco Bay Area region. Calistoga is at the junction of State Routes 29 and 128, 27 miles north of the City of Napa (the County seat) and 76 miles northeast of San Francisco.

Figure C.1. Bicyclist on Lincoln Avenue (CA 29) in Downtown Calistoga

The City of Calistoga has a population of approximately 5,300 residents. Calistoga is a rural, small city, made up of a vibrant, eclectic main street set within pedestrian-oriented neighborhoods of modestly sized homes and surrounded by wineries, vineyards and resorts. Agricultural uses 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 (SR 29) which is the "main street" for the community. Since the main street is owned by Caltrans, this adds approval layers when trying to implement bicycle and pedestrian improvements along the corridor since both the City and state department are involved. Most retail and service establishments within Calistoga are small businesses.

Tourism is a significant part of the Calistoga economy, with visitors drawn to the city for its world-class wineries, Victorian architecture, and relaxed small-town charm. The city is also known for its hotels, hot springs and spas, vibrant artist community, shopping, and gourmet dining options.

Calistoga is served by the Calistoga Joint Unified School District, which includes Calistoga Elementary School, which has students from kindergarten through 6th grade, and Calistoga Junior/Senior High School, which has students from 7th grade through high school. Calistoga Elementary School is located on Berry Street which is signed as a bicycle route but does not have any additional facilities. Calistoga Junior/Senior High School is located on Lake Street, which is also a bicycle route with no additional facilities.

Calistoga's compact land use pattern, streets with relatively low traffic volumes, and developed sidewalk network, coupled with its relatively small land area and flat geography, create many opportunities for residents and visitors to bicycle throughout the community (see Figure C.1). These opportunities include biking for commute trips to work, such as jobs in the hospitality and winery industries, and biking for trips other than work, including for social and recreational trips, errands and shopping, and trips to school.

Relationship to Existing Plans

This 2019 Bicycle Plan is an update to the 2014 Calistoga Active Transportation Plan which replaced the 2012 Bicycle Plan and builds upon the recommendations on bikeways, policies, programs, and design standards detailed in the 2012 Plan. In addition, this 2019 Plan incorporates applicable recommendations from the 2016 Napa Countywide Pedestrian Plan and establishes an implementation plan to encourage more walking trips throughout Napa County and improve safety for all users.

For more information about these plans, see Appendix D of the 2019 Napa Countywide Bicycle Plan.

SECTION 2: GOALS AND POLICIES

Countywide Vision and Goals

The Countywide vision statement, goals, and policies were developed to guide recommendations in both the Countywide Plan and the jurisdiction plans, including the Calistoga Bicycle Plan. The vision statement, goals, and policies will be used to evaluate progress of Plan implementation.

Vision Statement

Napa County's vision is to be a bicycle-friendly community with a world-class bicycling system for all ages and abilities. The comprehensive, connected bicycle system will provide people with safe, convenient and enjoyable access to destinations throughout all Napa County jurisdictions and beyond. Residents and visitors will enjoy bicycling for everyday commuting, non-work trips and recreation. Bicycling contributes to a high quality of life, promotes health and will help achieve a 10 percent mode shift in Napa County by 2035.

Goals and Policies

The goals and policies developed for the 2019 Plan will guide Calistoga and other Napa County communities in improving the bicycling environment for residents and visitors.

Table C.1. Goals and Policies of the Plan

Goals		Policies
Connectivity	Develop a well-designed low Level of Traffic Stress (LTS) connected bicycle network	• Build and maintain a local and countywide bicycle transportation and recreation network that connects Napa County's incorporated cities/town and unincorporated communities and provides access to public transportation and community destinations. • Develop and maintain continuous low Level of Traffic Stress (LTS) bicycle facilities of all types to provide accessible intra-city connections that serve as the framework of the Countywide Bikeway System. • Prioritize coordination and completion of regionally significant primary bikeways including the Napa Valley Vine Trail, the Bay Trail and the Ridge Trail, and local connections to those facilities. • Provide secure bicycle parking at public and private destinations throughout Napa County. • Integrate the bicycle network and bicycle facility amenities into land use decisions and developments.
Equity	Improve bicycle access for disadvantaged and/or underserved communities	• Implement projects that improve access for disadvantaged and/or underserved communities, particularly those reliant on walking, biking and transit for transportation.
Safety	Improve safety for all ages and abilities	• Work to reduce the number and severity of bicycle collisions. • Work to reduce bicycle fatalities to zero by 2035. • Improve locations that have high incidences of bicycle collisions, and/or impediments or conflicts to bicyclists.

Goals		Policies
		• Implement Complete Streets policies that ensure accommodation and enable safe access for users of all ages and abilities. • Implement appropriate, well-designed bicycle facilities using accepted design standards, including intersection and other crossing improvements.
Education & Encouragement	Increase mode share of bicycling	• Encourage education programs for all users of the roadway in all jurisdictions and school districts. • Develop programs and public outreach materials to promote safety and the positive benefits of bicycling.

Serving All Types of Bicyclists

Many factors contribute to people choosing to ride a bicycle, with a major factor being the rider's perception of safety. A rider's perception of an unsafe route can be related to numerous things but is most often related to riding adjacent to high-traffic and high-speed roadways or crossing busy intersections with little or no separation from vehicles. Research has found that a large percentage of the American population is interested in bicycling for transportation but does not currently do so because they believe the routes they would need to travel are unsafe or feel uncomfortable. Many people feel safer and more comfortable riding on low-traffic, low-speed streets or on facilities that provide protection or physical separation from fast-moving traffic.[20] Most people in the U.S. – between 50 and 60 percent – have little tolerance for interacting with motor vehicle traffic unless volumes and speeds are very low (see Figure C.2).[21] This group of riders is referred to as "Interested but Concerned," reflecting both their interest in bicycling for transportation as well as concerns about safety and comfort when interacting with motor vehicle traffic.

This framework of rider types was used to assess the existing bicycle network and to select recommended facility types for the 2019 Plan. This rider type has the highest potential for increasing bicycle mode share if facility types that support and encourage biking are available.

[20] Source: Dill, J. McNeil, N. "Revisiting the Four Types of Cyclists: Findings from a National Survey" Transportation Research Board 95th Annual Meeting, 2016.

[21] Studies, such as the one referenced above, show that approximately one third of the adult population is not currently interested in bicycling or able to bicycle.

Comfort Typology of Bicyclists

Design User Profile	Non-Bicyclist	Interested but Concerned	Somewhat Confident	Highly Confident
Bicycling Preferences	Uncomfortable bicycling in any condition, have no interest in bicycling, or are physically unable to bicycle.	Often not comfortable with bike lanes, may bike on sidewalks even if bike lanes are provided; prefer off-street or separate bicycle facilities or quiet or traffic-calmed residential roads. May not bike at all if bicycle facilities do not meet needs for perceived comfort.	Generally prefer more separated facilities, but are comfortable riding in bicycle lanes or on paved shoulders if need be.	Comfortable riding with traffic, will use roads without bike lanes.
Percent of General Public	31-37%	51-56%	5-9%	4-7%

Figure C.2. Level of Traffic Stress and Bicycle Riders

SECTION 3: EXISTING BICYCLE NETWORK

Overview: Issues and Opportunities

Currently, Calistoga's bicycle network consists mainly of signed bicycle routes (Class III) running through the residential neighborhoods (e.g., Lake Street, Berry Street, Washington Street); however, there are also several on-street bike lanes (Class II) (Silverado Trail North, Grant Street) as well as a segment of the Napa Valley Vine Trail (Class I shared-use path) (see Figure C.4). The Vine Trail runs for approximately one mile between Washington Street and Dunaweal Lane to the east of Downtown Calistoga. Other trails connect streets in residential areas; however, these facilities are fairly narrow.

Figure C.3 Washington Dunaweal portion of the Vine Trail in Calistoga

Calistoga has limited on-street bike facilities. An eastbound bike lane is marked on Grant Street for approximately one-third of a mile from Mora Avenue to North Oak Street, and bike lanes are marked in both directions along Silverado Trail North from Route 29 to the Calistoga city boundary. Generally, due to the low traffic volumes and speeds, many local streets are comfortable for bicycling. Connections to destinations, such as the elementary school and junior/senior high school as well as businesses on Lincoln Avenue, could be improved to enhance bicyclist safety and provide more connectivity. Figure C.3 illustrates the existing bicycle network, and Table C.2 provides an overview of the existing bikeway mileage in Calistoga.

Table C.2. Existing Bicycle Network Mileage

Facility Type	Existing Mileage
Vine Trail (Class I)	1.0
Shared-Use Path (Class I)	0.4
Bike Lane (Class II)	1.0
Bike Route (Class III)	3.6
TOTAL	**6.0**

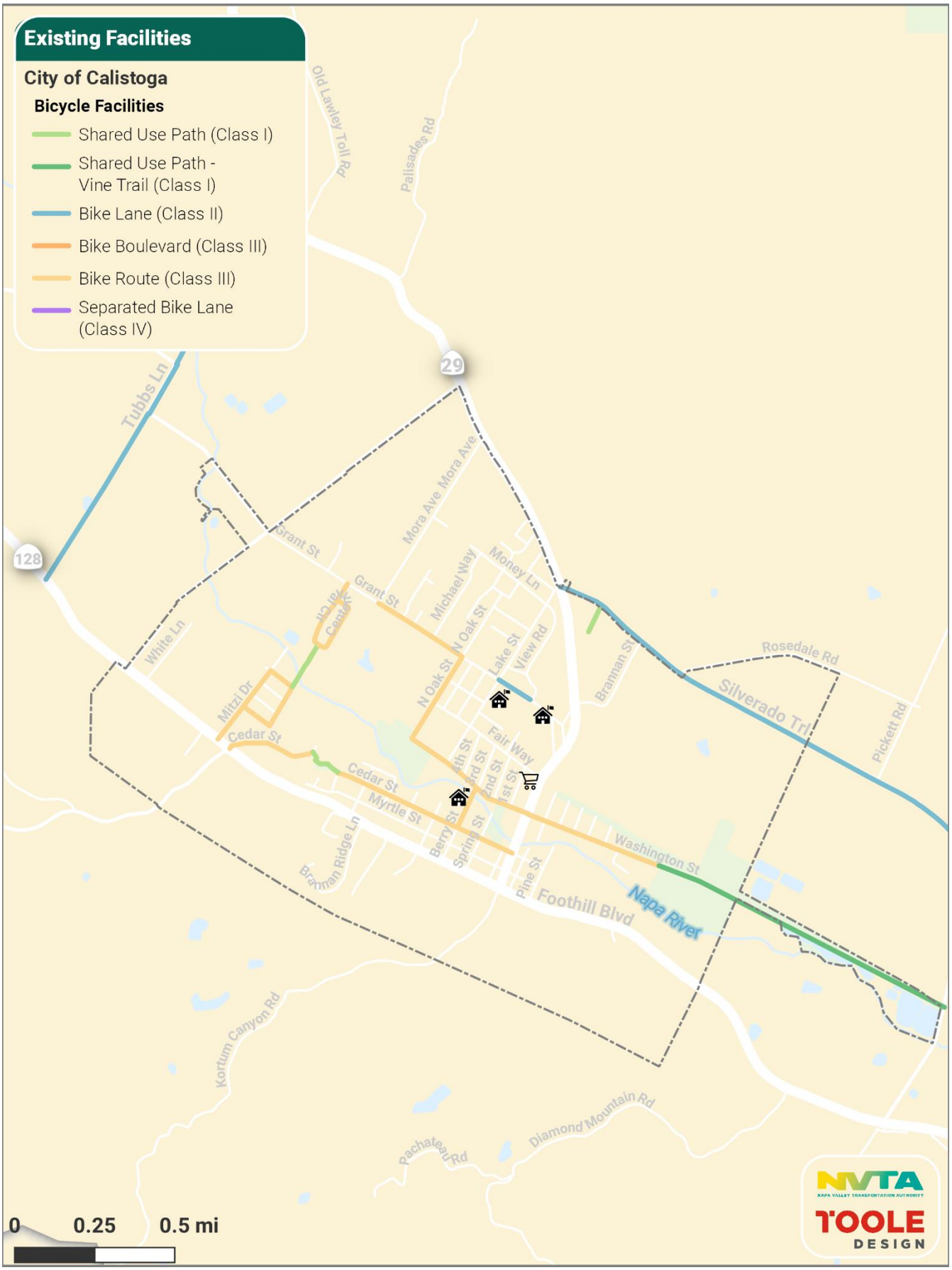

Figure C.4. Existing Bicycle Facilities in Calistoga

Components of the Bicycle Network

Multiple bicycle facility types comprise a complete bicycle network, and each facility type has a different classification to distinguish the facilities. The classifications are based on the degree of physical separation from vehicle traffic. The following facility types reflect the existing bikeways as well as new ones identified in this Plan.

Shared-Use Paths

Shared-Use Path (Class I) are two-way paved facilities, physically separated from motor vehicle traffic and used by bicyclists, pedestrians, and other non-motorized users. Shared-use paths are often located in an independent alignment, such as a greenway, though sometimes they are located adjacent to roadway. Shared-use paths provide low-stress facilities for bicyclists. Examples of shared-use paths in Calistoga include the Vine Trail.

Some paths and trails in Calistoga, although technically not standard shared-use paths, provide connections within neighborhoods or as cut-throughs to destinations and are identified in this Plan (see Figure C.5). Although some of these shared-use paths are substandard in width compared to best practices for Class I design, they are separated from automobile traffic and provide important desired connections within the bicycle network.[22] Examples of such connector paths in Calistoga include Fairway Vista Court and Denise Street.

Figure C.5. Connector path in Calistoga

The Vine Trail is a key shared-use path that is becoming the backbone of Napa County's low-stress bicycle network. The completed Vine Trail will connect all Napa County jurisdictions as part of a 47-mile active transportation corridor between the Vallejo Ferry Terminal and Calistoga. The Napa Valley Vine Trail Coalition and NVTA are actively working on planning, design, and construction of trail segments throughout the county.

Bike Lanes

Bike Lane (Class II) provide an exclusive space for bicyclists in the roadway and are established by painting lines and symbols on the roadway surface. Bike lanes are for one-way travel and are typically provided in both directions on two-way streets and/or on one side of a one-way street. Bike lanes

[22] Eight feet is the typical recommended minimum for any shared-use path. Some small connector paths in the county are as narrow as four feet.

create a lower-stress riding environment on streets with a maximum posted speed limit of 30 miles per hour and traffic volumes between 3,000 and 8,000 vehicles per day. Examples of bike lanes in Calistoga include Grant Street and the Silverado Trail from Calistoga to the City of Napa.

Buffered Bike Lanes (Class II) are implemented by painting or otherwise creating a flush buffer zone between a bicycle lane and the adjacent travel lane (see Figure C.6). While buffers are typically used between bike lanes and motor vehicle travel lanes to increase bicyclists' comfort, they can also be installed between bicycle lanes and parking lanes to reduce conflicts with opening car doors. When located on streets with moderate traffic volumes and speeds, buffered bike lanes provide a lower-stress riding environment for bicyclists. No buffered bike lanes exist today in Calistoga or elsewhere in Napa County.

Figure C.6. Buffered bike lane in Seattle, WA

Bike Routes and Bicycle Boulevards

Bike Routes and Bicycle Boulevards are two types of Class III facilities in Napa County.

Bike routes are designated with pavement markings or signage to indicate a shared lane environment between bicyclists and drivers (see Figure C.7, an example in St. Helena). An example of a bike route in Calistoga includes North Oak Street.

Figure C.7. Bike route in Calistoga

While signage and markings support wayfinding and indicate bicyclist positioning on shared streets, bicycle routes do not provide any protection or separation between people driving and people bicycling. When located on streets that have high traffic speeds and/or volumes, bike routes are uncomfortable and most people will choose not to ride on them.

Bicycle boulevards are also indicated with pavement markings and signage, but are specifically located on low-speed, low-volume streets, often in residential neighborhoods. Bicycle boulevards are designed to prioritize bicycle through-travel, while reducing motor vehicle through traffic volumes and maintaining relatively low speeds. When paired with intersection treatments that help bicyclists cross major intersections, bicycle boulevards are an attractive, low-stress facility. Currently, there are no bicycle boulevards in Calistoga.

Separated Bike Lanes

Separated Bike Lanes (Class IV) are an exclusive bikeway facility type that combines the user experience of a shared-use path with the on-street elements of a conventional bike lane (see Figure C.8). They are recommended for roadways with speeds higher than 30 miles per hour and motor vehicle volumes over approximately 6,500 vehicles per day. Separated bike lanes are physically separated from motor vehicle traffic with a vertical element and are distinct from the sidewalk. They can be located at street level within the curbs, at an intermediate level, or at sidewalk level, see Figure C.9 below. Numerous options are available for creating separation between modes, ranging from low-cost paint and plastic flexpost installations, to more robust curb-separated lanes. Separated bike lanes provide a low-stress riding environment to all bicyclists. No separated bike lanes currently exist in Calistoga or elsewhere in Napa County.

Figure C.8. Separated bike lane in Berkeley, CA

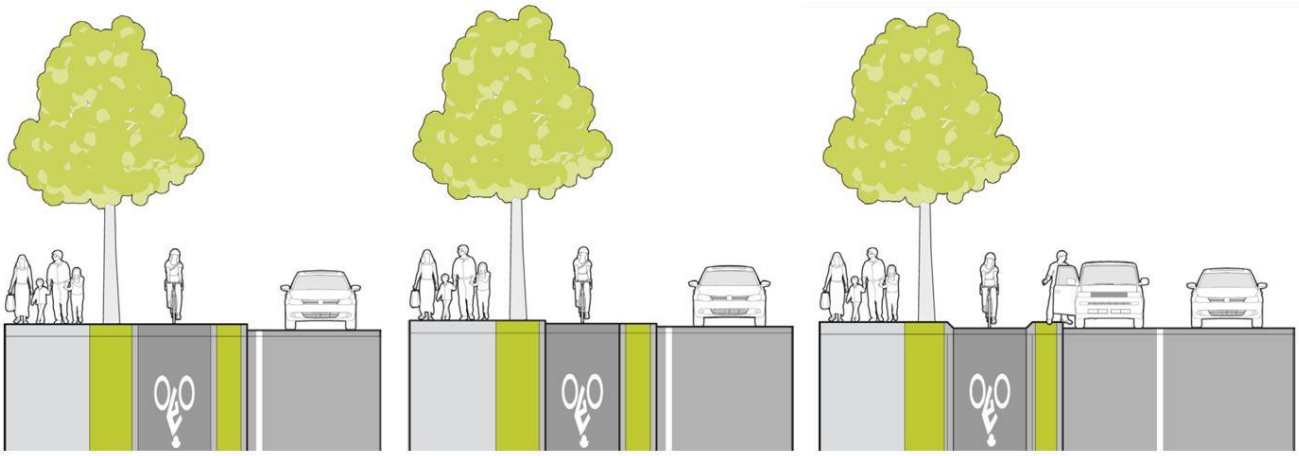

Figure C.9 Sidewalk level, intermediate level, and street level separated bike lanes, left to right.

How many people bike today?

Some residents within the municipalities and Napa County choose to bicycle to work, and data is readily available regarding residents' commuting mode choice from the U.S. Census' American Community Survey (ACS). In Calistoga, approximately 1.6 percent of residents commute by bicycle which is double the county's mode share of 0.8 percent. However, work-related trips only comprise 10 to 15 percent of all household trips; the remaining 85 to 90 percent of trips are made to visit friends and family or for errands, entertainment, outings, and recreation. [23]

The assumption can be made that Napa County residents are generally more likely to bike for non-work trips. This is because non-work destinations, such as an errand or a friend's house, are likely to be located closer to home.

Collision Analysis

Improving safety for bicyclists is an expressed goal of the 2019 Countywide Bicycle Plan and preventing and mitigating bicycle collisions is a key consideration behind the network recommendations for Calistoga. Not only is safety and the reduction of bicycle collisions a public health issue, addressing safety concerns is also an important way to encourage more people to ride a bicycle. Understanding collision factors and trends will allow the City to identify and prioritize investments that can have the greatest impact on improving safety for bicyclists and other users of the roadway.

To better understand collision history in Calistoga, injury crash data from 2006-2013 were reviewed.[24] Over the seven-year period, 16 bike collisions occurred throughout the city. Over half of the collisions resulted in visible or severe injuries. Broadside and sideswipes accounted for over half of the bicycle crashes, at 36 percent and 21 percent, respectively. There were no pronounced trends in the primary collision factors; the most common PCF was listed as "unknown" with four identified crashes. The rest of the identified PCFs had either one or two occurrences between 2006-2013. See Figure C.10 for a map of the bicycle collision.

The crashes that are mapped and analyzed only include those reported to police. There may be additional unreported crashes, and near misses, that have occurred during this time that influence people's decision to ride a bike.

[23] Range references the National Household Travel Survey (15 percent) and California Household Travel Survey (9.9 percent).

[24] Collision data was gathered from the University of California-Berkeley's Safe Transportation Research and Education Center's Transportation Injury Mapping System (TIMS). The most recent data available is from 2006 to 2013.

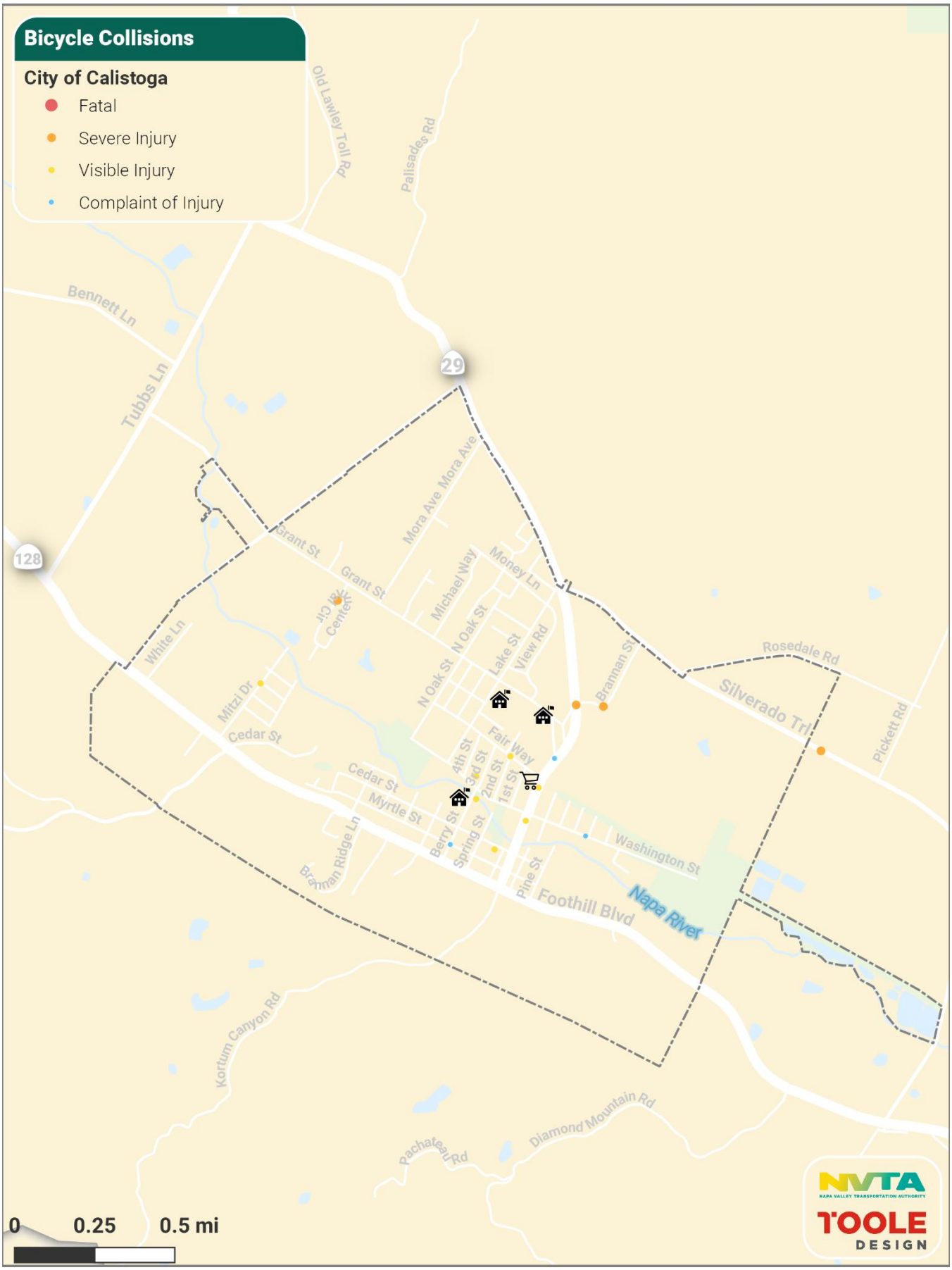

Figure C.10. Bicycle Crash Distribution (2006-2013)

Community Input

Residents of Calistoga were invited to be an active part of the planning process through in-person and online outreach activities hosted by the Napa Valley Transportation Authority (NVTA). The community feedback directly informs the Plan's network and programmatic recommendations. For more information about outreach, see Chapter 2 of the 2019 Countywide Bicycle Plan.

From July to October 2017, residents were invited to share their site-specific comments on the existing network and potential improvements through an online, interactive WikiMap. Respondents were asked to provide feedback on:

- Barriers to biking
- Places/routes where I currently ride a bike
- Places/routes where I would like to ride

Two respondents contributed a total of six comments within Calistoga. Highlights include:

- Roadway pavement surface improvements requested for Third Street, Lake Street, and Grant Street
- Suggestion that the proposed Vine Trail should connect to the Oat Hill Mine Trail

The location of WikiMap comments in Calistoga can be found in Appendix B.

In addition to the initial WikiMap, NVTA also hosted an online map from June to July 2018, for residents to review the recommended bicycle network facilities. This map showed draft recommended bike facilities throughout the county and allowed users to agree or disagree that the recommendation was appropriate in that location. Over 50 respondents provided approximately 330 comments which were reviewed by staff in each jurisdiction for possible changes to the recommended network.

Calistoga was also represented through involvement in committees and through direct outreach to City staff by NVTA throughout the development of this plan.

SECTION 4: PROPOSED BICYCLE NETWORK

The main purpose of this plan is to identify a future bicycle network for Calistoga that is safe and connected. The proposed bicycle network map (see Figure C.11) was developed based on fieldwork, an analysis of existing conditions, input from the community and City staff, in consideration of best practices in bicycle network planning, and facility guidance from Appendix A: Bicycle Facilities Toolkit.

The resulting network includes high-quality infrastructure in the form of shared-use paths, including the Vine Trail, separated bike lanes, bike lanes, bike boulevards, and bike routes. These facilities connect to key community destinations and neighborhoods and close network gaps. The network also provides connections beyond the Calistoga city boundary into the unincorporated areas.

Calistoga's proposed bicycle network, comprised of multiple facility types, is an addition of 15 miles, as detailed in Table C.3. When implemented, the entire existing and proposed network combined will total 21 miles.

Table C.3. Proposed Bicycle Network

Facility	Proposed Mileage	Existing Mileage	Total Future Mileage
Vine Trail (Class I)	1.1	1.0	2.1
Shared-Use Paths (Class I)	3.5	0.4	3.9
Bike Lanes (Class II)	5.8	1.0	6.8
Bike Boulevard (Class III)	2.9	-	2.9
Rural Bike Routes (Class III)	1.7	3.6	5.3
Total Network	**15.0**	**6.0**	**21.0**

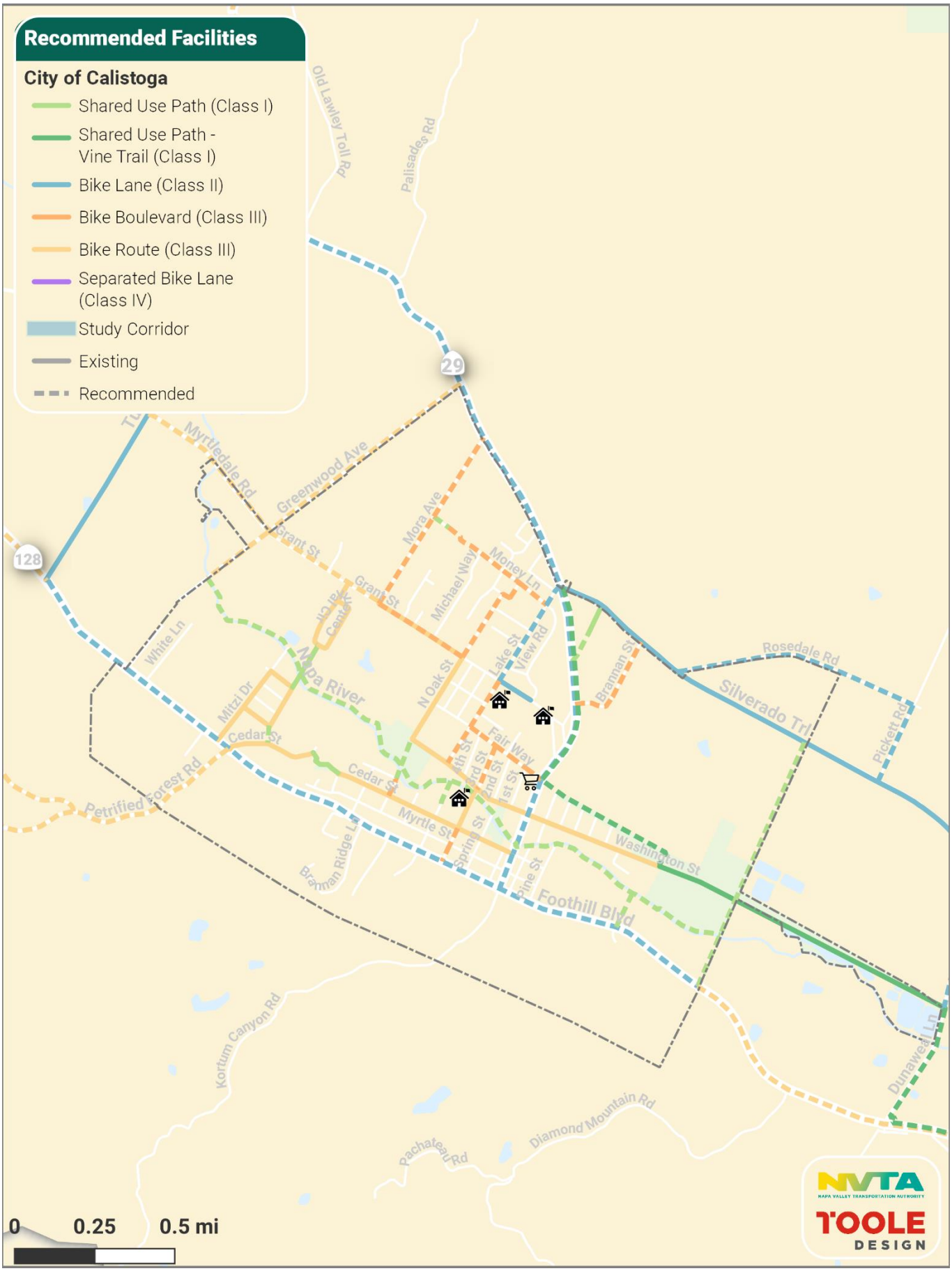

Figure C.11. Proposed Bicycle Network

SECTION 5: SUPPORT PROGRAMS AND POLICIES

City policies and support programs are key components of a welcoming, bicycle-friendly community. Generally, policies are set by the City government, while programs are led by or executed in partnership with external organizations or agencies such as advocacy organizations or school districts. Along with bike network investments, programs and policies will help Calistoga realize the Plan's goals of connectivity, equity, safety, and education and encouragement.

Calistoga already has several programs related to bicycling which are described in Table C.4. The existing and recommend programs create a full suite of efforts to promote and support bicycling throughout Calistoga.

Table C.4. Support Programs and Policies

Support Program/Policy	Description	Source
Existing		
Bicycle Rentals	Napa County is home to many bike shops, such as Calistoga Bikeshop, and bike tour companies that provide bicycle rentals. Many hotels and bed and breakfasts also provide their guests with bicycles.	Existing
Complete Streets Policy	Calistoga adopted its Complete Streets policy in 2013. This policy mandates incorporating context sensitive complete streets serving all users into all applicable projects carried out by all City departments. The development of bike and pedestrian facilities on new or reconstructed roads is encouraged under this policy.	Existing
Safe Routes to School Program	Since 2010, this collaborative program, provided by the Napa County Office of Education in conjunction with the Napa Valley Bicycle Coalition, encourages students to walk and bike to school through education events, prizes, and safety projects.	Existing
Safety Education	The Napa County Bicycle Coalition organizes educational and promotional events to encourage safe bicycle riding in Napa County, such as bicycle safety rodeos and the annual BikeFest event in May. This can include education programs for both children and adults.	Existing
Recommended		
Bicycle Parking, Shower, and Locker Facilities	Provide short- and long-term bicycle parking at key destinations, such as Downtown Calistoga, parks, schools, community facilities, transit stops, and shopping areas. Encourage employers to install showers and locker facilities for bicycle commuters.	2014 Calistoga Active Transportation Plan
Capital Improvement Projects / Complete Streets Checklist	Create checklist for capital projects on and adjacent to streets (repaving, restriping, reconstruction) that ensures City staff review the infrastructure recommendations of this Plan at the time of project development	2019 Bicycle Plan
Construction Coordination	Coordinate with stakeholders during traffic control plan development near key pedestrian nodes such as schools, parks and transit stops to ensure appropriate considerations for pedestrian circulation. Implement Policy 9.3 in the Calistoga ATP to require that construction projects minimize impacts to bicyclists and pedestrians through proper signage, equipment, and detours.	2016 Napa Countywide Pedestrian Plan

Support Program/Policy	Description	Source
Dedicated Bicycle Staff	Identify a staff member who is responsible for bicycle planning and the implementation of bicycle facilities and dedicate a percentage of their time to these efforts.	2019 Bicycle Plan
Downtown Parking Plan	Develop parking plan to identify shared parking opportunities, consider parklets and mid-block crosswalks recommended in PSA report (where warranted, with appropriate safety treatments as recommended and designed by professional engineers), and identify opportunities for consideration of bike parking to include bike corrals, which are an on-street bicycle parking facility that can accommodate up to 16 bicycles parked on racks in the same area as a single vehicle parking space.	2016 Napa Countywide Pedestrian Plan
Existing Bikeways Policy	Develop a policy which specifies that existing bikeways should not be removed, unless an improved bikeway is being installed.	2019 Bicycle Plan
Law Enforcement Activities	Provide bicycle specific training for law enforcement personnel and establish a community policing agreement.	2014 Calistoga Active Transportation Plan
	Establish a bicycle diversion program for bicycle traffic offenders.	
	Provide focused law enforcement operations at high collision locations.	
Maintain Overgrown Vegetation	Continue to ensure citywide that landscapes at maturity do not interfere with safe sight distances for bicycle, pedestrian, or vehicular traffic; do not conflict with overhead lights, traffic controls, traffic signage, utility lines or poles, or walkway lights; and, do not block bicycle or pedestrian ways. Encourage adjacent property owners to maintain landscaped areas with live and healthy plant materials, replacing plant materials when necessary to maintain full function and aesthetics; to water, weed, prune, fertilize and keep sidewalks and planting strips litter free. Determine feasibility of implementing these monitoring activities based on the recommended timetable in the Calistoga citywide 2014 ATP (Table 16, pg. 69-70).	2016 Napa Countywide Pedestrian Plan
Site Plan Review Checklist	Create checklist for development review to ensure site plans include considerations for bicycle access and safety.	2016 Napa Countywide Pedestrian Plan
Vision Zero Policy	Adopt a countywide Vision Zero policy and develop an action plan for implementing Vision Zero. Identify opportunities for funding for Vision Zero efforts, such as developing a Countywide database to inventory collision data and environmental factors, undertaking a comprehensive analysis to understand collision patterns, and facilitating an outreach process to identify community safety priorities and determine where to focus safety investments and improvements.	2019 Bicycle Plan
Wayfinding Program	Develop a regional wayfinding system that has a similar brand throughout Napa Valley and helps bicyclists navigate the transportation network with confidence and provide direction to their destinations; create a community identity; and build a sense of place. The Town of Yountville could adjust the brand to reflect local character while still maintaining signage elements for consistency including placement, frequency of signs, and content.	2019 Bicycle Plan
Bikeway Maintenance	Prioritize maintenance of roadways and removal of debris where bicycle facilities are present	2019 Bicycle Plan

SECTION 6: IMPLEMENTATION PLAN

Because all communities, including Calistoga, have limited financial resources, it is not possible to implement all the recommended projects immediately. To focus Calistoga's resources, several characteristics of projects should be considered. These characteristics are discussed in relation to implementation phases below.

Immediate-Term

Overlap with Measure T Repaving Projects

While the connectedness of a bicycle network is highly important, recommended projects should be implemented as opportunities arise for integration into existing projects. Calistoga's five-year paving plan funded by Measure T offers a great opportunity for quickly implementing several recommended bicycle facilities.

Calistoga's Measure T plans have been compared to the proposed bicycle network, and those projects are listed in Table C.5.

Short- and Medium-Term

Facility Characteristics

All other planned street resurfacing and reconstruction projects should be reviewed against the recommended bike network. Another early step in the implementation of the bicycle plan should be to answer the following questions about each project:

- Does a facility consist only of striping and signage that can be added at any time?
- Does a facility necessitate further community dialog regarding reallocation of street space?
- Does a project need significant funding that must be obtained through a competitive process (i.e., grant)?
- Does a project necessitate acquiring additional right-of-way?
- Are there any environmental concerns about a project location?

These questions can help direct staff to understand which projects are more readily implementable.

Proximity to Destinations

Public input received over the course of this Plan process indicates greater interest in connecting to certain destinations including: schools, parks, trailheads, and community centers. The locations of these destinations, as well as other known bicycle traffic generators such as hotels with bike rental schemes should be considered when selecting projects for earlier implementation.

Public Concerns

Residents gave input through the WikiMap about areas of greater concern for bicyclists. These are documented in the summary above, and staff may wish to refer to these comments when considering which projects to implement first. Staff should also continue to collect and document resident concerns and priorities about bicycling and general traffic safety in Calistoga and bring those comments into discussions regarding implementation priorities.

Network Connectivity

Staff should consider the benefits provided by a connected bicycle network. Research has shown that a connected low-stress network has the greatest impact on encouraging people to choose to bicycle. Projects that connect to existing facilities, especially ones that are known to be popular, may be prioritized. This should be balanced against the desire to provide bicycle facilities in and connecting to underserved communities in keeping with the equity goal of this Plan. Often, these areas have been historically underserved by infrastructure, and building new bike network projects here may not connect to existing facilities.

Long-Term

Some projects, such as many shared-use paths (Class I), will necessarily require a more sustained effort to come to fruition. While it may take a longer time to implement these projects, jurisdictions should begin to consider the steps toward construction of these projects so they are prepared for grant applications or inserting funding into capital improvement plans.

Connectivity Improvements from Phased Implementation

As stated, the planned bicycle facilities for Calistoga are intended to create the most low-stress network that conditions allow. Implementation of on-street facilities such as bike boulevards (Class III) and bike lanes (Class II) will significantly improve the connectivity of the bicycle network for riders of all ages and abilities. Focusing first on intersection treatments at locations where these facilities cross high-speed, high-volume streets without a traffic signal will most quickly improve connectivity. The areas surrounding Lincoln Avenue downtown will, in particular, benefit from these lower cost improvements.

While shared-use paths (Class I facilities) certainly provide a low-stress riding environment, their implementation requires more investment and often more planning than on-street facilities. Construction of the Napa River Trail would provide great connectivity benefit to the southern portions of Calistoga. That is understood to be a large, long-term capital investment, however, so implementation of on-street facilities in the meantime will provide benefits to the city.

Funding

Funding for the bicycle network projects can come from different sources. For example, the City of Calistoga could fund the improvements through dedicated funds from the City, by leveraging development-driven projects, or through grant opportunities. More information about available grant funds can be found in Chapter 4 of the 2019 Countywide Bicycle Plan.

Table C.5. Project List

Project ID	Street/Trail Name	Begin	End	Facility Type	Length (Miles)
Measure T Overlap Projects					
Bike Lane (Class II) Projects					
41*	Lake St	Grant St	SR 29	Bike Lane (Class II)	0.35
Bike Boulevard (Class III) Projects					
45	Fair Way	Lake St	Lincoln Ave	Bike Boulevard (Class III)	0.28
Bike Route (Class III) Projects					
8*	Grant St	Greenwood Ave	Mora Ave	Bike Route (Class III)	0.41
17	Petrified Forest Rd	Calistoga city limit	Foothill Blvd	Bike Route (Class III)	0.29
All Other Projects					
Shared-Use Path (Class I) Projects					
12	Napa River Trail	Greenwood Ave, Calistoga city limit	Calistoga city limit	Shared-Use Path (Class I)	2.15
18	Denise Dr	Kathy Way	Cedar St	Shared-Use Path (Class I)	0.05
20	Private Property	School St	Washington St	Shared-Use Path (Class I)	0.13
21	Money Ln	Proposed class I facility at Mora Ave	Mora Ave	Shared-Use Path (Class I)	0.06
26	Silver Street Trail	Silver Street (north end)	Napa River Trail	Shared-Use Path (Class I)	0.08
39	Lincoln Ave/SR 29	Lincoln Ave/SR 29	Beginning of Class I Path off of Silverado Trail	Shared-Use Path (Class I)	0.11
54	Walnut Ave alignment	SR 29, SR 128	Proposed class I facility near Napa River	Shared-Use Path (Class I)	0.12
57	Calistoga southeast city limit	SR 29, SR 128	Silverado Trail	Shared-Use Path (Class I)	0.83
866	Fair Way	Existing class I facility annexed east of Washington St	Lincoln Ave	Shared-Use Path - Vine Trail (Class I)	1.14
Bike Lane (Class II) Projects					
6	SR 29	Silverado Trail	Tubbs Lane	Bike Lane (Class II)	1.58
14	Foothill Blvd/SR 128	Calistoga city limit (Foothill Blvd)	Calistoga city limit	Bike Lane (Class II)	2.06
40	Lincoln Ave	Fair Way	Silverado Trail	Bike Lane (Class II)	0.64
50	Lincoln Ave	Fair Way	Foothill Blvd	Bike Lane (Class II)	0.36
55	Rosedale Rd	Rickett Rd	Silverado Trail	Bike Lane (Class II)	0.77
Bike Boulevard (Class III) Projects					
23	Mora Ave	Grant St	SR 29	Bike Boulevard (Class III)	0.61
25	S Oak St	Cedar St	School St	Bike Boulevard (Class III)	0.06
27	Berry St	Cedar St	Foothill Blvd	Bike Boulevard (Class III)	0.11

Project ID	Street/Trail Name	Begin	End	Facility Type	Length (Miles)
29	Money Ln	Proposed class I facility at Mora Ave	Lake St	Bike Boulevard (Class III)	0.40
33	N Oak St	Grant St	Aurora Dr	Bike Boulevard (Class III)	0.23
34	Aurora Dr	N Oak St	Carli Dr	Bike Boulevard (Class III)	0.03
35	Carli Dr	Aurora Dr	Money Ln	Bike Boulevard (Class III)	0.06
42	3rd St	Fair Way	Washington St	Bike Boulevard (Class III)	0.15
43	Brannan St	Lincoln Ave	Silverado Trail	Bike Boulevard (Class III)	0.33
846	Lake St	Washington St	Grant St	Bike Boulevard (Class III)	0.30
847	Grant St	Mora Ave	Oak St	Bike Boulevard (Class III)	0.31
Bike Route (Class III) Projects					
9	Greenwood Ave	Proposed class I facility at Napa River	SR 29	Bike Route (Class III)	1.00

* Projects denoted with an asterisk overlap with a jurisdiction-identified Measure T project, but they do not have the same extents: the proposed bicycle network project is either longer or shorter than the Measure T project.

Chapter 7: City of St. Helena Bicycle Plan

SECTION 1: INTRODUCTION

Plan Introduction

The St. Helena Bicycle Plan is intended to guide development of infrastructure, programs, and policies that improve the bicycling environment for all residents and visitors in this Napa Valley community. St. Helena's Plan will help the City work towards the adopted goals for bicycling in Napa County: connectivity, equity, safety, and education and encouragement. Planning and design for bicycling has evolved since adoption of the St. Helena Bicycle Plan in 2012, and this Plan update brings the latest best practices to bear on recommendations for implementation by City staff.

Area Overview

The City of St. Helena is located in the heart of the upper Napa Valley, approximately 65 miles north of San Francisco. St. Helena is located on the western side of the valley along State Route (SR) 128/29 between Calistoga to the north and Yountville to the south. SR 128/29 also serves as the main street through downtown.

Figure SH.1. Bicyclists in St. Helena

St. Helena has a population of approximately 6,000 residents, and from its inception, St. Helena has served as a rural agricultural center. Over the years, with the growth and development of the wine industry, the city has become an important business center for the viticulture industry. St. Helena also serves as a commercial and business center for surrounding towns and unincorporated areas, including Angwin, Deer Park, Rutherford and the unincorporated area south of the city. St. Helena is predominantly residential, except for the commercial areas immediately adjacent to SR 128/29, including a small industrial/office park at the southeast end of the city. Agriculture uses are also a predominant land use in St. Helena.

St. Helena is a popular tourist destination, hosting visitors from all over the world who visit the area's wineries, dine at acclaimed culinary destinations, shop on Main Street, and enjoy the area's scenic qualities. St. Helena is also home to the Culinary Institute of America at Greystone, a nationally renowned culinary college, which is located on SR 128/29, and the Upper Valley Campus of Napa Valley College which is located near Silverado Trail.

The St. Helena Unified School District is comprised of four schools – a primary, elementary, middle, and high school. The St. Helena Primary School, which serves kindergarten through second graders, is located southwest of Main Street (SR 128/29) on Grayson Avenue. Green painted bicycle lanes are

located on the nearby Valley View Street, which connects to Grayson Ave; see Figure SH.2 below for more information. St. Helena Elementary School serves first through fifth graders and is located at the corner of Adams and Oak Streets. Serving sixth through eighth graders, Robert Louis Stevenson Middle School is located on the residential Hillview Place. St. Helena High School is located on Grayson Avenue and serves ninth through twelfth graders. The elementary, middle, and high schools are not currently served by bicycle facilities. St. Helena also has several private schools, such as the St. Helena Montessori School and the St. Helena Catholic School.

St. Helena's compact land use pattern, grid network of streets with relatively low traffic volumes, and developed sidewalk network, coupled with its relatively small land area and mostly flat geography, create many opportunities for residents and visitors to bicycle throughout the community (see Figure SH.1 above).

Relationship to Existing Plans

This 2019 Bicycle Plan is an update to the 2012 St. Helena Bicycle Plan and builds upon the recommendations on bikeways, policies, programs, and design standards detailed in the 2012 Plan. This 2019 Plan also dovetails with the 2040 General Plan Update and the 2016 Napa Countywide Pedestrian Plan.

- The St. Helena General Plan currently being updated, focuses on integrating new planning topics, specifically sustainability, heritage tourism as economic development, and strengthening pedestrian and bicycle connections.
- Plan.
- The 2016 Pedestrian Plan establishes an implementation plan to encourage more walking trips throughout Napa County and improve safety for all users.

For more information about these plans, see Appendix D of the 2019 Napa Countywide Bicycle Plan.

SECTION 2: GOALS AND POLICIES

Countywide Vision and Goals

The Countywide vision statement, goals, and policies were developed to guide recommendations in both the Countywide Plan and the jurisdiction plans, including the St. Helena Bicycle Plan. The vision statement, goals, and policies will be used to evaluate progress of Plan implementation.

Vision Statement

Napa County's vision is to be a bicycle-friendly community with a world-class bicycling system for all ages and abilities. The comprehensive, connected bicycle system will provide people with safe, convenient and enjoyable access to destinations throughout all Napa County jurisdictions and beyond. Residents and visitors will enjoy bicycling for everyday commuting, non-work trips and recreation. Bicycling contributes to a high quality of life, promotes health and will help achieve a 10 percent mode shift in Napa County by 2035.

Goals and Policies

The goals and policies developed for the 2019 Plan will guide St. Helena and other Napa County communities in improving the bicycling environment for residents and visitors.

Table SH.1. Goals and Policies of the Plan

Goals		Policies
Connectivity	Develop a well-designed low Level of Traffic Stress (LTS) connected bicycle network	• Build and maintain a local and countywide bicycle transportation and recreation network that connects Napa County's incorporated cities/town and unincorporated communities and provides access to public transportation and community destinations. • Develop and maintain continuous low Level of Traffic Stress (LTS) bicycle facilities of all types to provide accessible intra-city connections that serve as the framework of the Countywide Bikeway System. • Prioritize coordination and completion of regionally significant primary bikeways including the Napa Valley Vine Trail, the Bay Trail and the Ridge Trail, and local connections to those facilities. • Provide secure bicycle parking at public and private destinations throughout Napa County. • Integrate the bicycle network and bicycle facility amenities into land use decisions and developments.
Equity	Improve bicycle access for disadvantaged and/or underserved communities	• Implement projects that improve access for disadvantaged and/or underserved communities, particularly those reliant on walking, biking and transit for transportation.
Safety	Improve safety for all ages and abilities	• Work to reduce the number and severity of bicycle collisions. • Work to reduce bicycle fatalities to zero by 2035. • Improve locations that have high incidences of bicycle collisions, and/or impediments or conflicts to bicyclists.

Goals		Policies
		• Implement Complete Streets policies that ensure accommodation and enable safe access for users of all ages and abilities. • Implement appropriate, well-designed bicycle facilities using accepted design standards, including intersection and other crossing improvements.
Education & Encouragement	Increase mode share of bicycling	• Encourage education programs for all users of the roadway in all jurisdictions and school districts. • Develop programs and public outreach materials to promote safety and the positive benefits of bicycling.

Serving All Types of Bicyclists

Many factors contribute to people choosing to ride a bicycle, with a major factor being the rider's perception of safety. A rider's perception of an unsafe route can be related to numerous things but is most often related to riding adjacent to high-traffic and high-speed roadways or crossing busy intersections with little or no separation from vehicles. Research has found that a large percentage of the American population is interested in bicycling for transportation but does not currently do so because they believe the routes they would need to travel are unsafe or feel uncomfortable. Many people feel safer and more comfortable riding on low-traffic, low-speed streets or on facilities that provide protection or physical separation from fast-moving traffic.[25] Most people in the U.S. – between 50 and 60 percent – have little tolerance for interacting with motor vehicle traffic unless volumes and speeds are very low (see Figure SH.2).[26] This group of riders is referred to as "Interested but Concerned," reflecting both their interest in bicycling for transportation as well as concerns about safety and comfort when interacting with motor vehicle traffic.

This framework of rider types was used to assess the existing bicycle network and to select recommended facility types for the 2019 Plan. This rider type has the highest potential for increasing bicycle mode share if facility types that support and encourage biking are available.

[25] Source: Dill, J. McNeil, N. "Revisiting the Four Types of Cyclists: Findings from a National Survey" Transportation Research Board 95th Annual Meeting, 2016.

[26] Studies, such as the one referenced above, show that approximately one third of the adult population is not currently interested in bicycling or able to bicycle.

Comfort Typology of Bicyclists

Design User Profile	Non-Bicyclist	Interested but Concerned	Somewhat Confident	Highly Confident
Bicycling Preferences	Uncomfortable bicycling in any condition, have no interest in bicycling, or are physically unable to bicycle.	Often not comfortable with bike lanes, may bike on sidewalks even if bike lanes are provided; prefer off-street or separate bicycle facilities or quiet or traffic-calmed residential roads. May not bike at all if bicycle facilities do not meet needs for perceived comfort.	Generally prefer more separated facilities, but are comfortable riding in bicycle lanes or on paved shoulders if need be.	Comfortable riding with traffic, will use roads without bike lanes.
Percent of General Public	31-37%	51-56%	5-9%	4-7%

Figure SH.2. Level of Traffic Stress and Bicycle Riders

SECTION 3: EXISTING BICYCLE NETWORK

Overview: Issues and Opportunities

St. Helena has limited bike facilities; however, due to the generally low traffic volumes and speeds, many local streets are comfortable for bicycling. Connections to destinations, such as local schools and on Main Street, could be improved to provide more connectivity.

The city has bike lanes along Silverado Trail, Pope Street, and a short segment of Valley View Street. In addition, the city also has some short trail segments that connect neighborhoods and bike route connections (see Figure SH.4).

Figure SH.3. Green painted bike lanes on Valley View Street

The county's first green painted bike lanes are in St. Helena on Valley View Street (see Figure SH.3). The green bike lanes pass near St. Helena Primary School and were installed because of the limited sight line where the road curves on Valley View Street.

Table SH.2 provides an overview of the existing bikeway mileage in St. Helena.

Table SH.2. Existing Bicycle Network Mileage

Facility Type	Existing Mileage
Shared-Use Path (Class I)	1.0
Bike Lane (Class II)	1.3
Bike Route (Class III)	0.2
TOTAL	**2.5**

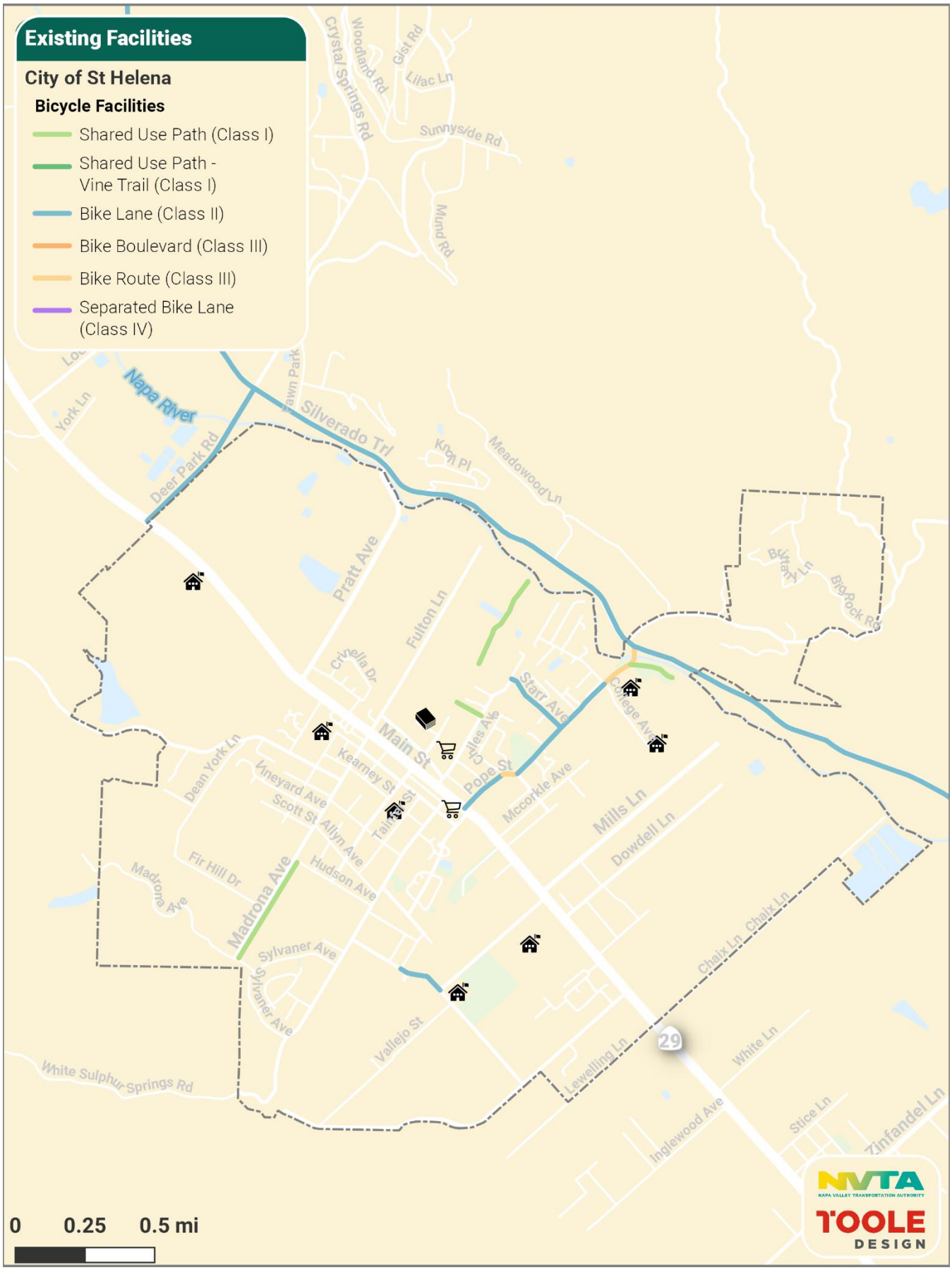

Figure SH.4. Existing Bicycle Facilities in St. Helena

Components of the Bicycle Network

Multiple bicycle facility types comprise a complete bicycle network, and each facility type has a different classification to distinguish the facilities. The classifications are based on the degree of physical separation from vehicle traffic. The following facility types reflect the existing bikeways as well as new ones identified in this Plan.

Shared-Use Paths

Shared-Use Path (Class I) are two-way paved facilities, physically separated from motor vehicle traffic and used by bicyclists, pedestrians, and other non-motorized users. Shared-use paths are often located in an independent alignment, such as a greenway, though sometimes they are located adjacent to roadway. Shared-use paths provide low-stress facilities for bicyclists; an example of a shared-use path in Napa County is the Vine Trail, a 47-mile active transportation corridor that is under development and will connect the Vallejo Ferry Terminal in southern Solano County to Calistoga in northern Napa County (see Figure SH.5). The Vine Trail is becoming the backbone of Napa County's low-stress bicycle network, and The Napa Valley Vine Trail Coalition and NVTA are actively working on planning, design, and construction of trail segments throughout the county. Currently, St. Helena has no shared-use paths.

Figure SH.5. Bicyclists on the Napa Valley Vine Trail in nearby City of Napa

Figure SH.6. Connector path in St. Helena

Some paths and trails in St. Helena, although technically not standard shared-use paths, provide connections within neighborhoods or as cut-throughs to destinations and are identified in this Plan (see Figure SH.6). Although some of these shared-use paths are substandard in width compared to best practices for Class I design, they are separated from automobile traffic and provide important desired connections within the bicycle network.[27] These paths may be considered for upgrades in the future.

[27] Eight feet is the typical recommended minimum for any shared-use path. Some small connector paths in the county are as narrow as four feet. Generally, this plan does not consider unpaved paths, but some connector paths used regularly by bicyclists in St. Helena today are not paved. They may be considered for upgrade in the future.

Bike Lanes

Bike Lane (Class II) provide an exclusive space for bicyclists in the roadway and are established by painting lines and symbols on the roadway surface. Bike lanes are for one-way travel and are typically provided in both directions on two-way streets and/or on one side of a one-way street (see Figure SH.7). Bike lanes create a lower-stress riding environment on streets with a maximum posted speed limit of 30 miles per hour and traffic volumes between 3,000 and 8,000 vehicles per day. Examples of bike lanes in St. Helena include Silverado Trail, Pope Street, and a segment along Valley View Street.

Figure SH.7. Bike lanes in St. Helena

Buffered Bike Lanes (Class II) are implemented by painting or otherwise creating a flush buffer zone between a bicycle lane and the adjacent travel lane (see Figure SH.8). While buffers are typically used between bike lanes and motor vehicle travel lanes to increase bicyclists' comfort, they can also be installed between bicycle lanes and parking lanes to reduce conflicts with opening car doors. When located on streets with moderate traffic volumes and speeds, buffered bike lanes provide a lower-stress riding environment for bicyclists. No buffered bike lanes exist today in St. Helena or elsewhere in Napa County.

Figure SH.8. Buffered bike lane in Seattle, WA

Bike Routes and Bicycle Boulevards

Bike Routes and Bicycle Boulevards are two types of Class III facilities in Napa County.

Bike routes are designated with pavement markings or signage to indicate a shared lane environment between bicyclists and drivers (see Figure SH.9,). The north end of Pope Street after the bike lane ends is an example of a bike route in St. Helena today.

Figure SH.9. Pope Street bike route in St. Helena

While signage and markings support wayfinding and indicate bicyclist positioning on shared streets, bicycle routes do not provide any protection or separation between people driving and people bicycling. When located on streets that have high traffic speeds and/or volumes, bike routes are uncomfortable and most people will choose not to ride on them.

Bicycle boulevards are also indicated with pavement markings and signage, but are specifically located on low-speed, low-volume streets, often in residential neighborhoods. Bicycle boulevards are designed to prioritize bicycle through-travel, while reducing motor vehicle through traffic volumes and maintaining relatively low speeds. When paired with intersection treatments that help bicyclists cross major intersections, bicycle boulevards are an attractive, low-stress facility. Currently, there are no bicycle boulevards in St. Helena.

Separated Bike Lanes

Separated Bike Lanes (Class IV) are an exclusive bikeway facility type that combines the user experience of a shared-use path with the on-street elements of a conventional bike lane (see Figure SH.10). They are recommended for roadways with speeds higher than 30 miles per hour and motor vehicle volumes over approximately 6,500 vehicles per day. Separated bike lanes are physically separated from motor vehicle traffic with a vertical element and are distinct from the sidewalk. They can be located at street level within the curbs, at an intermediate level, or at sidewalk level, see Figure SH.11 below. Numerous options are available for creating separation between modes, ranging from low-cost paint and plastic flexpost installations, to more robust curb-separated lanes. Separated bike lanes provide a low-stress riding environment to all bicyclists. No separated bike lanes currently exist in St. Helena or elsewhere in Napa County.

Figure SH.10. Separated bike lane in Berkeley, CA

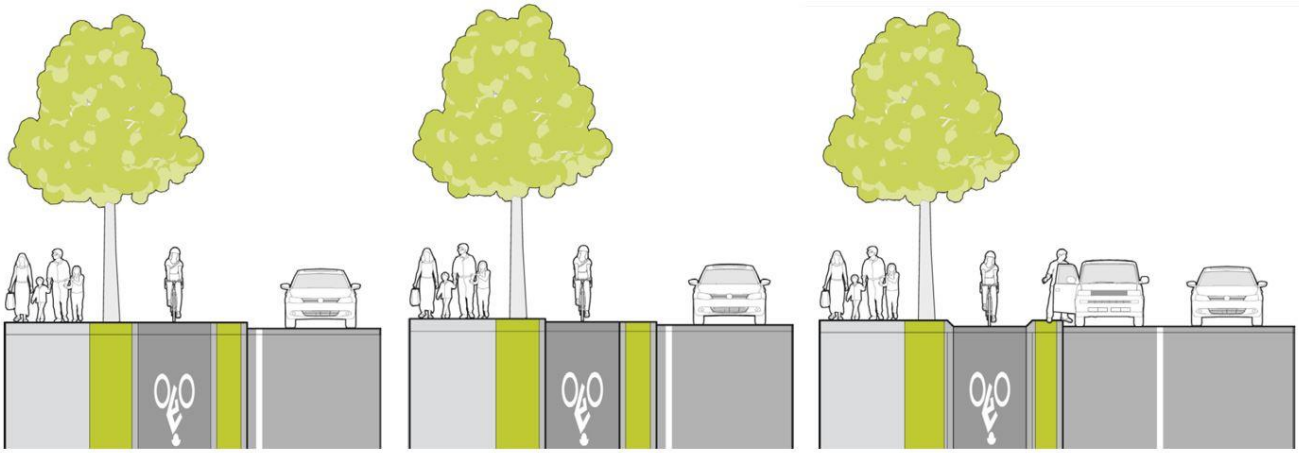

Figure SH.11 Sidewalk level, intermediate level, and street level separated bike lanes, left to right.

How many people bike today?

Some residents within the cities and Napa County choose to bicycle to work, and data is readily available regarding residents' commuting mode choice from the U.S. Census' American Community Survey (ACS). In St. Helena, approximately 0.3 percent of residents commute by bicycle which is lower than the county's mode share of 0.8 percent. However, work-related trips only comprise 10 to 15 percent of all household trips; the remaining 85 to 90 percent of trips are made to visit friends and family or for errands, entertainment, outings, and recreation. [28]

The assumption can be made that Napa County residents are generally more likely to bike for non-work trips. This is because non-work destinations, such as an errand or a friend's house, are likely to be located closer to home.

Collision Analysis

Improving safety for bicyclists is an expressed goal of the Countywide Bicycle Plan and preventing and mitigating bicycle collisions is a key consideration behind the network recommendations for St. Helena. Not only is safety and the reduction of bicycle collisions a public health issue, addressing safety concerns is also an important way to encourage more people to ride a bicycle. Understanding collision factors and trends will allow the City to identify and prioritize investments that can have the greatest impact on improving safety for bicyclists and other users of the roadway.

To better understand collision history in St. Helena, injury crash data from 2006-2013 were reviewed.[29] Over the seven-year period, 20 bike collisions occurred, resulting in one severe injury and no deaths; most of the city's crashes produced complaints of pain. See Figure SH.12 for a map of bicycle collisions. It should be noted that the crashes mapped and analyzed only include those reported to police. There

[28] Range references the National Household Travel Survey (15 percent) and California Household Travel Survey (9.9 percent).

[29] Collision data was gathered from the University of California-Berkeley's Safe Transportation Research and Education Center's Transportation Injury Mapping System (TIMS).

may be additional unreported crashes, and near misses, that have occurred during this time that influence people's decision to ride a bike.

While crashes occurred in many parts of the city, most occurred along two streets – Main Street (eight collisions) and Spring Street (four collisions). Both streets are proximate to services and play a major role in the generally limited road network of St. Helena.

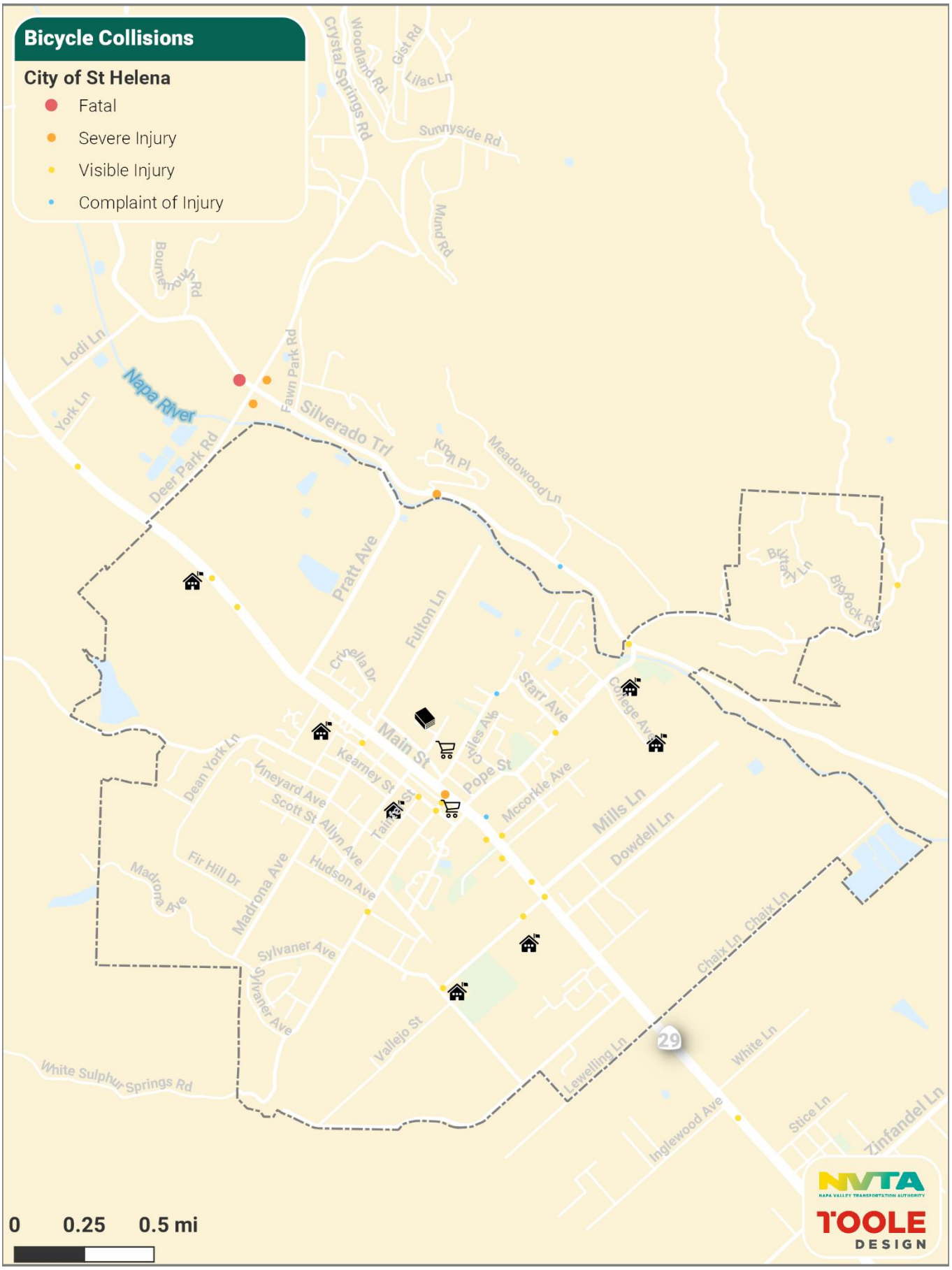

Figure SH.12. Bicycle Crash Distribution (2006-2013)

The types of collisions vary, with “Other” being reported the most and “Vehicle/Pedestrian,” “Broadside,” and “Overturned,” combining for a half of all reported bicycle crashes. “Improper Turning” and “Auto Right of Way” accounted for 60 percent of the Primary Collision Factors for bicycle crashes in St. Helena (see Figure SH.7). Since the number of crashes is low, it is not possible to derive any trends from these data which could directly inform particular engineering treatments in the bicycle network.

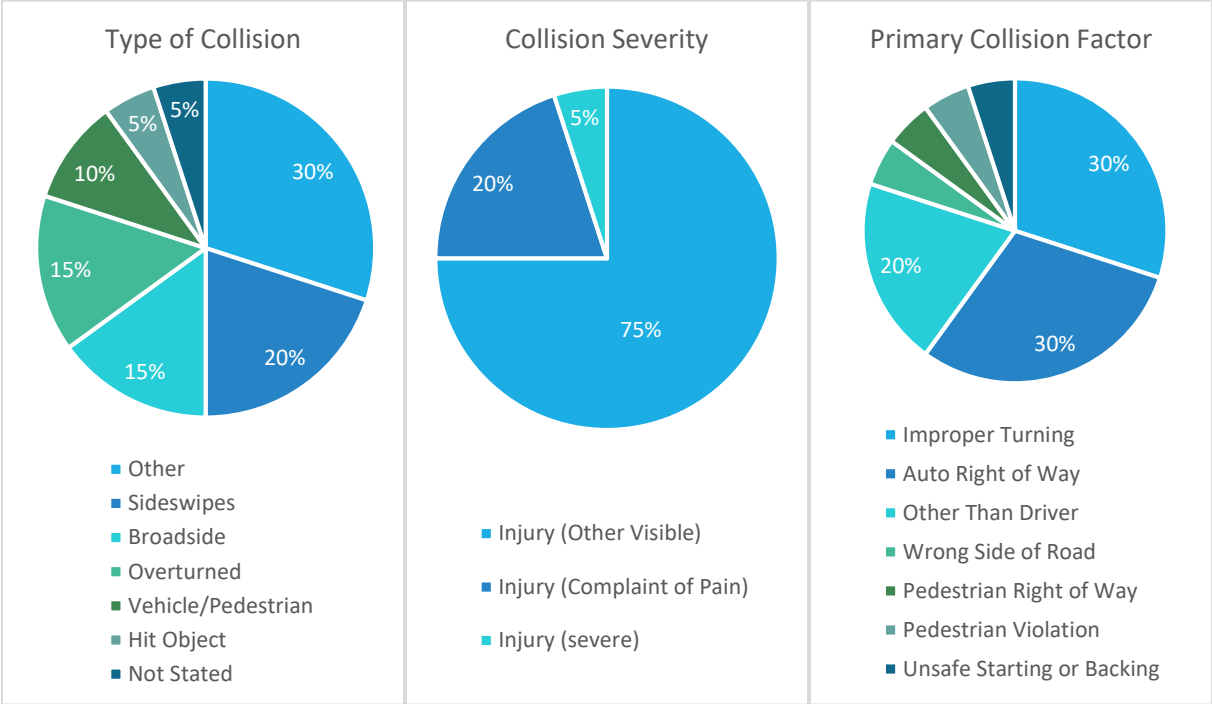

Figure SH.13. Bicycle Collision Summary (2006-2013)

Community Input

Residents of St. Helena were invited to be an active part of the planning process through in-person and online outreach activities hosted by the Napa Valley Transportation Authority (NVTA). The community feedback directly informs the Plan’s network and programmatic recommendations. For more information about outreach, see Chapter 2 of the Countywide Bicycle Plan.

From July to October 2017, residents were invited to share their site-specific comments on the existing network and potential improvements through an online, interactive WikiMap. Respondents were asked to provide feedback on:

- Barriers to biking
- Places/routes where I currently ride a bike
- Places/routes where I would like to ride

Two respondents contributed a total of nine comments within St. Helena. Highlights include:

- Most barriers to biking are on Main Street, or SR 128/29.
- Human behaviors such as motorists not yielding or looking for bicyclists are the main barriers to bicycling
- Traffic signals do not sense the presence of bicyclists, particularly bicyclists making left turns
- Drainage grates can be hazardous to bicyclists

The location of WikiMap comments in St. Helena can be found in Appendix B.

In addition to the initial WikiMap, NVTA also hosted an online map from June to July 2018, for residents to review the recommended bicycle network facilities. This map showed draft recommended bike facilities throughout the county and allowed users to agree or disagree that the recommendation was appropriate in that location. Over 50 respondents provided approximately 330 comments which were reviewed by staff in each jurisdiction for possible changes to the recommended network.

St. Helena was also represented through involvement in several committees and through direct outreach to City staff by NVTA throughout the development of this plan. St. Helena's Active Transportation and Sustainability Committee was consulted regarding network recommendations and worked with City staff to bring local knowledge to bear in selection of streets for the bicycle network and recommended facility types.

SECTION 4: PROPOSED BICYCLE NETWORK

The main purpose of this plan is to identify a future bicycle network for St. Helena that is safe and connected. The proposed bicycle network map (see Figure SH.8) was developed based on fieldwork, an analysis of existing conditions, input from the community and City staff, and in consideration of best practices in bicycle network planning, including facility guidance from Appendix A: Bicycle Facilities Toolkit.

The resulting network includes high-quality infrastructure in the form of multi-use paths, including the Vine Trail, bike lanes, bike boulevards, and bike routes. These facilities connect to key community destinations and neighborhoods and close network gaps. The network also provides connections beyond the St. Helena city boundary into the unincorporated areas. Note that as of Plan writing and adoption, the route and facility type of the Vine Trail through St. Helena has not been finalized and so is indicated as a corridor study on the map on the following page.

The two higher-crash streets noted above, Main Street and Spring Street, both are on the recommended bicycle network. While Spring Street has adequate space to accommodate bike lanes (Class II) which will provide dedicated space for bicyclists on the street, Main Street does not. The many competing demands on this street (parking, business access, deliveries, through traffic by multiple modes) do not allow space for a dedicated facility. Pavement markings and signage that alert drivers to bicyclists' presence here will be important. The education strategies mentioned below can also help mitigate crash risks on a shared facility such as this.

St. Helena's proposed bicycle network is a 25.1-mile network, as detailed in Table SH.3. When implemented, the entire existing and proposed network will total 27.7 miles.

Table SH.3. Proposed Bicycle Network

Facility	Proposed Mileage	Existing Mileage	Total Future Mileage
Vine Trail (Class I)	3.1	-	3.1
Shared-Use Paths (Class I)	8.7	1.0	9.7
Bike Lanes (Class II)	4.5	1.3	4.8
Bike Boulevard (Class III)	3.6	-	3.6
Rural Bike Routes (Class III)	5.3	0.2	5.5
Corridor Study (not included in total)[30]	3.1	-	3.1
Total Network	**25.1**	**2.5**	**27.7**

[30] The Vine Trail alignment is not yet final through the City of St. Helena. It is represented here in the alignment current as of February 2019, but this alignment is currently under discussion and may change.

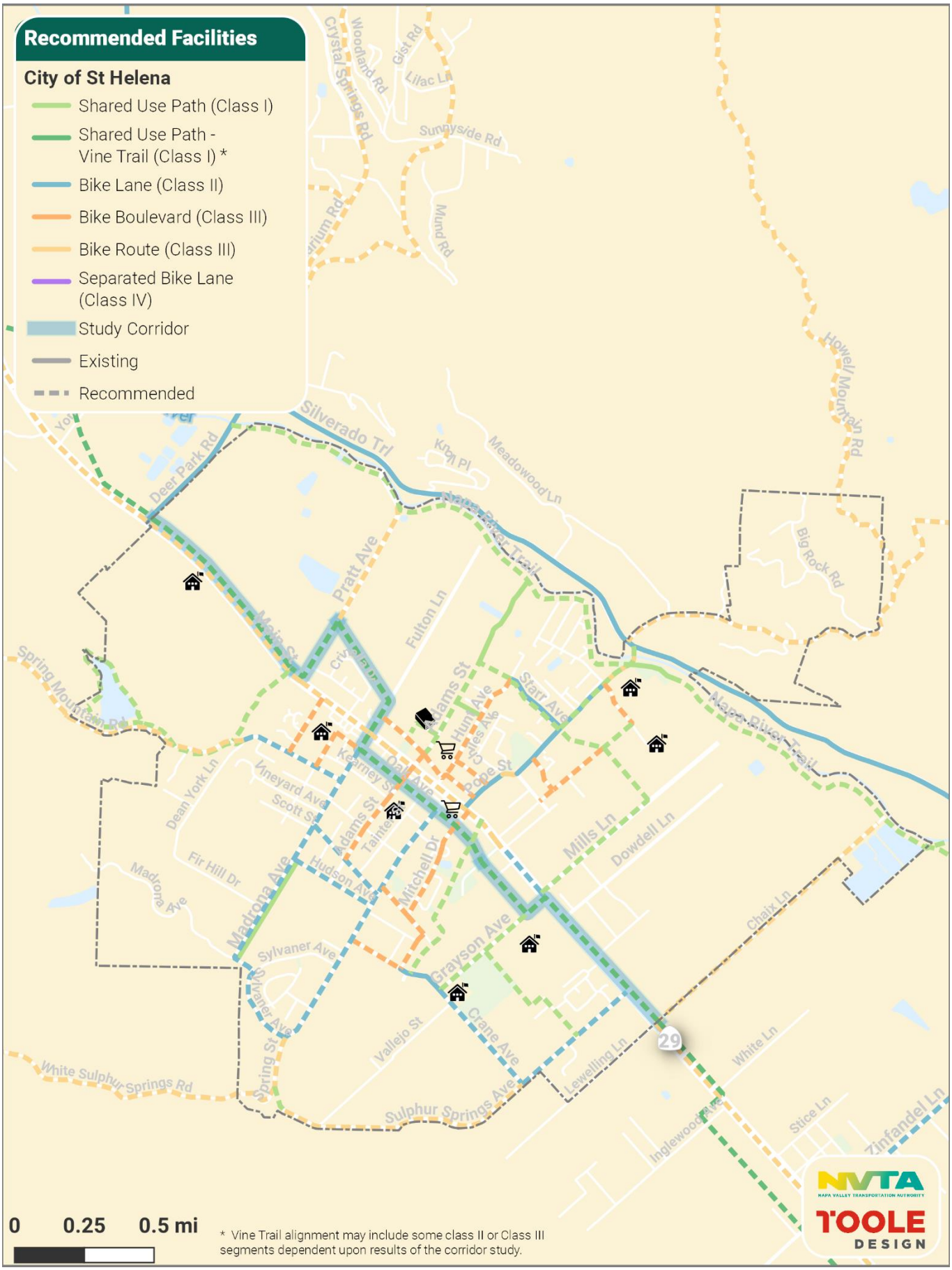

Figure SH.14. Proposed Bicycle Network

SECTION 5: SUPPORT PROGRAMS AND POLICIES

City policies and support programs are key components of a welcoming, bicycle-friendly community. Generally, policies are set by the City government, while programs are led by or executed in partnership with external organizations or agencies such as advocacy organizations or school districts. Along with bike network investments, programs and policies will help St. Helena realize the Plan's goals of connectivity, equity, safety, and education and encouragement.

St. Helena already has several programs related to bicycling which are described in Table SH.4. The existing and recommend programs create a full suite of efforts to promote and support bicycling throughout St. Helena.

Table SH.4. Support Programs and Policies

Support Program/Policy	Description	Source
Existing		
Bicycle Rentals	Napa County is home to many bike shops, such as St. Helena Cyclery, and bike tour companies that provide bicycle rentals. Many hotels and bed and breakfasts also provide their guests with bicycles.	Existing
Complete Streets Policy	The City of St. Helena has a Complete Streets Policy resolution which follows the template provided by MTC. The next update to the General Plan will incorporate Complete Streets policies and principles; however, as of the writing of this 2019 Plan, it has yet to be adopted. For implementation of the Complete Streets policy, designs of projects affecting the transportation system must be reviewed by the Active Transportation Committee for consistency with the Vine Trail plans and the 2016 Countywide Pedestrian Plan.	Existing
Safe Routes to School Program	Since 2010, this collaborative program, provided by the Napa County Office of Education in conjunction with the Napa Valley Bicycle Coalition, encourages students to walk and bike to school through education events, prizes, and safety projects.	Existing
Safety Education	The Napa County Bicycle Coalition organizes educational and promotional events to encourage safe bicycle riding in Napa County, such as bicycle safety rodeos and the annual BikeFest event in May. This can include education programs for both children and adults.	Existing
Speed Limits and Speed Surveys	Engineering speed studies are prepared every 5 years in St. Helena, in accordance with state law. The city does use reduced speed limits of 15 mph in school zones as needed. De facto speed limits are 25 miles per hour.	Existing
Recommended		
Bicycle Parking, Shower, and Locker Facilities	Provide short- and long-term bicycle parking at key destinations, such as downtown St. Helena, parks, schools, community facilities, transit stops, and shopping areas. Encourage employers to install showers and locker facilities for bicycle commuters.	2012 St. Helena Bicycle Plan

Support Program/Policy	Description	Source
Capital Improvement Projects / Complete Streets Checklist	Create checklist for capital projects on and adjacent to streets (repaving, restriping, reconstruction) that ensures City staff review the infrastructure recommendations of this Plan at the time of project development	2019 Bicycle Plan
Dedicated Bicycle Staff	Identify a staff member who is responsible for bicycle planning and the implementation of bicycle facilities and dedicate a percentage of their time to these efforts.	2019 Bicycle Plan
Downtown Parking Plan	Determine shared parking opportunities downtown to consider parklet in front of bakery on west side of Main Street and identify opportunities for bike parking to include bike corrals.	2016 Napa Countywide Pedestrian Plan
Existing Bikeways Policy	Develop a policy which specifies that existing bikeways should not be removed, unless an improved bikeway is being installed.	2019 Bicycle Plan
Maintain Overgrown Vegetation	Continue to trim and maintain trees on Main Street, especially those at intersections to improve street light visibility. For specific locations where tree obstructions were observed, see the 2016 Napa Countywide Pedestrian Plan (Appendix SH-C, Improvement SH-2). Citywide, ensure that landscapes at maturity do not interfere with safe sight distances for bicycle, pedestrian, or vehicular traffic; do not conflict with overhead lights, traffic controls, traffic signage, utility lines or poles, or walkway lights; and, do not block bicycle or pedestrian ways. Require adjacent property owners to maintain landscaped areas with live and healthy plant materials, replacing plant materials when necessary to maintain full function and aesthetics; to water, weed, prune, fertilize and keep sidewalks and planting strips litter free.	2016 Napa Countywide Pedestrian Plan
Law Enforcement Activities	Coordinate with law enforcement agencies and improve officers' understanding of bicycling issues, which will lead to better enforcement, heightened awareness of safety issues, and recognition of "teachable moments" for both bicyclists and motorists.	2012 St. Helena Bicycle Plan
	Provide bicycle-specific training for law enforcement personnel and establish a community policing agreement which 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.	2019 Bicycle Plan
	Establish a bicycle diversion program for bicycle traffic offenders.	
	Provide focused law enforcement operations at high collision locations.	
Site Plan Review Checklist	Create checklist for development review to ensure site plans include considerations for bicycle access and safety. Include items from MTC's Routine Accommodation Checklist for projects in the public right-of-way to ensure routine application of the Complete Streets policy. MTC's checklist can be found here: http://www.mtc.ca.gov/planning/ bicyclespedestrians/Routine_Accommodation_checklist.pdf	2016 Napa Countywide Pedestrian Plan

Support Program/Policy	Description	Source
Vision Zero Policy	Adopt a countywide Vision Zero policy and develop an action plan for implementing Vision Zero. Identify opportunities for funding for Vision Zero efforts, such as developing a Countywide database to inventory collision data and environmental factors, undertaking a comprehensive analysis to understand collision patterns, and facilitating an outreach process to identify community safety priorities and determine where to focus safety investments and improvements.	2019 Bicycle Plan
Wayfinding Program	Develop a regional wayfinding system that has a similar brand throughout Napa Valley and helps bicyclists navigate the transportation network with confidence and provide direction to their destinations; create a community identity; and build a sense of place. The City of St. Helena could adjust the brand to reflect local character while still maintaining signage elements for consistency including placement, frequency of signs, and content.	2019 Bicycle Plan
Bikeway Maintenance	Prioritize maintenance of roadways and removal of debris where bicycle facilities are present	2019 Bicycle Plan

SECTION 6: IMPLEMENTATION PLAN

Because all communities, including St. Helena, have limited financial resources, it is not possible to implement all the recommended projects immediately. To focus St. Helena's resources, several characteristics of projects should be considered. These characteristics are discussed in relation to implementation phases below.

Immediate-Term

Overlap with Measure T Repaving Projects

While the connectedness of a bicycle network is highly important, recommended projects should be implemented as opportunities arise for integration into existing projects. St. Helena's five-year paving plan funded by Measure T offers a great opportunity for quickly implementing several recommended bicycle facilities. St. Helena's Measure T plans have been compared to the proposed bicycle network, and those projects are listed in Table SH.5.

Short- and Medium-Term

Facility Characteristics

All other planned street resurfacing and reconstruction projects should be reviewed against the recommended bike network. Another early step in the implementation of the bicycle plan should be to answer the following questions about each project:

- Does a facility consist only of striping and signage that can be added at any time?
- Does a facility necessitate further community dialog regarding reallocation of street space?
- Does a project need significant funding that must be obtained through a competitive process (i.e., grant)?
- Does a project necessitate acquiring additional right-of-way?
- Are there any environmental concerns about a project location?

These questions can help direct staff to understand which projects are more readily implementable.

Proximity to Destinations

Public input received over the course of this Plan process indicates greater interest in connecting to certain destinations including: schools, parks, trailheads, and community centers. The locations of these destinations, as well as other known bicycle traffic generators such as hotels with bike rental schemes should be considered when selecting projects for earlier implementation.

Public Concerns

Residents gave input through the WikiMap about areas of greater concern for bicyclists. These are documented in the summary above, and staff may wish to refer to these comments when considering which projects to implement first. Staff should also continue to collect and document resident concerns and priorities about bicycling and general traffic safety in St. Helena and bring those comments into discussions regarding implementation priorities.

Network Connectivity

Staff should consider the benefits provided by a connected bicycle network. Research has shown that a connected low-stress network has the greatest impact on encouraging people to choose to bicycle. Projects that connect to existing facilities, especially ones that are known to be popular, may be prioritized. This should be balanced against the desire to provide bicycle facilities in and connecting to underserved communities in keeping with the equity goal of this Plan. Often, these areas have been historically underserved by infrastructure, and building new bike network projects here may not connect to existing facilities.

Long-Term

Some projects, such as many shared-use paths (Class I), will necessarily require a more sustained effort to come to fruition. While it may take a longer time to implement these projects, St. Helena should begin to consider the steps toward construction of these projects so they are prepared for grant applications or inserting funding into capital improvement plans.

Connectivity Improvements from Phased Implementation

As stated, the planned bicycle facilities for St. Helena are intended to create the most low-stress network that conditions allow. Implementation of on-street facilities such as bike boulevards (Class III) and bike lanes (Class II) will significantly improve the connectivity of the bicycle network for riders of all ages and abilities. Focusing first on intersection treatments at locations where these facilities cross high-speed, high-volume streets without a traffic signal will most quickly improve connectivity. St. Helena has great opportunity for improvement in connectivity with on-street facilities, because its underlying street network is a well-connected grid that accesses many city destinations.

While shared-use paths (Class I facilities) certainly provide a low-stress riding environment, their implementation requires more investment and often more planning than on-street facilities. Implementation of the Napa River Trail and the Vine Trail will provide connectivity improvements especially in the northwestern part of St. Helena. These are understood to be a large, long-term capital investments, however, so implementation of on-street facilities in the meantime will provide great benefits to the city.

Funding

Funding for the bicycle network projects can come from different sources. For example, the City of St. Helena could fund the improvements through dedicated funds from the City, by leveraging development-driven projects, or through grant opportunities. More information about available grant funds can be found in Chapter 4 of the 2019 Countywide Bicycle Plan.

Table SH.5. Project List

Project ID	Street/Trail Name	Begin	End	Facility Type	Length (Miles)
Measure T Overlap Projects					
Bike Lane (Class II) Projects					
821	S Crane Ave	Grayson Ave	Sulphur Springs Ave	Bike Lane (Class II)	0.45
860	Grayson Ave	Crane Ave	SR 29 (Main St)	Bike Lane (Class II)	0.50
891*	Madrona Ave-Riesling Way	Main St	Sylvaner Ave	Bike Lane (Class II)	1.03
106*	Spring St	White Sulphur Springs Rd at city limit	Oak Ave	Bike Lane (Class II)	0.98
Bike Boulevard (Class III) Projects					
108*	Adams St	Railroad Ave	Allyn Ave	Bike Boulevard (Class III)	0.47
131	Birch Ave	Crane Ave	Valley View St	Bike Boulevard (Class III)	0.15
125	Church St	Hunt Ave	Pope St	Bike Boulevard (Class III)	0.13
127	Edwards St	Hunt Ave	Pope St	Bike Boulevard (Class III)	0.15
126*	Hunt Ave	Church St	Starr Ave	Bike Boulevard (Class III)	0.42
810	McKorkle Ave	Alison Ave	Proposed class I facility 675' west of College Ave	Bike Boulevard (Class III)	0.29
133*	Mitchell Dr	Main St	Crane Ave	Bike Boulevard (Class III)	0.44
116*	Oak Ave	Hillview Pl	Mitchell Dr	Bike Boulevard (Class III)	0.10
Bike Route (Class III) Projects					
856	Spring St	Sylvaner Ave	Sulphur Springs Ave	Bike Route (Class III)	0.18
All Other Projects					
Shared-Use Path (Class I) Projects					
147	Crane Park Path (to La Quinta Way)	Grayson Ave	Kennedy Ct	Shared-Use Path (Class I)	0.50
747	Library Lane Path	Adams St	Vine Trail (along RR corridor)	Shared-Use Path (Class I)	0.13
818	Lower Reservoir Loop Trail	NW city limit	Loop around Lower Reservoir and connect to Spring Mountain Rd	Shared-Use Path (Class I)	1.25
809	McCorkle Ave Path	Grayson Ave	College Ave	Shared-Use Path (Class I)	0.14
144	Mills Ln	SR 29-Main St	Proposed class I facility annex from Starr Ave	Shared-Use Path (Class I)	0.50
93	Napa River Trail	Pope St (Napa River Trail-Wappo Park)	St Helena city limit (Deer Park Rd / Lower Reservoir Trail)	Shared-Use Path (Class I)	1.90

Project ID	Street/Trail Name	Begin	End	Facility Type	Length (Miles)
151	Napa River Trail	St Helena city limit near wastewater treatment plant	SE edge Wappo Park	Shared-Use Path (Class I)	1.14
875	Pope St	Starr Ave	Silverado Trail	Shared-Use Path (Class I)	0.41
146	Starr Ave Path	Hunt Ave	Mills Ln	Shared-Use Path (Class I)	0.68
749	Starr Ave-Adams St-Railroad Ave-Fulton Ln	Hunt Ave	Railroad Ave	Shared-Use Path (Class I)	0.51
105	Sulphur Creek Path	Spring St	Sulphur Springs Ave	Shared-Use Path (Class I)	0.10
140	Sulphur Creek Path	Sulphur Springs Ave	Napa River Trail	Shared-Use Path (Class I)	0.65
96	York Creek Path	Spring Mountain Rd	Vine Trail	Shared-Use Path (Class I)	0.33
Bike Lane (Class II) Projects					
107	Allyn Ave	Spring St	Madrona Ave	Bike Lane (Class II)	0.34
819	Hudson Ave	Madrona Ave	Spring St	Bike Lane (Class II)	0.32
144	Mills Ln	Main St/SR 29	Proposed class I facility annex from Starr Ave	Bike Lane (Class II)	0.50
97	Pratt Ave	Vine Trail	Main St/SR 29	Bike Lane (Class II)	0.26
816	Spring Mtn Rd	Dean York Ln	Madrona Ave	Bike Lane (Class II)	0.39
895	Main St/SR 29	Chaix Ln	Charter Oak Rd	Bike Lane (Class II)	0.02
896	Main St/SR 29	Chaix Ln	Charter Oak Rd	Bike Lane (Class II)	0.21
833	Sulphur Springs Rd	S Crane Ave	Main St/SR 29	Bike Lane (Class II)	0.50
102	Sylvaner Ave	Riesling Way	Spring St	Bike Lane (Class II)	0.30
Bike Boulevard (Class III) Projects					
808	College Ave	Pope St	Proposed class I facility at SE end of College Ave	Bike Boulevard (Class III)	0.18
98	Elmhurst Ave	Spring Mountain Rd	Main St	Bike Boulevard (Class III)	0.23
114	Hillview Pl	Spring Mountain Rd	Oak St	Bike Boulevard (Class III)	0.14
124	Hunt Ave	Railroad Ave	Church St	Bike Boulevard (Class III)	0.02
244	Mariposa Ln	Pope St	McCorkle Ave	Bike Boulevard (Class III)	0.14
129	N Crane Ave	Spring St	Birch St	Bike Boulevard (Class III)	0.23
857	Railroad Ave	Adams St	Hunt Ave	Bike Boulevard (Class III)	0.11
859	Railroad Ave	Fulton Ln	Hunt Ave	Bike Boulevard (Class III)	0.21
820	Valley View St	Spring St	Birch St	Bike Boulevard (Class III)	0.20
Bike Route (Class III) Projects					
150	Chaix Ln	Main St/SR 29	Napa River Trail (proposed)	Bike Route (Class III)	1.07
806	Main St	Fulton Ln	St Helena city limit, Deer Park Rd	Bike Route (Class III)	1.11
812	Main St	Madrona Ave	Charter Oak Ave	Bike Route (Class III)	0.64

Project ID	Street/Trail Name	Begin	End	Facility Type	Length (Miles)
807	Pratt Ave	RR track/Vine Trail at Pratt Ave	Napa River Trail (proposed)	Bike Route (Class III)	0.48
815	Spring Mountain Rd	St Helena city limit (West)	Dean York Ln	Bike Route (Class III)	0.69
103	Sulphur Springs Ave	St Helena city limit	Spring St	Bike Route (Class III)	0.16
149	Sulphur Springs Ave	Sulphur Creek	Main St/SR 29	Bike Route (Class III)	0.93
Vine Trail (varying facility types to be determined by Corridor Study)					
854	Vine Trail	St Helena City Limits (South)	St Helena City Limits (North)	To Be Determined	3.10

* Projects denoted with an asterisk overlap with a jurisdiction-identified Measure T project, but they do not have the same extents: the proposed bicycle network project is either longer or shorter than the Measure T project.

Chapter 8: Town of Yountville Bicycle Plan

SECTION 1: INTRODUCTION

Plan Introduction

The Yountville Bicycle Plan is intended to guide development of infrastructure, programs, and policies that improve the bicycling environment for all residents and visitors in this Napa Valley community. Yountville's Plan will help the Town work towards the adopted goals for bicycling in Napa County: connectivity, equity, safety, and education and encouragement. Planning and design for bicycling has evolved since adoption of the Yountville Bicycle Plan in 2012, and this Plan update brings the latest best practices to bear on recommendations for implementation by Town staff.

Figure Y.1. Bicyclist on California Drive near the Vine Trail at the railroad crossing

Area Overview

The Town of Yountville is located near the center of the Napa Valley, approximately 55 miles northeast of San Francisco. Yountville is located on the western side of the valley along State Route (SR) 29 between the City of St. Helena to the north and the City of Napa to the south.

The Town of Yountville has a population of approximately 3,000 residents, and approximately one-third of the residents (900) live at the Veterans Home of California in central Yountville. Yountville is primarily residential, and a series of low-volume, low-speed streets connect the residential areas to the commercial core along Washington Street.

Yountville's small-town charm draws many tourists who visit the area's wineries and enjoy the town's hotels, shopping, and gourmet restaurants. Yountville is also home to one of the hot air ballooning launches in Napa Valley and is also a destination for art and golf lovers.

Yountville is a part of the Napa Valley Unified School District which also serves the Cities of American Canyon and Napa. The Yountville Elementary School is the only school located within Yountville and serves kindergarten through fifth graders. The school is located on Yount Street, which has on-street bike facilities, and is also served by the Hopper Creek shared-use path. Middle and high school-aged students attend school in the City of Napa.

Yountville's compact land use pattern, streets with relatively low traffic volumes, and developed sidewalk network, coupled with its relatively small land area and flat geography, create many opportunities for residents and visitors to bicycle throughout the community (see Figure Y.1).

Relationship to Existing Plans

This 2019 Bicycle Plan is an update to the 2012 Yountville Bicycle Plan and builds upon the recommendations on bikeways, policies, programs, and design standards detailed in the 2012 Plan. This 2019 Plan also dovetails with the Envision Yountville planning effort which is currently underway. This land use planning process will create a set of community values and will feed into the upcoming Envision Yountville General Plan Update effort. The General Plan Update also includes a Mobility Chapter which represents the General Plan's circulation element.

In addition, this 2019 Plan incorporates applicable recommendations from the 2016 Napa Countywide Pedestrian Plan, which establishes an implementation plan to encourage more walking trips throughout Napa County and improve safety for all users.

For more information about these plans, see Appendix D of the 2019 Napa Countywide Bicycle Plan.

SECTION 2: GOALS AND POLICIES

Countywide Vision and Goals

The Countywide vision statement, goals, and policies were developed to guide recommendations in both the Countywide Plan and the jurisdiction plans, including the Yountville Bicycle Plan. The vision statement, goals, and policies will be used to evaluate progress of Plan implementation.

Vision Statement

Napa County's vision is to be a bicycle-friendly community with a world-class bicycling system for all ages and abilities. The comprehensive, connected bicycle system will provide people with safe, convenient and enjoyable access to destinations throughout all Napa County jurisdictions and beyond. Residents and visitors will enjoy bicycling for everyday commuting, non-work trips and recreation. Bicycling contributes to a high quality of life, promotes health and will help achieve a 10 percent mode shift in Napa County by 2035.

Goals and Policies

The goals and policies developed for the 2019 Plan will guide Yountville and other Napa County communities in improving the bicycling environment for residents and visitors.

Table Y.1. Goals and Policies of the Plan

Goals		Policies
Connectivity	Develop a well-designed low Level of Traffic Stress (LTS) connected bicycle network	• Build and maintain a local and countywide bicycle transportation and recreation network that connects Napa County's incorporated cities/town and unincorporated communities and provides access to public transportation and community destinations. • Develop and maintain continuous low Level of Traffic Stress (LTS) bicycle facilities of all types to provide accessible intra-city connections that serve as the framework of the Countywide Bikeway System. • Prioritize coordination and completion of regionally significant primary bikeways including the Napa Valley Vine Trail, the Bay Trail and the Ridge Trail, and local connections to those facilities. • Provide secure bicycle parking at public and private destinations throughout Napa County. • Integrate the bicycle network and bicycle facility amenities into land use decisions and developments.
Equity	Improve bicycle access for disadvantaged and/or underserved communities	• Implement projects that improve access for disadvantaged and/or underserved communities, particularly those reliant on walking, biking and transit for transportation.

Goals		Policies
Safety	Improve safety for all ages and abilities	• Work to reduce the number and severity of bicycle collisions. • Work to reduce bicycle fatalities to zero by 2035. • Improve locations that have high incidences of bicycle collisions, and/or impediments or conflicts to bicyclists. • Implement Complete Streets policies that ensure accommodation and enable safe access for users of all ages and abilities. • Implement appropriate, well-designed bicycle facilities using accepted design standards, including intersection and other crossing improvements.
Education & Encouragement	Increase mode share of bicycling	• Encourage education programs for all users of the roadway in all jurisdictions and school districts. • Develop programs and public outreach materials to promote safety and the positive benefits of bicycling.

Serving All Types of Bicyclists

Many factors contribute to people choosing to ride a bicycle, with a major factor being the rider's perception of safety. A rider's perception of an unsafe route can be related to numerous things but is most often related to riding adjacent to high-traffic and high-speed roadways or crossing busy intersections with little or no separation from vehicles. Research has found that a large percentage of the American population is interested in bicycling for transportation but does not currently do so because they believe the routes they would need to travel are unsafe or feel uncomfortable. Many people feel safer and more comfortable riding on low-traffic, low-speed streets or on facilities that provide protection or physical separation from fast-moving traffic.[31] Most people in the U.S. – between 50 and 60 percent – have little tolerance for interacting with motor vehicle traffic unless volumes and speeds are very low (see Figure Y.2).[32] This group of riders is referred to as "Interested but Concerned," reflecting both their interest in bicycling for transportation as well as concerns about safety and comfort when interacting with motor vehicle traffic.

This framework of rider types was used to assess the existing bicycle network and to select recommended facility types for the 2019 Plan. This rider type has the highest potential for increasing bicycle mode share if facility types that support and encourage biking are available.

[31] Source: Dill, J. McNeil, N. "Revisiting the Four Types of Cyclists: Findings from a National Survey" Transportation Research Board 95th Annual Meeting, 2016.

[32] Studies, such as the one referenced above, show that approximately one third of the adult population is not currently interested in bicycling or able to bicycle.

Comfort Typology of Bicyclists

Design User Profile	Non-Bicyclist	Interested but Concerned	Somewhat Confident	Highly Confident
Bicycling Preferences	Uncomfortable bicycling in any condition, have no interest in bicycling, or are physically unable to bicycle.	Often not comfortable with bike lanes, may bike on sidewalks even if bike lanes are provided; prefer off-street or separate bicycle facilities or quiet or traffic-calmed residential roads. May not bike at all if bicycle facilities do not meet needs for perceived comfort.	Generally prefer more separated facilities, but are comfortable riding in bicycle lanes or on paved shoulders if need be.	Comfortable riding with traffic, will use roads without bike lanes.
Percent of General Public	31-37%	51-56%	5-9%	4-7%

Figure Y.2. Level of Traffic Stress and Bicycle Riders

SECTION 3: EXISTING BICYCLE NETWORK

Overview: Issues and Opportunities

Figure Y.3. Bicyclist on California Drive near Vine Trail trailhead

Currently, Yountville's bicycle network consists mainly of shared-use paths. The Vine Trail runs along the western edge of Yountville, and the largest completed segment of the Vine Trail currently connects the Yountville segment, which was the first Vine Trail segment to be constructed, to Kennedy Park at the south end of Napa (see Figure Y.3). The Vine Trail is a 47-mile active transportation corridor is under development and will connect the Vallejo Ferry Terminal in southern Solano County to Calistoga in northern Napa County when complete. The Vine Trail has one connection to downtown and residential neighborhoods, in addition to the north and south end points in town. Other trails connect streets in residential areas; however, these facilities are fairly narrow.

Yountville has limited on-street bike facilities. Bike lanes are marked on Finnell Road and Yountville Cross Road to provide access to the regional Silverado Trail bike facilities. The City is currently constructing bike routes on Yount Street on the segments that do not already have a bike lane, and the anticipated completion date is April 2019.

Generally, due to the low traffic volumes and speeds, many local streets are comfortable for bicycling. Connections to destinations, such as the elementary school, could be improved to provide more connectivity. Figure Y.4 illustrates the existing bicycle network, and Table Y.2 provides an overview of the existing bikeway mileage in Yountville.

Table Y.2. Existing Bicycle Network Mileage

Facility Type	Existing Mileage
Vine Trail (Class I)	1.3
Shared-Use Path (Class I)	1.2
Bike Lane (Class II)	1.2
Bike Route (Class III)	0.5
TOTAL	**4.2**

Figure Y.4. Existing Bicycle Facilities in Yountville

Components of the Bicycle Network

Multiple bicycle facility types comprise a complete bicycle network, and each facility type has a different classification to distinguish the facilities. The classifications are based on the degree of physical separation from vehicle traffic. The following facility types reflect the existing bikeways as well as new ones identified in this Plan.

Shared-Use Paths

Shared-Use Path (Class I) are two-way paved facilities, physically separated from motor vehicle traffic and used by bicyclists, pedestrians, and other non-motorized users. Shared-use paths are often located in an independent alignment, such as a greenway, though sometimes they are located adjacent to roadway. Shared-use paths provide low-stress facilities for bicyclists.

Figure Y.5. Bicyclist on the Vine Trail in Yountville

An example of a shared-use paths in Yountville is the Vine Trail (see Figure Y.5). The Vine Trail is a key active transportation corridor that is becoming the backbone of Napa County's low-stress bicycle network. The completed Vine Trail will connect all Napa County jurisdictions as part of a 47-mile shared-use trail between the Vallejo Ferry Terminal and Calistoga. The Napa Valley Vine Trail Coalition and NVTA are actively working on planning, design, and construction of trail segments throughout the county.

Bike Lanes

Bike Lane (Class II) provide an exclusive space for bicyclists in the roadway and are established by painting lines and symbols

Figure Y.6. Bike lane in Yountville

on the roadway surface. Bike lanes are for one-way travel and are typically provided in both directions on two-way streets and/or on one side of a one-way street (see Figure Y.6). Bike lanes create a lower-stress riding environment on streets with a maximum posted speed limit of 30 miles per hour and traffic volumes between 3,000 and 8,000 vehicles per day. Examples of bike lanes in Yountville include Finnell Road and Yountville Cross Road, and both provide access to the regional Silverado Trail bike facilities.

Many of the bicycle lanes in Napa County are on roadways with higher speeds, such as Yountville Cross Road, which can result in a stressful bicycling environment for many bicyclists, including Interested but Concerned bicyclists. Some of these facilities are well used, however, by the many Napa County residents and visitors who are more comfortable with bicycling in high-speed environments.

Buffered Bike Lanes (Class II) are implemented by painting or otherwise creating a flush buffer zone between a bicycle lane and the adjacent travel lane (see Figure Y.7). While buffers are typically used between bike lanes and motor vehicle travel lanes to increase bicyclists' comfort, they can also be installed between bicycle lanes and parking lanes to reduce conflicts with opening car doors. When located on streets with moderate traffic volumes and speeds, buffered bike lanes provide a lower-stress riding environment for bicyclists. No buffered bike lanes exist today in Yountville or elsewhere in Napa County.

Figure Y.7. Buffered bike lane in Seattle, WA

Bike Routes and Bicycle Boulevards

Bike Routes and Bicycle Boulevards are two types of Class III facilities in Napa County.

Bike routes are designated with pavement markings or signage to indicate a shared lane environment between bicyclists and drivers (see Figure Y.8, an example in Yountville). An example of a bike route is along Finnell Road and along the south side of Madison Street. Also, the City is currently constructing bike routes on Yount Street on the segments that do not already have a bike lane, and the anticipated completion date is April 2019.

Figure Y.8. Signage indicating a bike route on the south side of Madison Street in Yountville

While signage and markings support wayfinding and indicate bicyclist positioning on shared streets, bicycle routes do not provide any protection or separation between people driving and people bicycling. When located on streets that have high traffic speeds and/or volumes, bike routes are uncomfortable and most people will choose not to ride on them.

Bicycle boulevards are also indicated with pavement markings and signage, but are specifically located on low-speed, low-volume streets, often in residential neighborhoods. Bicycle boulevards are designed to prioritize bicycle through-travel, while reducing motor vehicle through traffic volumes and maintaining relatively low speeds. When paired with intersection treatments that help bicyclists cross major intersections, bicycle boulevards are an attractive, low-stress facility. Currently, there are no bicycle boulevards in Yountville.

Separated Bike Lanes

Separated Bike Lanes (Class IV) are an exclusive bikeway facility type that combines the user experience of a shared-use path with the on-street elements of a conventional bike lane (see Figure Y.9). They are recommended for roadways with speeds higher than 30 miles per hour and motor vehicle volumes over approximately 6,500 vehicles per day. Separated bike lanes are physically separated from motor vehicle traffic with a vertical element and are distinct from the sidewalk. They can be located at street level within the curbs, at an intermediate level, or at sidewalk level, see Figure Y.10 below. Numerous options are available for creating separation between modes, ranging from low-cost paint and plastic flexpost installations, to more robust curb-separated lanes. Separated bike lanes provide a low-stress riding environment to all bicyclists. No separated bike lanes currently exist in Yountville or elsewhere in Napa County.

Figure Y.9. Separated bike lane in Berkeley, CA

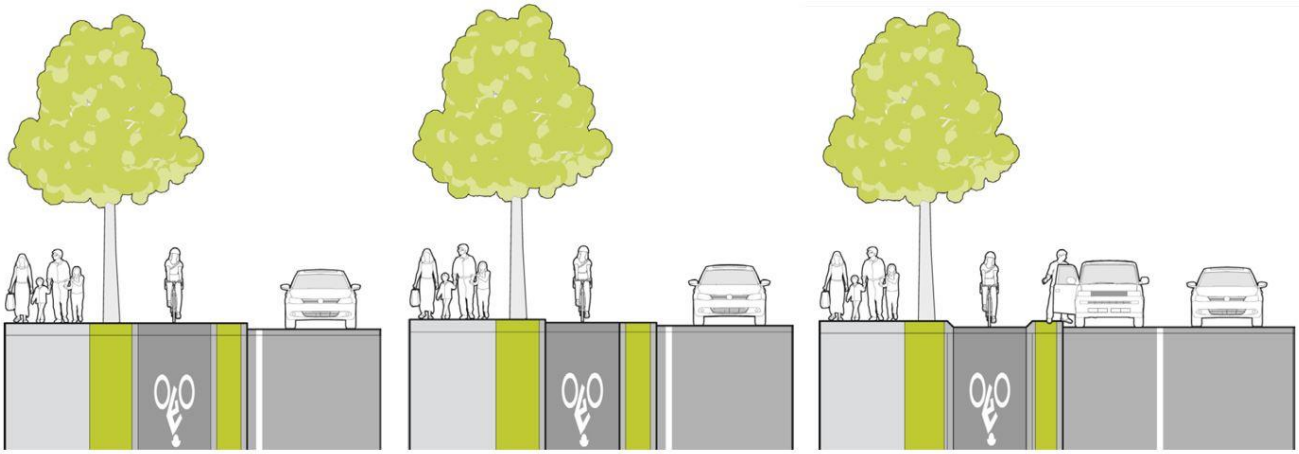

Figure Y.10 Sidewalk level, intermediate level, and street level separated bike lanes, left to right.

How many people bike today?

Some residents within the municipalities and Napa County choose to bicycle to work, and data is readily available regarding residents' commuting mode choice from the U.S. Census' American Community Survey (ACS). In Yountville, approximately 0.7 percent of residents commute by bicycle which is close to the county's mode share of 0.8 percent. However, work-related trips only comprise 10 to 15 percent of all household trips; the remaining 85 to 90 percent of trips are made to visit friends and family or for errands, entertainment, outings, and recreation. [33]

The assumption can be made that Napa County residents are generally more likely to bike for non-work trips. This is because non-work destinations, such as an errand or a friend's house, are likely to be located closer to home.

Collision Analysis

Improving safety for bicyclists is an expressed goal of the 2019 Countywide Bicycle Plan and preventing and mitigating bicycle collisions is a key consideration behind the network recommendations for Yountville. Not only is safety and the reduction of bicycle collisions a public health issue, addressing safety concerns is also an important way to encourage more people to ride a bicycle. Understanding collision factors and trends will allow the Town to identify and prioritize investments that can have the greatest impact on improving safety for bicyclists and other users of the roadway.

To better understand collision history in Yountville, injury crash data from 2006-2013 were reviewed.[34] Over the seven-year period, one bike collision occurred at the intersection of Yount and Madison Streets, resulting in a severe injury. The records do not indicate the type of collision or the Primary Collision Factor ("Other" and "Other Improper Driving," respectively). See Figure Y.11 for a map of the bicycle collision.

The crashes that are mapped and analyzed only include those reported to police. There may be additional unreported crashes, and near misses, that have occurred during this time that influence people's decision to ride a bike.

[33] Range references the National Household Travel Survey (15 percent) and California Household Travel Survey (9.9 percent).

[34] Collision data was gathered from the University of California-Berkeley's Safe Transportation Research and Education Center's Transportation Injury Mapping System (TIMS).

Figure Y.11. Bicycle Crash Distribution (2006-2013)

Community Input

Residents of Yountville were invited to be an active part of the planning process through in-person and online outreach activities hosted by the Napa Valley Transportation Authority (NVTA). The community feedback directly informs the Plan's network and programmatic recommendations. For more information about outreach, see Chapter 2 of the 2019 Countywide Bicycle Plan.

From July to October 2017, residents were invited to share their site-specific comments on the existing network and potential improvements through an online, interactive WikiMap. Respondents were asked to provide feedback on:

- Barriers to biking
- Places/routes where I currently ride a bike
- Places/routes where I would like to ride

Two respondents contributed a total of three comments within Yountville. Highlights include:

- Improvements requested for intersection of the Vine Trail and California Drive, including clarity about who has the right-of-way between bicyclists and motorists and improved wayfinding to the Vine Trail
- Poor sightlines at California Drive and the southbound SR 29 ramp
- Interest in traffic calming measures on Washington Street, Yount Street, and Yountville Cross Road

The location of WikiMap comments in the unincorporated areas can be found in Appendix B.

In addition to the initial WikiMap, NVTA also hosted an online map from June to July 2018, for residents to review the recommended bicycle network facilities. This map showed draft recommended bike facilities throughout the county and allowed users to agree or disagree that the recommendation was appropriate in that location. Over 50 respondents provided approximately 330 comments which were reviewed by staff in each jurisdiction for possible changes to the recommended network.

Yountville was also represented through involvement in committees and through direct outreach to Town staff by NVTA throughout the development of this plan.

SECTION 4: PROPOSED BICYCLE NETWORK

The main purpose of this plan is to identify a future bicycle network for Yountville that is safe and connected. The proposed bicycle network map (see Figure Y.12) was developed based on fieldwork, an analysis of existing conditions, input from the community and Town staff, in consideration of best practices in bicycle network planning, and facility guidance from Appendix A: Bicycle Facilities Toolkit. Community input included the initial WikiMap as well as an online map hosted on the NVTA website in which residents could review recommended bicycle network facilities. This map showed draft recommended bike facilities throughout the county and allowed users to agree or disagree that the recommendation was appropriate in that location. Over 50 respondents provided approximately 330 comments which were reviewed by staff in each jurisdiction for possible changes to the recommended network.

The resulting network includes high-quality infrastructure in the form of multi-use paths, including the Vine Trail, separated bike lanes, bike lanes, bike boulevards, and bike routes. These facilities connect to key community destinations and neighborhoods and close network gaps. The network also provides connections beyond the Yountville town boundary into the unincorporated areas.

Yountville's proposed bicycle network is a 0.8-mile network, as detailed in Table Y.3. When implemented, the entire existing and proposed network will total 5 miles.

Table Y.3. Proposed Bicycle Network

Facility Type	Proposed Mileage	Existing Mileage	Total Future Mileage
Vine Trail (Class I)	-	1.3	1.3
Multi-Use Paths (Class I)	0.1	1.2	1.3
Bike Lanes (Class II)	0.1	1.2	1.3
Bike Boulevard (Class III)	0.3	-	0.3
Rural Bike Routes (Class III)	0.3	0.5	0.8
Total Network	**0.8**	**4.2**	**5.0**

Figure Y.12. Proposed Bicycle Network

SECTION 5: SUPPORT PROGRAMS AND POLICIES

Town policies and support programs are key components of a welcoming, bicycle-friendly community. Generally, policies are set by the Town government, while programs are led by or executed in partnership with external organizations or agencies such as advocacy organizations or school districts. Along with bike network investments, programs and policies will help Yountville realize the Plan's goals of connectivity, equity, safety, and education and encouragement.

Yountville already has several programs related to bicycling which are described in Table Y.4. The existing and recommend programs create a full suite of efforts to promote and support bicycling throughout Yountville.

Table Y.4. Support Programs and Policies

Support Program/Policy	Description	Source
Existing		
Bicycle Rentals	Napa County is home to bike shops and bike tour companies that provide bicycle rentals. Many hotels and bed and breakfasts also provide their guests with bicycles. Rental safety may be enhanced with the inclusion of an educational component pre-rental that discusses rules of road and riding safely in Napa County.	Existing
Safe Routes to School Program	Since 2010, this collaborative program, provided by the Napa County Office of Education in conjunction with the Napa Valley Bicycle Coalition, encourages students to walk and bike to school through education events, prizes, and safety projects.	Existing
Safety Education	The Napa County Bicycle Coalition organizes educational and promotional events to encourage safe bicycle riding in Napa County, such as bicycle safety rodeos and the annual BikeFest event in May. This can include education programs for both children and adults.	Existing
Recommended		
Bicycle Parking, Shower, and Locker Facilities	Provide short- and long-term bicycle parking at key destinations, such as downtown Yountville, parks, schools, community facilities, transit stops, and shopping areas. Encourage employers to install showers and locker facilities for bicycle commuters.	2012 Yountville Bicycle Plan
Capital Improvement Projects / Complete Streets Checklist	Create checklist for capital projects on and adjacent to streets (repaving, restriping, reconstruction) that ensures Town staff review the infrastructure recommendations of this Plan at the time of project development	2019 Bicycle Plan
Dedicated Bicycle Staff	Identify a staff member who is responsible for bicycle planning and the implementation of bicycle facilities and dedicate a percentage of their time to these efforts.	2019 Bicycle Plan
Existing Bikeways Policy	Develop a policy which specifies that existing bikeways should not be removed, unless an improved bikeway is being installed.	2019 Bicycle Plan
Law Enforcement Activities	Coordinate with law enforcement agencies and improve officers' understanding of bicycling issues, which will lead to better enforcement, heightened awareness of safety issues, and recognition of "teachable moments" for both bicyclists and motorists.	2012 Yountville Bicycle Plan

Support Program/Policy	Description	Source
	Provide bicycle-specific training for law enforcement personnel and establish a community policing agreement which 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.	2019 Bicycle Plan
	Establish a bicycle diversion program for bicycle traffic offenders.	
	Provide focused law enforcement operations at high collision locations to increase safety for both motor vehicle drivers and bicyclists.	
Maintain Overgrown Vegetation	Continue to ensure town wide that landscapes at maturity do not interfere with safe sight distances for pedestrian or vehicular traffic; do not conflict with overhead lights, traffic controls, traffic signage, utility lines or poles, or walkway lights; and, do not block bicycle or pedestrian ways. Require adjacent property owners to maintain landscaped areas with live and healthy plant materials, replacing plant materials when necessary to maintain full function and aesthetics; to water, weed, prune, fertilize and keep sidewalks and planting strips litter free.	2016 Napa Countywide Pedestrian Plan
Site Plan Review Checklist	Create checklist for development review to ensure site plans include considerations for bicycle access and safety. Include items from MTC's Routine Accommodation Checklist for projects in the public right-of-way to ensure routine application of the Complete Streets policy. MTC's checklist can be found here: http://www.mtc.ca.gov/planning/ bicyclespedestrians/Routine_Accommodation_checklist.pdf	2016 Napa Countywide Pedestrian Plan
Vision Zero Policy	Adopt a countywide Vision Zero policy and develop an action plan for implementing Vision Zero. Identify opportunities for funding for Vision Zero efforts, such as developing a Countywide database to inventory collision data and environmental factors, undertaking a comprehensive analysis to understand collision patterns, and facilitating an outreach process to identify community safety priorities and determine where to focus safety investments and improvements.	2019 Bicycle Plan
Wayfinding Program	Develop a regional wayfinding system that has a similar brand throughout Napa Valley and helps bicyclists navigate the transportation network with confidence and provide direction to their destinations; create a community identity; and build a sense of place. The Town of Yountville could adjust the brand to reflect local character while still maintaining signage elements for consistency including placement, frequency of signs, and content.	2019 Bicycle Plan
Bikeway Maintenance	Prioritize maintenance of roadways and removal of debris where bicycle facilities are present	2019 Bicycle Plan

SECTION 6: IMPLEMENTATION PLAN

Because all communities, including Yountville, have limited financial resources, it is not possible to implement all the recommended projects immediately. To focus Yountville's resources, several characteristics of projects should be considered. These characteristics are discussed in relation to implementation phases below.

Immediate-Term

Overlap with Measure T Repaving Projects

While the connectedness of a bicycle network is highly important, recommended projects should be implemented as opportunities arise for integration into existing projects. Yountville's five-year paving plan funded by Measure T offers a great opportunity for quickly implementing several recommended bicycle facilities. Yountville's Measure T plans have been compared to the proposed bicycle network, and those projects are listed in Table Y.5.

Short- and Medium-Term

Facility Characteristics

All other planned street resurfacing and reconstruction projects should be reviewed against the recommended bike network. Another early step in the implementation of the bicycle plan should be to answer the following questions about each project:

- Does a facility consist only of striping and signage that can be added at any time?
- Does a facility necessitate further community dialog regarding reallocation of street space?
- Does a project need significant funding that must be obtained through a competitive process (i.e., grant)?
- Does a project necessitate acquiring additional right-of-way?
- Are there any environmental concerns about a project location?

These questions can help direct staff to understand which projects are more readily implementable.

Proximity to Destinations

Public input received over the course of this Plan process indicates greater interest in connecting to certain destinations including: schools, parks, trailheads, and community centers. The locations of these destinations, as well as other known bicycle traffic generators such as hotels with bike rental schemes should be considered when selecting projects for earlier implementation.

Public Concerns

Residents gave input through the WikiMap about areas of greater concern for bicyclists. These are documented in the summary above, and staff may wish to refer to these comments when considering which projects to implement first. Staff should also continue to collect and document resident concerns and priorities about bicycling and general traffic safety in Yountville and bring those comments into discussions regarding implementation priorities.

Network Connectivity

Staff should consider the benefits provided by a connected bicycle network. Research has shown that a connected low-stress network has the greatest impact on encouraging people to choose to bicycle. Projects that connect to existing facilities, especially ones that are known to be popular, may be prioritized. This should be balanced against the desire to provide bicycle facilities in and connecting to underserved communities in keeping with the equity goal of this Plan. Often, these areas have been historically underserved by infrastructure, and building new bike network projects here may not connect to existing facilities.

Long-Term

Some projects, such as many shared-use paths (Class I), will necessarily require a more sustained effort to come to fruition. While it may take a longer time to implement these projects, jurisdictions should begin to consider the steps toward construction of these projects, so they are prepared for grant applications or inserting funding into capital improvement plans.

Connectivity Improvements from Phased Implementation

As stated, the planned bicycle facilities for Yountville are intended to create the most low-stress network that conditions allow. Implementation of on-street facilities such as bike boulevards (Class III) and bike lanes (Class II) will significantly improve the connectivity of the bicycle network for riders of all ages and abilities. Focusing first on intersection treatments at locations where these facilities cross high-speed, high-volume streets without a traffic signal will most quickly improve connectivity.

While shared-use paths (Class I) certainly provide a low-stress riding environment, their implementation requires more investment and often more planning than on-street facilities. The only recommended shared-use path in Yountville is south of Mulberry St which connects the planned bicycle boulevard on that street to the network of private streets within the Rancho de Napa community.[35] This path is understood to be a longer-term capital investment, however, implementation of on-street facilities will provide benefits to the town in the meantime.

Funding

Funding for the bicycle network projects can come from different sources. For example, the Town of Yountville could fund the improvements through dedicated funds from the Town, by leveraging development-driven projects, or through grant opportunities. More information about available grant funds can be found in Chapter 4 of the 2019 Countywide Bicycle Plan.

[35] This Plan recommends connections to private streets, but not along private streets. This path in particular provides a low-stress alternative to Washington Street for the Rancho de Napa and Bella Vista residents.

Table Y.5. Project List

Project ID	Street/Trail Name	Begin	End	Facility Type	Length (Miles)
Measure T Overlap Projects					
Bike Boulevard (Class III) Projects					
258	Jefferson St	path entrance	Monroe St	Bike Boulevard (Class III)	0.06
All Other Projects					
Shared-Use Path (Class I) Project					
287	Parallel to Washington St	Mission St	Oak Cir	Shared-Use Path (Class I)	0.11
Bike Lane (Class II) Project					
257	Lincoln Ave	Monroe St	Grant St	Bike Lane (Class II)	0.05
Bike Boulevard (Class III) Projects					
259	Monroe St	Lincoln Ave	Jefferson St	Bike Boulevard (Class III)	0.06
267	Webber Ave	Vine Trail access spur	Yount St	Bike Boulevard (Class III)	0.06
853	Webber Ave	Yount St	Washington St	Bike Boulevard (Class III)	0.10
Bike Route (Class III) Project					
256	Yount Mill Rd	Yountville Cross Rd	NE city limit	Bike Route (Class III)	0.33

* Projects denoted with an asterisk overlap with a jurisdiction-identified Measure T project, but they do not have the same extents: the proposed bicycle network project is either longer or shorter than the Measure T project.

Chapter 9: City of Napa Bicycle Plan

SECTION 1: INTRODUCTION

Plan Introduction

The City of Napa Bicycle Plan is intended to guide development of infrastructure, programs, and policies that improve the bicycling environment for all residents and visitors in this Napa Valley community.

Napa's Plan will help the City work towards the adopted goals for bicycling in Napa County: connectivity, equity, safety, and education and encouragement. Planning and design for bicycling has evolved since adoption of the Napa Bicycle Plan in 2012, and this Plan update brings the latest best practices to bear on recommendations for implementation by City staff.

Area Overview

The City of Napa is located in central Napa County along State Route (SR) 29. Situated along the Napa River, the city is nestled between the foothills of the Mayacamas Mountains to the west, the Howell Mountains to the east, San Pablo Bay to the south, and agricultural lands to the north. The City of Napa is the County's largest urban center, most populous community, and the county seat. The Napa County Airport and the City of American Canyon are located to the south of Napa, and the Town of Yountville is located to the north. The City of Napa is the commercial hub for the greater Napa Valley, including regional shopping destinations, employment sites, and local and regional government offices. Downtown Napa is an international tourist destination, and a cultural hub for the greater Napa Valley.

Figure N.2. Bicyclists on the Napa portion of the Vine Trail

The City of Napa has a population of approximately 80,000 residents. Residential development is the predominant land use in Napa. The City's General Plan defines twelve distinct neighborhoods or planning areas: Linda Vista, Vintage, Browns Valley, Pueblo, Beard, Alta Heights, Westwood, Central Napa, Soscol, Terrace/Shurtleff, River East, and Stanly Ranch. The city's street network includes a large grid of arterials that facilitate intra-city and regional access and frame local neighborhoods with a variety of street network types including traditional grids, conventional loops and cul-de-sacs, and other variations in response to the topography and historical land use patterns. While SR 29, the Napa River, and high volume/high speed arterials impact bicycle access, especially for east-west travel, the city's mostly flat topography, relatively small land area, and development density create many opportunities for residents and visitors to bicycle throughout the community as well as to the surrounding County, area vineyards and wineries, open space, and hills (see Figure N.1).

Napa's small city charm draws many tourists who visit the area's wineries and downtown tasting rooms. Visitors enjoy the city's shopping, gourmet restaurants, arts scene, and natural amenities including the Napa River and multiple city and regional parks. The city is home to a variety of hotels, spas, and bed and breakfasts that cater to tourists.

Napa is a part of the Napa Valley Unified School District which also serves the City of American Canyon, Town of Yountville, and Unincorporated Napa County. There are 20 public schools in Napa: 12 elementary schools (West Park, Browns Valley, Napa Valley Language Academy, Alta Heights, Shearer, Snow, Northwood, and McPherson as well as magnet schools which includes Willow, Bel Aire Park, Pueblo Vista and Phillips), four middle schools (Harvest Magnet, River, Silverado, and Redwood), and four high schools (Vintage, Valley Oak, Napa, and New Technology). The schools are located on a variety of streets, ranging from small neighborhood local streets to large arterials, with bicycle facilities ranging from none to signed bicycle routes and bike lanes. The Napa Valley Unified School District has an open enrollment policy, meaning that students can attend a school other than their school of residence, so many students travel to school from neighborhoods throughout Napa, which may be too far to walk or bike.

Relationship to Existing Plans

This 2019 Bicycle Plan is an update to the 2012 City of Napa Bicycle Plan and builds upon the recommendations for bikeways, policies, programs, and design standards detailed in the 2012 Plan. This 2019 Plan is also informed by the 2012 Downtown Specific Plan, the 2016-2017 Street Paving Plans and Improvement Maps, and the 1998 General Plan. In addition, this 2019 Plan incorporates applicable recommendations from the 2016 Napa Countywide Pedestrian Plan which establishes an implementation plan to encourage more walking trips throughout Napa County and improve safety for all users.

For more information about these plans, see Appendix D of the 2019 Napa Countywide Bicycle Plan.

SECTION 2: GOALS AND POLICIES

Countywide Vision and Goals

The Countywide vision statement, goals, and policies were developed to guide recommendations in both the Countywide Plan and the jurisdiction plans, including the City of Napa Bicycle Plan. The vision statement, goals, and policies will be used to evaluate progress of Plan implementation.

Vision Statement

Napa County's vision is to be a bicycle-friendly community with a world-class bicycling system for all ages and abilities. The comprehensive, connected bicycle system will provide people with safe, convenient and enjoyable access to destinations throughout all Napa County jurisdictions and beyond. Residents and visitors will enjoy bicycling for everyday commuting, non-work trips and recreation.

Bicycling contributes to a high quality of life, promotes health and will help achieve a 10 percent mode shift in Napa County by 2035.

Goals and Policies

The goals and policies developed for the 2019 Plan will guide the City of Napa and other Napa County communities in improving the bicycling environment for residents and visitors.

Table N.1. Goals and Policies of the Plan

Goals		Policies
Connectivity	Develop a well-designed low Level of Traffic Stress (LTS) connected bicycle network	• Build and maintain a local and countywide bicycle transportation and recreation network that connects Napa County's incorporated cities/town and unincorporated communities and provides access to public transportation and community destinations. • Develop and maintain continuous low Level of Traffic Stress (LTS) bicycle facilities of all types to provide accessible intra-city connections that serve as the framework of the Countywide Bikeway System. • Prioritize coordination and completion of regionally significant primary bikeways including the Napa Valley Vine Trail, the Bay Trail and the Ridge Trail, and local connections to those facilities. • Provide secure bicycle parking at public and private destinations throughout Napa County. • Integrate the bicycle network and bicycle facility amenities into land use decisions and developments.
Equity	Improve bicycle access for disadvantaged and/or underserved communities	• Implement projects that improve access for disadvantaged and/or underserved communities, particularly those reliant on walking, biking and transit for transportation.

Goals		Policies
Safety	Improve safety for all ages and abilities	• Work to reduce the number and severity of bicycle collisions. • Work to reduce bicycle fatalities to zero by 2035. • Improve locations that have high incidences of bicycle collisions, and/or impediments or conflicts to bicyclists. • Implement Complete Streets policies that ensure accommodation and enable safe access for users of all ages and abilities. • Implement appropriate, well-designed bicycle facilities using accepted design standards, including intersection and other crossing improvements.
Education & Encouragement	Increase mode share of bicycling	• Encourage education programs for all users of the roadway in all jurisdictions and school districts. • Develop programs and public outreach materials to promote safety and the positive benefits of bicycling.

Serving All Types of Bicyclists

Many factors contribute to people choosing to ride a bicycle, with a major factor being the rider's perception of safety. A rider's perception of an unsafe route can be related to numerous things but is most often related to riding adjacent to high-traffic and high-speed roadways or crossing busy intersections with little or no separation from vehicles. Research has found that a large percentage of the American population is interested in bicycling for transportation but does not currently do so because they believe the routes they would need to travel are unsafe or feel uncomfortable. Many people feel safer and more comfortable riding on low-traffic, low-speed streets or on facilities that provide protection or physical separation from fast-moving traffic.[36] Most people in the U.S. – between 50 and 60 percent – have little tolerance for interacting with motor vehicle traffic unless volumes and speeds are very low (see Figure N.2).[37] This group of riders is referred to as "Interested but Concerned," reflecting both their interest in bicycling for transportation as well as concerns about safety and comfort when interacting with motor vehicle traffic.

This framework of rider types was used to assess the existing bicycle network and to select recommended facility types for the 2019 Plan. This rider type has the highest potential for increasing bicycle mode share if facility types that support and encourage biking are available.

[36] Source: Dill, J. McNeil, N. "Revisiting the Four Types of Cyclists: Findings from a National Survey" Transportation Research Board 95th Annual Meeting, 2016.

[37] Studies, such as the one referenced above, show that approximately one third of the adult population is not currently interested in bicycling or able to bicycle.

Comfort Typology of Bicyclists

Design User Profile	Non-Bicyclist	Interested but Concerned	Somewhat Confident	Highly Confident
Bicycling Preferences	Uncomfortable bicycling in any condition, have no interest in bicycling, or are physically unable to bicycle.	Often not comfortable with bike lanes, may bike on sidewalks even if bike lanes are provided; prefer off-street or separate bicycle facilities or quiet or traffic-calmed residential roads. May not bike at all if bicycle facilities do not meet needs for perceived comfort.	Generally prefer more separated facilities, but are comfortable riding in bicycle lanes or on paved shoulders if need be.	Comfortable riding with traffic, will use roads without bike lanes.
Percent of General Public	31-37%	51-56%	5-9%	4-7%

Figure N.2. Level of Traffic Stress and Bicycle Riders

SECTION 3: EXISTING BICYCLE NETWORK

Overview: Issues and Opportunities

The City of Napa's existing bicycle network is a combination of shared-use paths (Class I), on-street bike lanes (Class II), and signed bike routes and bicycle boulevards (Class III) (see Figure N.2). The City of Napa's bicycle network is by far the most extensive network of any of the cities in Napa County.

Major Class I facilities in the City of Napa include portions of the Napa Valley Vine Trail (a regional shared-use path (Class I) intended to span Napa County once completed). In the City of Napa, the Napa Valley Vine Trail runs from Kennedy Park south of Downtown Napa along the Napa River to Downtown, where it transitions to on-street facilities, before once again resuming as a shared-use path north of the urban core. The Napa River Trail is another shared-use path (Class I) within the city, running along the west bank of the Napa River north of Downtown. Major on-street facilities include the bike lanes (Class II) along Soscol Avenue, Third Street, California Boulevard, Lincoln Avenue, Browns Valley Road, Trower Avenue, Dry Creek Road, Freeway Drive, Imola Avenue (SR 121), and the northern section of Jefferson Street. There are also various streets in the city signed as bicycle routes or bicycle boulevards (Class III) to augment the shared-use paths and on-street bike lane networks.

Generally, due to the low traffic volumes and speeds, many local streets are comfortable for bicycling.

While there are many existing facilities throughout the city, these facilities would benefit from increased connectivity. By closing the gaps in the existing bicycle network, the number of major destinations in the city (e.g., schools, businesses or shopping areas) with convenient, comfortable bicycle access would be greatly expanded. Figures N.3 – N.6 illustrate the existing bicycle network, and Table N.2 provides an overview of the existing bikeway mileage in Napa.

Table N.2. Existing Bicycle Network Mileage

Facility Type	Existing Mileage
Vine Trail (Class I)	7.0
Shared-Use Path (Class I)	7.9
Bike Lane (Class II)	28.5
Bike Route (Class III)	5.6
TOTAL	**49.0**

Figure N.3. Existing Bicycle Facilities in the City of Napa – Downtown

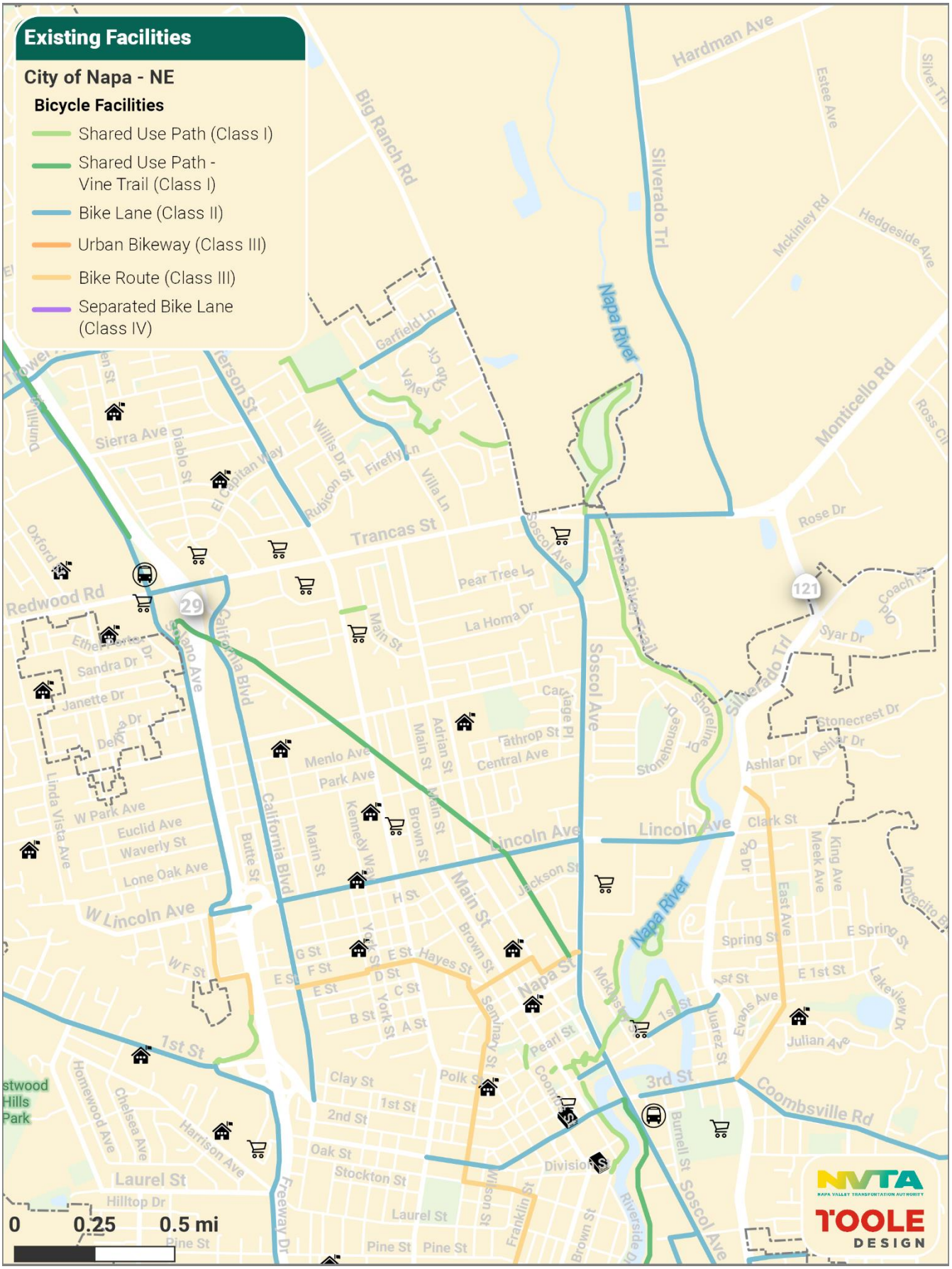

Figure N.4. Existing Bicycle Facilities in the City of Napa – Northeast

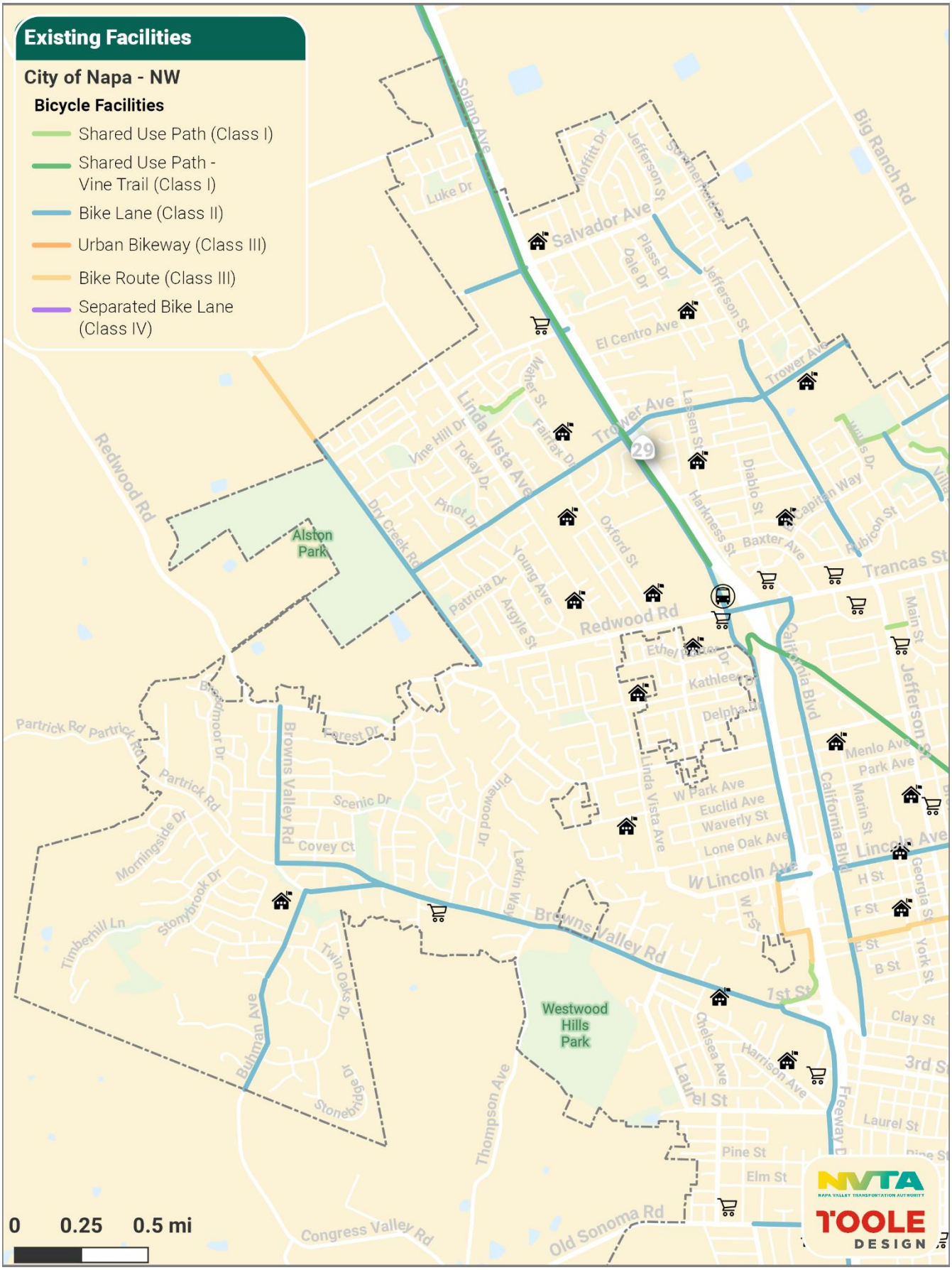

Figure N.5. Existing Bicycle Facilities in the City of Napa – Northwest

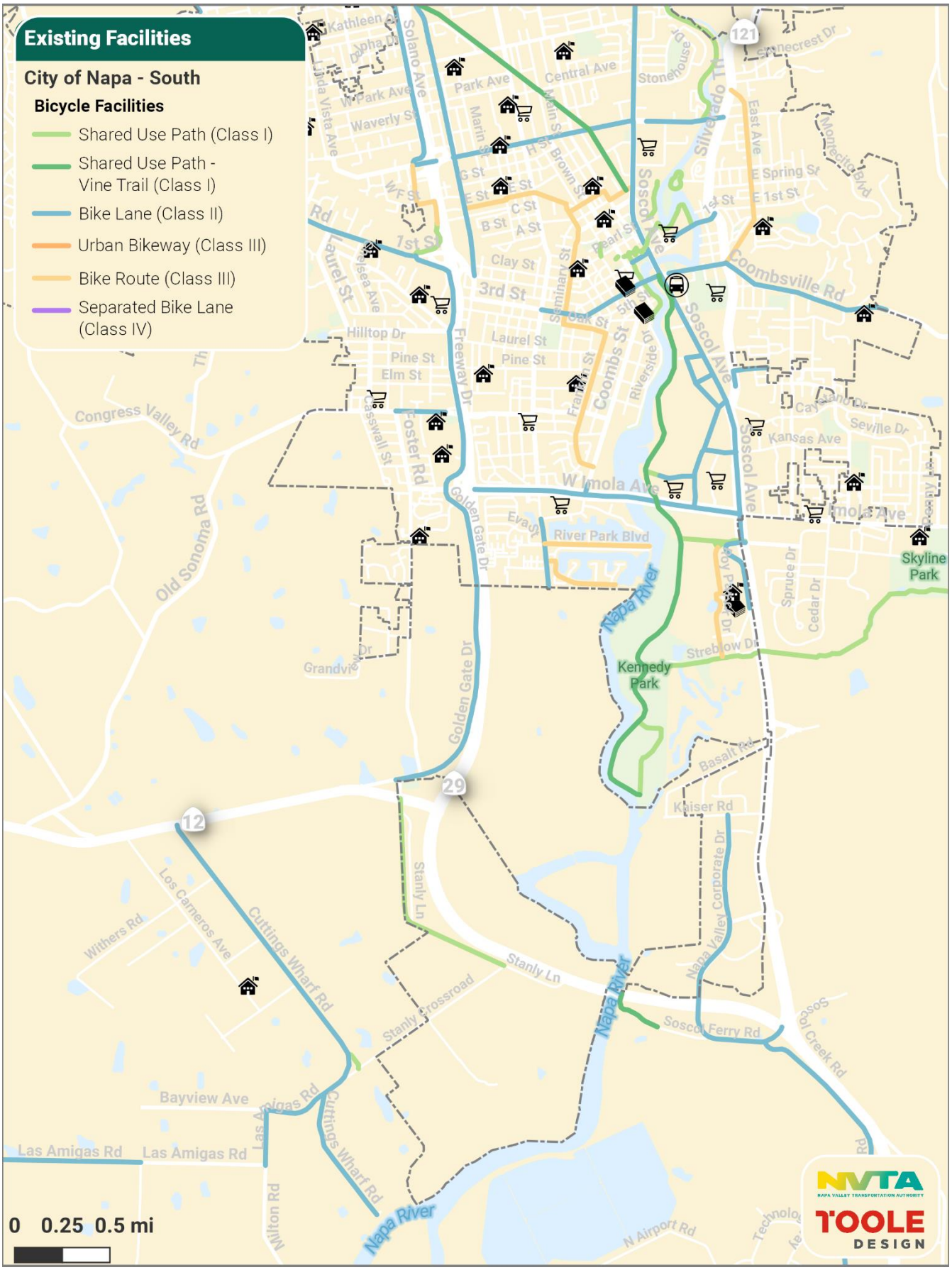

Figure N.6. Existing Bicycle Facilities in the City of Napa – South

Components of the Bicycle Network

Multiple bicycle facility types comprise a complete bicycle network, and each facility type has a different classification to distinguish the facilities. The classifications are based on the degree of physical separation from vehicle traffic. The following facility types reflect the existing bikeways as well as new ones identified in this Plan.

Shared Use Paths

Shared-Use Path (Class I) are two-way paved facilities, physically separated from motor vehicle traffic and used by bicyclists, pedestrians, and other non-motorized users. Shared-use paths are often located in an independent alignment, such as a greenway, though sometimes they are located adjacent to roadway. Shared-use paths provide low-stress facilities for bicyclists. Examples of shared use paths in the City of Napa include the Napa Valley Vine Trail and the Napa River Trail (see Figure N.7).

Figure N.7. Bicyclists on the Napa Valley Vine Trail in the City of Napa

The Vine Trail is a key shared use path that is becoming the backbone of Napa County's low-stress bicycle network. The completed Vine Trail will connect all Napa County jurisdictions as part of a 47-mile shared use trail between the Vallejo Ferry Terminal and Calistoga. The Napa Valley Vine Trail Coalition and NVTA are actively working on planning, design, and construction of trail segments throughout the county.

Bike Lanes

Bike Lane (Class II) provide an exclusive space for bicyclists in the roadway and are established by painting lines and symbols on the roadway surface. Bike lanes are for one-way travel and are typically provided in both directions on two-way streets and/or on one side of a one-way street (see Figure N.8).

Figure N.8. Bike lane along First Street

Examples of bike lanes in the City of Napa include Soscol Avenue, Third Street, California Boulevard, Lincoln Avenue, Browns Valley Road, Trower Avenue, Dry Creek Road, Freeway Drive, Imola Avenue (SR 121), and the northern section of Jefferson Street.

Bike lanes create a lower-stress riding environment on streets with a maximum posted speed limit of 30 miles per hour and traffic volumes between 3,000 and 8,000 vehicles per day. Many of the bicycle lanes in Napa County are on roadways with higher speeds, such as Soscol Avenue and Imola Avenue, which can result in a stressful bicycling environment for many bicyclists, including Interested but Concerned bicyclists. Some of these facilities are well used, however, by the many Napa County residents and visitors who are more comfortable with bicycling in high-speed environments.

Buffered Bike Lanes (Class II) are implemented by painting or otherwise creating a flush buffer zone between a bicycle lane and the adjacent travel lane (see Figure N.9). While buffers are typically used between bike lanes and motor vehicle travel lanes to increase bicyclists' comfort, they can also be installed between bicycle lanes and parking lanes to reduce conflicts with opening car doors. When located on streets with moderate traffic volumes and speeds, buffered bike lanes provide a lower-stress riding environment for bicyclists. No buffered bike lanes exist today in the City of Napa or elsewhere in Napa County.

Figure N.9. Buffered bike lane in Seattle, WA

Bike Routes and Bicycle Boulevards

Bike Routes and Bicycle Boulevards are two types of Class III facilities in Napa County.

Bike routes are designated with pavement markings or signage to indicate a shared lane environment between bicyclists and drivers (see Figure N.10, an example in the City of Napa). Examples of bike routes in the City of Napa include Franklin Street and East Avenue, along with many others.

While signage and markings support wayfinding and indicate bicyclist positioning on shared streets, bicycle routes do not provide any protection or separation between people driving and people bicycling. When located on streets that have high traffic speeds and/or volumes, bike routes are uncomfortable and most people will choose not to ride on them.

Figure N.10. Class III Bicycle Route in the City of Napa

Bicycle boulevards are also indicated with pavement markings and signage, but are specifically located on low-speed, low-volume streets, often in residential neighborhoods. Bicycle boulevards are designed to prioritize bicycle through-travel, while reducing motor vehicle through traffic volumes and maintaining relatively low speeds. When paired with intersection treatments that help bicyclists cross major intersections, bicycle boulevards are an attractive, low-stress facility. Various streets within the City of Napa are signed bicycle boulevards (Class III) to complement the shared-use paths and on-street bike lane networks. In the planned bicycle network, Urban Bike Routes (Class III) may be implemented as bicycle boulevards with additional traffic calming or diversion, or they may already be suitable for low- stress biking today and will require only intersection improvements for connectivity and pavement markings and signage for wayfinding purposes.

Separated Bike Lanes

Separated Bike Lanes (Class IV) are an exclusive bikeway facility type that combines the user experience of a shared use path with the on- street elements of a conventional bike lane (see Figure N.11). They are recommended for roadways with speeds higher than 30 miles per hour and motor vehicle volumes over approximately 6,500 vehicles per day. Separated bike lanes are physically separated from motor vehicle traffic with a vertical element and are distinct from the sidewalk. They can be located at street level within the curbs, at an intermediate level, or at sidewalk level, see Figure N.12 below.

Figure N.11. Separated bike lane in Berkeley, CA

Numerous options are available for creating separation between modes, ranging from low-cost paint and plastic flexpost installations, to more robust curb-separated lanes. Separated bike lanes provide a low-stress riding environment to all bicyclists. No separated bike lanes currently exist in the City of Napa or elsewhere in Napa County.

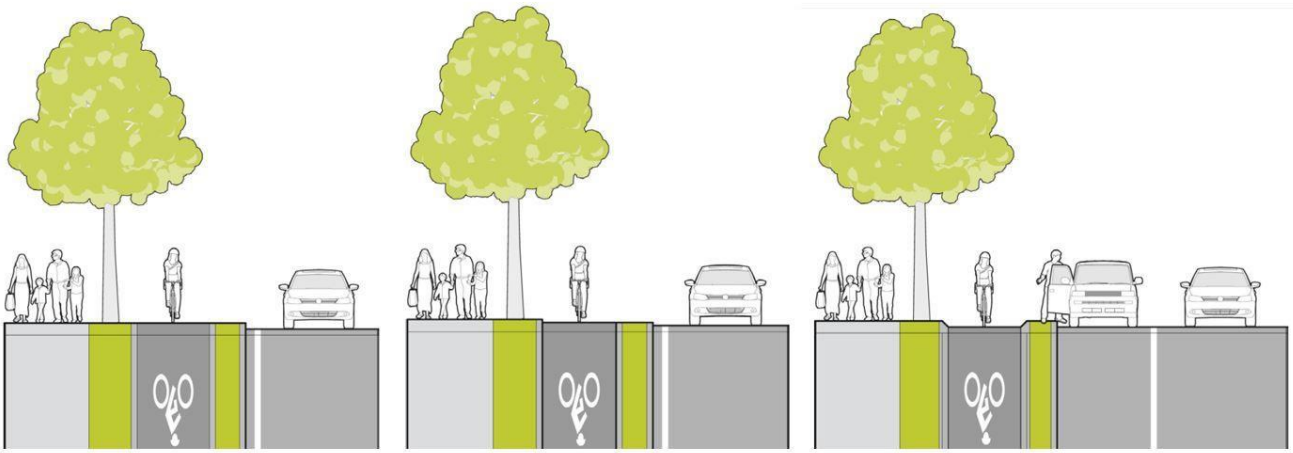

Figure N.12. Sidewalk level, intermediate level, and street level separated bike lanes, left to right.

How many people bike today?

Some residents within the municipalities and Napa County choose to bicycle to work, and data is readily available regarding residents' commuting mode choice from the U.S. Census' American Community Survey (ACS). In the City of Napa, approximately 1.1 percent of residents commute by bicycle which is higher than the county's mode share of 0.8 percent. However, work-related trips only comprise 10 to 15 percent of all household trips; the remaining 85 to 90 percent of trips are made to visit friends and family or for errands, entertainment, outings, and recreation.[38]

The assumption can be made that City of Napa residents are generally more likely to bike for non-work trips. This is because non-work destinations, such as an errand or a friend's house, are likely to be located closer to home.

Collision Analysis

Improving safety for bicyclists is an expressed goal of the 2019 Countywide Bicycle Plan and preventing and mitigating bicycle collisions is a key consideration behind the network recommendations for Napa. Not only is safety and the reduction of bicycle collisions a public health issue, addressing safety concerns is also an important way to encourage more people to ride a bicycle. Understanding collision factors and trends will allow the City to identify and prioritize investments that can have the greatest impact on improving safety for bicyclists and other users of the roadway.

To better understand collision history in Napa, injury crash data from 2006-2013 was reviewed.[39] Of all the cities in Napa County, the City of Napa had the highest number of crashes (227) between 2006 and 2013. This is not surprising given the relative population of the city (approximately half of the population of Napa County resides in the City of Napa), tourism influx, and the proportionately high number of bicyclists.

During the 2006-2013 time period, the collision data showed that bicycle crashes tended to occur on the major roads in the transportation network, with over 50 percent of the crashes occurring on 10 roads: Jefferson Street, Soscol Avenue, Trancas Street, Old Sonoma Road, Solano Avenue, Third Street, Lincoln Avenue, California Boulevard, Main Street, and First Street.

Of the city's 227 crashes, over 75 percent resulted in visible injuries that were not severe, and there were no fatalities. Over half (53 percent) of the bicycle collisions were a result of a broadside hit; the remaining collisions were a nearly even mix of causes. "Wrong Side of the Road" was the most prevalent Primary Collision Factor, resulting in 36 percent of the reported crashes. "Auto Right of Way" and "Improper Turning" were the next two most common collision factors, at 22 percent and 12 percent, respectively. See Figures N.13-16 for maps of the bicycle collisions.

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[38] Range references the National Household Travel Survey (15 percent) and California Household Travel Survey (9.9 percent).

[39] Collision data was gathered from the University of California-Berkeley's Safe Transportation Research and Education Center's Transportation Injury Mapping System (TIMS).

The crashes that are mapped and analyzed only include those reported to police. There may be additional unreported crashes, and near misses, that have occurred during this time that influence people's decision to ride a bike.

Some of the 10 major roadways where collisions occurred had existing Class II bike lanes on all or a portion of the roadway between the analysis years of 2006 to 2013. However, it is important to note that since 2013 the City of Napa has constructed additional bicycle facilities on and/or adjacent to some of these major roadways. These additional facilities include Class II bicycle lanes on portions of Third Street, California Boulevard, and Lincoln Avenue, and Vine Trail Class I facilities adjacent to portions of Solano Avenue and Soscol Avenue. Additionally, the City installed "Bicycle Wrong Way; Ride With Traffic" signage on portions of Soscol Avenue, Jefferson Street, and Solano Avenue. Since these improvements were implemented after the time frame of the collision data, future data collection efforts will help determine the success of these projects in reducing bicycle collisions.

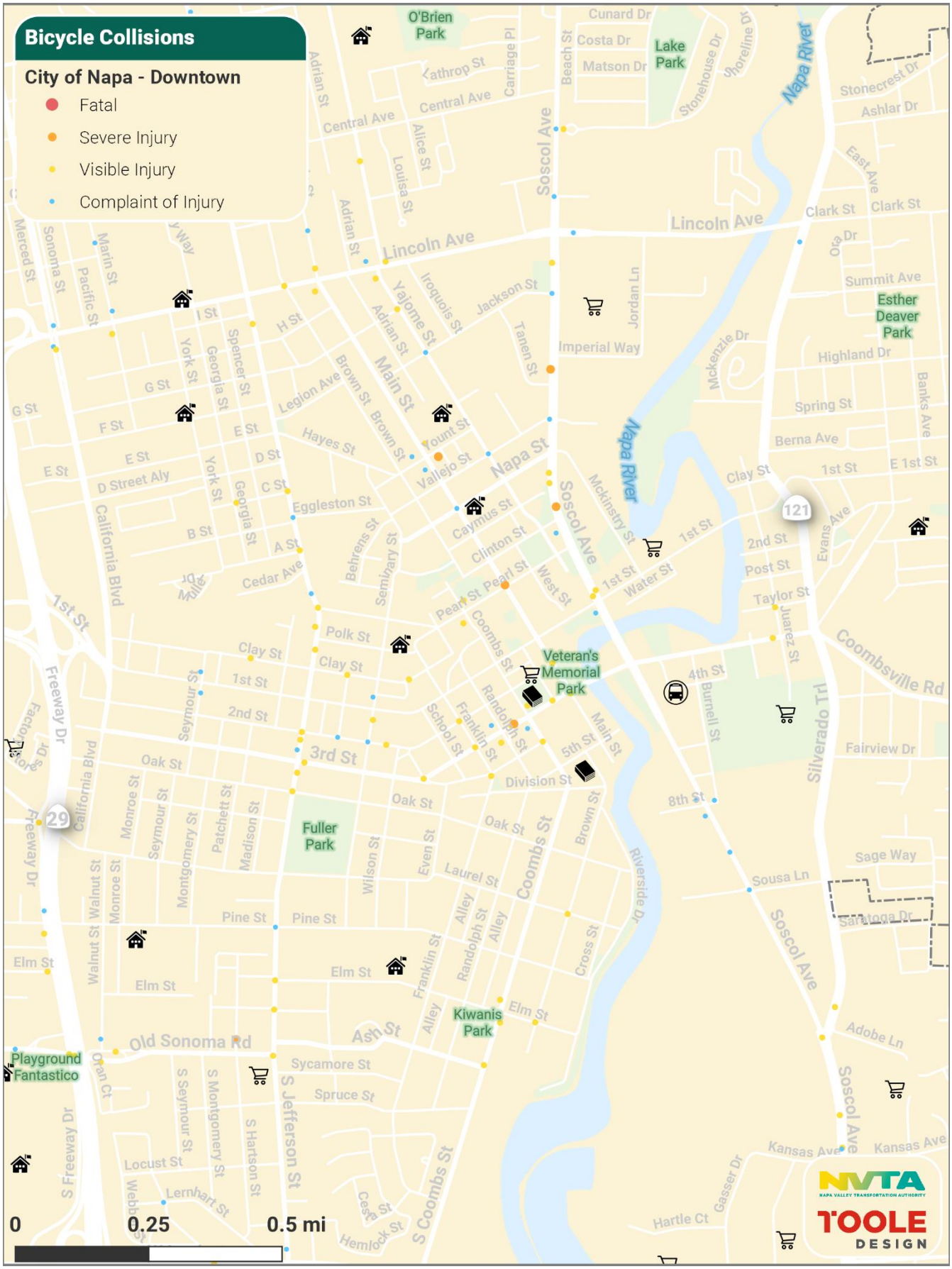

Figure N.13. Bicycle Crash Distribution (2006-2013) – Downtown

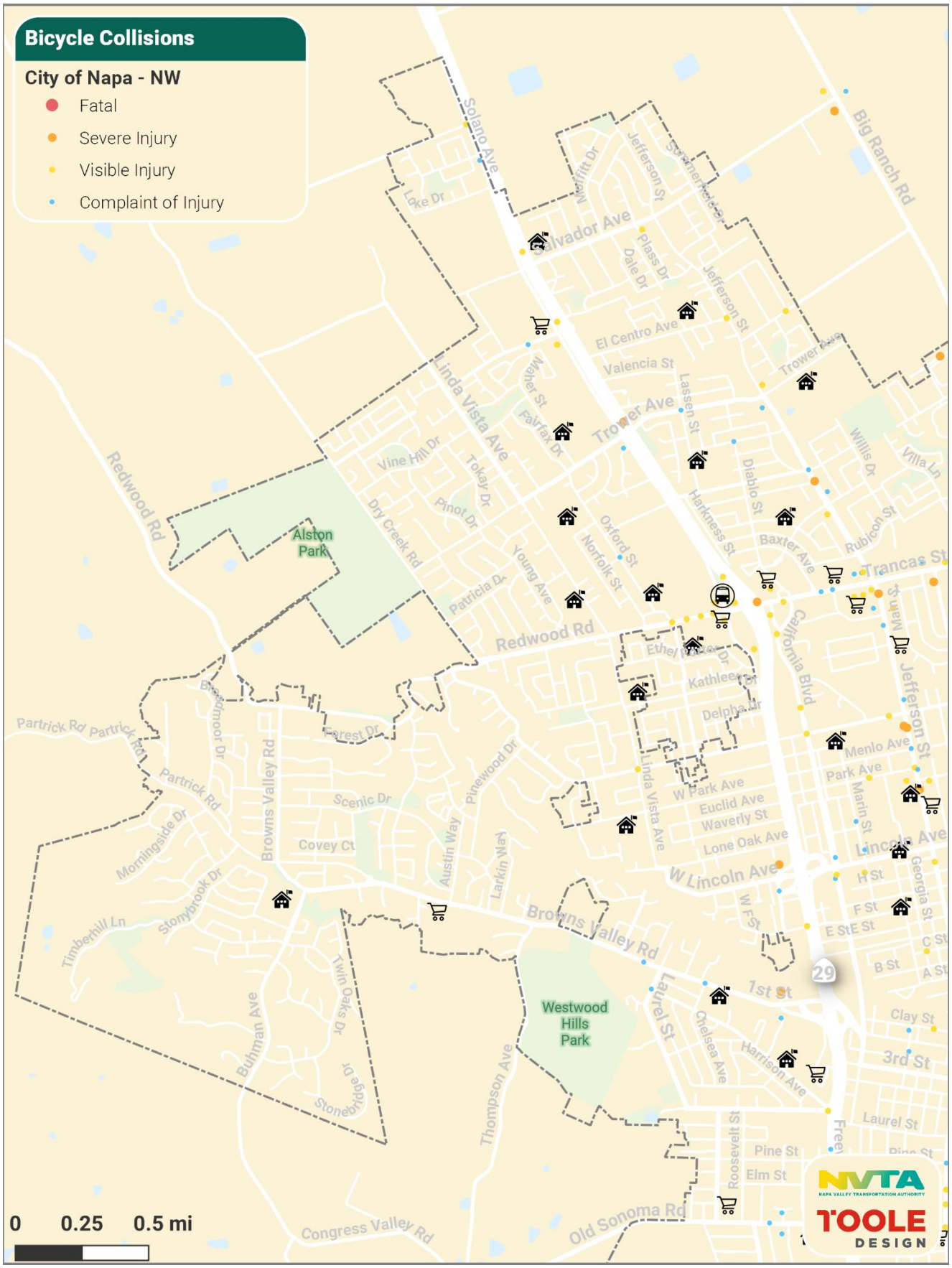

Figure N.14. Bicycle Crash Distribution (2006-2013) – Northwest

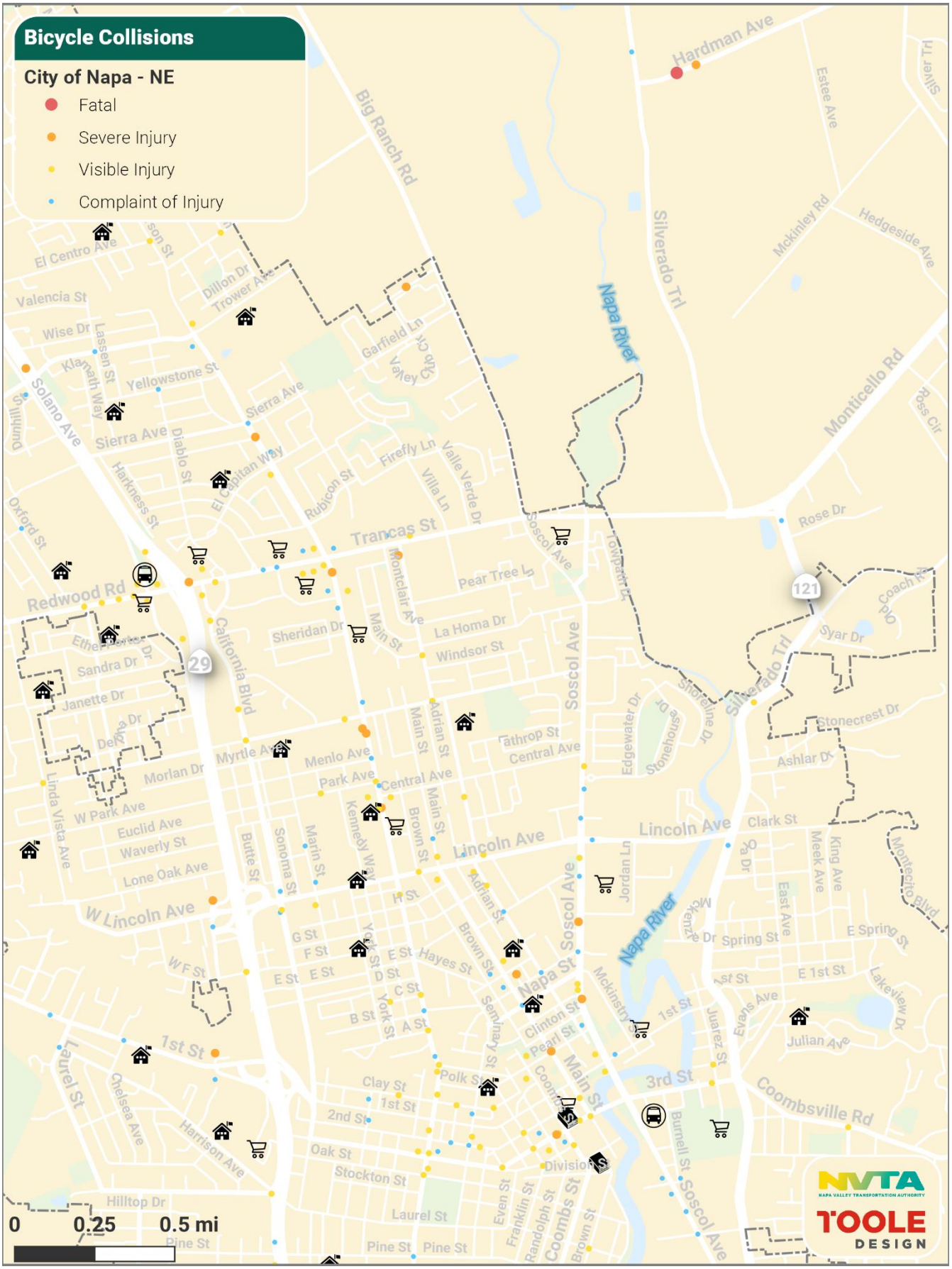

Figure N.15. Bicycle Crash Distribution (2006-2013) – Northeast

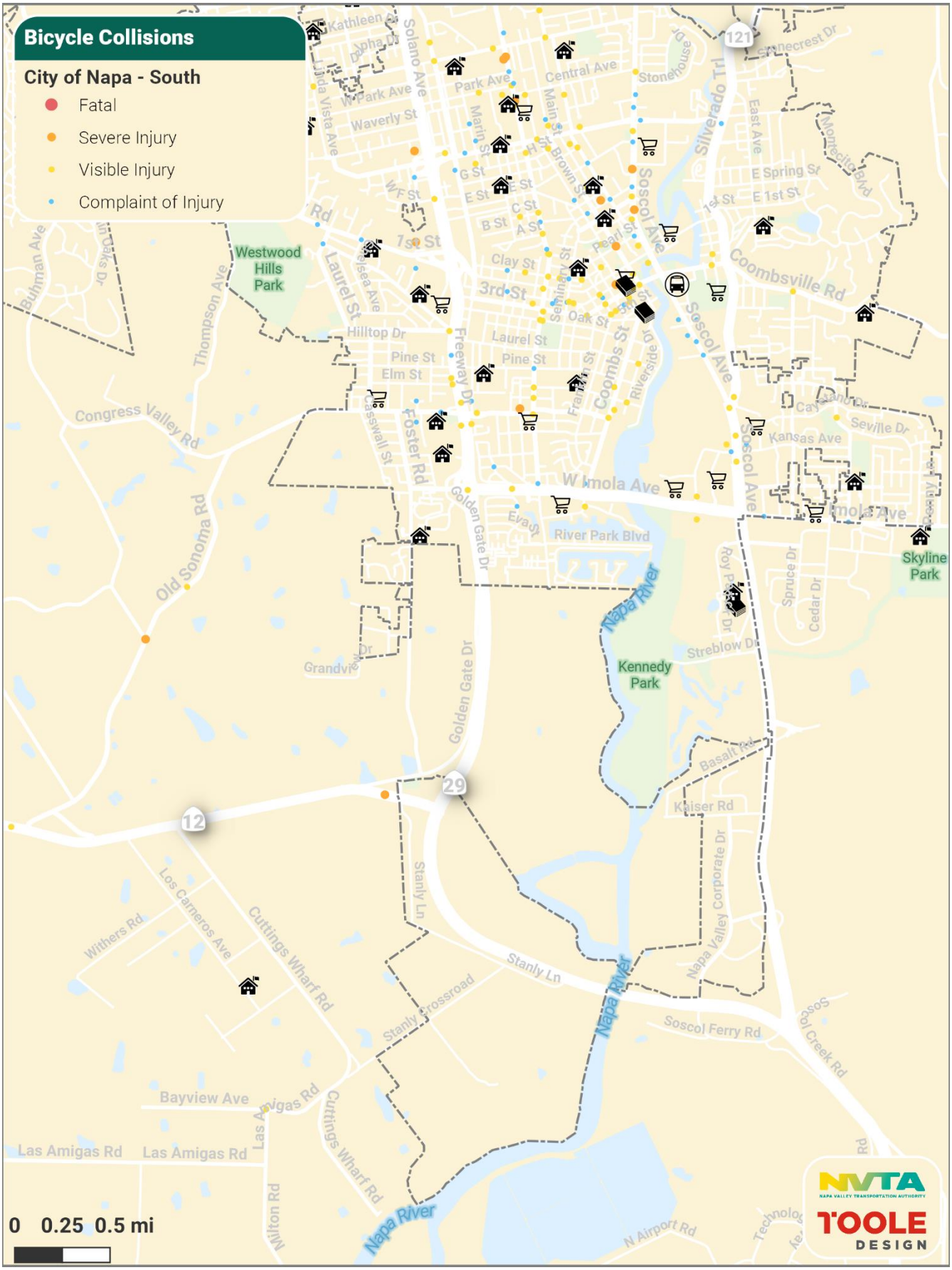

Figure N.16. Bicycle Crash Distribution (2006-2013) – South

Community Input

Residents of Napa were invited to be an active part of the planning process through in-person and online outreach activities hosted by the Napa Valley Transportation Authority (NVTA). The community feedback directly informs the Plan's network and programmatic recommendations. For more information about outreach, see Chapter 2 of the 2019 Countywide Bicycle Plan.

From July to October 2017, residents were invited to share their site-specific comments on the existing network and potential improvements through an online, interactive WikiMap. Respondents were asked to provide feedback on:

- Barriers to biking (includes perceived and physical barriers, both of which can hinder bicycling)
- Places/routes where I currently ride a bike
- Places/routes where I would like to ride

Thirty-two respondents contributed a total of 77 comments within the City of Napa. Highlights include:

- Improvements to the intersection of Redwood Road and Vine Trail, with suggestions including installation of wayfinding signage and safety improvements to make the crossing more comfortable for bicycle riders of all ages and abilities.
- Close the gap in the Vine Trail in Downtown Napa.
- Improve railroad crossings for bicyclists, including repaving to improve pavement quality, regular maintenance to keep facilities clear of debris, and reconfigurations to improve the angle at which bicyclists cross the tracks.
- General comments on the absence of bicycle facilities, bicycle facilities not continuing through intersections, and gaps in the existing bicycle network throughout the city.

The location of WikiMap comments in Napa can be found in Appendix B.

In addition to the initial WikiMap, NVTA also hosted an online map from June to July 2018, for residents to review the recommended bicycle network facilities. This map showed draft recommended bike facilities throughout the county and allowed users to agree or disagree that the recommendation was appropriate in that location. Over 50 respondents provided approximately 330 comments which were reviewed by staff in each jurisdiction for possible changes to the recommended network.

Additional input on the Plan occurred via committees and jurisdiction staff. NVTA provided direct outreach to City of Napa staff throughout the Plan development. In addition to review by NVTA's committees (including the Active Transportation Advisory Committee, Technical Advisory Committee and NVTA Board), the City of Napa's Bicycle and Trails Advisory Commission (BTAC) reviewed the Plan throughout the course of its development. BTAC provided extensive input on the Plan including the Countywide Goals and Policies, City of Napa Programs, and the existing and recommending facility networks.

SECTION 4: PROPOSED BICYCLE NETWORK

The main purpose of this plan is to identify a future bicycle network for the City of Napa that is safe and connected. The proposed bicycle network maps (see Figures N.17-20) were developed based on fieldwork, an analysis of existing conditions, input from the community and City staff, in consideration of best practices in bicycle network planning, and facility guidance from Appendix A: Bicycle Facilities Toolkit.

The resulting network includes high-quality infrastructure in the form of shared use paths, including the Vine Trail, bike lanes, and urban bike routes. These facilities connect to key community destinations and neighborhoods and close network gaps. The network also provides connections beyond the Napa city boundary into the unincorporated areas.

Some streets in the City of Napa are recommended for corridor studies to determine the appropriate bicycle facility type because their current configuration and operations are too complex for a determination to be made within the course of this Plan Update.

The City of Napa's proposed bicycle network is a 59.2-mile network, as detailed in Table N.3. When implemented, the entire existing and proposed network will total 109.1 miles.

Table N.3. Proposed Bicycle Network

Facility	Proposed Mileage	Existing Mileage	Total Future Mileage
Vine Trail (Class I)	1.2	7.0	8.2
Shared-Use Paths (Class I)	11.1	7.9	18.9
Bike Lanes (Class II)	20.1	28.5	48.6
Urban Bike Route (Class III)	27.2	-	27.2
Bike Route (Class III)	0.6	5.6	6.1
Corridor Study (not included in total)[40]	13.2	-	13.2
Total Network	**59.2**	**49.0**	**109.1**

[40] Some streets in the City of Napa are recommended for corridor studies to determine the appropriate bicycle facility type and implementation action because their current configuration and operations are too complex for a determination to be made within the course of this Plan Update.

Figure N.17. Proposed Bicycle Network – Downtown

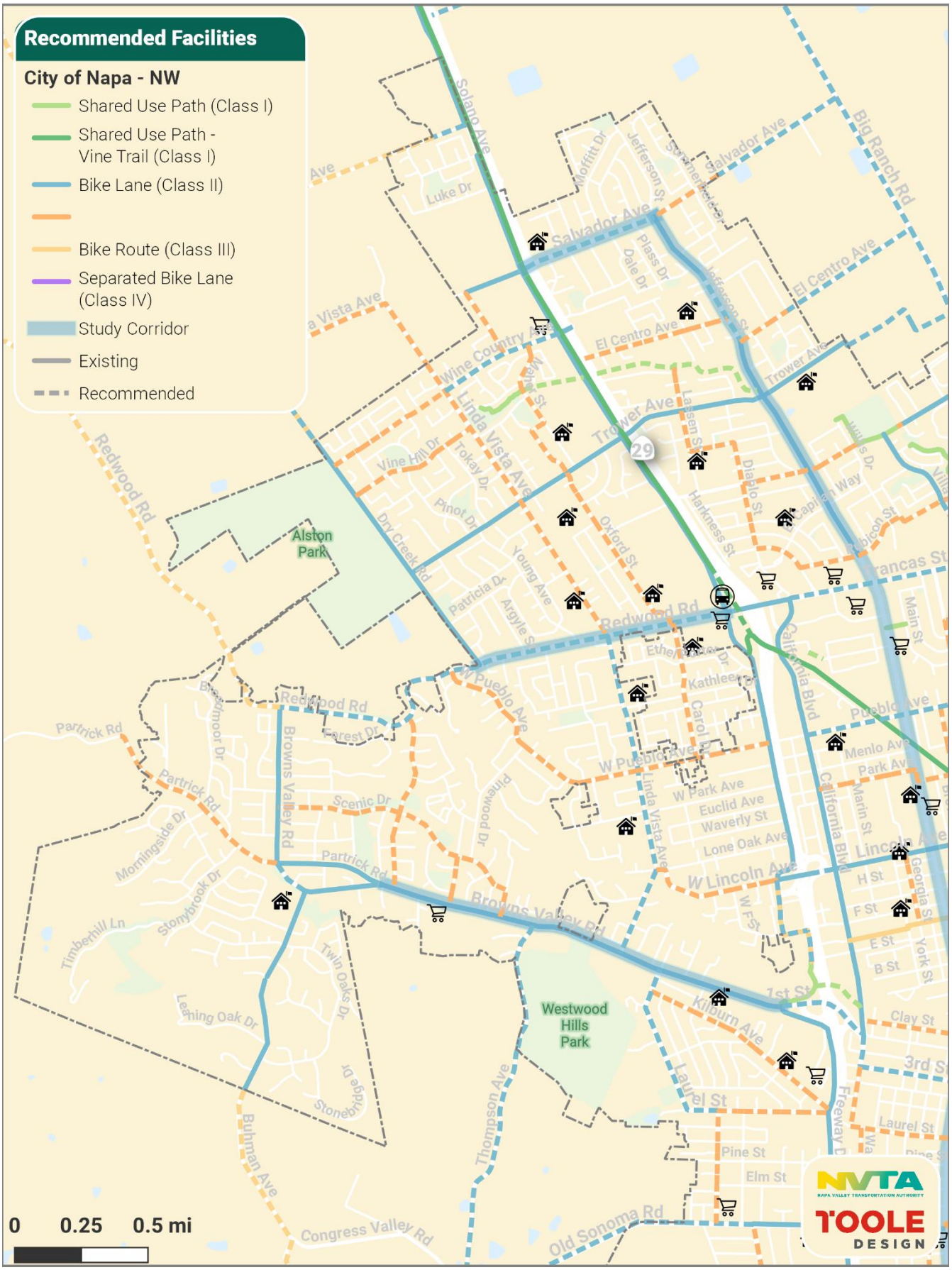

Figure N.18. Proposed Bicycle Network – Northwest

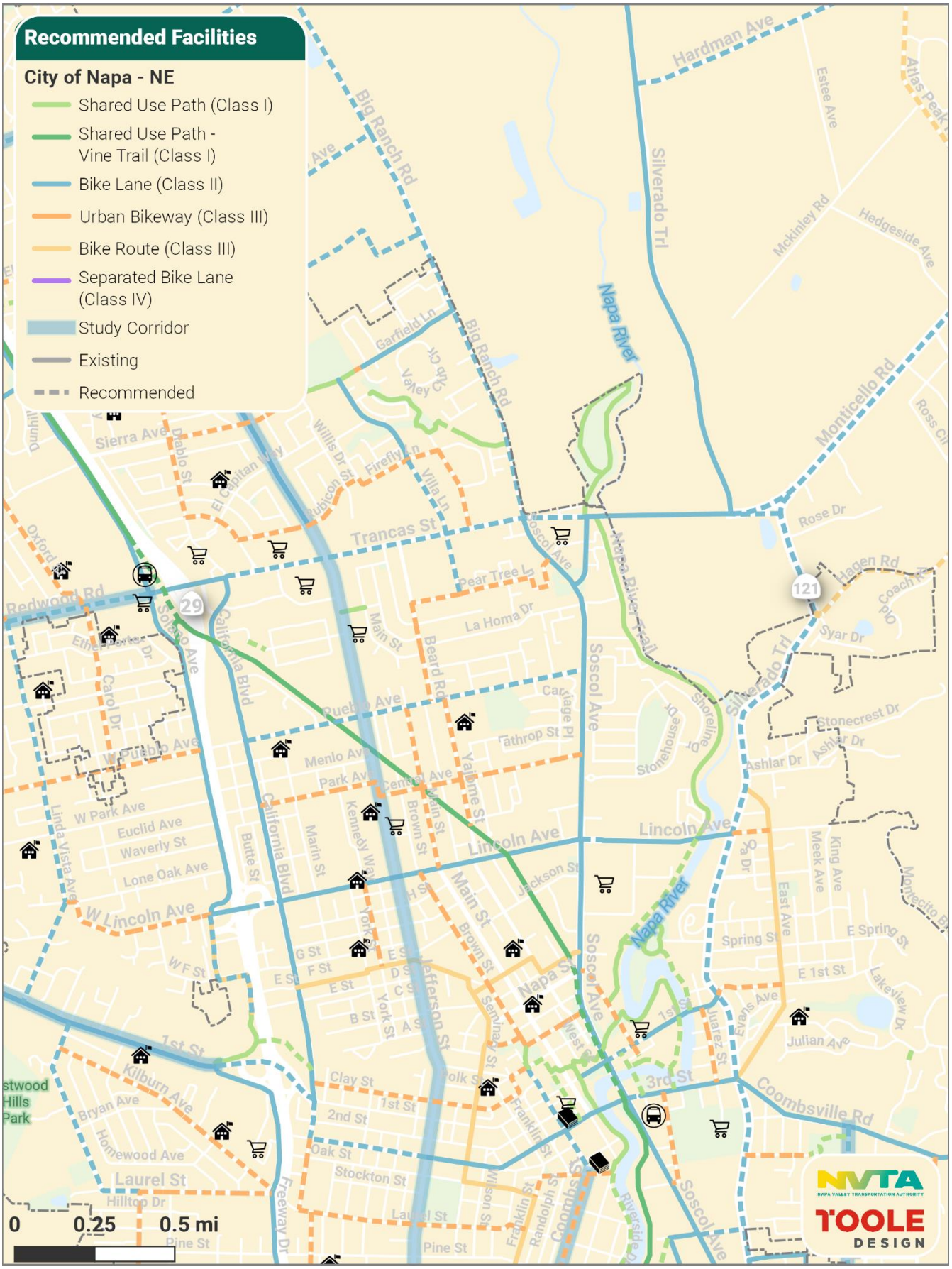

Figure N.19. Proposed Bicycle Network – Northeast

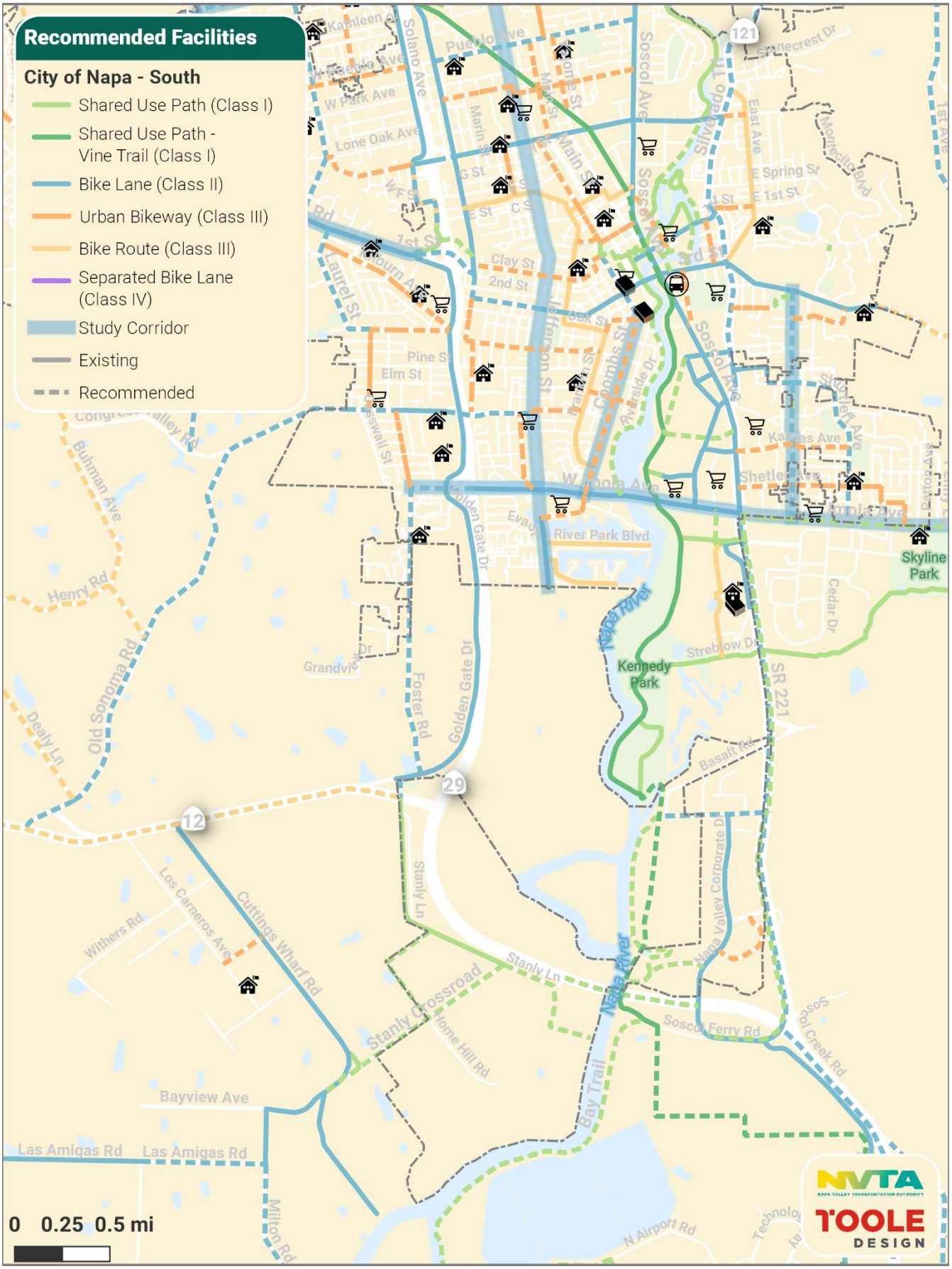

Figure N.20. Proposed Bicycle Network – South

SECTION 5: SUPPORT PROGRAMS AND POLICIES

City policies and support programs are key components of a welcoming, bicycle-friendly community. Along with bike network investments, programs and policies will help Napa realize the Plan's goals of connectivity, equity, safety, and education and encouragement.

The City of Napa has identified the following programs to support the overarching Countywide goals and policies. These support programs will promote and support bicycling throughout the City of Napa.

Connectivity

Table N.4 includes programs and policies support the goal of connectivity.

Table N.4. Connectivity Support Program and Policies

	Connectivity Support Program and Policies
C.1	In implementing countywide connectivity policies, the City shall continue to develop and maintain a comprehensive network that serves all ages and abilities, connects Napa's neighborhoods and nearby communities, and provides access to local destinations and regional routes, according to the maps and recommendations of this plan.
C.2	The City shall work collaboratively with other agencies (i.e. local jurisdictions, NVTA, utility agencies, Caltrans, parks and open space districts, public and private schools, etc.) to fund, design, construct and maintain the bicycle network and facilities.
C.3	The City shall maintain and staff the Bicycle and Trails Advisory Commission to advise staff on bicycle network issues.
C.4	The City shall continue to work with the County Flood Control District and Corps of Engineers to complete the City's multi-use Napa River Trail in conjunction with completion of the Napa River Flood Protection Project.
C.5	At locations with physical or natural barriers, such as railroad tracks, highways, rivers, creeks, etc., explore undercrossings, overcrossings or bridges to provide connectivity. (Example improvements with such features include but are not limited to: an undercrossing under Trancas Street to connect the River Trail to Trancas Crossing Park; an undercrossing under First Street connecting the Riverfront Promenade to the Opera House Plaza; an undercrossing under SR 29 between California Boulevard and Coffield Avenue; and, as an alternative to a Class II route on a future bridge over Redwood Creek, a Linda Vista Class I bridge.)
C.6	The City shall pursue new bicycle/pedestrian connections during development review where feasible connections can be made that are not shown on the bike plan.
C.7	The City shall work with NVTA and transit providers to provide for covered, well located and lighted secure bicycle parking and consider long-term bicycle storage (i.e., bike lockers) in the design of major transportation hubs such as park-and-ride lots.
C.8	The City shall require adequate short-term (i.e. bike racks) and long-term (i.e. bike lockers) bicycle parking for non-residential uses as provided in City standards.
C.9	The City shall encourage businesses, private property owners, and other agencies to provide bicycle parking at existing employment, retail, commercial, transportation, and education sites.
C.10	The City shall encourage employers to provide secure covered parking, shower and locker facilities, and other bicycle related amenities for their employees.
C.11	The City shall design Class I facilities to incorporate pedestrian scale lighting, street furniture, drinking fountains, wayfinding signage, interpretive elements, crossing treatments, and other amenities where appropriate.
C.12	The City shall review and provide adequate standards for bicycle racks, lockers and related amenities for new and existing nonresidential uses and multifamily residential developments. Guidelines for appropriate location of bicycle parking shall be included.
C.13	Consistent with federal, state, and regional directives for "routine accommodation and complete streets," the City shall condition discretionary projects to provide needed bicycle improvements on bicycle routes designated in this plan, assuming a nexus is established. Improvements include, but are not limited to easements, land dedication, route design and construction, maintenance, safety enhancements, and support facilities. Construction may be deferred until a connection to an existing route can be made at the discretion of the City of Napa.

	Connectivity Support Program and Policies
C.14	In accordance with CEQA Guidelines projects that could result in the loss of existing bicycle facilities or jeopardize future facilities included in this Plan shall be mitigated.
C.15	As new private or public development is approved on or along designated bicycle routes in the City's bicycle plan, the City shall continue to require needed bicycle improvements appropriate for the type of route, including recreational multi use trail system segments (as along the Napa River and Salvador Channel) using the BTAC as a resource to review and provide recommendations regarding such projects.
C.16	The City shall promote bicycle access and support facilities in the design of future development.
C.17	Specific plans or master plans for larger properties shall incorporate bicycle routes that integrate with the overall city bicycle network. (Such routes may be specific to the property and go beyond routes currently planned.)
C.18	The Bicycle and Trails Advisory Commission shall be a resource to advise City staff on bicycle network issues, including but not limited to planning, policy, design, safety, education, and prioritization of projects.
C.19	Recognizing the varied needs of bicyclists, the City shall strive to maintain on-street bikeways where off street pathways or alternative routes are proposed. Existing bikeways should not be eliminated without the consultation of the Bicycle and Trails Advisory Commission.
C.20	The City shall consider the potential for new bicycle connections/routes along existing natural and man-made corridors (railroads, utility easements, creeks, under crossings, etc.) when opportunities arise.
C.21	The City shall 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 to fund the design, construction and maintenance of the bicycle network and facilities.
C.22	The Bicycle and Trails Advisory Commission provides recommendations to City staff for prioritization of bicycle projects. Recognizing that funding sources often have specific requirements and cannot be used for all improvement types, the prioritization list from the Bicycle and Trails Advisory Commission should be consulted when funding opportunities arise.

Safety

Table N.5. includes programs and policies support the goal of safety.

Table N.5. Safety Support Program and Policies

	Safety Support Program and Policies
S.1	In implementing "routine accommodation and complete streets" directives, the City shall ensure that all transportation projects on designated City bicycle routes include, enhance or maintain bicycle facilities.
S.2	When improvements are made within the public right of way on designated bicycle routes, the City shall assess the potential for concurrent bicycle safety improvements and implement them where feasible, for example, through improved striping, signage, intersection enhancements, etc.
S.3	The City shall provide for safe bicycle facilities on new or reconstructed freeway crossings. The City shall also consider modifications to existing bridges and freeway crossings to improve bicycle safety.
S.4	The City shall assure that all approaches to signalized intersections that are located on constructed bicycle routes identified in the plan include bicycle detection devices that are operational and properly marked.
S.5	Where standard Class II bike lanes are proposed, but are infeasible under current conditions, the City shall consider innovative approaches utilizing accepted design standards to safely accommodate bicycles. These approaches may include but are not limited to signs, shared lane markings, reduced lane widths, "road diets," eliminating parking, etc.
S.6	The City shall develop consistent signage, striping, wayfinding, and support facility (staging areas, lighting, etc.) programs for use on specific facility types (Class I paths, on-street bikeways, and Class III routes). On regional multi-use paths and State routes, use consistent standards and programs developed with affected agencies and organizations.
S.7	The City shall explore accepted design standards to address use conflicts along Class I facilities, including but not limited to signing, striping, pavement color, wider cross sections, etc.

	Safety Support Program and Policies
S.8	The City shall focus on improving safety at intersections by utilizing accepted design standards and measures, including but not limited to pedestrian and bicycle push buttons; crosswalk enhancements; appropriate warning and directional signs; and reassurance or directional markings for bicyclists such as shared lane markings, skip lines, etc.
S.9	The City shall focus on improving safety at railroad crossings by utilizing accepted design standards and measures, including but not limited to safe track crossing angles for bicyclists, concrete panels and flangeway fillers, lighting, adequate warning and guidance signs, and quad crossing gates.
S.10	Safety improvements in the vicinity of schools, public transportation, and community destinations shall be given a high priority for implementation.
S.11	The City shall continue to collect and review data including but not limited to, collision data, average daily traffic (ATD), turning movement volumes, bicycle counts, speed data, etc. for roadways and bicycle facilities. Such data shall be used in making bicycle network and safety enhancements.
S.12	The City shall 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.
S.13	When siting bikeways, the safety and security of adjacent land owners should be considered.
S.14	The City shall continue to review and implement safety enhancements to all bicycle facilities, paying particular attention to high volume intersections, Class I Trail crossings, railroad crossings, curving roadways, locations near schools, and conflict zones for Class II bike lanes.
S.15	The City shall maintain bicycle facilities. This shall include but is not limited to pavement condition, signing and striping, street sweeping and debris removal, and trimming of vegetation. On-road facilities shall be maintained consistent with the adjacent motor vehicle lanes.
S.16	The City shall retain its publicly accessible web-based reporting system for logging and responding to bicycle maintenance issues.
S.17	The City shall require that road construction projects or projects affecting roadways minimize their impacts on bicyclists by avoiding placement of construction signs and equipment in bicycle lanes, and by providing adequate detours.
S.18	The City shall encourage public-private partnerships to expand maintenance activities of bicycle facilities (i.e. annual trail cleanup, etc.).

Education and Encouragement

Table N.6 includes programs and policies support the goals of education and encouragement.

Table N.6. Education and Encouragement Support Program and Policies

	Education and Encouragement Support Programs and Policies
E.1	The City shall work with bicycle advocacy groups, law enforcement agencies, schools, and other appropriate organizations to establish regular bicycle safety education classes and programs such as bicycle rodeos.
E.2	The City shall encourage the continuation and expansion of the delivery of Safe Routes to School curriculum to all elementary and middle schools annually. The City shall, as funding and staff resources permit, continue to work with the Safe Routes to Schools Program.
E.3	The City shall encourage events that introduce the public to bicycling and walking such as Bike to Work Day, Bike to School Day, Bike Fest, commute challenges, etc.
E.4	The City shall encourage major employment centers and employers to facilitate commuting by bicycle, including the use of flex-time work schedules and the inclusion of bicycle parking and facilities for their employees.
E.5	The City shall participate with countywide and regional agencies, and other interested partners in the preparation and distribution of up-to-date City bicycle maps for public use, and other safety, education, and promotional materials.

SECTION 6: IMPLEMENTATION PLAN

Because all communities, including Napa, have limited financial resources, it is not possible to implement all the recommended projects immediately. To focus Napa's resources, several characteristics of projects should be considered. These characteristics are discussed in relation to implementation phases below.

Immediate-Term

Overlap with Measure T Repaving Projects

While the connectedness of a bicycle network is highly important, recommended projects should be implemented as opportunities arise for integration into existing projects. Napa's five-year paving plan funded by Measure T offers a great opportunity for quickly implementing several recommended bicycle facilities. Napa's Measure T plans have been compared to the proposed bicycle network, and those projects are listed in Table N.5.

Short- and Medium-Term

Facility Characteristics

All other planned street resurfacing and reconstruction projects should be reviewed against the recommended bike network. Another early step in the implementation of the bicycle plan should be to answer the following questions about each project:

- Does a facility consist only of striping and signage that can be added at any time?
- Does a facility necessitate further community dialog regarding reallocation of street space?
- Does a project need significant funding that must be obtained through a competitive process (i.e., grant)?
- Does a project necessitate acquiring additional right-of-way?
- Are there any environmental concerns about a project location?

These questions can help direct staff to understand which projects are more readily implementable.

Proximity to Destinations

Public input received over the course of this Plan process indicates greater interest in connecting to certain destinations including: schools, parks, trailheads, and community centers. The locations of these destinations, as well as other known bicycle traffic generators such as hotels with bike rental schemes should be considered when selecting projects for earlier implementation.

Public Concerns

Residents gave input through the WikiMap about areas of greater concern for bicyclists. These are documented in the summary above, and staff may wish to refer to these comments when considering which projects to implement first. Staff should also continue to collect and document resident concerns and priorities about bicycling and general traffic safety in Napa and bring those comments into discussions regarding implementation priorities.

Network Connectivity

Research has shown that a connected low-stress network has the greatest impact on encouraging people to choose to bicycle. Projects that connect to existing facilities, especially ones that are known to be popular, may be prioritized. This should be balanced against the desire to provide bicycle facilities in and connecting to underserved communities in keeping with the equity goal of this Plan. Often, these areas have been historically underserved by infrastructure, and building new bike network projects here may not connect to existing facilities.

Long-Term

Some projects, such as many shared-use paths (Class I), will require a more sustained effort to come to fruition. While it may take a longer time to implement these projects, jurisdictions should begin to consider the steps toward construction of these projects so that they are prepared for grant applications or inserting funding into capital improvement plans.

Connectivity Improvements from Phased Implementation

As stated, the planned bicycle facilities for Napa are intended to create the most low-stress network that conditions allow. Implementation of on-street facilities such as urban bike routes (Class III) and bike lanes (Class II) will significantly improve the connectivity of the bicycle network for riders of all ages and abilities. Focusing on intersection treatments at locations where these facilities cross high-speed, high-volume streets without a traffic signal will quickly improve connectivity. With implementation of intersection improvements, some recommended urban bike routes (Class III) may be suitable as low-stress facilities immediately, while others may benefit from the addition of traffic calming along the route.

While shared use paths (Class I facilities) certainly provide a low-stress riding environment, their implementation requires more investment and often more planning than on-street facilities.

Recommended shared use paths in downtown Napa, including the closure of the “Soscol Gap” in the Vine Trail, additional sections of the River Trail, and the Brown Street Corridor can provide great benefit as the bike network in this area is already dense and more well-connected. These are acknowledged to be large investments, so phased implementation may be required.

Funding

Funding for the bicycle network projects may come from a variety of different sources or a combination multiple sources. Sources include, but are not limited to, grant funding, local funding, and developer contributions. More information about available grant funds can be found in Chapter 4 of the 2019 Countywide Bicycle Plan.

Table N.7. Project List

Project ID	Street/Trail Name	Begin	End	Facility Type	Length (Miles)
Corridor Study Projects					
179	Browns Valley Rd/1st Street	Partrick Rd	Freeway Dr	Corridor Study	1.56
918	Coombs St	Imola Ave	Division St	Corridor Study	0.90
182	Imola Ave	Foster Rd	Eastern City limits	Corridor Study	3.11
169	Jefferson St	Salvador Ave	Southern City limits	Corridor Study	4.99
838	Redwood Rd	Dry Creek Rd	SR 29	Corridor Study	0.94
168	Salvador Ave	Solano Ave	Jefferson St	Corridor Study	0.52
908	Terrace Drive	Coombsville Rd	Imola Ave	Corridor Study	1.19
Shared-Use Path (Class I) Projects					
195	Bay Trail Connector	Stanly Crossroad	Napa River	Shared-Use Path (Class I)	0.72
878	Bay Trail (Stanly Crossroad)	Cuttings Wharf Rd	Stanly Ln	Shared-Use Path (Class I)	1.17
468	Connector Path	Industrial Way	Sheridan Dr	Shared-Use Path (Class I)	0.06
530	SR 29 undercrossing at Napa Creek	Coffield Ave Path	California Blvd	Shared-Use Path (Class I)	0.21
181	Fairview Dr Pathway Connector	Aguire Wy	Terrace Dr	Shared-Use Path (Class I)	0.15
694	Tulocay Village Trail	Sousa Ln	Tulocay Creek Trail	Shared-Use Path (Class I)	0.41
911	Tulocay Creek Trail	Vine Trail	Soscol Ave	Shared-Use Path (Class I)	0.37
660	Napa Creek Connector Trail	Oxbow Commons Path	9/11 Memorial Garden	Shared-Use Path (Class I)	0.04
724	Napa River Trail	Bay Trail	Napa Valley Corporate Dr	Shared-Use Path (Class I)	0.51
910	Napa River Trail	Kaiser Rd	Anselmo Ct Loop trail	Shared-Use Path (Class I)	0.79
318	Napa Valley College Path along Roy Patrick Dr	College Wy, Magnolia Dr	Imola Ave	Shared-Use Path (Class I)	0.16
659	Brown St Corridor	Coombs St/Pearl St	3rd St	Shared-Use Path (Class I)	0.3
304	Pascale Pl Connector	Pascale Pl	Montecito Blvd	Shared-Use Path (Class I)	0.04
851	Railroad Bridge	3rd St	1st St	Shared-Use Path (Class I)	0.19
661	Riverfront Promenade (1st Street Underpass)	Riverfront Promenade	Opera House Plaza	Shared-Use Path (Class I)	0.03
664	River Trail Bridge	River Trail West	3rd St	Shared-Use Path (Class I)	0.07
827	River Trail Bridge	River Trail West	Oxbow Preserve	Shared-Use Path (Class I)	0.07
669	River Trail East	Oxbow Preserve	1st St	Shared-Use Path (Class I)	0.21
826	River Trail West	Lincoln Ave	existing River Trail terminus (near River Terrace)	Shared-Use Path (Class I)	0.4
665	River Trail West	existing trail terminus (near 1st Street)	Railroad Bridge	Shared-Use Path (Class I)	0.28
658	River Trail West	Division St	Imola Ave	Shared-Use Path (Class I)	1.05
170	Salvador Creek Trail	SR 29	Jefferson St	Shared-Use Path (Class I)	0.68
171	Salvador Creek Trail	Maher St	Solano Ave	Shared-Use Path (Class I)	0.23
459	Salvador Creek Trail	existing trail (near Ranch Lane)	existing trail (near Serendipity Wy)	Shared-Use Path (Class I)	0.08
862	SR 221	Imola Ave	Kaiser Rd	Shared-Use Path (Class I)	1.57
900	SR 29	Stanly Ln	Napa City Boundary	Shared-Use Path (Class I)	0.23

Project ID	Street/Trail Name	Begin	End	Facility Type	Length (Miles)
194	San Francisco Bay Trail at Stanly Ranch Resort	Stanly Crossroad	San Francisco Bay Trail (Stanly Ln)	Shared-Use Path (Class I)	0.65
873	Napa River Trail/Vine Trail	Napa City Limits (Adjacent to Kaiser Rd)	Existing Vine Trail/Bay Trail at south end of Kennedy Park	Shared-Use Path - Vine Trail (Class I)	0.16
201	Napa River Trail / Bay Trail / Anselmo Ct Loop	Napa River Bay Trail	Napa River Bay Trail	Shared-Use Path - Vine Trail (Class I)	0.34
746	Vine Trail	3rd St	Vallejo St	Shared-Use Path - Vine Trail (Class I)	0.48
745	Vine Trail	Existing Vine Trail (near Redwood Park & Ride)	Existing Vine Trail (near Vine Trail SR 29 overcrossing)	Shared-Use Path - Vine Trail (Class I)	0.10
872	Vine Trail along Kaiser Rd	River/Bay Trail	Vine Trail (north-south through Napa Pipe)	Shared-Use Path - Vine Trail (Class I)	0.28
Bike Lane (Class II) Projects					
663	1st St	Soscol Ave	Vernon St	Bike Lane (Class II)	0.16
531	1st St (SR 29 Overpass)	Freeway Dr	California Blvd	Bike Lane (Class II)	0.35
633	3rd St	California Blvd	Jefferson St	Bike Lane (Class II)	0.37
662	3rd St	Soscol Ave	Lawrence St	Bike Lane (Class II)	0.04
556	Browns Valley Rd	Partrick Rd	Buhman Ave	Bike Lane (Class II)	0.15
632	California Blvd	3rd St	1st St	Bike Lane (Class II)	0.12
339	Capitola Dr	Saratoga Dr	Saratoga Dr/Erin Wy	Bike Lane (Class II)	0.08
765*	Coombs St	Pearl St	Division St	Bike Lane (Class II)	0.38
192	Foster Rd	Golden Gate Dr	W Imola Ave	Bike Lane (Class II)	1.5
193	Stanly Ln	Golden Gate Dr	SR 12	Bike Lane (Class II)	0.12
716*	W Imola Ave	SR 29	Foster Rd	Bike Lane (Class II)	0.34
907	Jefferson St	Darling St	El Centro Ave	Bike Lane (Class II)	0.3
196	Kaiser Rd	Proposed Napa River/Bay Trail	SR 221	Bike Lane (Class II)	0.55
616*	Laurel St	Foothill Blvd	1st St	Bike Lane (Class II)	0.68
513*	Lincoln Ave	Soscol Ave	existing bike lane on Lincoln	Bike Lane (Class II)	0.07
528	Lincoln St	SR 29	California Blvd	Bike Lane (Class II)	0.09
836**	Linda Vista Ave	Browns Valley Rd	Lone Oak Ave	Bike Lane (Class II)	0.34
905	Linda Vista Ave	Lone Oak Ave	Redwood Rd	Bike Lane (Class II)	0.9
913	Old Sonoma Rd	Old Sonoma Rd (near Playground Fantastico)	Jefferson St	Bike Lane (Class II)	0.46
912	Old Sonoma Rd	Western City Limits	Foster Rd	Bike Lane (Class II)	0.26
163	Orchard Ave	Western City Limits	Solano Ave	Bike Lane (Class II)	0.13
491	Pueblo Ave	California Ave	Soscol Ave	Bike Lane (Class II)	1.08
465*	Redwood Rd	Browns Valley Rd	SR 29	Bike Lane (Class II)	1.86
393	Salvador Ave	SR29	Jefferson St	Bike Lane (Class II)	0.52
338	Saratoga Dr	Capitola Dr/Erin Wy	Terrace Dr	Bike Lane (Class II)	0.13
337	Shurtleff Ave	Imola Ave	Terrace Dr	Bike Lane (Class II)	0.94
673	Silverado Trail	Soscol Ave	Silverado Trail (Northern City Limits)	Bike Lane (Class II)	2.41
839	Solano Ave - West F St - Coffield Ave	Proposed class I facility, Coffield Ave	W Lincoln Ave	Bike Lane (Class II)	0.42
692	Sousa Ln	Soscol Ave	Silverado Trail	Bike Lane (Class II)	0.14
828	SR 221	Kaiser Rd	Magnolia Dr	Bike Lane (Class II)	1.44

Project ID	Street/Trail Name	Begin	End	Facility Type	Length (Miles)
309	Terrace Dr	Coombsville Rd	Southern terminus of Terrace Dr	Bike Lane (Class II)	0.57
310**	Terrace Dr	Southern terminus of Terrace Dr	Northern terminus of Terrace Dr	Bike Lane (Class II)	0.04
311	S Terrace Dr	Northern terminus of Terrace Dr	Imola Ave	Bike Lane (Class II)	0.58
884	Thompson Rd	Napa City Limits	Browns Valley Rd	Bike Lane (Class II)	0.49
461*	Trancas St	California Blvd	Soscol Ave	Bike Lane (Class II)	0.95
825	Trower Ave	Solano Ave	SR 29	Bike Lane (Class II)	0.01
460	Villa Ln	Firefly Ln	Pear Tree Ln	Bike Lane (Class II)	0.45
390	Wine Country Ave	Linda Vista Ave	SR 29	Bike Lane (Class II)	0.54
Urban Bike Route (Class III) Projects					
674	1st St	East Ave	Silverado Trail	Urban Bike Route (Class III)	0.22
180	Arroyo Dr	Brown St	Seminary St	Urban Bike Route (Class III)	0.11
703	Ash St	Jefferson St	Franklin St	Urban Bike Route (Class III)	0.26
571	Austin Way	Scenic Dr	Browns Valley Rd	Urban Bike Route (Class III)	0.18
414	Baxter Ave	Diablo St	Rubicon St	Urban Bike Route (Class III)	0.19
477	Beard Rd	Pearl Tree Ln	Pueblo Ave	Urban Bike Route (Class III)	0.31
725	Bordeaux Way	Napa Valley Corporate Wy	Napa Valley Corporate Dr	Urban Bike Route (Class III)	0.43
514	Brown St	Lincoln Ave	Clinton St	Urban Bike Route (Class III)	0.64
682	Burnell St – 8th St	3rd St	Soscol Ave	Urban Bike Route (Class III)	0.31
712	Cabot Wy	S Jefferson St	W Imola Ave	Urban Bike Route (Class III)	0.31
634	California Blvd	3rd St	Laurel St	Urban Bike Route (Class III)	0.23
377	Carol Dr	Oxford St	W Pueblo Ave	Urban Bike Route (Class III)	0.6
497	Central Ave	Soscol Ave	Jefferson	Urban Bike Route (Class III)	0.65
373	Cesar St	Maher St	Fairfax Dr	Urban Bike Route (Class III)	0.06
697	Clark St	Silverado Trail	East Ave	Urban Bike Route (Class III)	0.12
532	Clay St - Pearl St	Coombs St	California Blvd	Urban Bike Route (Class III)	0.78
545	Clinton St	Brown St	Soscol Ave	Urban Bike Route (Class III)	0.2
917	Coombs St	Imola Ave	Division St	Urban Bike Route (Class III)	0.9
413	Diablo St	Yellowstone St	Baxter Ave	Urban Bike Route (Class III)	0.41
653	Division St - Franklin St	Brown St	Oak St	Urban Bike Route (Class III)	0.29
398	El Centro Ave	Jefferson St	Eastern City Limits	Urban Bike Route (Class III)	0.21
401	El Centro Ave	Byway East	Jefferson St	Urban Bike Route (Class III)	0.55
698	Elm St	Franklin St	Riverside Dr	Urban Bike Route (Class III)	0.28
374	Fairfax Dr	Cesar St	Trower Ave	Urban Bike Route (Class III)	0.21
687	Fairview Dr	Silverado Trail (SR 121)	Fairview Park	Urban Bike Route (Class III)	0.2
417	Firefly Ln	Wild Rye Way	Valle Verde Dr	Urban Bike Route (Class III)	0.26
617	Foothill Blvd	Old Sonoma Rd	Laurel St	Urban Bike Route (Class III)	0.42
717	Foster Rd	W Imola Ave	Old Sonoma Rd	Urban Bike Route (Class III)	0.41
458	Garfield Ln	Austin Miller Memorial Bike Path	Culbertson Ct	Urban Bike Route (Class III)	0.02
523	Georgia St	Lincoln Ave	E St	Urban Bike Route (Class III)	0.27
319	Granada St	Imola Ave	Muir St	Urban Bike Route (Class III)	0.11
391	Hahnemann Ln	Salvador Ave	Wine Country Ave	Urban Bike Route (Class III)	0.27
498	Jefferson St	Central Ave	Park Ave	Urban Bike Route (Class III)	0.05
702	Jefferson St	Old Sonoma Rd	Ash St	Urban Bike Route (Class III)	0.02
677	Juarez St	1st St	3rd St	Urban Bike Route (Class III)	0.24
317	Kansas Ave	Shurtleff Ave	Soscol Ave	Urban Bike Route (Class III)	0.6
605	Kilburn Ave	Laurel St	Freeway Dr	Urban Bike Route (Class III)	0.81

Project ID	Street/Trail Name	Begin	End	Facility Type	Length (Miles)
557	Larkin Wy	Browns Valley Rd	Scenic Dr	Urban Bike Route (Class III)	0.11
411	Lassen St	Salvador Creek Trail	Yellowstone St	Urban Bike Route (Class III)	0.32
626*	Laurel St	Foothill Blvd	Freeway Dr	Urban Bike Route (Class III)	0.42
904	Laurel St	California Blvd	Franklin St	Urban Bike Route (Class III)	0.71
707	Lernhart St	W Imola Ave	S Hartson St	Urban Bike Route (Class III)	0.07
173*	W Lincoln Ave	Solano	Lone Oak Ave	Urban Bike Route (Class III)	0.48
906	Linda Vista Ave	Northern City Limits	Redwood Rd	Urban Bike Route (Class III)	1.22
174	Lone Oak Ave	W Lincoln Ave	Linda Vista Ave	Urban Bike Route (Class III)	0.03
372	Maher St	Wine Country Ave	Cesar St	Urban Bike Route (Class III)	0.33
494	Main St	Pueblo Ave	Lincoln Ave	Urban Bike Route (Class III)	0.51
667	McKinstry St	Water St	Soscol Ave	Urban Bike Route (Class III)	0.33
320	Muir St	Granada St	Sommer St	Urban Bike Route (Class III)	0.13
375	Oxford St	Trower Ave	Carol Dr	Urban Bike Route (Class III)	0.62
499	Park Ave	Jefferson St	California Blvd	Urban Bike Route (Class III)	0.37
551	Partrick Rd	Browns Valley Rd	City Limits	Urban Bike Route (Class III)	0.79
476	Pear Tree Ln	Soscol Ave	Beard Rd	Urban Bike Route (Class III)	0.56
415	Rubicon St	Baxter Ave	Wild Rye Way	Urban Bike Route (Class III)	0.45
708	S Hartson St	Lernhart St	Old Sonoma Rd	Urban Bike Route (Class III)	0.35
394	Salvador Ave	East city limit	Jefferson St	Urban Bike Route (Class III)	0.29
558	Scenic Dr	Larkin Wy	Browns Valley Rd	Urban Bike Route (Class III)	0.97
322	Shelter Ave	Sommer St	Soscol Ave	Urban Bike Route (Class III)	0.75
470	Sierra Ave	Willis Dr	Diablo St	Urban Bike Route (Class III)	0.46
321	Sommer St	Muir St	Shelter Ave	Urban Bike Route (Class III)	0.09
306	Tamarisk Dr	Terrace Dr	Coombsville Rd	Urban Bike Route (Class III)	0.34
418	Valle Verde Dr	Firefly Ln	Trancas St	Urban Bike Route (Class III)	0.27
446	Vine Hill Dr	Dry Creek Rd	Linda Vista Ave	Urban Bike Route (Class III)	0.51
585	W Pueblo Ave	Solano Ave	Redwood Rd	Urban Bike Route (Class III)	1.41
649	Walnut St	Laurel St	Old Sonoma Rd	Urban Bike Route (Class III)	0.37
574	Westview Dr	Redwood Rd	Browns Valley Rd	Urban Bike Route (Class III)	0.66
416	Wild Rye Way	Rubicon St	Firefly Ln	Urban Bike Route (Class III)	0.02
440	Wine Country Ave	Dry Creek Rd	Linda Vista Ave	Urban Bike Route (Class III)	0.5
492	Yajome St	Pueblo Ave	Vine Trail	Urban Bike Route (Class III)	0.41
412	Yellowstone St	Lassen St	Diablo St	Urban Bike Route (Class III)	0.17
Bike Route (Class III) Projects					
298	Hagen Rd	Silverado Trail	Eastern City Limits	Bike Route (Class III)	0.44
914	Redwood Rd	Browns Valley Rd	Western City Limits	Bike Route (Class III)	0.19

* Projects denoted with an asterisk overlap with a jurisdiction-identified Measure T project, but they do not have the same extents: the proposed bicycle network project is either longer or shorter than the Measure T project.

** Consider for Shared Use Path (Class I) connection instead of proposed Bike Lanes (Class II) if anticipated future roadway connection is cancelled.

Chapter 10: City of American Canyon Bicycle Plan

SECTION 1: INTRODUCTION

Plan Introduction

The American Canyon Bicycle Plan is intended to guide development of infrastructure, programs, and policies that improve the bicycling environment for all residents and visitors in this Napa Valley community. American Canyon's Plan will help the City work towards the adopted goals for bicycling in Napa County: connectivity, equity, safety, and education and encouragement. Planning and design for bicycling has evolved since adoption of the American Canyon Bicycle Plan in 2012, and this Plan update brings the latest best practices to bear on recommendations for implementation by City staff.

Area Overview

The City of American Canyon is located at the southern end of Napa County, approximately 35 miles northeast of San Francisco. Incorporated in 1992, American Canyon is the youngest community in Napa County. One of the two Priority Development Areas (PDA) in Napa County is in American Canyon along the SR 29 corridor. The Napa County Airport adjoins the City on the north, and the City of Vallejo in Solano County shares a contiguous border with American Canyon on the south. State Route (SR) 29, which runs north-south, bisects American Canyon. American Canyon Creek, a tributary of the Napa River, runs through the City.

The City of American Canyon has a population of approximately 20,000 residents. It has a compact land use pattern, with relatively low-volume streets and a well-developed network of sidewalks and pathways. The community's small land area and mostly flat topography create many opportunities for residents to bicycle (see Figure AC.1). Residential housing, commercial, and industrial uses are the predominant land use types in American Canyon.

Figure AC.1. Bicyclist on Benton Way adjacent to Community Park 2.

Many people who work in Upper Napa Valley live in American Canyon or Vallejo, and SR 29 through American Canyon has a high volume of daily traffic with people commuting to and from work. Due to the high traffic volumes and lack of alternatives routes, bicycling between American Canyon and Napa, or crossing SR 29 from east to west, is uncomfortable for any but the most intrepid bicyclists.

American Canyon's location within Napa Valley and local attractions make it a popular destination for tourists. Popular activities in the area include winery tours, exploring the Napa River and Bay Trail on foot or bike, birdwatching in San Pablo Bay, and golfing.

American Canyon is a part of the Napa Valley Unified School District which also serves the City of Napa and Town of Yountville. The city is home to five public schools: Donaldson Way Elementary School (grades K-5), Canyon Oaks Elementary School (grades K-5), Napa Junction Magnet Elementary School (grades K-5), American Canyon Middle School (grades 6-8), and American Canyon High School (grades 9-12). Donaldson Way Elementary, Canyon Oaks Elementary, Napa Junction Magnet Elementary, and American Canyon High School are located on Donaldson Way, Silver Oak Trail, Napa Junction Road, and Newell Drive, respectively, all of which have no bicycle infrastructure. American Canyon Middle School is located on Benton Way, which has bike lanes (Class II). Currently, bicycling to school can be difficult for students, and SR 29 creates an additional barrier.

Relationship to Existing Plans

This 2019 Bicycle Plan is an update to the 2012 American Canyon Bicycle Plan and builds upon the recommendations on bikeways, policies, programs, and design standards detailed in the Broadway District Specific Plan (in progress), the SR 29 Gateway Corridor Improvement Plan (2014), and the General Plan (1994). In addition, this 2019 Plan incorporates applicable recommendations from the 2016 Napa Countywide Pedestrian Plan and establishes an implementation plan to encourage more walking trips throughout Napa County and improve safety for all users.

For more information about these plans, see Appendix D of the 2019 Napa Countywide Bicycle Plan.

SECTION 2: GOALS AND POLICIES

Countywide Vision and Goals

The Countywide vision statement, goals, and policies were developed to guide recommendations in both the Countywide Plan and the jurisdiction plans, including the American Canyon Bicycle Plan. The vision statement, goals, and policies will be used to evaluate progress of Plan implementation.

Vision Statement

Napa County's vision is to be a bicycle-friendly community with a world-class bicycling system for all ages and abilities. The comprehensive, connected bicycle system will provide people with safe, convenient and enjoyable access to destinations throughout all Napa County jurisdictions and beyond. Residents and visitors will enjoy bicycling for everyday commuting, non-work trips and recreation. Bicycling contributes to a high quality of life, promotes health and will help achieve a 10 percent mode shift in Napa County by 2035.

Goals and Policies

The goals and policies developed for the 2019 Plan will guide American Canyon and other Napa County communities in improving the bicycling environment for residents and visitors.

Table AC.1. Goals and Policies of the Plan

Goals		Policies
Connectivity	Develop a well-designed low Level of Traffic Stress (LTS) connected bicycle network	• Build and maintain a local and countywide bicycle transportation and recreation network that connects Napa County's incorporated cities/town and unincorporated communities and provides access to public transportation and community destinations. • Develop and maintain continuous low Level of Traffic Stress (LTS) bicycle facilities of all types to provide accessible intra-city connections that serve as the framework of the Countywide Bikeway System. • Prioritize coordination and completion of regionally significant primary bikeways including the Napa Valley Vine Trail, the Bay Trail and the Ridge Trail, and local connections to those facilities. • Provide secure bicycle parking at public and private destinations throughout Napa County. • Integrate the bicycle network and bicycle facility amenities into land use decisions and developments.
Equity	Improve bicycle access for disadvantaged and/or underserved communities	• Implement projects that improve access for disadvantaged and/or underserved communities, particularly those reliant on walking, biking and transit for transportation.

Goals		Policies
Safety	Improve safety for all ages and abilities	• Work to reduce the number and severity of bicycle collisions. • Work to reduce bicycle fatalities to zero by 2035. • Improve locations that have high incidences of bicycle collisions, and/or impediments or conflicts to bicyclists. • Implement Complete Streets policies that ensure accommodation and enable safe access for users of all ages and abilities. • Implement appropriate, well-designed bicycle facilities using accepted design standards, including intersection and other crossing improvements.
Education & Encouragement	Increase mode share of bicycling	• Encourage education programs for all users of the roadway in all jurisdictions and school districts. • Develop programs and public outreach materials to promote safety and the positive benefits of bicycling.

Serving All Types of Bicyclists

Many factors contribute to people choosing to ride a bicycle, with a major factor being the rider's perception of safety. A rider's perception of an unsafe route can be related to numerous things but is most often related to riding adjacent to high-traffic and high-speed roadways or crossing busy intersections with little or no separation from vehicles. Research has found that a large percentage of the American population is interested in bicycling for transportation but does not currently do so because they believe the routes they would need to travel are unsafe or feel uncomfortable. Many people feel safer and more comfortable riding on low-traffic, low-speed streets or on facilities that provide protection or physical separation from fast-moving traffic.[36] Most people in the U.S. – between 50 and 60 percent – have little tolerance for interacting with motor vehicle traffic unless volumes and speeds are very low (see Figure 2.1).[37] This group of riders is referred to as "Interested but Concerned," reflecting both their interest in bicycling for transportation as well as concerns about safety and comfort when interacting with motor vehicle traffic.

This framework of rider types was used to assess the existing bicycle network and to select recommended facility types for the 2019 Plan. This rider type has the highest potential for increasing bicycle mode share if facility types that support and encourage biking are available.

[36] Source: Dill, J. McNeil, N. "Revisiting the Four Types of Cyclists: Findings from a National Survey" Transportation Research Board 95th Annual Meeting, 2016.

[37] Studies, such as the one referenced above, show that approximately one third of the adult population is not currently interested in bicycling or able to bicycle.

Comfort Typology of Bicyclists

Design User Profile	Non-Bicyclist	Interested but Concerned	Somewhat Confident	Highly Confident
Bicycling Preferences	Uncomfortable bicycling in any condition, have no interest in bicycling, or are physically unable to bicycle.	Often not comfortable with bike lanes, may bike on sidewalks even if bike lanes are provided; prefer off-street or separate bicycle facilities or quiet or traffic-calmed residential roads. May not bike at all if bicycle facilities do not meet needs for perceived comfort.	Generally prefer more separated facilities, but are comfortable riding in bicycle lanes or on paved shoulders if need be.	Comfortable riding with traffic, will use roads without bike lanes.
Percent of General Public	31-37%	51-56%	5-9%	4-7%

Figure AC.2. Level of Traffic Stress and Bicycle Riders

SECTION 3: EXISTING BICYCLE NETWORK

Overview: Issues and Opportunities

Currently, American Canyon's bicycle network consists Class I shared-use paths, for example a segment of the Bay Trail adjacent to Wetlands Edge Road (see Figure AC.2), and Class II bike lanes, for example, along American Canyon Road.

Figure AC.3. Bay Trail along Wetlands Edge Road

American Canyon has limited on-street bike facilities. Bike lanes (Class II) exist on only several of the city's roadways, and existing bike lanes are typically disconnected from one another, do not provide citywide connectivity or access to major destinations, and are striped in short segments less than one mile in length. Generally, due to the low traffic volumes and speeds, many local streets are comfortable for bicycling, even without bicycle facilities or signage. Connections to destinations, such as businesses located on SR 29 and schools, could be improved to provide more connectivity. Figure AC.3 illustrates the existing bicycle network, and Table AC.2 provides an overview of the existing bikeway mileage in American Canyon.

Table AC.2. Existing Bicycle Network Mileage

Facility Type	Existing Mileage
Vine Trail (Class I)	2.4
Shared-Use Path (Class I)	7.3
Bike Lane (Class II)	1.6
Bike Route (Class III)	1.8
TOTAL	**13.1**

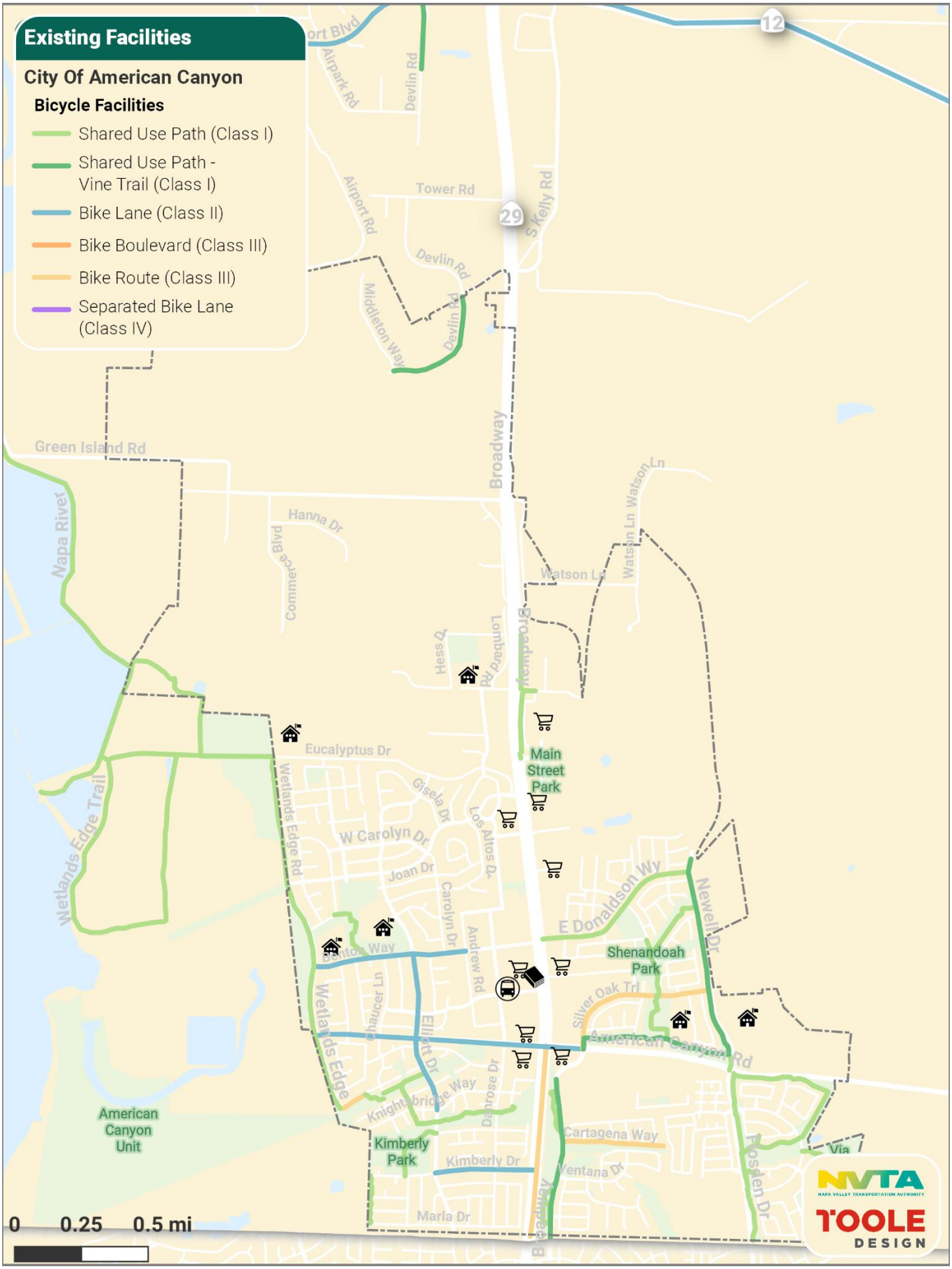

Figure AC.4. Existing Bicycle Facilities in American Canyon

Components of the Bicycle Network

Multiple bicycle facility types comprise a complete bicycle network, and each facility type has a different classification to distinguish the facilities. The classifications are based on the degree of physical separation from vehicle traffic. The following facility types reflect the existing bikeways as well as new ones identified in this Plan.

Shared-Use Paths

Shared-Use Path (Class I) are two-way paved facilities, physically separated from motor vehicle traffic and used by bicyclists, pedestrians, and other non-motorized users. Shared-use paths are often located in an independent alignment, such as a greenway, though sometimes they are located adjacent to roadway. Shared-use paths provide low-stress facilities for bicyclists. Examples of shared-use paths in American Canyon include:

- Segments of the Vine Trail - The Vine Trail is a 47-mile active transportation corridor that is under development and will connect the Vallejo Ferry Terminal in southern Solano County to Calistoga in northern Napa County.
- Wetlands Edge Road Trail, part of the Bay Trail (see Figure AC.4) - Parking and trailheads are available at the Wetlands Edge Viewing Area which offer trail options for recreational biking and hiking.
- Several shared-use paths in parks and utility rights-of-way.

Figure AC.5. Wetlands Edge Trail, part of the Bay Trail, in American Canyon

Shared-use paths (Class I) in American Canyon are generally narrow, with width ranging from eight to 10 feet. Although some of these shared-use paths are substandard in width compared to best practices for Class I design, they provide neighborhood connections or cut-throughs to destinations. These segments are identified in this Plan since they are separated from automobile traffic and provide important desired connections within the bicycle network.[38]

The Vine Trail is a key active transportation corridor that is becoming the backbone of Napa County's low-stress bicycle network. The completed Vine Trail will connect all Napa County jurisdictions as part of a 47-mile shared-use trail between the Vallejo Ferry Terminal and Calistoga. The Napa Valley Vine Trail Coalition and NVTA are actively working on planning, design, and construction of trail segments throughout the county.

[38] Eight feet is the typical recommended minimum for any shared-use path. Some small connector paths in the county are as narrow as four feet.

Bike Lanes

Bike Lane (Class II) provide an exclusive space for bicyclists in the roadway and are established by painting lines and symbols on the roadway surface. Bike lanes are for one-way travel and are typically provided in both directions on two-way streets and/or on one side of a one-way street (see Figure AC.5). Examples of bike lanes in American Canyon include American Canyon Road, Elliott Drive, and Benton Way.

Figure AC.6. Bike lane on Benton Way in American Canyon

Bike lanes create a lower-stress riding environment on streets with a maximum posted speed limit of 30 miles per hour and traffic volumes between 3,000 and 8,000 vehicles per day. Many of the bicycle lanes in Napa County are on roadways with higher speeds, such as American Canyon Road, which can result in a stressful bicycling environment for many bicyclists, including Interested but Concerned bicyclists. Some of these facilities are well used, however, by the many Napa County residents and visitors who are more comfortable with bicycling in high-speed environments.

Buffered Bike Lanes (Class II) are implemented by painting or otherwise creating a flush buffer zone between a bicycle lane and the adjacent travel lane (see Figure AC.6). While buffers are typically used between bike lanes and motor vehicle travel lanes to increase bicyclists' comfort, they can also be installed between bicycle lanes and parking lanes to reduce conflicts with opening car doors. When located on streets with moderate traffic volumes and speeds, buffered bike lanes provide a lower-stress riding environment for bicyclists. No buffered bike lanes exist today in American Canyon or elsewhere in Napa County.

Figure AC.7. Buffered bike lane in Seattle, WA

Bike Routes and Bicycle Boulevards

Bike Routes and Bicycle Boulevards are two types of Class III facilities in Napa County.

Bike routes are designated with pavement markings or signage to indicate a shared lane environment between bicyclists and drivers (see Figure AC.7, an example in nearby St. Helena). Examples of bike routes in American Canyon include American Canyon Road, Benton Way, Kimberly Drive, Elliot Drive, and Broadway Street (also SR 29).

While signage and markings support wayfinding and indicate bicyclist positioning on shared streets, bicycle routes do not provide any protection or separation between people driving and people bicycling. When located on streets that have high traffic speeds and/or volumes, bike routes are uncomfortable and most people will choose not to ride on them.

Figure AC.8. Bike route in nearby St. Helena

Bicycle boulevards are also indicated with pavement markings and signage, but are specifically located on low-speed, low-volume streets, often in residential neighborhoods. Bicycle boulevards are designed to prioritize bicycle through-travel, while reducing motor vehicle through traffic volumes and maintaining relatively low speeds. When paired with intersection treatments that help bicyclists cross major intersections, bicycle boulevards are an attractive, low-stress facility. Currently, there are no bicycle boulevards in American Canyon.

Separated Bike Lanes

Separated Bike Lanes (Class IV) are an exclusive bikeway facility type that combines the user experience of a shared-use path with the on-street elements of a conventional bike lane (see Figure AC.8). They are recommended for roadways with speeds higher than 30 miles per hour and motor vehicle volumes over approximately 6,500 vehicles per day. Separated bike lanes are physically separated from motor vehicle traffic with a vertical element and are distinct from the sidewalk. They can be located at street level within the curbs, at an

Figure AC.9. Separated bike lane in Berkeley, CA

intermediate level, or at sidewalk level, see Figure AC.9 below. Numerous options are available for creating separation between modes, ranging from low-cost paint and plastic flexpost installations, to more robust curb-separated lanes. Separated bike lanes provide a low-stress riding environment to all bicyclists. No separated bike lanes currently exist in American Canyon or elsewhere in Napa County.

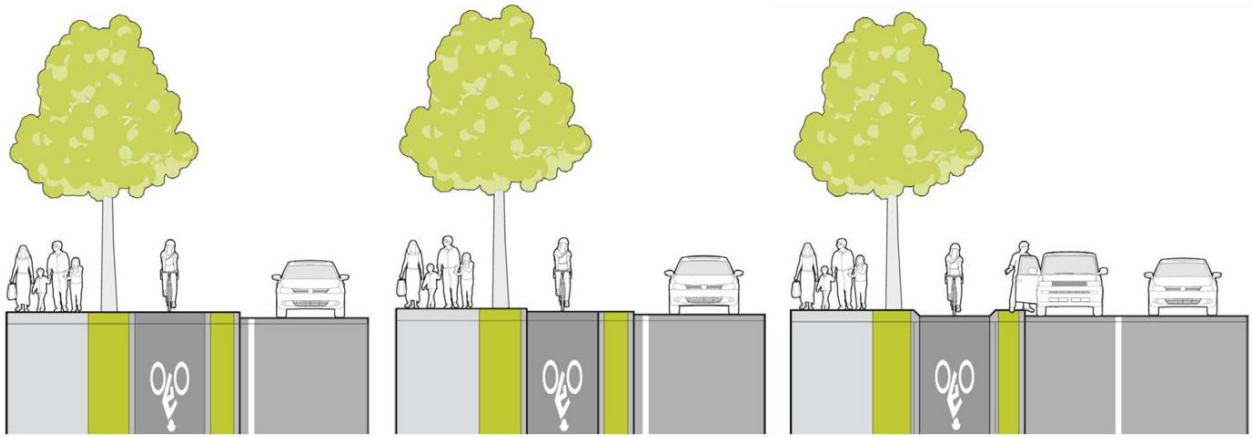

Figure AC.10. Sidewalk level, intermediate level, and street level separated bike lanes, left to right.

How many people bike today?

Some residents within the municipalities and Napa County choose to bicycle to work, and data is readily available regarding residents' commuting mode choice from the U.S. Census' American Community Survey (ACS). In American Canyon, approximately 0.4 percent of residents commute by bicycle which is half of the county's mode share of 0.8 percent. However, work-related trips only comprise 10 to 15 percent of all household trips; the remaining 85 to 90 percent of trips are made to visit friends and family or for errands, entertainment, outings, and recreation. [39]

The assumption can be made that Napa County residents are generally more likely to bike for non-work trips. This is because non-work destinations, such as an errand or a friend's house, are likely to be located closer to home.

[39] Range references the National Household Travel Survey (15 percent) and California Household Travel Survey (9.9 percent).

Collision Analysis

Improving safety for bicyclists is an expressed goal of the 2019 Countywide Bicycle Plan and preventing and mitigating bicycle collisions is a key consideration behind the network recommendations for American Canyon. Not only is safety and the reduction of bicycle collisions a public health issue, addressing safety concerns is also an important way to encourage more people to ride a bicycle. Understanding collision factors and trends will allow the City to identify and prioritize investments that can have the greatest impact on improving safety for bicyclists and other users of the roadway.

To better understand collision history in American Canyon, injury crash data from 2006-2013 were reviewed.[40] American Canyon has relatively few bicycle crashes reported during this seven-year period, and the crashes that occurred are geographically disbursed. That said, Broadway and American Canyon Road, combined, were the locations of seven of the city's 18 crashes. In general, bicycle collisions in American Canyon were less severe (11 percent were severe, no fatalities), and were caused by either a broadside hit (33 percent) or an unidentified "Other" (22 percent). Collision factors were varied, with "Signals and Signs" and "Wrong Side of the Road" as the major identified reasons for the crash. See Figure AC.10 for a map of bicycle collisions.

The crashes that are mapped and analyzed only include those reported to police. There may be additional unreported crashes, and near misses, that have occurred during this time that influence people's decision to ride a bike.

[40] Collision data was gathered from the University of California-Berkeley's Safe Transportation Research and Education Center's Transportation Injury Mapping System (TIMS).

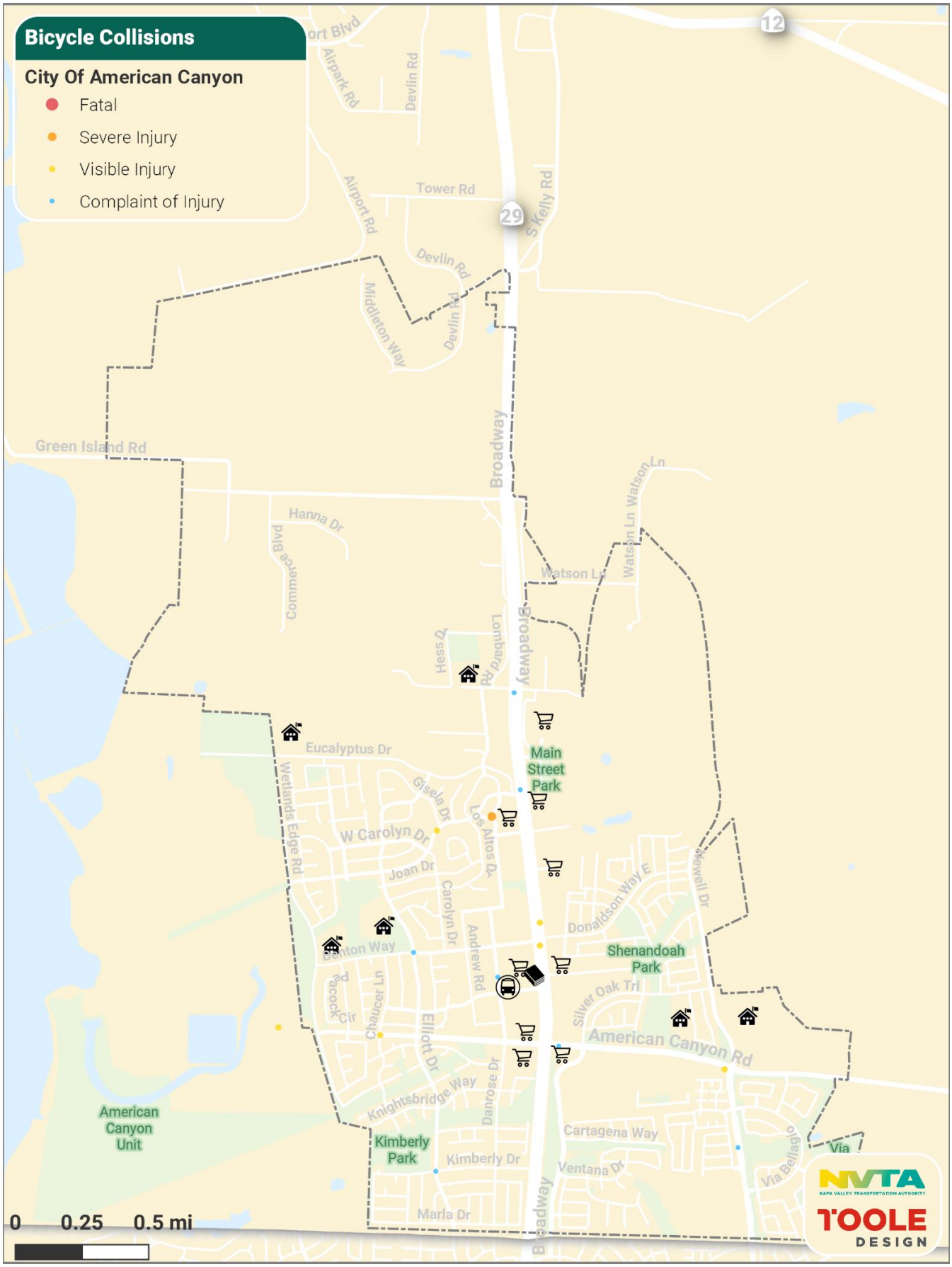

Figure AC.11. Bicycle Crash Distribution (2006-2013)

Community Input

Residents of American Canyon were invited to be an active part of the planning process through in-person and online outreach activities hosted by the Napa Valley Transportation Authority (NVTA). The community feedback directly informs the Plan's network and programmatic recommendations. For more information about outreach, see Chapter 2 of the 2019 Countywide Bicycle Plan.

From July to October 2017, residents were invited to share their site-specific comments on the existing network and potential improvements through an online, interactive WikiMap. Respondents were asked to provide feedback on:

- Barriers to biking
- Places/routes where I currently ride a bike
- Places/routes where I would like to ride

Six respondents contributed a total of ten comments within American Canyon. Highlights include:

- It is unsafe and uncomfortable to ride a bike in American Canyon due to the lack of comfortable bike facilities and challenging roadway crossings.
- SR 29 and American Canyon road were identified as barriers.
- Trails such as the Tuscan Oak Trail are too narrow for bicyclists to use; they should be widened or on-street facilities should be provided.

The location of WikiMap comments in American Canyon can be found in Appendix B.

In addition to the initial WikiMap, NVTA also hosted an online map from June to July 2018, for residents to review the recommended bicycle network facilities. This map showed draft recommended bike facilities throughout the county and allowed users to agree or disagree that the recommendation was appropriate in that location. Over 50 respondents provided approximately 330 comments which were reviewed by staff in each jurisdiction for possible changes to the recommended network.

American Canyon was also represented through involvement in committees and through direct outreach to City staff by NVTA throughout the development of this plan.

SECTION 4: PROPOSED BICYCLE NETWORK

The main purpose of this plan is to identify a future bicycle network for American Canyon that is safe and connected. The proposed bicycle network map (see Figure AC.11) was developed based on fieldwork, an analysis of existing conditions, input from the community and City staff, in consideration of best practices in bicycle network planning, and facility guidance from Appendix A: Bicycle Facilities Toolkit.

The resulting network includes high-quality infrastructure in the form of shared-use paths, separated bike lanes, bike lanes, bike boulevards, and bike routes. These facilities connect to key community destinations and neighborhoods and close network gaps. The network also provides connections beyond the American Canyon city boundary into the unincorporated areas.

American Canyon's proposed bicycle network is a 24.1-mile network, as detailed in Table AC.3. When implemented, the existing and proposed facilities will create a 37.2-mile network.

Table AC.3. Proposed Bicycle Network

Facility	Proposed Mileage	Existing Mileage	Total Future Mileage
Vine Trail (Class I)	2.8	2.4	5.2
Shared-Use Paths (Class I)	11.5	7.3	18.8
Bike Lanes (Class II)	6.5	1.6	8.1
Bike Boulevard (Class III)	1.6	-	1.6
Rural Bike Routes (Class III)	0.8	1.8	2.6
Separated Bike Lanes (Class IV)	0.9	-	0.9
Total Network	**24.1**	**13.1**	**37.2**

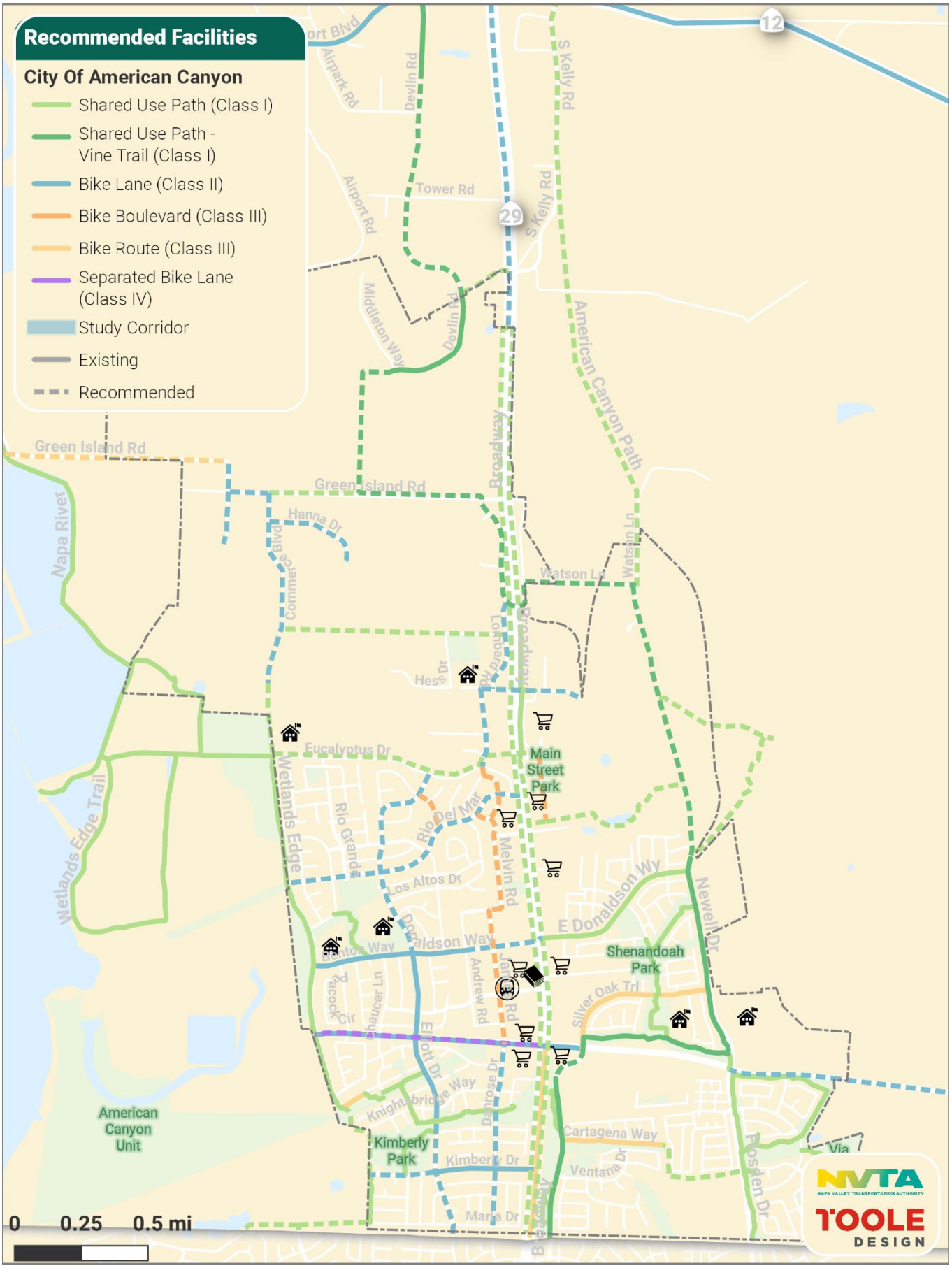

Figure AC.12. Proposed Bicycle Network

SECTION 5: SUPPORT PROGRAMS AND POLICIES

City policies and support programs are key components of a welcoming, bicycle-friendly community. Generally, policies are set by the City government, while programs are led by or executed in partnership with external organizations or agencies such as advocacy organizations or school districts. Along with bike network investments, programs and policies will help American Canyon realize the Plan's goals of connectivity, equity, safety, and education and encouragement.

American Canyon already has several programs related to bicycling which are described in Table AC.4. The existing and recommend programs create a full suite of efforts to promote and support bicycling throughout American Canyon.

Table AC.4. Support Programs and Policies

Support Program/Policy	Description	Source
Existing		
Safe Routes to School Program	Since 2010, this collaborative program, provided by the Napa County Office of Education in conjunction with the Napa Valley Bicycle Coalition, encourages students to walk and bike to school through education events, prizes, and safety projects.	Existing
Safety Education	The Napa County Bicycle Coalition organizes educational and promotional events to encourage safe bicycle riding in Napa County, such as bicycle safety rodeos and the annual BikeFest event in May. This can include educational programs for both children and adults.	Existing
Recommended		
Bicycle Parking, Shower, and Locker Facilities	Provide short- and long-term bicycle parking at key destinations, such as parks, schools, community facilities, transit stops, and shopping areas. Encourage employers to install showers and locker facilities for bicycle commuters.	2012 American Canyon Bicycle Plan
Capital Improvement Projects / Complete Streets Checklist	Create checklist for capital projects on and adjacent to streets (repaving, restriping, reconstruction) that ensures City staff review the infrastructure recommendations of this Plan at the time of project development	2019 Bicycle Plan
Dedicated Bicycle Staff	Identify a staff member who is responsible for bicycle planning and the implementation of bicycle facilities and dedicate a percentage of their time to these efforts.	2019 Bicycle Plan
Existing Bikeways Policy	Develop a policy which specifies that existing bikeways should not be removed, unless an improved bikeway is being installed.	2019 Bicycle Plan
Law Enforcement Activities	Coordinate with law enforcement agencies and improve officers' understanding of bicycling issues, which will lead to better enforcement, heightened awareness of safety issues, and recognition of "teachable moments" for both bicyclists and motorists.	2012 American Canyon Bicycle Plan
	Provide bicycle-specific training for law enforcement personnel and establish a community policing agreement which 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	2019 Bicycle Plan

Support Program/Policy	Description	Source
	approach to address traffic safety issues that includes education, engineering, and enforcement.	
	Establish a bicycle diversion program for bicycle traffic offenders.	
	Provide focused law enforcement operations at high collision locations.	
Maintain Overgrown Vegetation	Continue to ensure citywide that landscapes at maturity do not interfere with safe sight distances for bicycle, pedestrian, or vehicular traffic; do not conflict with overhead lights, traffic controls, traffic signage, utility lines or poles, or walkway lights; and, do not block bicycle or pedestrian ways. Develop ordinance to encourage adjacent property owners to maintain landscaped areas with live and healthy plant materials, replace plant materials when necessary to maintain full function and aesthetics; to water, weed, prune, fertilize and keep sidewalks and planting strips litter free.	2016 Napa Countywide Pedestrian Plan
Site Plan Review Checklist	Create checklist for development review to ensure site plans include considerations for bicycle access and safety. Include items from MTC's Routine Accommodation Checklist for projects in the public right-of-way to ensure routine application of the Complete Streets policy. MTC's checklist can be found here: http://www.mtc.ca.gov/planning/ bicyclespedestrians/Routine_Accommodation_checklist.pdf	2016 Napa Countywide Pedestrian Plan
Vision Zero Policy	Adopt a countywide Vision Zero policy and develop an action plan for implementing Vision Zero. Identify opportunities for funding for Vision Zero efforts, such as developing a Countywide database to inventory collision data and environmental factors, undertaking a comprehensive analysis to understand collision patterns, and facilitating an outreach process to identify community safety priorities and determine where to focus safety investments and improvements.	2019 Bicycle Plan
Wayfinding Program	Develop a regional wayfinding system that has a similar brand throughout Napa Valley and helps bicyclists navigate the transportation network with confidence and provide direction to their destinations; create a community identity; and build a sense of place. The City of American Canyon could adjust the brand to reflect local character while still maintaining signage elements for consistency including placement, frequency of signs, and content.	2019 Bicycle Plan
Bikeway Maintenance	Prioritize maintenance of roadways and removal of debris where bicycle facilities are present	2019 Bicycle Plan

SECTION 6: IMPLEMENTATION PLAN

Because all communities, including American Canyon, have limited financial resources, it is not possible to implement all the recommended projects immediately. To focus American Canyon's resources, several characteristics of projects should be considered. These characteristics are discussed in relation to implementation phases below.

Immediate-Term

Overlap with Measure T Repaving Projects

While the connectedness of a bicycle network is highly important, recommended projects should be implemented as opportunities arise for integration into existing projects. American Canyon's five-year paving plan funded by Measure T offers a great opportunity for quickly implementing several recommended bicycle facilities. American Canyon's Measure T plans have been compared to the proposed bicycle network, and those projects are noted in Table AC.5.

Short- and Medium-Term

Facility Characteristics

All other planned street resurfacing and reconstruction projects should be reviewed against the recommended bike network. Another early step in the implementation of the bicycle plan should be to answer the following questions about each project:

- Does a facility consist only of striping and signage that can be added at any time?
- Does a facility necessitate further community dialog regarding reallocation of street space?
- Does a project need significant funding that must be obtained through a competitive process (i.e., grant)?
- Does a project necessitate acquiring additional right-of-way?
- Are there any environmental concerns about a project location?

These questions can help direct staff to understand which projects are more readily implementable.

Proximity to Destinations

Public input received over the course of this Plan process indicates greater interest in connecting to certain destinations including: schools, parks, trailheads, and community centers. The locations of these destinations, as well as other known bicycle traffic generators such as hotels with bike rental schemes should be considered when selecting projects for earlier implementation.

Public Concerns

Residents gave input through the WikiMap about areas of greater concern for bicyclists. These are documented in the summary above, and staff may wish to refer to these comments when considering which projects to implement first. Staff should also continue to collect and document resident concerns and priorities about bicycling and general traffic safety in American Canyon and bring those comments into discussions regarding implementation priorities.

Network Connectivity

Staff should consider the benefits provided by a connected bicycle network. Research has shown that a connected low-stress network has the greatest impact on encouraging people to choose to bicycle. Projects that connect to existing facilities, especially ones that are known to be popular, may be prioritized. This should be balanced against the desire to provide bicycle facilities in and connecting to underserved communities in keeping with the equity goal of this Plan. Often, these areas have been historically underserved by infrastructure, and building new bike network projects here may not connect to existing facilities.

Long-Term

Some projects, such as many shared-use paths (Class I), will necessarily require a more sustained effort to come to fruition. While it may take a longer time to implement these projects, jurisdictions should begin to consider the steps toward construction of these projects so they are prepared for grant applications or inserting funding into capital improvement plans and inclusion of shared-use path (Class I) projects under the 6.67% equivalent funds collective requirement.

Connectivity Improvements from Phased Implementation

As stated, the planned bicycle facilities for American Canyon are intended to create the most low-stress network that conditions allow. Implementation of on-street facilities such as bike boulevards (Class III) and bike lanes (Class II) will significantly improve the connectivity of the bicycle network for riders of all ages and abilities. Focusing first on intersection treatments at locations where these facilities cross high-speed, high-volume streets without a traffic signal will most quickly improve connectivity.

While shared-use paths (Class I facilities) certainly provide a low-stress riding environment, their implementation requires more investment and often more planning than on-street facilities. Within American Canyon, the construction of shared-use paths on either side of Broadway will create significant connectivity improvements. These are understood to be a large, long-term capital investments, however, so implementation of on-street facilities in the meantime will provide great benefits to the city.

Funding

Funding for the bicycle network projects can come from different sources. For example, the City of American Canyon could fund the improvements through dedicated funds from the City, by leveraging development-driven projects, or through grant opportunities. More information about available grant funds can be found in Chapter 4 of the 2019 Countywide Bicycle Plan.

Table AC.5. Project List for City of American Canyon

Project ID	Street/Trail Name	Begin	End	Facility Type	Length (Miles)
Measure T Overlap Projects					
Bike Lane (Class II) Projects					
740	Danrose Dr	Marla Dr	W American Canyon Rd	Bike Lane (Class II)	0.68
212	Donaldson Wy	Elliot Dr/Donaldson Wy	Eucalyptus Dr	Bike Lane (Class II)	0.81
803*	Elliot Dr	City Limit	Knightsbridge Wy	Bike Lane (Class II)	0.47
227	Kimberly Dr	Elliot Dr	Meadow Bay Dr	Bike Lane (Class II)	0.24
207	Theresa Ave	Napa Junction Rd	Eucalyptus Dr	Bike Lane (Class II)	0.30
Bike Boulevard (Class III) Projects					
831	Gisela Dr	Donaldson Wy	Rio Del Mar	Bike Boulevard (Class III)	0.15
221*	James Rd	Wilson Wy	American Canyon Rd	Bike Boulevard (Class III)	0.51
Bike Route (Class III) Projects					
732*	Green Island Rd	Bay Trail	Commerce Rd	Bike Route (Class III)	0.84
All Other Projects					
Shared-Use Path (Class I) Projects					
210	Bay Area Ridge Trail - Eucalyptus Dr	Wetlands Edge Rd	Main St	Shared-Use Path (Class I)	1.04
845	Bay Area Ridge Trail - S Napa Junction Rd	Main St	Vine Trail (Newell Dr extension)	Shared-Use Path (Class I)	0.62
228	Bay Trail (Kimberly Area Segment)	Kimberly Dr	Kensington Wy	Shared-Use Path (Class I)	0.32
225	Cartagena-Via Bellagio Connector Path	150' E of Entrada Circle	Flosden Rd	Shared-Use Path (Class I)	0.40
805	Commerce Blvd	Eucalyptus Dr	Clarke Ranch Park	Shared-Use Path (Class I)	0.27
735	Green Island Rd	Vine Trail	Commerce Blvd	Shared-Use Path (Class I)	0.33
204	Hess Rd	Commerce Rd	Lombard Rd	Shared-Use Path (Class I)	0.83
864	River Trail	Vine Trail	Newell Open Space	Shared-Use Path (Class I)	1.06
909	S Kelly Rd	SR 29	Devlin Rd	Shared-Use Path (Class I)	0.20
203	SR 29	North city limit at SR 29	American Canyon Rd	Shared-Use Path (Class I)	1.15
843	SR 29	North city limit at SR 29	American Canyon Rd	Shared-Use Path (Class I)	5.21
730	SR 29 connector	River to Ridge Trail	SR 29	Shared-Use Path (Class I)	0.06
879	Broadway	Veterans Park	American Canyon Rd	Shared-Use Path - Vine Trail (Class I)	0.17

Project ID	Street/Trail Name	Begin	End	Facility Type	Length (Miles)
899	Vine Trail (along Devlin Rd)	Middleton Way	Watson Ln	Shared-Use Path - Vine Trail (Class I)	1.62
868	Vine Trail (Newell Rd Extension)	Donaldson Way (Southern Intersection of proposed Vine and Ridge Trails)	Paoli Rd	Shared-Use Path - Vine Trail (Class I)	1.06
Separated Bike Lane (Class IV) Project					
222	American Canyon Rd	Wetlands Edge Rd	SR 29	Separated Bike Lane (Class IV)	0.85
Bike Lane (Class II) Projects					
223	American Canyon Rd	Newell Dr	I-80	Bike Lane (Class II)	0.42
736	Commerce Blvd	Clarke Ranch Park	Green Island Rd	Bike Lane (Class II)	0.74
209	Donaldson Wy	Andrew Rd	Newell Dr	Bike Lane (Class II)	0.30
733	Green Island Rd	Northern intersection of Green Island Rd and Mezzetta Ct	Vine Trail (Class I facility intersecting at Green Island Rd 300' W of RR tracks)	Bike Lane (Class II)	0.25
737	Hanna St	Commerce Blvd	terminus	Bike Lane (Class II)	0.37
205	Lombard Rd	proposed Vine Trail	Napa Junction Rd	Bike Lane (Class II)	0.34
734	Mezzetta Ct	Green Island Rd	end of street	Bike Lane (Class II)	0.20
729	Napa Junction Rd	Theresa Ave	future path	Bike Lane (Class II)	0.37
830	Rio Del Mar	Bay Trail, Near Wetlands Edge Rd	SR 29 (Broadway)	Bike Lane (Class II)	1.00
Bike Boulevard (Class III) Projects					
844	Main St	Eucalyptus Dr	Bay Area Ridge Trail (S Napa Junction Rd)	Bike Boulevard (Class III)	0.25
215	Cassayre Dr	Melvin Rd	Rio Del Mar	Bike Boulevard (Class III)	0.15
218	Los Altos Dr	Theresa Ave	Rio del Mar	Bike Boulevard (Class III)	0.10
216	Melvin Rd	James Rd	Cassayre Dr	Bike Boulevard (Class III)	0.35
220	Melvin Rd	James Rd	Rio Del Mar	Bike Boulevard (Class III)	0.05
217	Theresa Ave	Eucayptus Dr	Los Altos Dr	Bike Boulevard (Class III)	0.03

* Projects denoted with an asterisk overlap with a jurisdiction-identified Measure T project, but they do not have the same extents: the proposed bicycle network project is either longer or shorter than the Measure T project.

Chapter 11: Unincorporated Napa County Bicycle Plan

SECTION 1: INTRODUCTION

Plan Introduction

The Unincorporated Napa County Bicycle Plan is intended to guide development of infrastructure, programs, and policies that improve the bicycling environment for all residents and visitors in this Napa Valley community. The Unincorporated County's Plan will help the County work towards the adopted goals for bicycling in Napa County: connectivity, equity, safety, and education and encouragement. Planning and design for bicycling has evolved since adoption of the Unincorporated County Bicycle Plan in 2012, and this Plan update brings the latest best practices to bear on recommendations for implementation by County staff.

Area Overview

Located in the North Bay of the San Francisco Bay Area, Napa County is approximately 50 miles northeast of San Francisco and 45 miles southwest of Sacramento. The county is bordered on the west by the Mayacamas Mountains and Sonoma County, on the east by the Howell Range and Solano and Yolo Counties, on the north by Lake County, and on the south by San Pablo Bay.

Napa County is comprised of the five incorporated cities/town of American Canyon, Napa, Yountville, St. Helena, and Calistoga and the unincorporated areas within the county. This Plan focuses on the unincorporated areas which are fall under the jurisdiction of Napa County.

The unincorporated areas of Napa County are largely rural and agricultural with a few small communities. The County identifies several specific geographic areas throughout the unincorporated area, including Angwin, Berryessa Estates, Berryessa Highlands, Big Ranch Road, Coombsville, Deer Park, Lake Berryessa (Moskowite Corners, Pope Creek, and Spanish Flat), Silverado, and the South County Industrial Areas.

Four public schools are located in the unincorporated areas; two are located near Angwin, including Pope Valley Union Elementary School on Pope Valley Road and Howell Mountain Elementary School on White Cottage Road. Mount George Elementary is located in Coombsville, and Vichy Elementary is located on Vichy Avenue near Silverado. Currently, none of the schools are served by bikeways.

Due to efforts of farmers and Napa County residents, in the 1960s, Napa County adopted the first agricultural land protection policy in the United States, known locally as the "Ag Preserve." This policy is still in effect today, and the Land Trust of Napa County is active in securing easements and using other tools to preserve the natural landscape.

The settlement pattern in Napa County from its earliest days mirrored that of other rural, agricultural counties, with small settlements widely separated. This pattern continued, and modern Napa County remains sparsely settled outside of the incorporated cities/town and a small number of urbanized areas in the unincorporated county. Vineyards are located throughout the unincorporated areas, especially along State Route (SR) 128/29 and Silverado Trail, and are a major draw for tourists from all over the globe.

While the county has traditionally had mainly rural and agricultural uses, in recent years, Napa County's tourism and overall population has grown, placing increased demands on its transportation system, especially on SR 128/29, Silverado Trail and within the incorporated areas. SR 128/29 and Silverado Trail are the primary north-south routes within the county; both routes are high speed, high traffic corridors. Within the unincorporated areas, most roads are narrow with low traffic volumes. Some roads provide bicycle facilities in the form of wide shoulders, such as Silverado Trail which is a primary north/south bicycle route.

Relationship to Existing Plans

This 2019 Bicycle Plan is an update to the 2012 Napa County Bicycle Plan and builds upon the recommendations on bikeways, policies, programs, and design standards detailed in the 2012 Plan.

This 2019 Plan also dovetails with the 2008 Napa County General Plan and the 2016 Napa Countywide Pedestrian Plan which establishes an implementation plan to encourage more walking trips throughout Napa County and improve safety for all users.

As of the writing of this 2019 Plan, Napa County is currently updating the Circulation Element of the County General Plan to revise the 2008 Circulation Element and incorporate current trends and best practices in countywide transportation planning.

For more information about these plans, see Appendix D of the 2019 Napa Countywide Bicycle Plan.

SECTION 2: GOALS AND POLICIES

Countywide Vision and Goals

The Countywide vision statement, goals, and policies were developed to guide recommendations in both the Countywide Plan and the jurisdiction plans, including the Unincorporated Napa County Bicycle Plan. The vision statement, goals, and policies will be used to evaluate progress of Plan implementation.

Vision Statement

Napa County's vision is to be a bicycle-friendly community with a world-class bicycling system for all ages and abilities. The comprehensive, connected bicycle system will provide people with safe, convenient and enjoyable access to destinations throughout all Napa County jurisdictions and beyond. Residents and visitors will enjoy bicycling for everyday commuting, non-work trips and recreation. Bicycling contributes to a high quality of life, promotes health and will help achieve a 10 percent mode shift in Napa County by 2035.

Goals and Policies

The goals and policies developed for the 2019 Plan will guide the Unincorporated County and other Napa County communities in improving the bicycling environment for residents and visitors.

Table UNC.1. Goals and Policies of the Plan

Goals		Policies
Connectivity	Develop a well-designed low Level of Traffic Stress (LTS) connected bicycle network	• Build and maintain a local and countywide bicycle transportation and recreation network that connects Napa County's incorporated cities/town and unincorporated communities and provides access to public transportation and community destinations. • Develop and maintain continuous low Level of Traffic Stress (LTS) bicycle facilities of all types to provide accessible intra-city connections that serve as the framework of the Countywide Bikeway System. • Prioritize coordination and completion of regionally significant primary bikeways including the Napa Valley Vine Trail, the Bay Trail and the Ridge Trail, and local connections to those facilities. • Provide secure bicycle parking at public and private destinations throughout Napa County. • Integrate the bicycle network and bicycle facility amenities into land use decisions and developments.
Equity	Improve bicycle access for disadvantaged and/or underserved communities	• Implement projects that improve access for disadvantaged and/or underserved communities, particularly those reliant on walking, biking and transit for transportation.

Goals		Policies
Safety	Improve safety for all ages and abilities	• Work to reduce the number and severity of bicycle collisions. • Work to reduce bicycle fatalities to zero by 2035. • Improve locations that have high incidences of bicycle collisions, and/or impediments or conflicts to bicyclists. • Implement Complete Streets policies that ensure accommodation and enable safe access for users of all ages and abilities. • Implement appropriate, well-designed bicycle facilities using accepted design standards, including intersection and other crossing improvements.
Education & Encouragement	Increase mode share of bicycling	• Encourage education programs for all users of the roadway in all jurisdictions and school districts. • Develop programs and public outreach materials to promote safety and the positive benefits of bicycling.

Serving All Types of Bicyclists

Many factors contribute to people choosing to ride a bicycle, with a major factor being the rider's perception of safety. A rider's perception of an unsafe route can be related to numerous things but is most often related to riding adjacent to high-traffic and high-speed roadways or crossing busy intersections with little or no separation from vehicles. Research has found that a large percentage of the American population is interested in bicycling for transportation but does not currently do so because they believe the routes they would need to travel are unsafe or feel uncomfortable. Many people feel safer and more comfortable riding on low-traffic, low-speed streets or on facilities that provide protection or physical separation from fast-moving traffic.[41] Most people in the U.S. – between 50 and 60 percent – have little tolerance for interacting with motor vehicle traffic unless volumes and speeds are very low (see Figure UNC.1).[42] This group of riders is referred to as "Interested but Concerned," reflecting both their interest in bicycling for transportation as well as concerns about safety and comfort when interacting with motor vehicle traffic.

This framework of rider types was used to assess the existing bicycle network and to select recommended facility types for the 2019 Plan. This rider type has the highest potential for increasing bicycle mode share if facility types that support and encourage biking are available.

[41] Source: Dill, J. McNeil, N. "Revisiting the Four Types of Cyclists: Findings from a National Survey" Transportation Research Board 95th Annual Meeting, 2016.

[42] Studies, such as the one referenced above, show that approximately one third of the adult population is not currently interested in bicycling or able to bicycle.

Comfort Typology of Bicyclists

Design User Profile	Non-Bicyclist	Interested but Concerned	Somewhat Confident	Highly Confident
Bicycling Preferences	Uncomfortable bicycling in any condition, have no interest in bicycling, or are physically unable to bicycle.	Often not comfortable with bike lanes, may bike on sidewalks even if bike lanes are provided; prefer off-street or separate bicycle facilities or quiet or traffic-calmed residential roads. May not bike at all if bicycle facilities do not meet needs for perceived comfort.	Generally prefer more separated facilities, but are comfortable riding in bicycle lanes or on paved shoulders if need be.	Comfortable riding with traffic, will use roads without bike lanes.
Percent of General Public	31-37%	51-56%	5-9%	4-7%

Figure UNC.1. Level of Traffic Stress and Bicycle Riders

SECTION 3: EXISTING BICYCLE NETWORK

Overview: Issues and Opportunities

Within the unincorporated areas, bikeways are mainly located along the western portion of the county, providing connections between the incorporated cities/town. The main bikeway facility is located on Silverado Trail which has a bike lane for the majority of its length and a narrow shoulder in some constrained locations. Some sections of Silverado Trail have raised dots along the edge line of the bike lane to alert motorists when they are encroaching into the bike lane; this also allows bicyclists to use the full width of the bike lane without impedance from a rumble strip.

The longest segment of the Napa Valley Vine Trail, a 47-mile active transportation corridor currently under development, is located in the unincorporated areas between the Town of Yountville and the City of Napa. The 9.2-mile segment of the trail from Calistoga to St. Helena has been awarded funding and is currently under development. Once completed, this segment will provide a safe, connected route for bicyclists between Calistoga and St. Helena. A gap still remains between St. Helena and Yountville, and the Napa Valley Vine Trail Coalition is currently in negotiations with property owners along that segment and in discussions with the City of St. Helena to coordinate the alignment along this section of the trail.

Figure UNC.2. Painted bike lane on SR 29 at railroad crossing

The unincorporated areas are also home to several bike routes which are located north of Yountville and primarily connect to Silverado Trail. Other bike routes in the unincorporated areas have bike route signage, but no roadway markings.

A painted bike lane is located at the at-grade railroad crossing on SR 29 near Whitehall Lane between St. Helena and Yountville (see Figure UNC.2). Caltrans installed this in response to community requests after a fatal bicyclist crash. The green painted bike lane connects to a bike lane on the southbound side of SR 29 and provides guidance for bicyclists who are riding across the railroad tracks.

Most bicyclists who use these facilities are “Highly Confident” and are riding recreationally. In general, these are experienced, adult riders who feel comfortable riding on bikeways with little to no protection from motor vehicles. (For more information on the rider types, see Chapter 4 of the 2019 Countywide Bicycle Plan.) In general, these bikeways are not comfortable for the majority of bicyclists.

Figures UNC.3-7 illustrate the existing bicycle network. Table UNC.2 provides an overview of the existing bikeway mileage in the unincorporated areas.

Table UNC.2. Existing Bicycle Network Mileage

Facility Type	Existing Mileage
Vine Trail (Class I)	3.8
Shared-Use Path (Class I)	7.7
Bike Lane (Class II)	54.3
Bike Route (Class III)	1.7
TOTAL	**67.5**

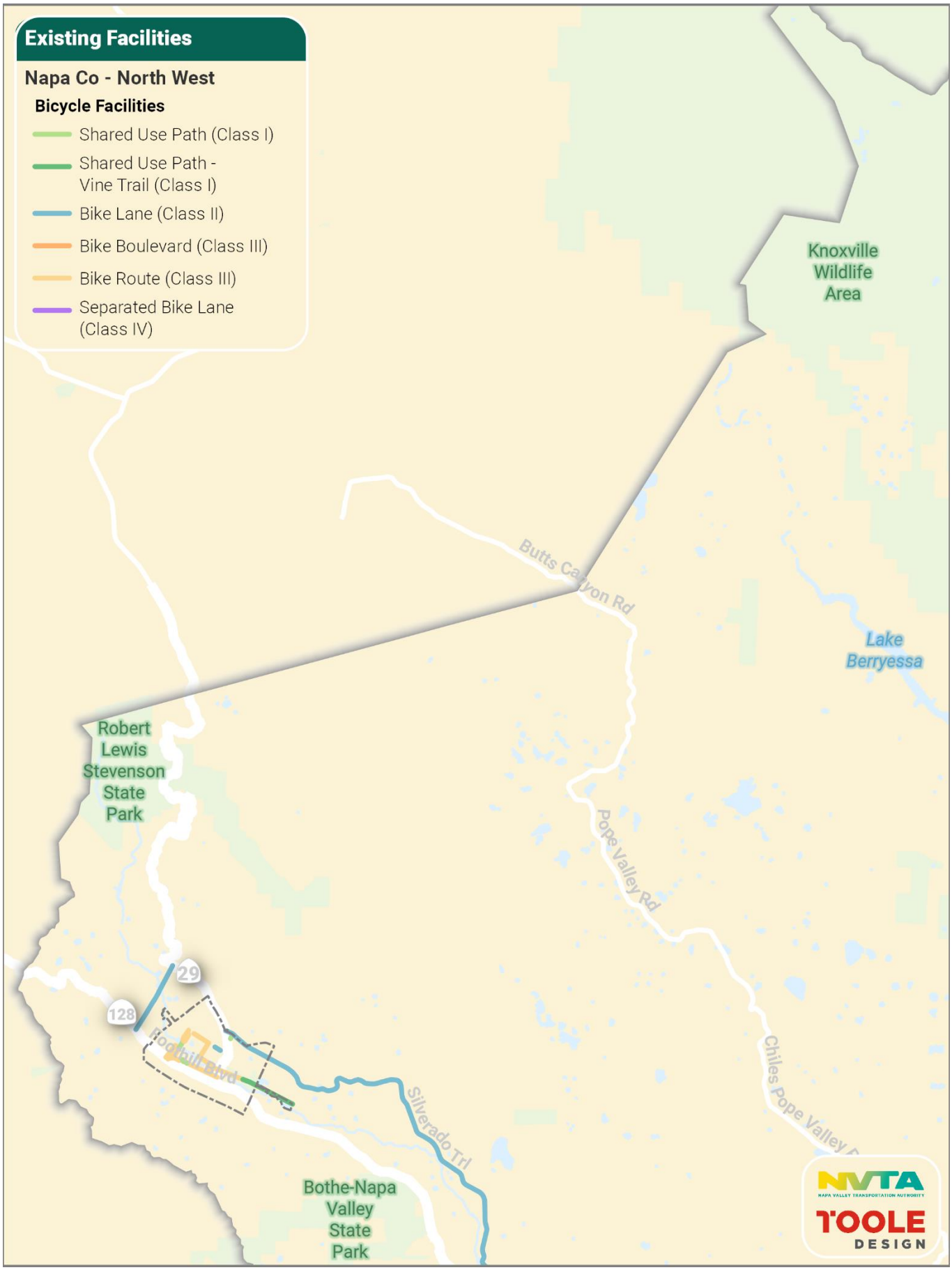

Figure UNC.3. Existing Bicycle Facilities in Napa County – Northwest

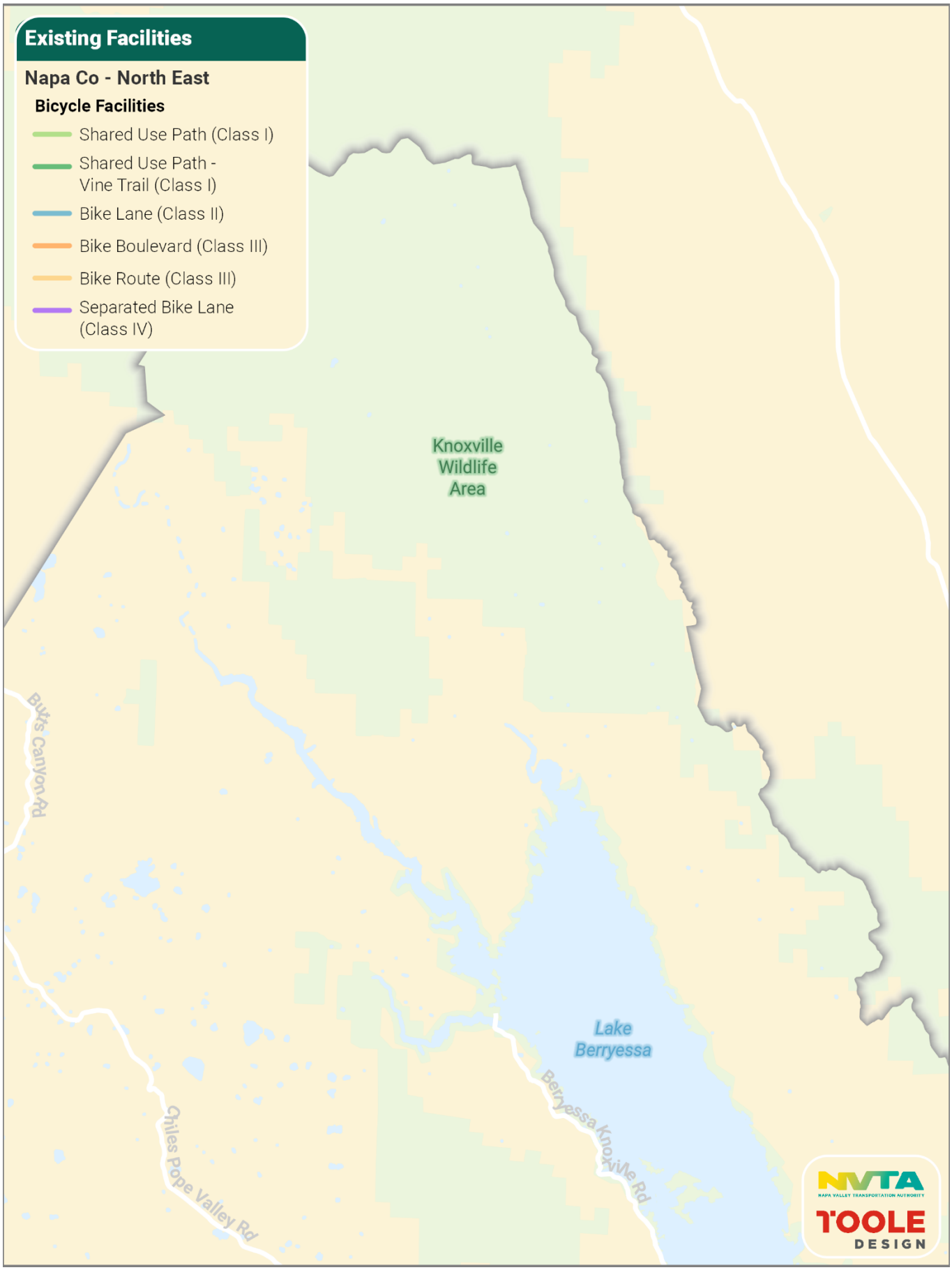

Figure UNC.4. Existing Bicycle Facilities in Napa County – Northeast

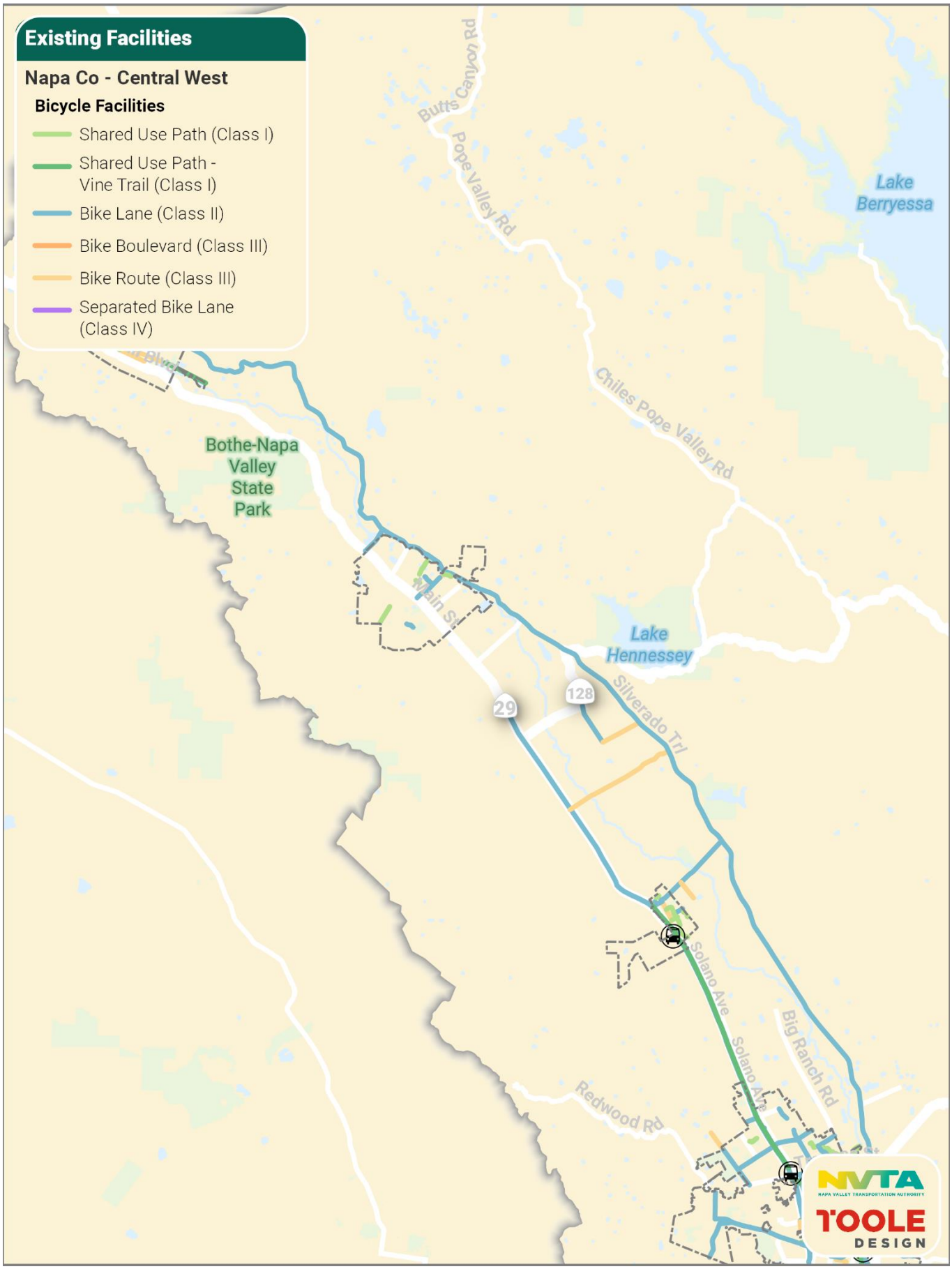

Figure UNC.5. Existing Bicycle Facilities in Napa County – Central West

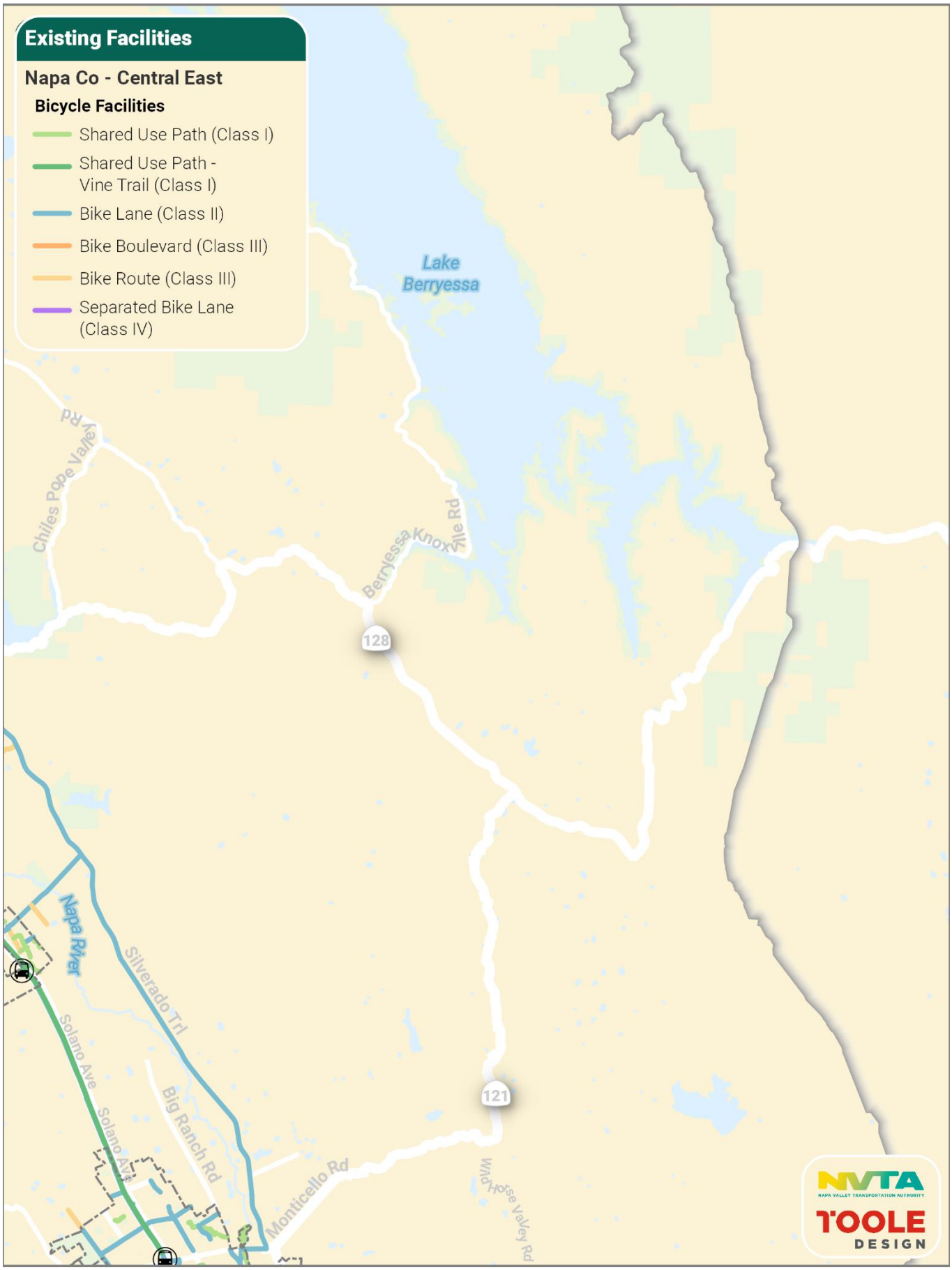

Figure UNC.6. Existing Bicycle Facilities in Napa County – Central East

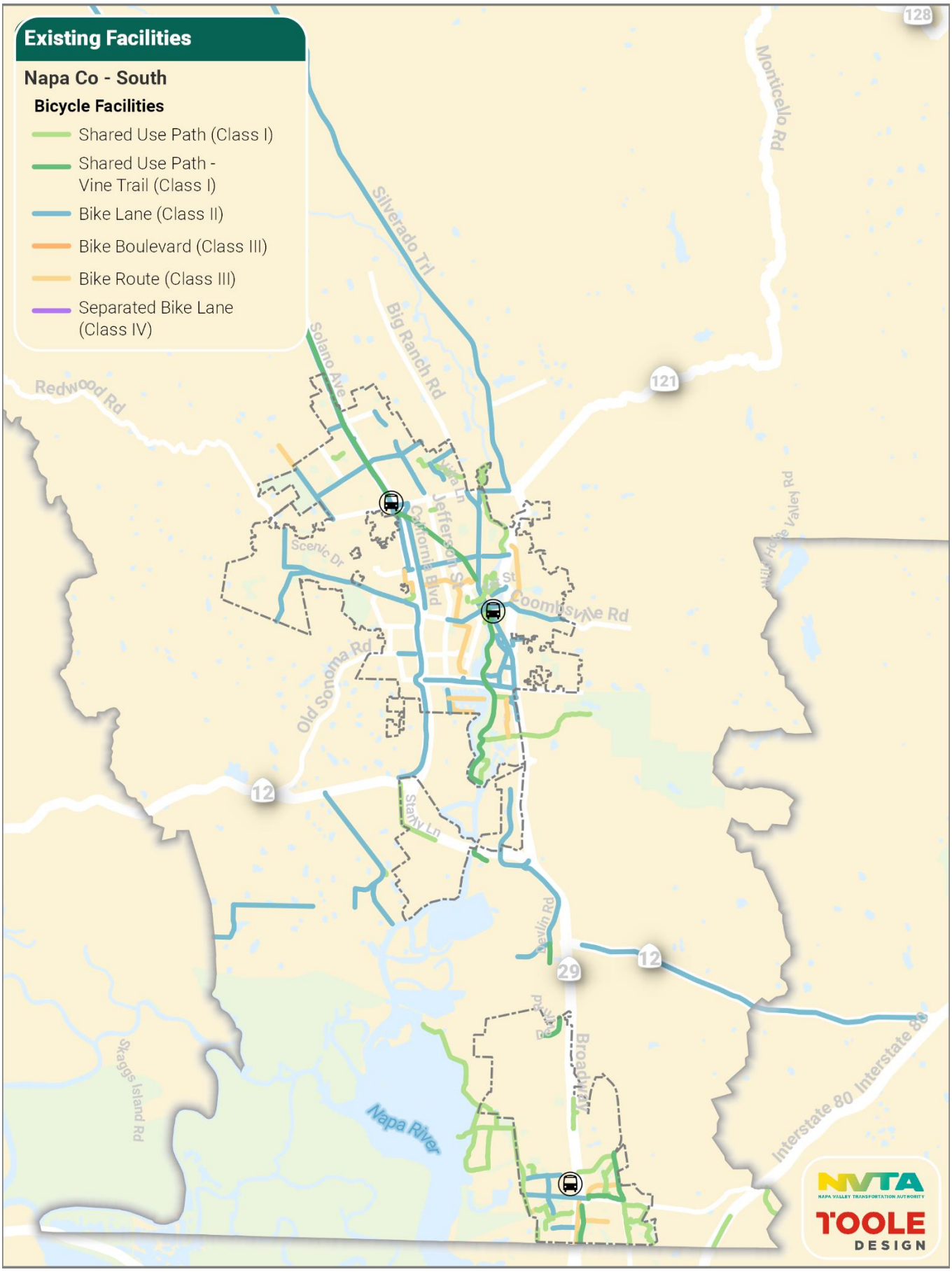

Figure UNC.7. Existing Bicycle Facilities in Napa County – South

Components of the Bicycle Network

Multiple bicycle facility types comprise a complete bicycle network, and each facility type has a different classification to distinguish the facilities. The classifications are based on the degree of physical separation from vehicle traffic. The following facility types reflect the existing bikeways as well as new ones identified in this Plan.

Shared-Use Paths

Shared-Use Path (Class I) are two-way paved facilities, physically separated from motor vehicle traffic and used by bicyclists, pedestrians, and other non-motorized users. Shared-use paths are often located in an independent alignment, such as a greenway, though sometimes they are located adjacent to roadway. Shared-use paths provide low-stress facilities for bicyclists. Examples of shared-use paths in the unincorporated areas include the Vine Trail between the Town of Yountville and the City of Napa (see Figure UNC.8). There are both existing and planned segments of the Napa Valley Vine Trail that are part of the Devlin Road Extension and as conditions for private developments.

Figure UNC.8. Bicyclists on the Napa Valley Vine Trail within the City of Napa which extends into the unincorporated areas.

Some paths and trails in Napa County, although technically not standard shared-use paths, provide connections within neighborhoods or as cut-throughs to destinations and are identified in this Plan. Although some of these shared-use paths are substandard in width compared to best practices for Class I design, they are separated from automobile traffic and provide important desired connections within the bicycle network.[43]

[43] Eight feet is the typical recommended minimum for any shared-use path. Some small connector paths in the county are as narrow as four feet.

Bike Lanes

Bike Lane (Class II) provide an exclusive space for bicyclists in the roadway and are established by painting lines and symbols on the roadway surface. Bike lanes are for one-way travel and are typically provided in both directions on two-way streets and/or on one side of a one-way street. Examples of bike lanes in the unincorporated areas include in the South Napa Airport area along Devlin Road and along Silverado Trail (see Figure UNC.9).

Figure UNC.9. Bike lane along rural Silverado Trail

Bike lanes create a lower-stress riding environment on streets with a maximum posted speed limit of 30 miles per hour and traffic volumes between 3,000 and 8,000 vehicles per day. Many of the bicycle lanes in Napa County are on roadways with higher speeds, such as Silverado Trail, which can result in a stressful bicycling environment for many bicyclists, including Interested but Concerned bicyclists. Some of these facilities are well used, however, by the many Napa County residents and visitors who are more comfortable with bicycling in high-speed environments.

Buffered Bike Lanes (Class II) are implemented by painting or otherwise creating a flush buffer zone between a bicycle lane and the adjacent travel lane (see Figure UNC.10). While buffers are typically used between bike lanes and motor vehicle travel lanes to increase bicyclists' comfort, they can also be installed between bicycle lanes and parking lanes to reduce conflicts with opening car doors. When located on streets with moderate traffic volumes and speeds, buffered bike lanes provide a lower-stress riding environment for bicyclists. No buffered bike lanes exist today in the unincorporated areas or throughout Napa County.

Figure UNC.10. Buffered bike lane in Seattle, WA

Bike Routes and Bicycle Boulevards

Bike Routes and Bicycle Boulevards are two types of Class III facilities in Napa County.

Bike routes are designated with pavement markings or signage to indicate a shared lane environment between bicyclists and drivers. Bike routes in the unincorporated areas are located north of Yountville and primarily connect to Silverado Trail.

Figure UNC.11. Bike route in nearby St. Helena

While signage and markings support wayfinding and indicate bicyclist positioning on shared streets, bicycle routes do not provide any protection or separation between people driving and people bicycling (see UNC.11, an example from nearby St. Helena). When located on streets that have high traffic speeds and/or volumes, bike routes are uncomfortable and most people will choose not to ride on them.

Bicycle boulevards are also indicated with pavement markings and signage, but are specifically located on low-speed, low-volume streets, often in residential neighborhoods. Bicycle boulevards are designed to prioritize bicycle through-travel, while reducing motor vehicle through traffic volumes and maintaining relatively low speeds. When paired with intersection treatments that help bicyclists cross major intersections, bicycle boulevards are an attractive, low-stress facility. Currently, there are no bicycle boulevards in the unincorporated areas.

Separated Bike Lanes

Separated Bike Lanes (Class IV) are an exclusive bikeway facility type that combines the user experience of a shared-use path with the on-street elements of a conventional bike lane (see Figure UNC.12). They are recommended for roadways with speeds higher than 30 miles per hour and motor vehicle volumes over approximately 6,500 vehicles per day. Separated bike lanes are physically separated from motor vehicle traffic with a vertical element and are distinct from the sidewalk. They can be located at street level within the curbs, at an intermediate level, or at sidewalk level, see Figure UNC.13 below. Numerous options are available for creating separation between modes, ranging from low-cost paint and plastic flexpost installations, to more robust curb-separated lanes. Separated bike lanes provide a low-stress riding environment to all bicyclists. No separated bike lanes currently exist in the unincorporated areas or elsewhere in Napa County.

Figure UNC.12. Separated bike lane in Berkeley, CA

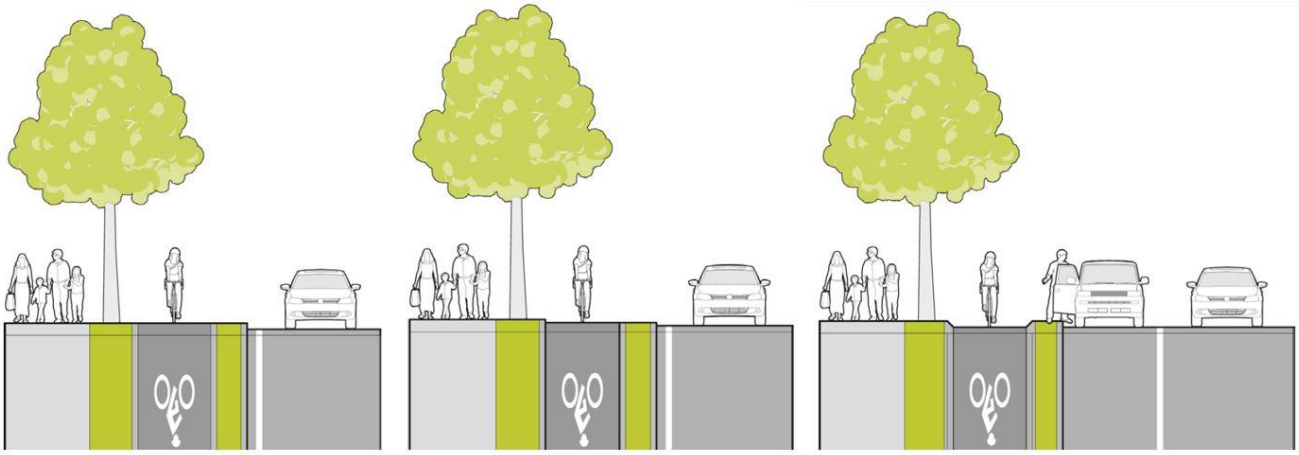

Figure UNC.13. Sidewalk level, intermediate level, and street level separated bike lanes, left to right.

Tourism and Recreation Trips

While many people bicycle for transportation purposes, in Napa County recreational bicycling likely accounts for a large portion of trips. Recreational trips are among those not captured in available data about mode split. On weekends especially, people on bikes can be seen throughout the unincorporated areas in Napa County, and these recreational riders include:

- Confident road bicyclists who typically take longer rides along rural roads and are comfortable riding near higher-speed and/or higher-volume traffic;
- Mountain bikers/gravel riders who ride on the unpaved trails in the county; and
- Bicyclists along the Vine Trail who may be individuals, groups, or families who ride for enjoyment and exercise but are not comfortable riding near higher-speed, higher-volume traffic.

Today, many of these recreational riders drive to the start of their rides. Some riders may be traveling from nearby counties, or if they are Napa County residents, the starting location for their rides may be farther than a bikeable distance from home or they may not be comfortable bicycling on the roads between home and the trailhead.

Tourism is a major industry in Napa County; therefore, visitors must be accounted for within planning for bicycling. Napa County receives 3.5 million visitors annually; 80 percent of visitors are from the United States, and 20 percent are international. Just over a third of the visitors stayed overnight within Napa County on their trip; the rest visited Napa County as a day trip. Over half of all day-trippers are traveling from within the Bay Area. Although many visitors still drive to visit the wineries, biking between the wineries is becoming more popular.

In 2016, Visit Napa Valley, the official tourism marketing organization, conducted a visitor survey to better understand the types of visitors that come to the area, where they visit within the county, and

what they do during their visit.44 Four percent of the respondents reported that they were planning to bike, or had already biked, on their trip. This equates to nearly 150,000 visitors annually biking within the county who may be unfamiliar with the area and its bike network (and could benefit from countywide wayfinding signage), or with biking in general.

Collision Analysis

Improving safety for bicyclists is an expressed goal of the 2019 Countywide Bicycle Plan, and preventing and mitigating bicycle collisions is a key consideration behind the network recommendations for the unincorporated areas. Not only is safety and the reduction of bicycle collisions a public health issue, addressing safety concerns is also an important way to encourage more people to ride a bicycle. Understanding collision factors and trends will allow the County to identify and prioritize investments that can have the greatest impact on improving safety for bicyclists and other users of the roadway.

To better understand collision history in the unincorporated areas, injury crash data from 2006-2013 were reviewed.[45] Over the seven-year period, 108 bike collisions occurred, which resulted in six bicyclist fatalities. Nearly half of the crashes occurred on three roads, as shown in Table UNC.3. See Figures UNC.15-19 for a map of the bicycle collisions.

Table UNC.3. High Injury Roadways

Roadway	Number of Collisions	Percentage of Collisions
Silverado Trail	26	24%
State Route 29	18	17%
Dry Creek Road	9	8%
Total	**53**	**49%**

Of the unincorporated area's 108 crashes, most caused visible, yet not severe injury. However, all six of the fatal bicycle collisions within Napa County between 2006 and 2013 occurred in unincorporated areas.

"Improper Turning" (37 percent) comprises a large percentage of Primary Collision Factors, as does "Unsafe Speed" (24 percent) (see Figure UNC.14). These factors are most likely due to the higher speed limits in unincorporated areas and other design conditions (less traffic, fewer intersections, etc.) that may cause motorists to not expect cyclists or increase their speed.

The crashes that are mapped and analyzed only include those reported to police. There may be additional unreported crashes, and near misses, that have occurred during this time that influence people's decision to ride a bike.

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[44] Visit Napa Valley (2017). 2016 Napa Valley Visitor Industry Economic Impact. Viewed at https://www.visitnapavalley.com/articles/post/visit-napa-valley-releases-the-2016-napa-valley-visitor-industry-economic-impact-visitor-profile/ on April 2, 2018.

[45] Collision data was gathered from the University of California-Berkeley's Safe Transportation Research and Education Center's Transportation Injury Mapping System (TIMS). The most recent data available is from 2006 to 2013.

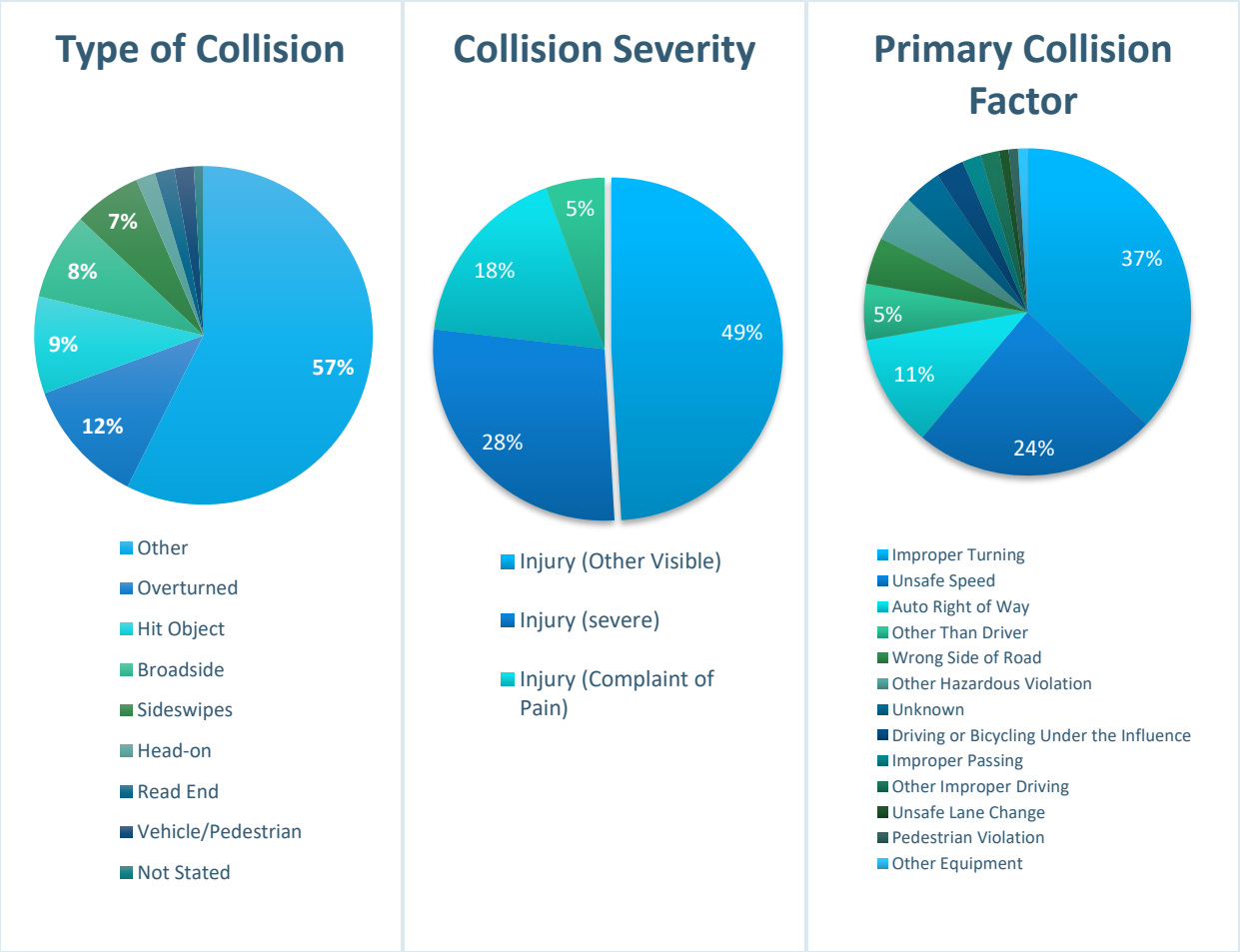

Figure UNC.14. Summary of bicycle crashes in unincorporated areas, 2006-2013

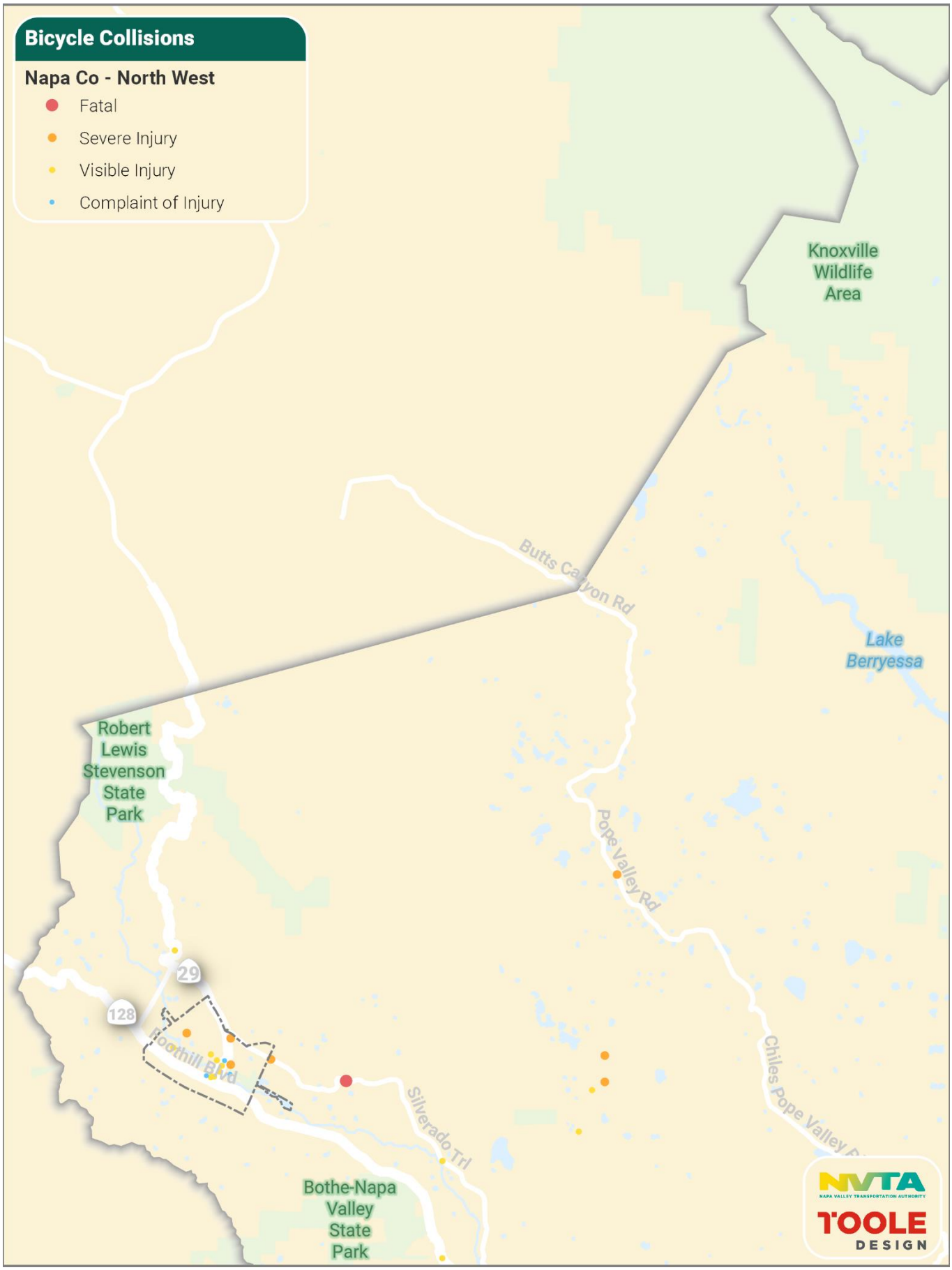

Figure UNC.15. Locations of Bicycle Crashes in Napa County, 2006-2013 – Northwest (Source: TIMS)

Figure UNC.16. Locations of Bicycle Crashes in Napa County, 2006-2013 – Northeast (Source: TIMS)

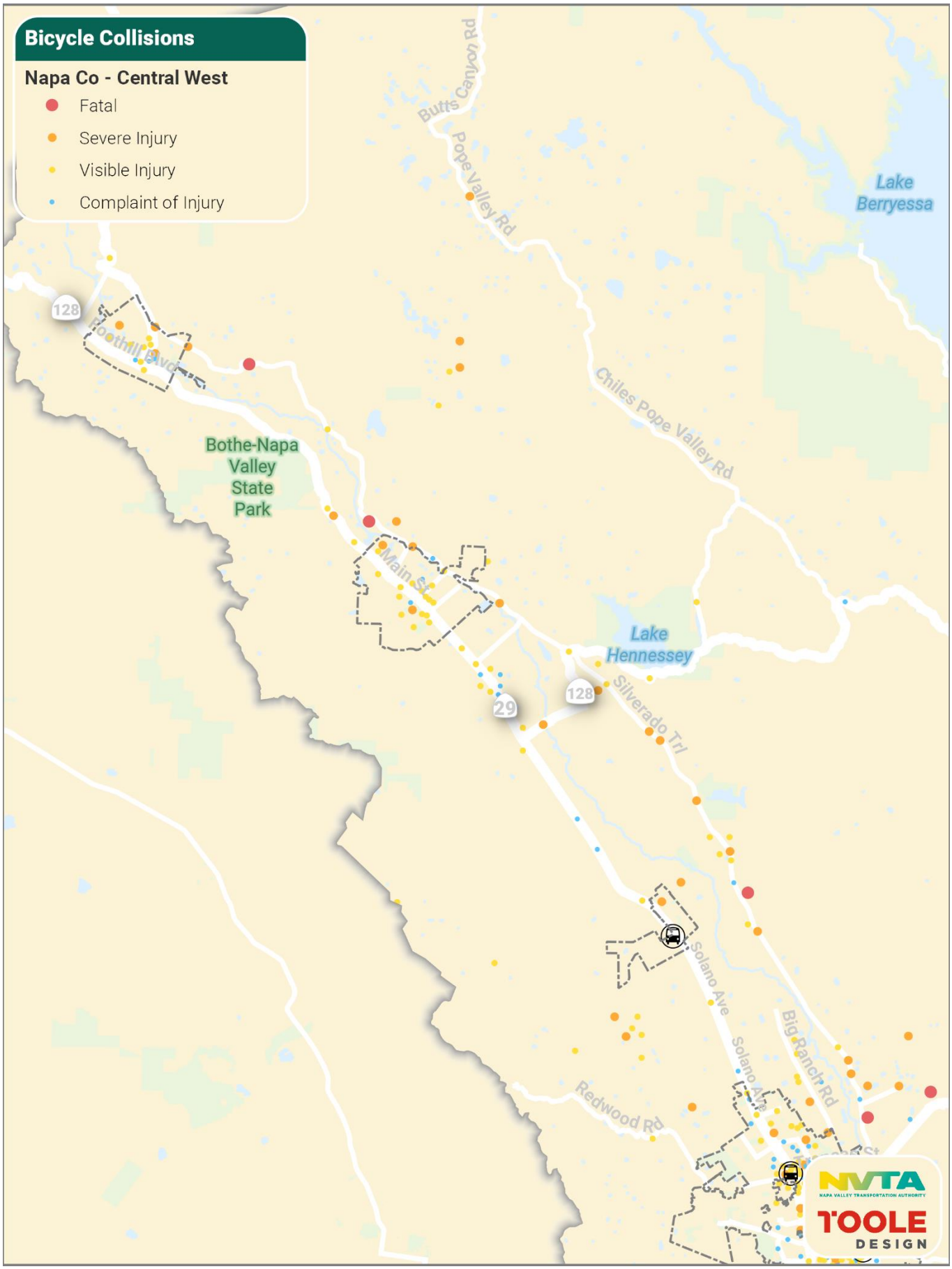

Figure UNC.17. Locations of Bicycle Crashes in Napa County, 2006-2013 – Central West (Source: TIMS)

Figure UNC.18. Locations of Bicycle Crashes in Napa County, 2006-2013 – Central East (Source: TIMS)

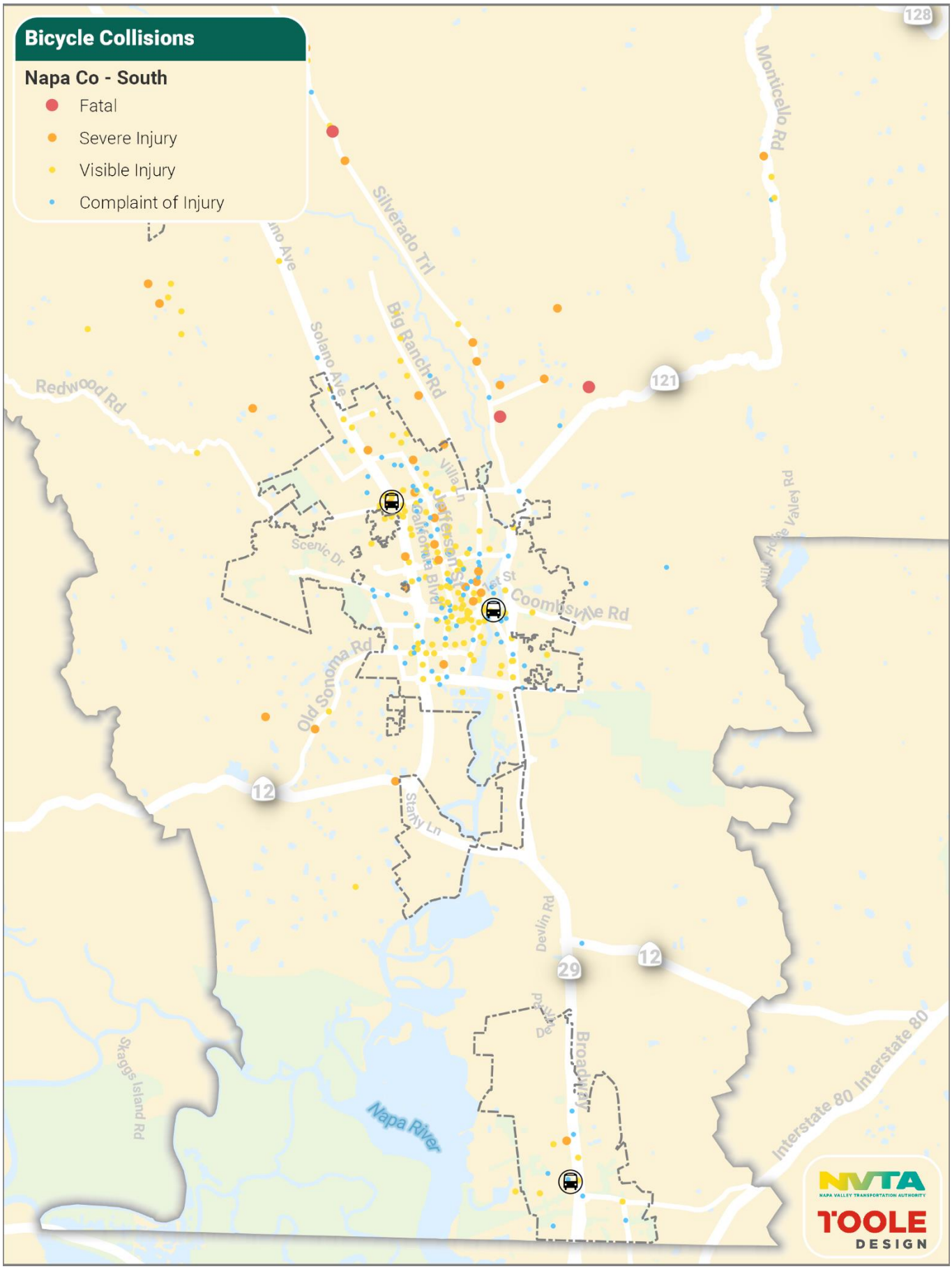

Figure UNC.19. Locations of Bicycle Crashes in Napa County, 2006-2013 – South (Source: TIMS)

Community Input

Residents of the unincorporated areas were invited to be an active part of the planning process through in-person and online outreach activities hosted by the Napa Valley Transportation Authority (NVTA). The community feedback directly informs the Plan's network and programmatic recommendations. For more information about outreach, see Chapter 2 of the 2019 Countywide Bicycle Plan.

From July to October 2017, residents were invited to share their site-specific comments on the existing network and potential improvements through an online, interactive WikiMap. Respondents were asked to provide feedback on:

- Barriers to biking
- Places/routes where I currently ride a bike
- Places/routes where I would like to ride

The following are highlights of the responses.

Countywide

- SR 29 is a common bicycle route; however, this route is uncomfortable due to high vehicle speeds, high traffic volumes, poor pavement conditions on the shoulders, and an abundance of drainage grates.
- The absence of the Vine Trail is a barrier to bicycling, especially between Calistoga and Yountville.
- SR 128 (north of Calistoga) and Petrified Forest Road are uncomfortable due to the lack of bike facilities.
- Good climbing routes are located in the unincorporated areas, such as Soda Canyon Road and Atlas Peak Road east of Yountville.

Northern Napa County

- In general, many of the routes in the northern areas of Napa County are long, recreational routes that are often on high volume streets and roads with steep climbs.
- Howell Mountain Road is currently closed to motor vehicle traffic. This could be made permanent with a barricade that only allows access to bicyclists and pedestrians.
- Bicyclists currently ride on SR 128, Conn Creek Road, and Zinfandel Lane; these would be more comfortable if these routes had a separated bicycle facility that connected SR 29 to the Vine Trail to Silverado Trail.
- Wider shoulders and/or bike lanes that accommodate bicyclists on both sides of the street are desired on Tubbs Lane. This route is often used to connect to Lake County Highway and Old Lawley Toll Road, which is a popular recreational route.
- High-speed commuter traffic and the lack of infrastructure make reaching Bennett Lane difficult on foot and on a bicycle.

Western Napa County

- A bicycle facility between Wild Horse Valley Road to Rockville (Solano County) would be an excellent opportunity to close a gap in the recreational bicycle network.

Eastern Napa County

- Franz Valley School Road was identified as a great road on which to bike.

Between Calistoga and St. Helena

- Silverado Trail lacks comfortable bike facilities and is too narrow for bicyclists, especially where the striped shoulder narrows to a few feet wide next to a rock wall, creating a very tight space.
- Once constructed, the Vine Trail should provide connections to parks along the route.
- Garbage and recycling bins are often placed in the striped bike lane forcing bicyclists to merge into the vehicle travel lane.

Between Yountville and Napa

- No shoulders for bicyclists to ride along Big Ranch Road and Oak Knoll Ave north of Napa. There are fast moving vehicles along those routes and the lack of connections or bike facilities make it difficult to ride a bike to the Vine Trail or to the bike lanes along Silverado Trail.

Between Napa and American Canyon

- Strong support for the construction of the Vine Trail connecting American Canyon to Napa.
- Where SR 29 and N Kelly Road merge is a problematic location for bicyclists traveling north on SR 29. Motorists are unsure how to merge with moving vehicle and bicyclists due to a lack of guidance.
- Recommendation to extend the Bay Trail south of the City of Napa.

The location of WikiMap comments in the unincorporated areas can be found in Appendix B.

In addition to the initial WikiMap, NVTA also hosted an online map from June to July 2018, for residents to review the recommended bicycle network facilities. This map showed draft recommended bike facilities throughout the county and allowed users to agree or disagree that the recommendation was appropriate in that location. Over 50 respondents provided approximately 330 comments which were reviewed by staff in each jurisdiction for possible changes to the recommended network.

The unincorporated areas were also represented through involvement in committees and through direct outreach to County staff by NVTA throughout the development of this plan.

SECTION 4: PROPOSED BICYCLE NETWORK

The main purpose of this plan is to identify a future bicycle network for the unincorporated areas that is safe and connected. The proposed bicycle network map (see Figure UNC.20-24) was developed based on fieldwork, an analysis of existing conditions, input from the community and County staff, and in consideration of best practices in bicycle network planning, including facility guidance from Appendix A: Bicycle Facilities Toolkit.

The resulting network includes rural bike routes (Class III) that provide dedicated space for bicyclists riding in the unincorporated areas. These routes also provide connections to facilities within the incorporated cities/town.

The unincorporated area's proposed bicycle network is a 323.5-mile network, as detailed in Table UNC.4. When implemented, the entire existing and proposed network will total 390.2 miles.

Table UNC.4. Proposed Bicycle Network

Facility	Proposed Mileage	Existing Mileage	Total Future Mileage
Vine Trail (Class I)	19.1	3.8	22.9
Shared-Use Paths (Class I)	17.1	7.7	24.8
Bike Lanes (Class II)	49.9	54.3	104.2
Bike Boulevard (Class III)	1.8	-	1.8
Rural Bike Routes (Class III)	234.8	1.7	236.5
Total Network	**323.5**	**67.5**	**390.2**

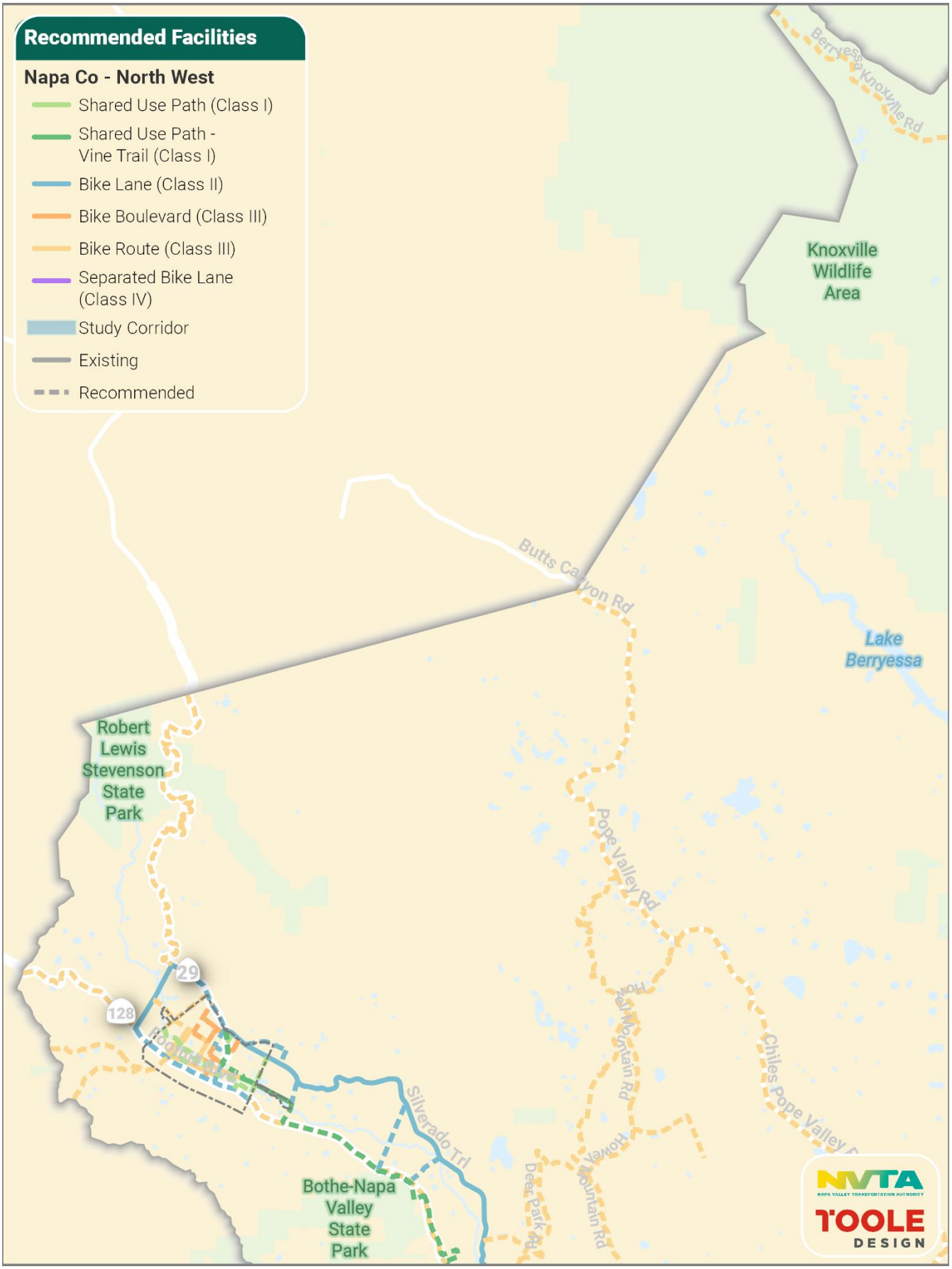

Figure UNC.20. Map of Proposed Bicycle Network in Napa County – Northwest

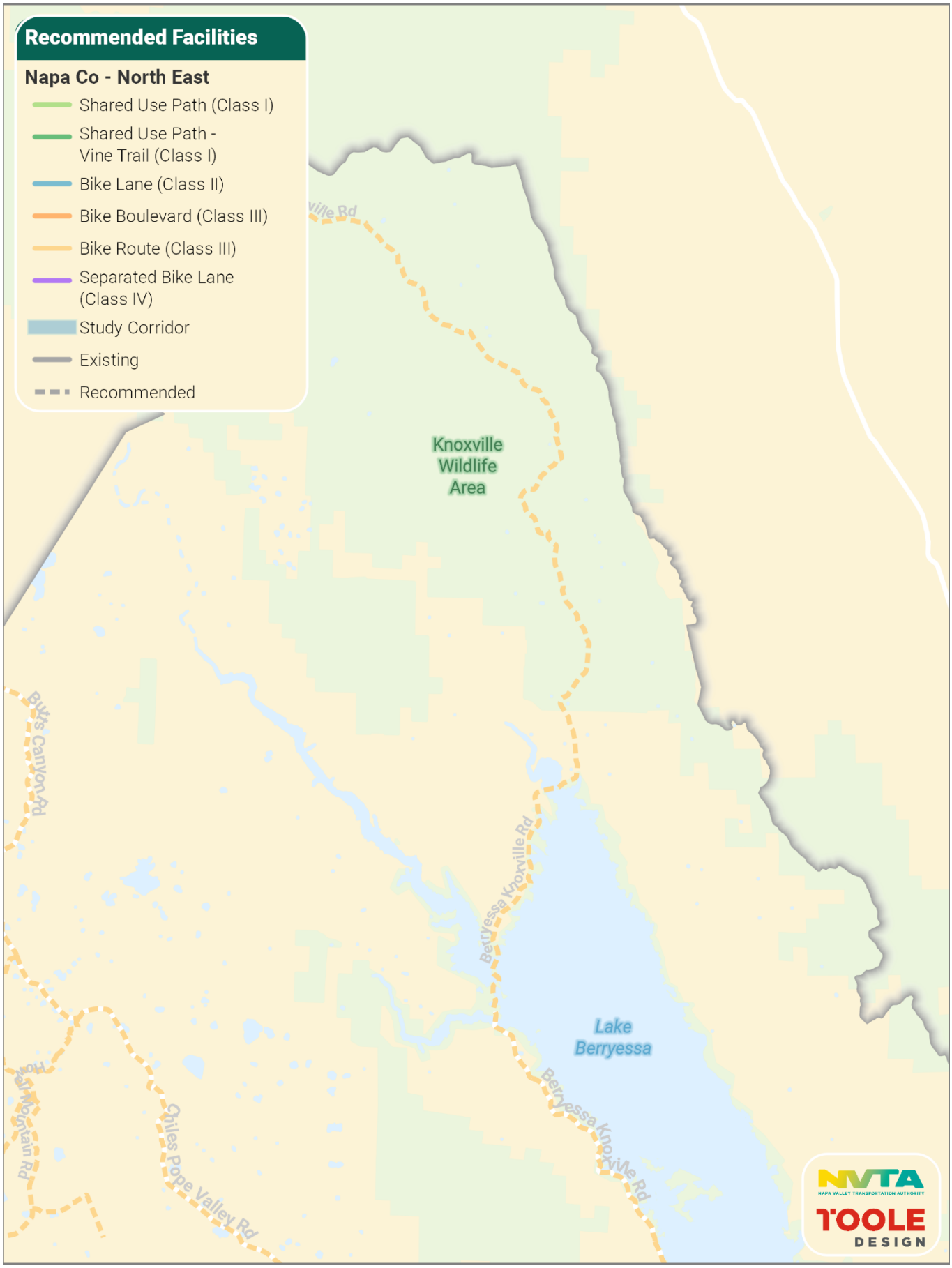

Figure UNC.21. Map of Proposed Bicycle Network in Napa County – Northeast

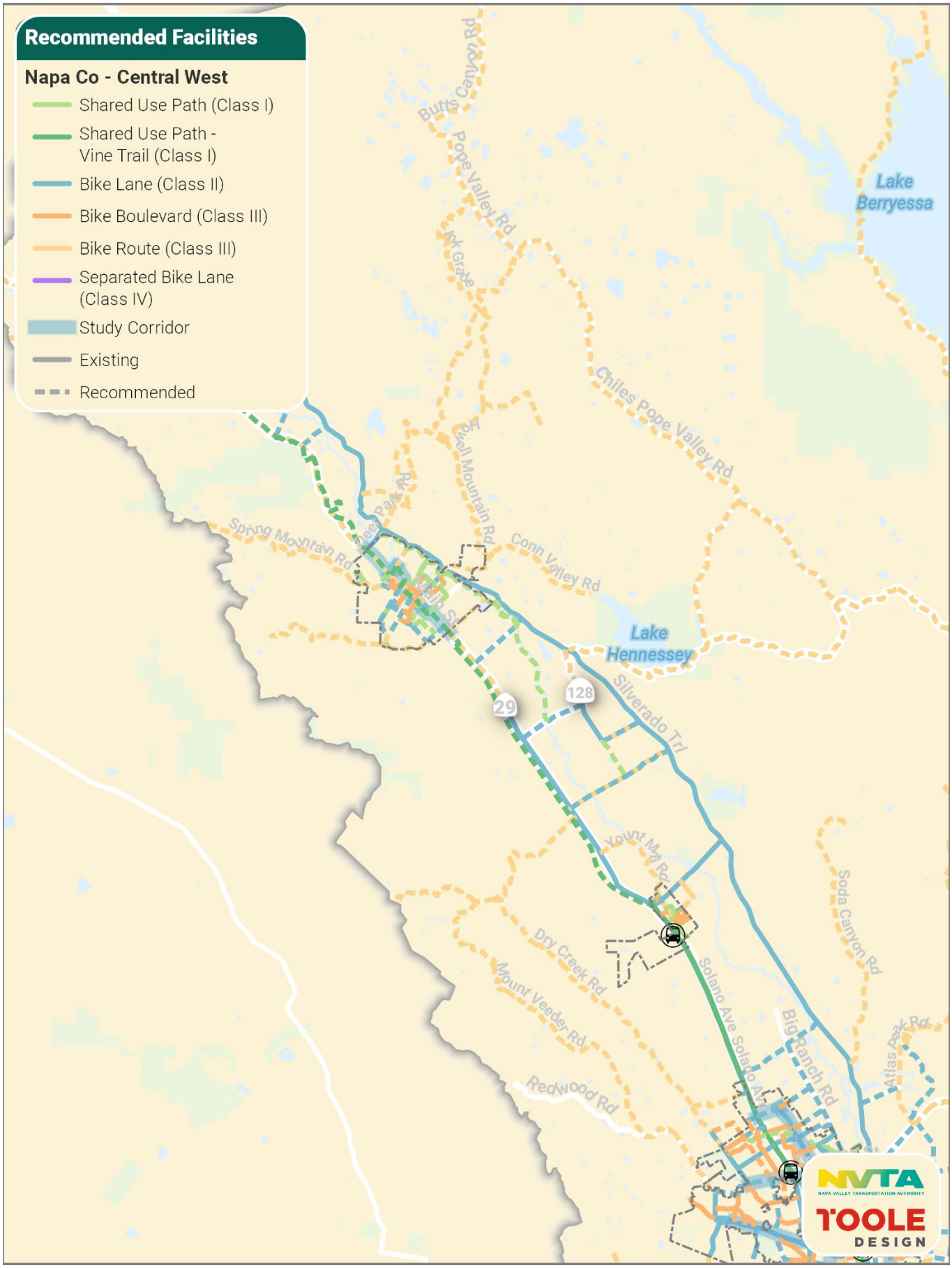

Figure UNC.22. Map of Proposed Bicycle Network in Napa County – Central West

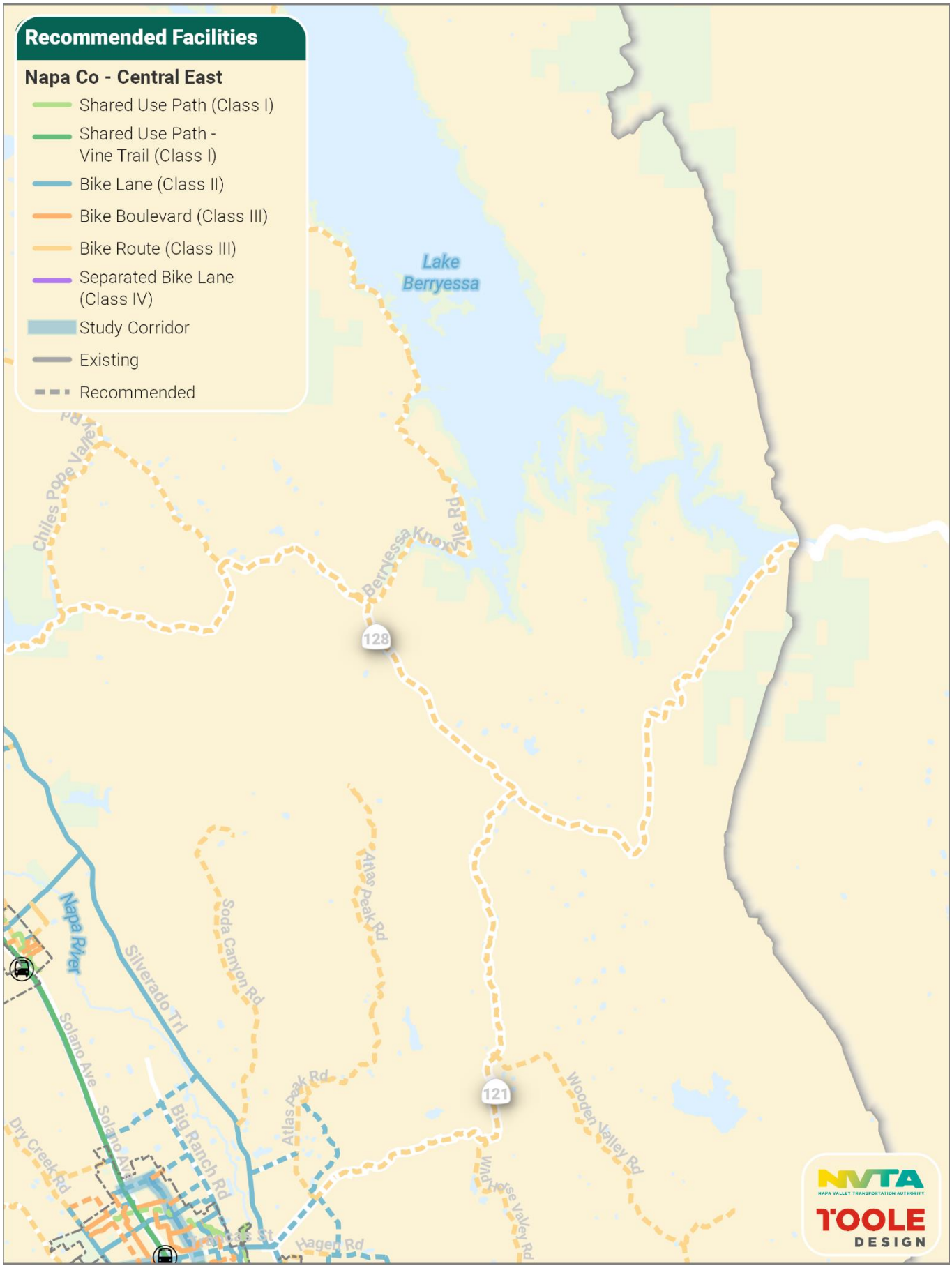

Figure UNC.23. Map of Proposed Bicycle Network in Napa County – Central East

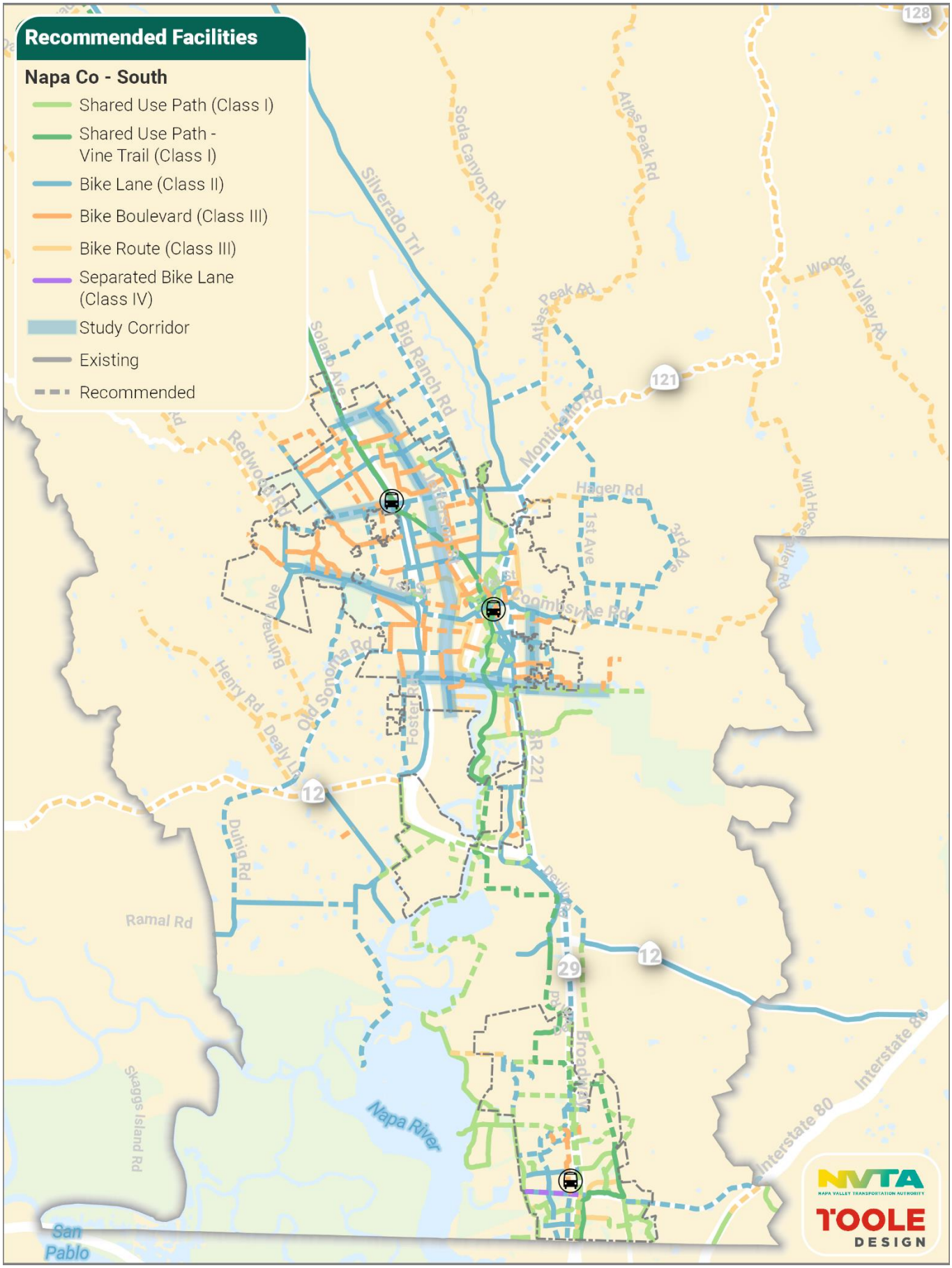

Figure UNC.24. Map of Proposed Bicycle Network in Napa County – South

SECTION 5: SUPPORT PROGRAMS AND POLICIES

County policies and support programs are key components of a welcoming, bicycle-friendly community. Generally, policies are set by the County government, while programs are led by or executed in partnership with external organizations or agencies such as advocacy organizations or school districts. Along with bike network investments, programs and policies will help the unincorporated areas realize the Plan's goals of connectivity, equity, safety, and education and encouragement.

The unincorporated areas already have several programs related to bicycling which are described in Table UNC.5. The existing and recommend programs create a full suite of efforts to promote and support bicycling throughout the unincorporated areas.

Table UNC.5. Support Programs and Policies

Program or Policy	Description	Source
Existing		
Bicycle Rentals	Napa County is home to many bike shops and bike tour companies that provide bicycle rentals. Many hotels and bed and breakfasts also provide their guests with bicycles.	Existing
Complete Streets Policy	Napa County has an adopted Complete Streets Policy. "Complete Streets" is a term used for an approach to transportation improvement projects in which the needs of all potential users of a transportation facility are taken into consideration, rather than just considering one user group in isolation.	Napa County
Safe Routes to School program	Since 2010, this collaborative program, provided by the Napa County Office of Education in conjunction with the Napa Valley Bicycle Coalition, encourages students to walk and bike to school through education events, prizes, and safety projects.	Existing
Safety Education	The Napa County Bicycle Coalition organizes educational and promotional events to encourage safe bicycle riding in Napa County, such as bicycle safety rodeos and the annual BikeFest event in May.	Existing
Recommended		
Bicycle Improvements in the Public Right-of-Way	When improvements are made within the public right of way on designated bicycle routes, assess the potential for and strive to implement concurrent improvements for bicyclists. Examples include: striping, signage, shoulder widening, crossing improvements, etc.	2012 Napa County Bicycle Plan
Bicycle Parking, Shower, and Locker Facilities	Consider amending County code to define standards for long-term bicycle parking. Encourage employers to install showers and locker facilities for bicycle commuters.	2019 Bicycle Plan
Capital Improvement Projects / Complete Streets Checklist	Create checklist for capital projects on and adjacent to streets (repaving, restriping, reconstruction) that ensures County staff review the infrastructure recommendations of this Plan at the time of project development.	2019 Bicycle Plan
County Road and Street Standards	Revise the current standards to reference this Plan and the 2016 Pedestrian Plan with regard to implementation of bicycle and pedestrian facilities in addition to the discretion of the County Engineer.	2019 Bicycle Plan

Table UNC.5. Support Programs and Policies (continued)

Program or Policy	Description	Source
Recommended		
Dedicated Bicycle Staff	Identify a staff member at NVTA who is responsible for bicycle planning and the implementation of bicycle facilities and dedicate a percentage of their time to these efforts.	2019 Bicycle Plan
Development Review Checklist	Create checklist for development review to include bicycle facility recommendations and bicyclist access and safety, especially near bus stops, schools, and through parking lots. Include items from MTC's Routine Accommodation Checklist for projects in the public right-of-way to ensure routine application of the Complete Streets policy. MTC's checklist can be found here: http://www.mtc.ca.gov/planning/bicyclespedestrians/Routine_Accommodation_checklist.pdf	2016 Napa Countywide Pedestrian Plan
Existing Bikeways Policy	Develop a policy which specifies that existing bikeways should not be removed, unless an improved bikeway is being installed.	2019 Bicycle Plan
Law Enforcement Activities	Provide bicycle-specific training for law enforcement personnel and establish a community policing agreement which 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.	2012 Napa County Bicycle Plan
	Establish a bicycle diversion program for bicycle traffic offenders.	
	Provide focused law enforcement operations at high collision locations.	
Overgrown Vegetation on Sidewalks and Planting Strips	Countywide, ensure that landscapes at maturity do not interfere with safe sight distances for bicycle, pedestrian, or vehicular traffic; do not conflict with overhead lights, traffic controls, traffic signage, utility lines or poles, or walkway lights; and, do not block bicycle or pedestrian ways. Require adjacent property owners to maintain landscaped areas with live and healthy plant materials, replacing plant materials when necessary to maintain full function and aesthetics; to water, weed, prune, fertilize and keep sidewalks and planting strips litter free.	2016 Napa Countywide Pedestrian Plan
Vision Zero Policy	Adopt a countywide Vision Zero policy and develop an action plan for implementing Vision Zero. Identify opportunities for funding for Vision Zero efforts, such as developing a Countywide database to inventory collision data and environmental factors, undertaking a comprehensive analysis to understand collision patterns, and facilitating an outreach process to identify community safety priorities and determine where to focus safety investments and improvements.	2019 Bicycle Plan
Wayfinding Program	Develop a regional wayfinding system that has a similar brand throughout Napa Valley and helps bicyclists navigate the transportation network with confidence and provide direction to their destinations; create a community identity; and build a sense of place. The County could adjust the brand to reflect local character while still maintaining signage elements for consistency including placement, frequency of signs, and content.	2019 Bicycle Plan
Bikeway Maintenance	Prioritize maintenance of roadways and removal of debris where bicycle facilities are present	2019 Bicycle Plan

SECTION 6: IMPLEMENTATION PLAN

Because all communities, including Napa County, have limited financial resources, it is not possible to implement all the recommended projects immediately. To focus the County's resources, several characteristics of projects should be considered. These characteristics are discussed in relation to implementation phases below.

Immediate-Term

Overlap with Measure T Repaving Projects

Connectedness of a bicycle network is highly important and recommended projects should be implemented as opportunities arise for integration into existing projects. Napa County's five-year paving plan funded by Measure T offers a great opportunity for quickly implementing several recommended bicycle facilities. These projects are ready for implementation without further pursuit of funding or planning for construction.

Other projects funded by Measure T will continue to be implemented in the short, medium, and long terms. The County's Measure T plans have been compared to the proposed bicycle network, and those projects are listed in Table UNC.6.

Short- and Medium-Term

Facility Characteristics

All other planned street resurfacing and reconstruction projects should be reviewed against the recommended bike network. Another early step in the implementation of the bicycle plan should be to answer the following questions about each project:

- Does a facility consist only of striping and signage that can be added at any time?
- Does a facility necessitate further community dialog regarding reallocation of street space?
- Does a project need significant funding that must be obtained through a competitive process (i.e., grant)?
- Does a project necessitate acquiring additional right-of-way?
- Does a project necessitate road widening?
- Are there any environmental concerns about a project location?

These questions can help direct staff to understand which projects are more readily implementable. Examples of short-term projects include the Vine Trail section from St. Helena to Calistoga and the extension of the bike lanes on Devlin Road.

Proximity to Destinations

Public input received over the course of this Plan process indicates greater interest in connecting to certain destinations including: schools, parks, trailheads, and community centers. The locations of these destinations, as well as other known bicycle traffic generators such as hotels with bike rental schemes should be considered when selecting projects for earlier implementation.

Public Concerns

Residents gave input through the WikiMap about areas of greater concern for bicyclists. These are documented in the summary above, and staff may wish to refer to these comments when considering which projects to implement first. Staff should also continue to collect and document resident concerns and priorities about bicycling and general traffic safety in Napa County and bring those comments into discussions regarding implementation priorities.

Network Connectivity

Staff should consider the benefits provided by a connected bicycle network. Research has shown that a connected low-stress network has the greatest impact on encouraging people to choose to bicycle. Projects that connect to existing facilities, especially ones that are known to be popular, may be prioritized. This should be balanced against the desire to provide bicycle facilities in and connecting to underserved communities in keeping with the equity goal of this Plan. Often, these areas have been historically underserved by infrastructure, and building new bike network projects here may not connect to existing facilities.

Long-Term

Some projects, such as many shared-use paths (Class I), will necessarily require a more sustained effort to come to fruition. Additionally, many bike lane projects in the unincorporated areas will require roadway widening in order to have adequate space. While it may take a longer time to implement these projects, the County should begin to consider the steps toward construction of these projects so they are prepared for grant applications or inserting funding into capital improvement plans and for meeting Measure T Equivalent funds requirements.

Connectivity Improvements from Phased Implementation

As stated, the planned bicycle facilities for Unincorporated Napa County are intended to create the most low-stress network that conditions allow. For many rural roads, however, the recommended facility type (bike lanes or rural bike route) will not create a low-stress riding environment for most bicyclists. This is because automobile speeds will remain high. However, implementation of on-street facilities will significantly improve the connectivity of the bicycle network for more the experienced bicyclists who tend to ride longer distances in these parts of the County.

While shared-use paths (Class I) certainly provide a low-stress riding environment, their implementation requires more investment and often more planning than on-street facilities. The Vine Trail is the major active transportation corridor running through the unincorporated areas of the county, and it will provide significant low-stress connectivity improvement to destinations up and down Napa Valley. The Napa River Trail and other shorter shared-use paths will also provide low-stress connectivity in these areas. These are understood to be a large, long-term capital investments, however, so implementation of on-street facilities in the meantime will provide benefits to the county.

Funding

Funding for the bicycle network projects can come from different sources. For example, the County could fund the improvements through dedicated funds from the County, by leveraging development-

driven projects, or through grant opportunities. More information about available grant funds can be found in Chapter 4 of the 2019 Countywide Bicycle Plan.

Table UNC.6. Project List

Project ID	Street/Trail Name	Begin	End	Facility Type	Length (Miles)
Measure T Overlap Projects					
Bike Lane (Class II) Projects					
299	3rd Ave	Where 3rd Ave turns north	Hagen Rd	Bike Lane (Class II)	1.62
303*	3rd Ave	Coombsville Rd	North Ave	Bike Lane (Class II)	0.71
726*	Airport Blvd	Devlin Rd	SR 29	Bike Lane (Class II)	0.26
64	Bale Ln	SR 29/128 (St. Helena Hwy)	Silverado Trail	Bike Lane (Class II)	0.69
61	Dunaweal Ln	Washington Street Path/Vine Trail	Silverado Tr	Bike Lane (Class II)	0.42
167	El Centro	Big Ranch Rd	Napa city limit (Sweetbriar Dr)	Bike Lane (Class II)	0.56
63	Larkmead Ln	SR 29 (St. Helena Hwy)	Silverado Trail	Bike Lane (Class II)	1.29
253*	Old Sonoma Rd	SR 12 (Carneros Hwy)	Napa City Limits	Bike Lane (Class II)	3.07
56	Pickett Rd	Silverado Trail	Rosedale Rd	Bike Lane (Class II)	0.26
166	Salvador Ave	Napa city limit	Big Ranch Rd	Bike Lane (Class II)	0.53
671*	Trancas St	Silverado Trail	Monticello Rd	Bike Lane (Class II)	0.15
Bike Route (Class III) Projects					
252	Dealy Ln	Old Sonoma Rd	Henry Rd	Bike Route (Class III)	1.16
84*	Deer Park Rd	Silverado Trail	White Cottage Rd	Bike Route (Class III)	4.05
247*	Dry Creek Rd	Trinity Rd	Mt Veeder Rd	Bike Route (Class III)	2.35
251*	Henry Rd	End of Henry Rd	Buhman Ave	Bike Route (Class III)	3.39
85*	Howell Mountain Rd	Deer Park Rd	Ink Grade Rd	Bike Route (Class III)	3.54
16*	Petrified Forest Rd	County border	City of Calistoga city limit	Bike Route (Class III)	1.80
291	Wooden Valley Cross Rd	Wooden Valley Rd	Gordon Vallley Rd	Bike Route (Class III)	1.29
All Other Projects					
Shared-Use Path (Class I) Projects					
728	American Canyon Path (along Newell Rd - S Kelly Rd)	Watson Ln	SR 12 (Jameson Canyon Rd)	Shared-Use Path (Class I)	2.27

Project ID	Street/Trail Name	Begin	End	Facility Type	Length (Miles)
229	Bay Trail (Kimberly Area Segment - south of American Canyon)	Catalina Wy, Vallejo	Class I facility adjacent to Meadow Bay Dr	Shared-Use Path (Class I)	0.52
916	Bay Trail (Along Napa River – N American Canyon Area)	Existing Bay Trail (Just S of Green Island Rd)	Soscol Ferry Rd	Shared-Use Path (Class I)	5.23
161	Conn Creek Path	Oakville Cross Rd	Skellenger Ln	Shared-Use Path (Class I)	0.92
152	Napa River Trail	SR 128	St Helena Wastewater Treatment Facility	Shared-Use Path (Class I)	3.16
153	Napa River Trail	Zinfandel Ln	St Helena city limit	Shared-Use Path (Class I)	0.87
184	Skyline Path (along Imola Ave to Skyline Park)	SR 121/221 (Napa-Vallejo Hwy)	Skyline Wilderness Park	Shared-Use Path (Class I)	2.05
863	SR 221	Kaiser Rd	Vista Point Rd	Shared-Use Path (Class I)	1.57
849	Vine Trail (along Devlin Rd)	Kelly Rd	Approx. 0.25 mi South of Airport Blvd	Shared-Use Path - Vine Trail (Class I)	0.86
871	Vine Trail/Bay Trail	Kennedy Park	Kaiser Rd	Shared-Use Path - Vine Trail (Class I)	0.86
743	Vine Trail (along SR 29)	Madison St	Chaix Ln	Shared-Use Path - Vine Trail (Class I)	7.82
867	Vine Trail (along SR 29)	Deer Park Rd	Lodi Ln	Shared-Use Path - Vine Trail (Class I)	3.08
865	Vine Trail (along SR 29/128)	Larkmead Ln	Dunaweal Ln	Shared-Use Path - Vine Trail (Class I)	2.38
869	Vine Trail (along Watson Ln - American Canyon)	Paoli Loop Rd	Newell Rd Extension	Shared-Use Path - Vine Trail (Class I)	0.42
Bike Lane (Class II) Projects					
300	1st Ave	Coombsville Rd	Hagen Rd	Bike Lane (Class II)	1.98
302	2nd Ave	Coombsville Rd	North Ave	Bike Lane (Class II)	0.62
224	American Canyon Rd	Newell Dr	I-80	Bike Lane (Class II)	1.94
165	Big Ranch Rd	El Centro	Oak Knoll Ave	Bike Lane (Class II)	1.65
457	Big Ranch Rd	Trancas St	El Centro Ave	Bike Lane (Class II)	1.30
832	Bothe State Park, SR 29	Bale Ln	Larkmead Ln	Bike Lane (Class II)	0.70
887	Coombsville Rd-Wild Horse Valley Rd	1st Ave	4th Ave	Bike Lane (Class II)	0.62
164	Cross Valley Path (along Oak Knoll Ave)	SR 29 (St. Helena Hwy)	Silverado Trail	Bike Lane (Class II)	2.09
898	Dry Creek Rd	Orchard Ave	Napa City Limits	Bike Lane (Class II)	0.39
186	Duhig Rd	Las Amigas Rd	SR 12	Bike Lane (Class II)	2.17
889	Hagen Rd	1st Ave	3rd Ave	Bike Lane (Class II)	1.04
295	Hardman Ave	Silverado Trail	Atlas Peak Rd	Bike Lane (Class II)	0.92
727	Kelly Rd	SR 12	Devlin Rd	Bike Lane (Class II)	0.83
886	Las Amigas Rd	Buchli Station Rd	Milton Rd	Bike Lane (Class II)	0.66

Project ID	Street/Trail Name	Begin	End	Facility Type	Length (Miles)
255	Milton Rd	Las Amigas Rd	Riverfront	Bike Lane (Class II)	2.91
78	Monticello Rd	Silverado Trail	Atlas Peak Rd	Bike Lane (Class II)	1.25
801	North Ave	1st Ave	Where 3rd Ave turns north	Bike Lane (Class II)	1.09
241	Oakville Cross Rd	SR 29 (St. Helena Hwy)	Silverado Trail	Bike Lane (Class II)	2.51
Bike Boulevard (Class III) Projects					
340	4th Ave	Imola Ave	Curry Ln	Bike Boulevard (Class III)	0.76
837	Linda Vista Ave	Browns Valley Rd	Dry Creek Rd	Bike Boulevard (Class III)	0.80
250	Middle Ave	Los Carneros Ave	Cuttings Wharf Rd	Bike Boulevard (Class III)	0.25
Bike Route (Class III) Projects					
293	Atlas Peak	Monticello Rd	End of Atlas Peak Rd	Bike Route (Class III)	10.23
74	Berryessa Knoxville Rd	SR 128 (Sage Canyon Road)	County Border	Bike Route (Class III)	36.04
254	Buhman Ave	Napa City Limit	Old Sonoma Rd	Bike Route (Class III)	1.89
66	Butts Canyon Rd	Aetna Springs Rd	Lake/Napa County Line	Bike Route (Class III)	6.98
70	Chiles Pope Valley Rd	Lower Chiles Valley Rd	Howell Mountain Rd	Bike Route (Class III)	8.63
71	Chiles Pope Valley Rd	SR 128 (Sage Canyon Rd)	Lower Chiles Valley Rd	Bike Route (Class III)	3.66
91	Conn Valley Rd	Howell Mountain Rd	Moore Creek Park	Bike Route (Class III)	2.99
880	Coombsville Rd-Wild Horse Valley Rd	4th Ave	Shady Brook Ln	Bike Route (Class III)	1.14
888	Coombsville Rd-Wild Horse Valley Rd	Napa City Boundary	1st Ave	Bike Route (Class III)	0.51
902	Coombsville Rd-Wild Horse Valley Rd	Shady Brook Lane	Monticello Rd	Bike Route (Class III)	6.11
249	Dry Creek Rd	Oakville Grade Rd	Orchard Ave	Bike Route (Class III)	0.71
883	Dry Creek Rd	Oakville Grade Rd	Orchard Ave	Bike Route (Class III)	6.81
274	Finnel Rd	Holly St	Finnel Rd	Bike Route (Class III)	0.34
15	Franz Valley School Rd	County Border	Petrified Forest Rd	Bike Route (Class III)	1.88
741	Glass Mountain Rd	Silverado Trail	Sanitarium Rd	Bike Route (Class III)	0.88
297	Hagen Rd	Napa City Limits	1st Ave	Bike Route (Class III)	0.83
69	Howell Mountain Rd	Ink Grade Rd	Pope Valley Rd	Bike Route (Class III)	2.48
87	Howell Mountain Rd	Silverado Trail	Deer Park Rd	Bike Route (Class III)	4.36
67	Ink Grade Rd	N White Cottage Rd	Pope Valley Rd	Bike Route (Class III)	4.19
92	Los Posadas Rd	Howell Mountain Rd	State Park	Bike Route (Class III)	1.91
72	Lower Chiles Valley Rd	SR1 28 (Sage Canyon Rd)	Chiles Pope Valley Rd	Bike Route (Class III)	3.36
739	McGary Rd (Extension of the Solano Bikeway)	Solano Bike (Class I multi-use path)	Hiddenbrook Pkwy	Bike Route (Class III)	0.74
19	Myrtledale Rd	Tubbs Ln	Greenwood Ave	Bike Route (Class III)	0.53

Project ID	Street/Trail Name	Begin	End	Facility Type	Length (Miles)
246	Oakville Grade Rd	Dry Creek Rd	SR 29 (St. Helena Hwy)	Bike Route (Class III)	3.68
162	Orchard Ave	Dry Creek Rd	City/County Line	Bike Route (Class III)	1.19
68	Pope Valley Rd	Howell Mountain Rd	Aetna Springs Rd	Bike Route (Class III)	1.67
248	Redwood Rd - Mt Veeder Rd	Browns Valley Rd	Dry Creek Rd	Bike Route (Class III)	11.02
742	Sanitarium Rd	Deer Park Rd	Deer Park Rd	Bike Route (Class III)	1.77
289	Soda Canyon Rd	Silverado Trail	county line	Bike Route (Class III)	6.53
817	Spring Mountain Rd	Sonoma/Napa County Line	St Helena city limit	Bike Route (Class III)	4.17
185	SR 12/121 (Carneros Hwy)	Ramal Rd	Stanly Rd	Bike Route (Class III)	6.31
77	SR 121 (Monticello Rd)	Atlas Peak Rd	SR 128 (Capell Valley Rd)	Bike Route (Class III)	11.15
75	SR 128 (Capell Valley Rd)	Steele Canyon Rd	Berryessa Knoxville Rd	Bike Route (Class III)	4.77
76	SR 128 (Capell Valley Rd)	Steele Canyon Rd	Napa/Solano County Line	Bike Route (Class III)	10.34
748	SR 128 (Conn Creek Rd)	Rutherford Rd	Silverado Trail	Bike Route (Class III)	1.32
3	SR 128 (Foothill Blvd)	Tubbs St	County border	Bike Route (Class III)	2.66
73	SR 128 (Sage Canyon Rd)	Berryessa Knoxville Rd	Silverado Trail	Bike Route (Class III)	11.18
278	SR 29 (Lake County Hwy)	Tubbs Ln	Lake/Napa County Line	Bike Route (Class III)	8.90
154	SR 29 (St. Helena Hwy)	Madison St	Rutherford Rd	Bike Route (Class III)	1.96
58	SR 29/128 (Foothill Blvd)	Deer Park Rd	Calistoga - southern city limit	Bike Route (Class III)	6.15

* Projects denoted with an asterisk overlap with a jurisdiction-identified Measure T project, but they do not have the same extents: the proposed bicycle network project is either longer or shorter than the Measure T project.

NAPA COUNTYWIDE BICYCLE PLAN

NVTA