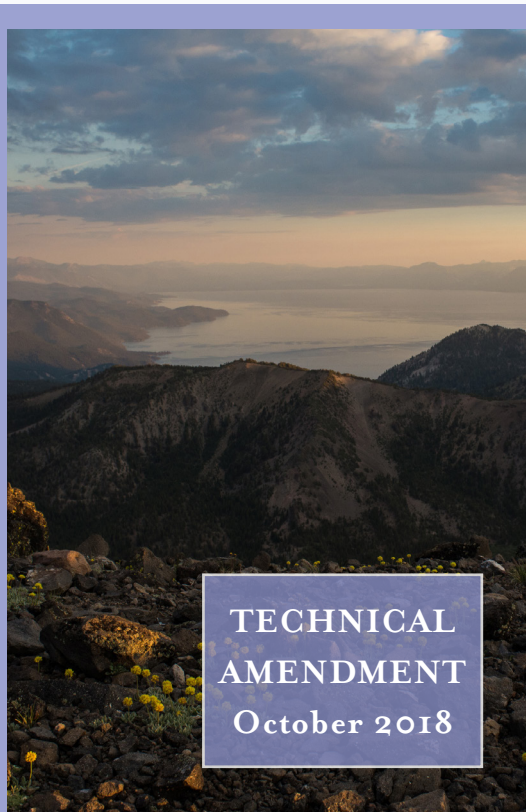
TAHOE REGIONAL PLANNING AGENCY

LINKING TAHOE
Active Transportation Plan

TAHOE REGIONAL PLANNING AGENCY | lake Tahoe



TECHNICAL AMENDMENT
October 2018

2018 ACTIVE TRANSPORTATION PLAN TECHNICAL AMENDMENT #1

The Tahoe Regional Planning Agency (TRPA), as the federally designated Metropolitan Planning Organization, is committed to keeping the Active Transportation Plan (ATP) up-to-date to ensure the document supports the planning and funding needs of local jurisdictions. The need for a full plan update is assessed every four years, with the next assessment in 2020 to precede the next Regional Transportation Plan (RTP) update. A full plan update typically includes extensive public outreach, major changes to proposed facilities, new infrastructure recommendations, new policies and actions, and comprehensive data analysis and environmental screening. A technical amendment is considered a non-substantial amendment that updates data and projects through consultation with implementing partners to reflect current conditions and ensure accuracy.

Collaboration with Local Jurisdictions:

The ATP Technical Amendment would not have been possible without active participation from local jurisdictions. Implementing agencies provided updated project information, current winter maintenance efforts, and progress on planning, design, and funding of projects. Active agency participants and outreach efforts include:

Schedule of Correspondence with Local Jurisdictions

Stakeholder Contacts		ATP Correspondence				
Jurisdiction	Contact Name	1st Email Requesting Project Updates Sent Out	Reminder Email and Inquiry about Project Prioritization Sent	Follow-up Call/Email to Request Projects	Final Project Updates Received	Updated Packet Sent for Final Review
IVGID	Charley Miller	7/19/18	8/7/2018	8/14/2018	8/14/2018	8/31/2018
Washoe County	Dennis Troy and Eric Crump	7/19/18	8/7/2018	8/14/2018	8/22/2018	8/31/2018
Douglas County	Scott Morgan and John Erb	7/19/18	8/7/2018	8/14/2018	8/21/2018	8/31/2018
NTPUD	Pam Emmerich	7/19/18	8/7/2018	Response Received	8/14/2018	8/31/2018
TCPUD	Valli Murnane	7/19/18	8/7/2018	Response Received	7/25/2018	8/31/2018
Placer County	Peter Kraatz, Ryan Decker, and Kansas McGahan	7/19/18	8/7/2018	Response Received	8/13/2018	8/31/2018
El Dorado County	Donaldo Palaroan	7/19/18	8/7/2018	Response Received	8/7/2018	8/31/2018
CSLT	Jim Marino	7/19/18	8/7/2018	8/14/2018	8/17/2018	8/31/2018
CTC	Scott Cecchi	7/19/18	8/7/2018	-	8/13/2018	8/31/2018
Caltrans	Kevin Yount	7/19/18	8/7/2018	8/14/2018	8/23/2018	8/31/2018
USFS	Mike Gabor	7/19/18	8/7/2018	Response Received	8/13/2018	8/31/2018
TTD	Danielle Hughes	7/19/18	8/7/2018	8/14/2018	No Response	8/31/2018
NDOT	Bill Story	7/19/18	8/7/2018	8/14/2018	No Response	8/31/2018

OVERVIEW OF TECHNICAL AMENDMENT:

Table of Contents
The Table of Contents and List of Figures & Tables have been updated with new page numbers, new map figures, and new tables.

Chapter 2: Needs Analysis:
A fully updated needs assessment is not part of this technical amendment, but relevant parts of this chapter have been updated to reflect current and new data including:

- Updates to the existing active transportation network to accurately illustrate infrastructure constructed since 2015
- A new inventory of intersections and crosswalks
- A new inventory of bicycle parking
- Updates to the proposed active transportation network to capture projects that have moved from planning to design, or design to construction
- Current data from 25 different monitoring locations installed between 2016 and 2018
- Updates to crash reports in each jurisdiction using current data and analysis from the Lake Tahoe Region Safety Plan
- A new schedule of projects undergoing construction

Chapter 4: Network Recommendations:
Each corridor map has been updated to illustrate existing conditions and highlight projects nearing implementation. Since the 2016 ATP adoption, new data is available and enriches the existing and proposed infrastructure maps and project list. This includes existing and proposed bicycle rack locations and priority intersections derived from work on the Lake Tahoe Region Safety Plan. Specifically, each corridor section now includes:

- A map of the existing and proposed bicycle infrastructure network (shared-use paths, bike lanes, bike routes, and bicycle parking)
- A map of the existing and proposed pedestrian and safety infrastructure network (sidewalks, complete street improvements, priority intersection improvements, and marked crossings)
- An updated map of the corridor crash analysis
- An updated design stage project list
- An updated planning stage project list
- An updated priority intersection list

Chapter 6: Implementation Plan:
One of the main drivers of this technical amendment is to report out on progress. The actions outlined in 2016 were determined through technical advisory committee collaboration and public feedback and sought to implement the 2016 policies. Each action includes an analysis section with a scale indicating the progress made towards implementing the action. Actions are either partially implemented, mostly implemented, or fully implemented. A "Next Steps" section documents future steps needed to fully implement the action.

Appendix H: Project List
Through collaboration with local jurisdictions, the existing and proposed project lists have been updated to reflect projects completed since the adoption of the 2016 ATP, projects that have moved from design to construction, or projects that have moved from planning to design. Local jurisdictions also provided updated winter maintenance information on existing shared-use paths. Planning lists were also updated with current project additions including a new designation for complete street improvements and priority intersections. Complete street improvements and priority intersections, though identified in the 2016 ATP, were not included on the project list at that time. Complete street improvements and priority intersections, which can include an array of infrastructure to be determined on a project by project basis, are added to the project list to make

them eligible for funding. Additionally, work on the Lake Tahoe Region Safety Plan, which is a multi-agency collaborative process, identified new priority intersections based on current crash statistics. TRPA felt it prudent to begin documenting these locations in approved plans to support future funding opportunities.

The project lists were also revised to incorporate references to the Environmental Improvement Program (EIP) project tracker. Finally, projects on the ATP list that are also identified in the EIP tracker are tagged with their associated EIP number to create nomenclature consistency with the RTP and the EIP five-year project list.

ATP Technical Amendment #1 Approval Timeline:

TTC Board Presentation and Review 14- Day public comment period announced	September, 14, 2018
14-Day public comment period closed	September 28, 2018 - 5:00 pm
TTC Board Recommendation to TMPO	October 12, 2018
TMPO Board Action	October 24, 2018

TABLE OF CONTENTS

APPENDICES:

Please note only two appendices are printed in hard copy with the plan - Appendix A: Lake Tahoe Complete Street Resource Guide and Appendix H: Existing & Proposed Project List. All other appendices are available online, www.tahoempo.org/ActiveTransportationPlan

A. **Lake Tahoe Complete Street Resource Guide** (printed with plan)

B. **2015 Community Outreach Report** (online only)

C. **Lake Tahoe Bicycle & Pedestrian Monitoring Protocol** (online only)

D. **Lake Tahoe Unified School District Safe Routes to School Master Plan** (online only)

E. **2015 Fact Sheets** (online only)

F. **Maintenance Responsibilities Chart and Plan Template** (online only)

G. **Environmental Findings** (online only)

H. **Existing & Proposed Project List** (printed with plan)

I. **Adoption Resolutions** (to be added after adoptions take place)

LIST OF FIGURES & TABLES

FIGURES:

TABLES

CHAPTER 2: NEEDS ANALYSIS *(Updated – 2018 Technical Amendment)*

This chapter discusses how the existing transportation network functions and makes recommendations for improved infrastructure. High-use routes are shown through qualitative and quantitative data. Future use is estimated based on the Bike Trail User Model. This chapter also identifies common barriers to active transportation found throughout the Region. Strategies are offered to initiate solution-oriented problem-solving that can assist in continuing to create a convenient and safe network for bicycling and walking.

2.1 EXISTING CONDITIONS

In Lake Tahoe, the active transportation network serves many purposes. **Infrastructure such as shared-use paths, bike lanes, and sidewalks are both recreational resources and year-round transportation modes for a recreation-based economy.** When planning and designing projects, implementers must consider the needs of different user groups and how they *intuitively interact* with existing land-uses. Some important questions to consider are:

- Where do people want to go?
- Which way are people going already, even without existing facilities?
- How can all roadway users meet their needs safely, without conflict or excessive delay?

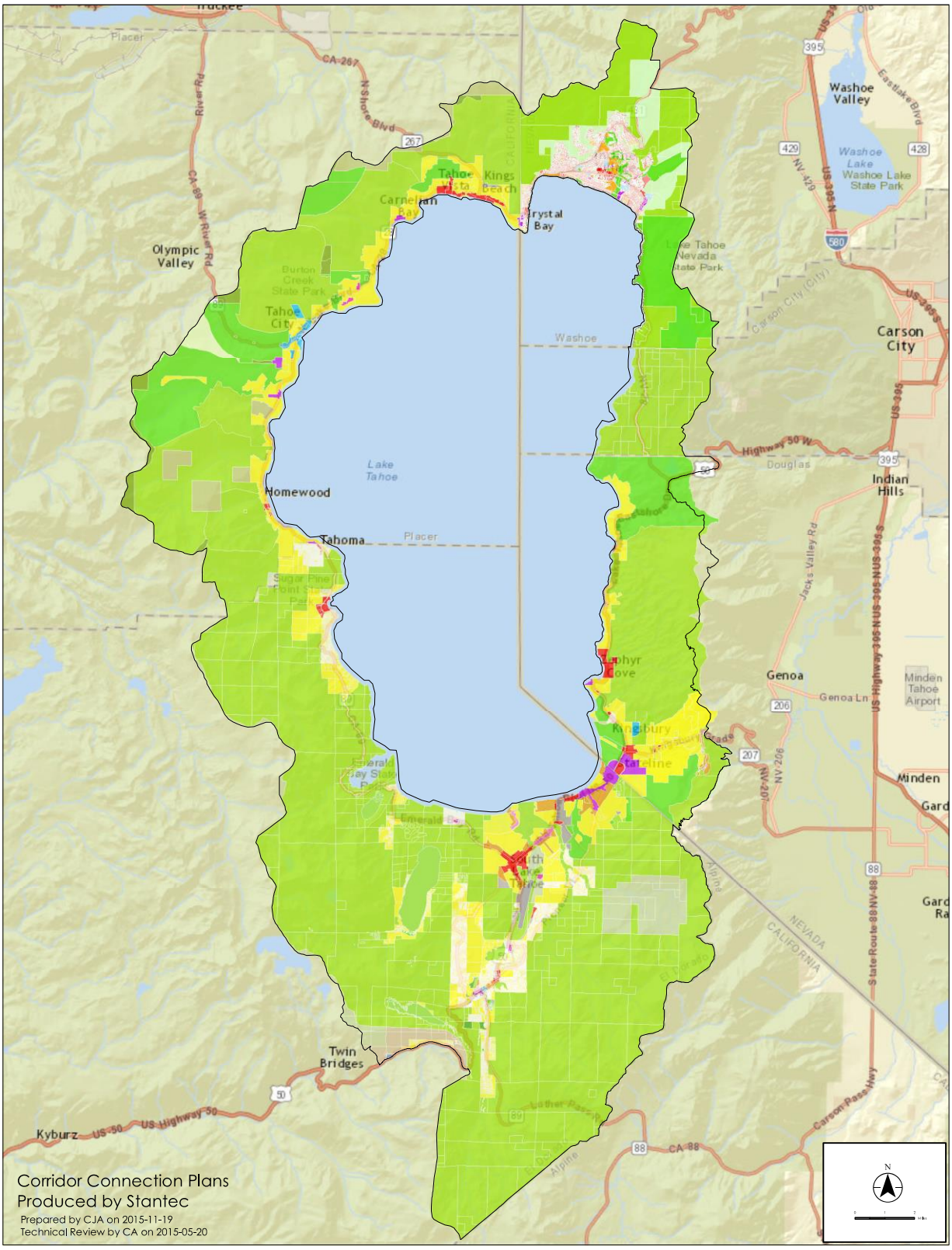
Common Infrastructure & Users Found at Lake Tahoe

The Lake Tahoe Region weaves a variety of infrastructure types together to create its active transportation network. To get from origin to destination, a bicyclist may take a bike route to a shared-use path to a bike lane. In many locations no designated active transportation infrastructure is present. Existing land-use, such as shops, restaurants, and homes dictate where people want to go. The type of infrastructure available prescribes, in part, how people will choose to get to their destinations. Figure 2-1 illustrates the locations of commercial centers and where the majority of people live throughout the Region.

Mid-block crossing without infrastructure. Photo: Mike Vollmer

FIGURE 2-1: REGIONAL POPULATION DENSITY AND COMMERCIAL CENTERS

(See legend on following page.)




Legend
TRPA Boundary
SR89/28 - Placer County Zoning
Residential
Commercial
Commercial/Public Service
Tahoma Commercial
Tahoe City Commercial
Tahoe Vista Special Area
North Star
Kings Beach Industrial/Commercial/Public Service
Upper Ward Valley Recreation
Burton Creek Area Conservation
Open Space
Forest
Timberland Production
Water Influence
NV SR28 - Washoe County Zoning
Medium Density Rural 1 du/5 ac
High Density Rural 1 du/2.5 ac
Low Density Suburban 1du/ac
Medium Density Suburban 3 du/ac
High Density Suburban 7 du/ac
Low Density Urban 10 du/ac
Medium Density Urban 21 du/ac
Neighbhorhood Commerical
General Commercial
Tourist Commercial
Parks & Recreation
Public Services
General Rural
Open Space
Roads
Water Bodies
US50 East Shore - Carson City Zoning
Conservation Reserve
US50 East Shore - Douglas Co. Zoning
Tahoe Mixed Use
US50 East Shore - Douglas Co. Zoning
Commercial (C)
Managed Resource (M)
Public Service (P)
Recreation (S)
Residential (R)
Tourist (T)
US50 South Shore - Douglas Co. Land Use
Residential (R)
Commercial (C)
Public Service (P)
Recreation (S)
Managed Resource (M)
US50 South Shore - Douglas Co. Zoning
Multi-Family Residence 6.01-16 Dwelling Units/Ac*
Mixed Used Commercial
Neighborhood Commercial
Tahoe Mixed Use
Tahoe Commercial
Tahoe - Tourist
Tahoe Resort Recreation
Tahoe - Recreation
Public Facility
Forest Range, 19 Acres; Forest Range, 40 Acres
US50 South Shore - City of South Lake Land Use
Low Density Residential
High Density Residential
BJ/AT CP
Neighborhood Commercial
Town Center
Special District
Tourist
Recreation
Conservation
Meyers Y/SR89 Recreation - El Dorado County Zoning
Exclusive Agricultural
Commercial/Office
Tahoe Planned Commercial
Tahoe Commercial
Industrial
MCP-1
MCP-2
MCP-3
MCP-4
MCP-5
Tahoe One Family Residential; Residential; R1A; R3A
Residential 5/10
Residential - 20
Residential - 160
Tahoe Two Family Residential
Residential Multi-Family
Tahoe Resort Residential
Planned Development
Recreation Facilities
Tahoe Agricultural
Timberline Preserve Zone
Tahoe Transportation Corridor

The main types of bicycle and pedestrian infrastructure currently in place in the Lake Tahoe Region are described below.

- **Shared-Use Path (Class I)**

  A shared-use path is a completely separate trail for active transport users. The path is recommended to be 10 feet wide and provide for two-direction travel.

- **Bike Lane (Class II)**

  Bike lanes are striped six feet wide lanes and provide one-way travel on a shared roadway with vehicles.

Sharrows, Tahoe City.

- **Bike Route (Class III)**

  A bike route is a shared roadway typically located on low-volume and low-speed streets. Signs and painted "sharrows" assist with wayfinding and show the preferred location of the biker within the roadway.

- **Sidewalk**

  Sidewalks are at least five feet wide and offer pedestrians a separated way to travel along the street network.

- **Marked Crosswalk**

  Painted markings that span a roadway to indicate where pedestrians have the right of way. Crosswalks can be accompanied by traditional signals or stop signs.

- **Pedestrian-Activated Flashing Beacon**

  Lights, accompanied by signage, that flash when activated by pedestrians when they want to cross a street. Cars are required to stop when lights are flashing.

Existing Network

Pedestrian-Activated Beacon, Lake Tahoe Boulevard. Photo: Mike Vollmer.

A list of all existing projects can be found in Appendix H, *Existing & Proposed Project Lists.* Table 2-1 illustrates existing mileage by jurisdiction and class.

Table 2-1: Existing Facility Mileage. Source: TRPA

Jurisdiction	Path Class I	Bike Lane Class II	Bike Route Class III	Sidewalk	TOTAL
El Dorado County	12	11	0	0*	**22**
City of South Lake Tahoe	9	12	7	12	**40**
Placer County	23	17	2	4	**45**
Douglas County	5	1	0	4	**10**
Carson City	0	0	0	0	**0**
Washoe County	10	4	0	4	**17**
TOTAL	**58**	**45**	**9**	**24**	**135**

**El Dorado County sidewalk is roughly .06 miles.*

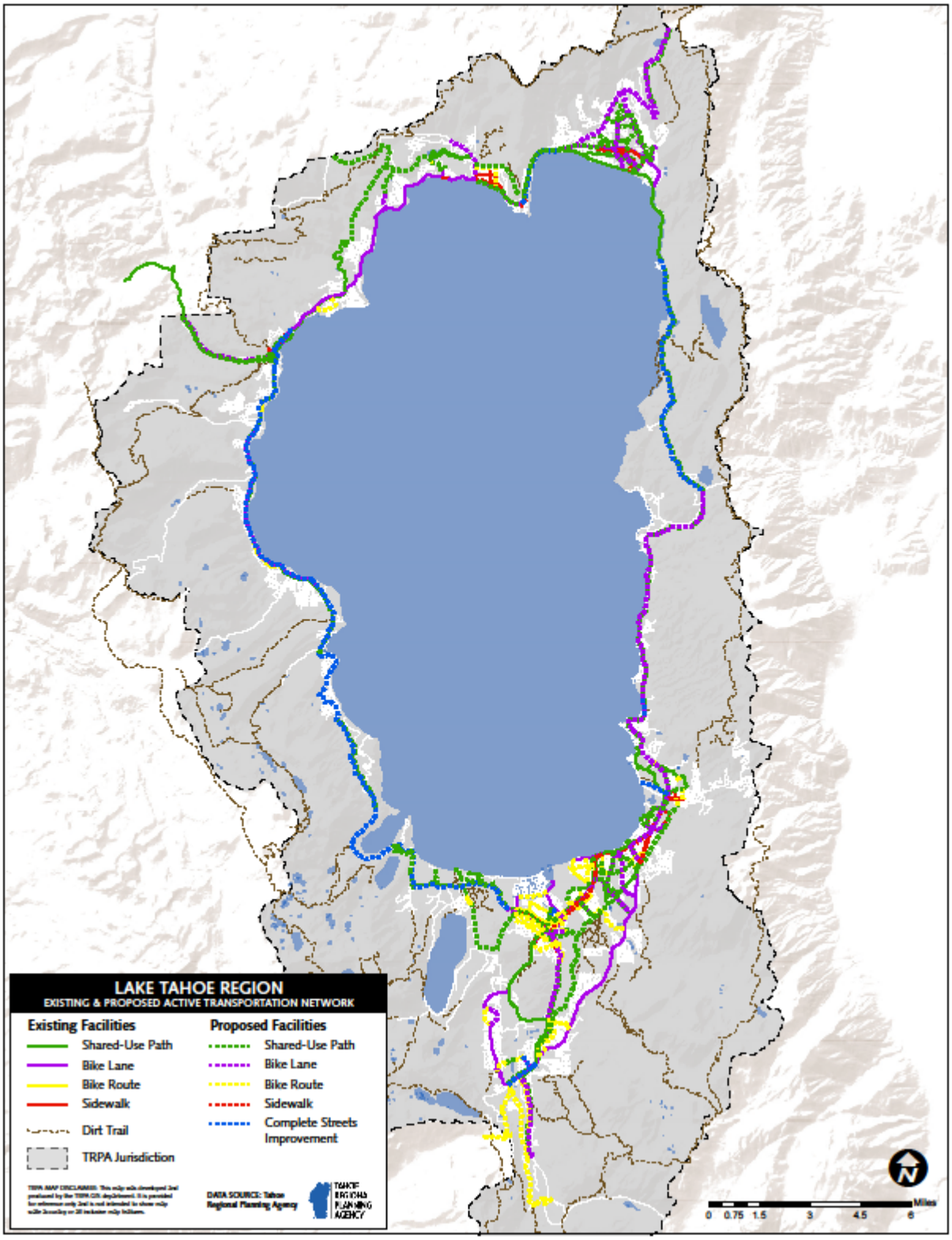
Table 2-2: Existing Bicycle and Safety Facilities. Source: TRPA

Jurisdiction	Intersections with Marked Crosswalks	Bike Racks*
El Dorado County	10	20
City of South Lake Tahoe	57	156
Placer County	40	91
Douglas County	14	24
Carson City	0	0
Washoe County	27	24
TOTAL	**148**	**315**

*****200 New bicycle racks were installed region-wide during Summer 2018. This effort was led by the Lake Tahoe Bicycle Coalition, funded by the Tahoe Fund and the Nevada Department of Tourism and assisted by TRPA through in-kind support. The numbers above do not include these new racks however, as TRPA is still waiting for exact installation locations.

Viking Way and Lake Tahoe Boulevard. Photo: Mike Vollmer

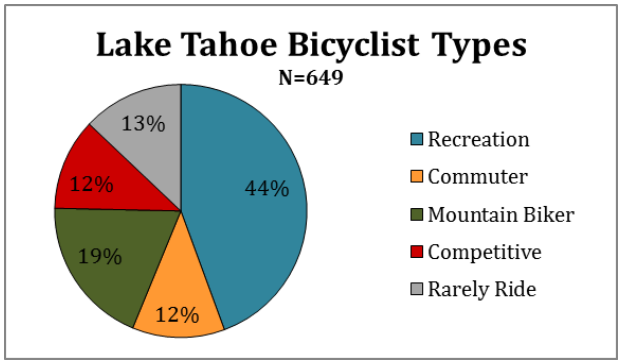
FIGURE 2-2: REGIONAL EXISTING & PROPOSED ACTIVE TRANSPORTATION NETWORK MAP



Described below are the different types of users seen on the active transportation network. These are generalizations and people may find they fall into multiple categories depending on the day or the activity they are conducting.

- **Recreational:** Mostly bike or walk for fun or exercise
- **Commuter:** Mostly bike or walk to get to places like work, school, or shopping
- **Competitive Cyclist:** Mostly bike for training in competitions
- **Mountain Biker:** Mostly ride on mountain bike trails, sometimes using the street network

Figure 2-3: Lake Tahoe Bicyclist Types. Source: 2015 Active Transportation Plan Survey



The 2015 Survey asked respondents to identify the "type" of bicyclist they consider themselves to be if they bike in Tahoe. Respondents were only allowed to choose one category and the results are shown in Figure 2-3.

Multi-Modal Connections

A complete transportation network offers multiple methods of travel to residents and visitors. A major component to successfully encouraging people to get out of their car and use active transportation or public transit relies on offering a convenient, timely, comfortable, and safe system. Multi-modal connections help reduce barriers to active transportation, such as long distances, physically challenging topography, or a lack of active transport facilities. Additionally, multi-modal systems must consider "first and last mile," which is how people get to and from pick-up and drop-off points to their destinations.

Some marks of a strong multi-modal system include:

- Transit stations are accessible by biking, walking, and driving
- Quality and sufficient parking is available for cars and bikes
- Transit stations have a protected waiting area with support amenities such as benches, bathrooms, and water fountains
- Buses have sufficient bicycle carrying capacity
- Transit is timely and convenient
- Ticket prices are affordable
- Long stretches of connected active transportation facilities

TRANSIT:

Transit service provided through the Tahoe Transportation District on the South Shore and Tahoe Truckee Area Regional Transit (TART) on the North Shore addresses many of the above characteristics and continues to improve its services and facilities. Services include year-round fixed routes, para-transit, and seasonal shuttles. Many transit stops have bike racks and shelters and are accessible by all modes. Figure 2-5 (on page 2-10) illustrates the regional multi-modal system, including major transit stations, routes, waterborne transit, and intercept lots. For more detailed information on the transit system, please refer to the Tahoe Transportation District (www.tahoetransportation.org) or the Truckee North Tahoe Transportation Management Association (https://tahoetruckeetransit.com/).

Tahoe City Transit Center. Photo: Bruce R. Damonte

To assist transit providers in meeting the needs of multi-modal riders, the 2015 Survey asked respondents a variety of questions regarding transit use with their bikes. The *2015 Community Outreach Report* contains significant data on respondents' use of public transit and how often they use transit with their bicycles. Figure 2-4 illustrates which routes are most often used in combination with bicycles.

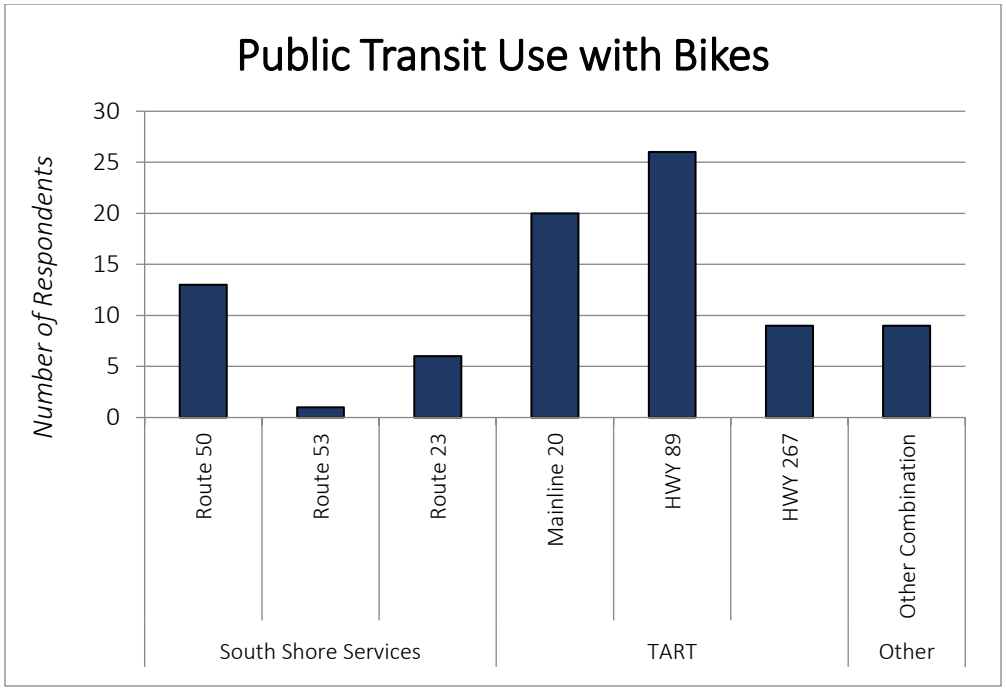


Figure 2-4: Public Transit Use with Bikes. Source: 2015 Active Transportation Plan Survey

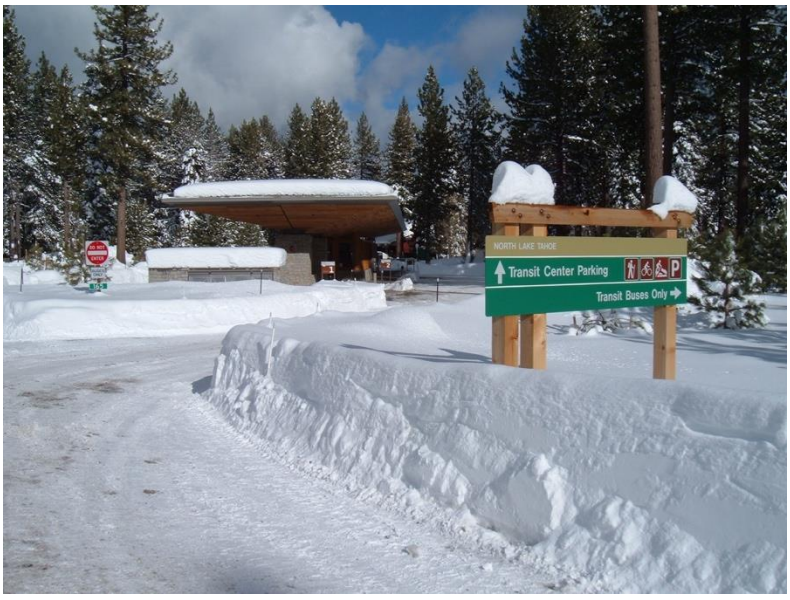
Bike racks on TART bus

Respondents were also asked whether buses typically have sufficient carrying capacity for their bicycles or adequate bicycle parking at bus stops. Eleven percent of respondents indicated buses seldom have space for their bikes, and 47 percent said bus stations do not have adequate bicycle parking. This information can be valuable for transit providers when determining priorities for improvements.

Multi-modal recommendations in the Community Outreach Report:

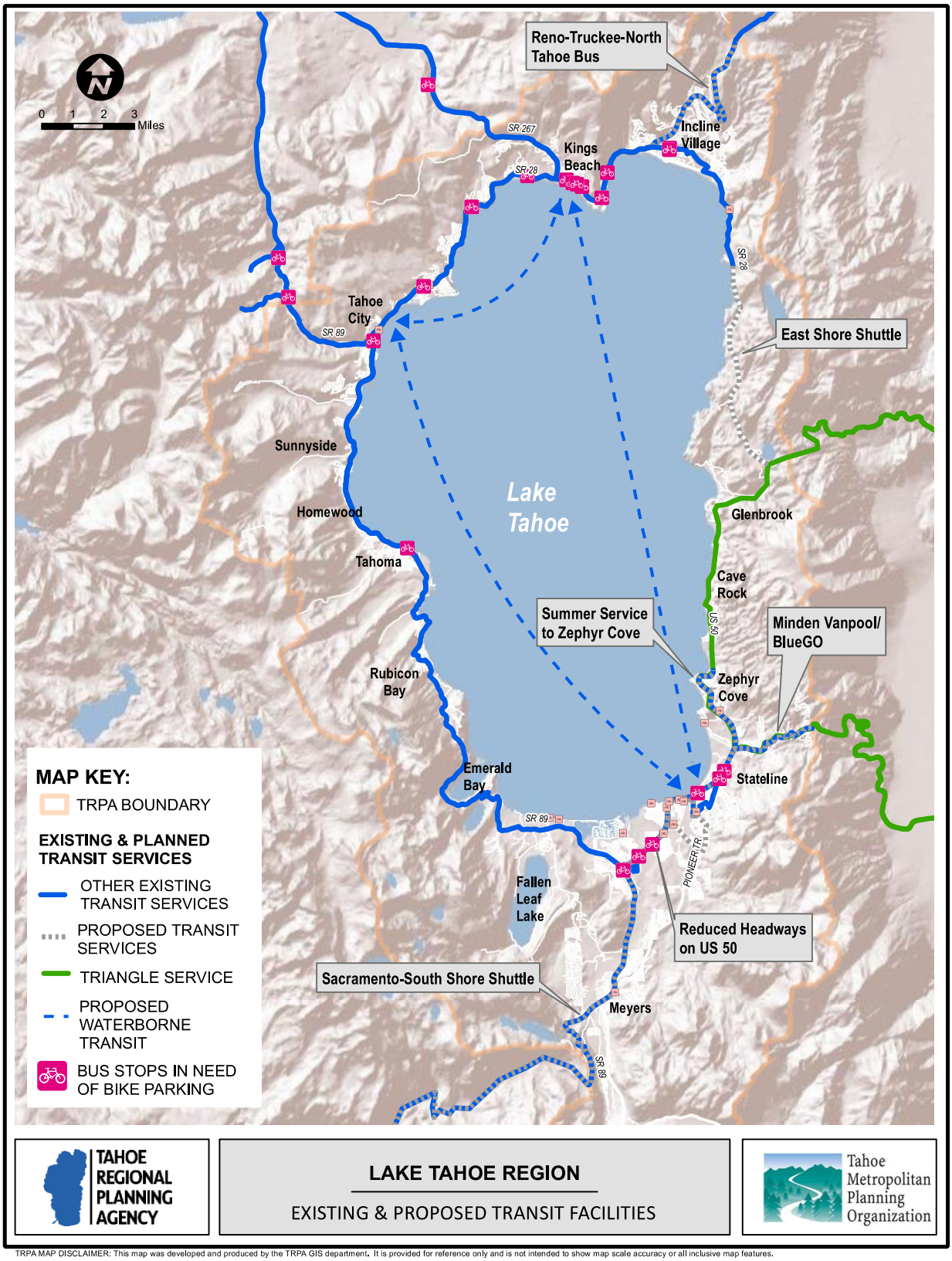
- TART Highway 89, TART Mainline, and South Shore Route 50 are the routes with the most multi-modal riders and should be prioritized for bicycle carrying capacity increases.

- Transit stops most in need of bike parking are the Tahoe City Transit Station, the "Y" Transit Station, all transit stops in Kings Beach, and the transit station at Southwood Boulevard and State Route 28 in Incline Village.



Tahoe City Transit Center. Photo: Placer County

FIGURE 2-5: EXISTING & PROPOSED TRANSIT FACILITIES



TRPA MAP DISCLAIMER: This map was developed and produced by the TRPA GIS department. It is provided for reference only and is not intended to show map scale accuracy or all inclusive map features.

Regional Paths

Long stretches of connected active transportation infrastructure enable users to travel long distances by bicycle. The Lake Tahoe Region has a variety of paths that connect users through entire towns or provide access across town. Regional path connections serve residents who live on one side of town but work on the other, or visitors who want to explore large swaths of Tahoe by bike. Many regional paths already exist, are programmed for construction over the next few years, or are still in the planning phase.

Once all of our regional paths are connected around the lake, these paths will make up the **"Tahoe Trail"** which is a collaborative vision of the public and local, state, and federal agencies, known as the Lake Tahoe Pathway Partnership. Once complete, the Tahoe Trail will allow users a continuous shared use path around the entirety of Lake Tahoe. In North Lake Tahoe, multiple local, state, and federal agencies are working to construct a 40-mile connected paved path known as the "**Resort Triangle**" that will join the communities of Kings Beach, Tahoe Vista, Tahoe City, Alpine Meadows, Squaw Valley, Truckee, Martis Valley, and, Northstar in a continuous loop of shared use path. The portion of the Resort Triangle between Tahoe City and Tahoe Vista will also be a segment of the Tahoe Trail allowing connection between the two regional pathways.

LAKE TAHOE REGIONAL PATHS:

Nevada Stateline-to-Stateline Bikeway

Proposed to extend over 30 miles, TTD and NDOT manage this path project that will eventually connect the Nevada state line on the North Shore to Stateline, Nevada on the South Shore. The path is being constructed in phases. The "South Demonstration Project" currently offers users a trail from Round Hill Pines to Laura Drive. The Incline Village to Sand Harbor State Park section of path is under construction now. The remaining sections of the path are under varying levels of planning and design. Local jurisdictions and the USFS will manage and maintain the path once constructed.

NV Stateline to Stateline Bikeway: Round Hill Pines Photo: Mike Vollmer

Meyers Bikeway

Meyers Bikeway. Photo: Mike Vollmer

Completed in 2015, this major connection of 5.8 miles provides users with a continuous shared-use path from the west edge of Meyers to Viking Way in South Lake Tahoe. Construction of this path was a partnership of many agencies, including El Dorado County, the City of South Lake Tahoe, and the U.S. Forest Service (USFS). The Meyers Bikeway is made up of various paths including the Pat Lowe Trail, Sawmill Pond Trail, and Lake Tahoe Boulevard Trail.

South Tahoe Greenway

The Greenway, a projected network of 10 miles, has long been planned by the California Tahoe Conservancy (CTC). The path is envisioned to stretch from Meyers to the California state line, along the southeastern edge of the city. This project will be built in phases. The first phase was constructed in summer 2015, connecting Herbert Avenue to Glenwood Street. California Active Transportation Program funding awarded in 2015 will allow two more phases to be built, connecting residents in the Sierra Tract neighborhoods to Lake Tahoe Community College.

South Tahoe Greenway. Photo: Morgan Beryl

South Tahoe Bikeway Photo: Morgan Beryl

South Tahoe Bikeway & South Shore Tahoe Trail

Active transportation users can currently ride from mid-town South Lake Tahoe all the way to Baldwin Beach on a nearly eight-mile connected network of shared-use paths and bike routes. The **South Shore Tahoe Trail** is maintained by the USFS. It was upgraded in 2015 to meet modern design standards and was rerouted to create safer conditions with reduced user conflict. The South Tahoe Bikeway, which parts of the path are also part of the path around the lake and thus part of the South Shore Tahoe Trail, connects to the USFS maintained path and brings users through half of the city, passing residences, commercial areas, meadows, and recreational amenities. The City completed a major gap in the path summer of 2017, connecting Ski Run to El Dorado beach.

West Shore Tahoe Trail

One of the oldest paths in the Region, this path offers 8.4 miles of gorgeous views along the West Shore of Lake Tahoe. The path connects users from Tahoe City to Sugar Pine Point, with a new connection to Meeks Bay finishing summer of 2018. The original path was constructed by Tahoe City Public Utility District (TCPUD). TCPUD maintains the entire West Shore Tahoe Trail. As additional path extensions are completed, the West Shore Tahoe Trail in combination with North Shore Tahoe Trail sections) will create a continuous 19-mile network.

North Shore Tahoe Trail
Lakeside , Truckee River, and Dollar Creek

North Shore Tahoe Trail - Lakeside

This path network completed in 2011 by the TCPUD spans the entire length of Tahoe City and connects users to Squaw Valley Mountain Resort along the Truckee River. The path is just over 6 miles long. It offers recreational opportunities and allows users to travel to opposite ends of town without using the street network. The new 2.3-mile Dollar Creek section was completed summer 2018 by Placer County. The County is currently designing additional extensions in this area. These paths are part of the soon-to-be continuous 19-mile trail network mentioned on the previous page.

East Shore Tahoe Trail, Lakeshore

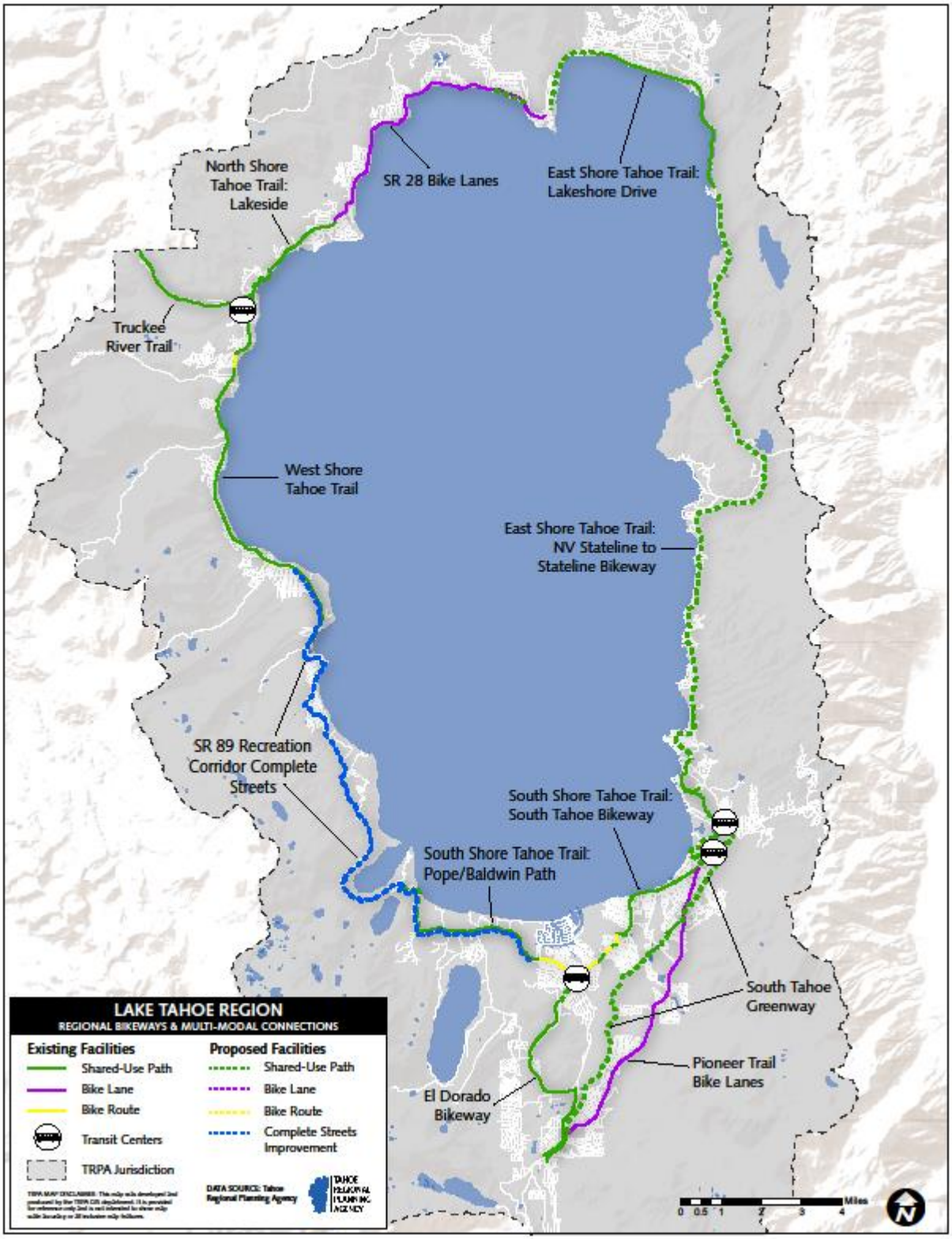
Connecting one side of Incline Village to the other, this path sees the heaviest use in the Region, according to most recent data. Spanning roughly 3.5 miles, the path is highly recreational, though it also connects visitors and residents to local commercial areas. This path was upgraded in 2012 and will connect to the new 3-mile segment of the East Shore Trail that connects Incline to Sand Harbor.

On-Street Network:

Continuous on-street bicycle infrastructure is also an important aspect of supporting regional active transportation. Many sections of US Highway 50 and State Route 28 have continuous bike lanes. These state highways act as main streets for City of South Lake Tahoe, Tahoe City, Kings Beach, and Incline Village. They serve commuters and competitive cyclists. Other major streets with bike lanes, like Pioneer Trail in South Lake Tahoe, also act as main thoroughfares for bicyclists. In some areas, bike lanes are in need of maintenance, including consistent restriping, widening, continuation through intersections, and repaving.

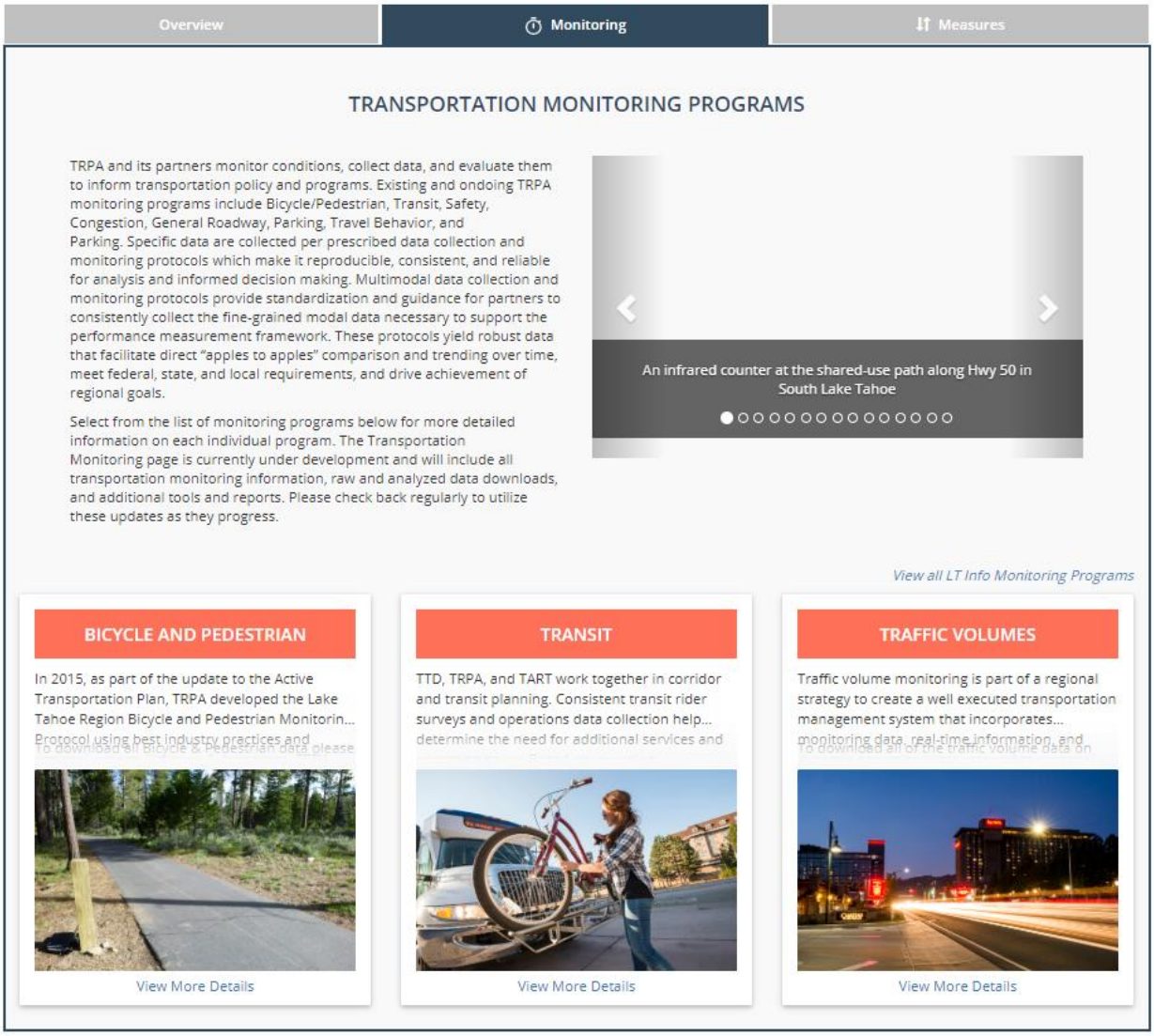
Lake Tahoe Boulevard bike lane. Photo: Mike Vollmer

FIGURE 2-6: REGIONAL PATHS & MULTI MODAL CONNECTIONS



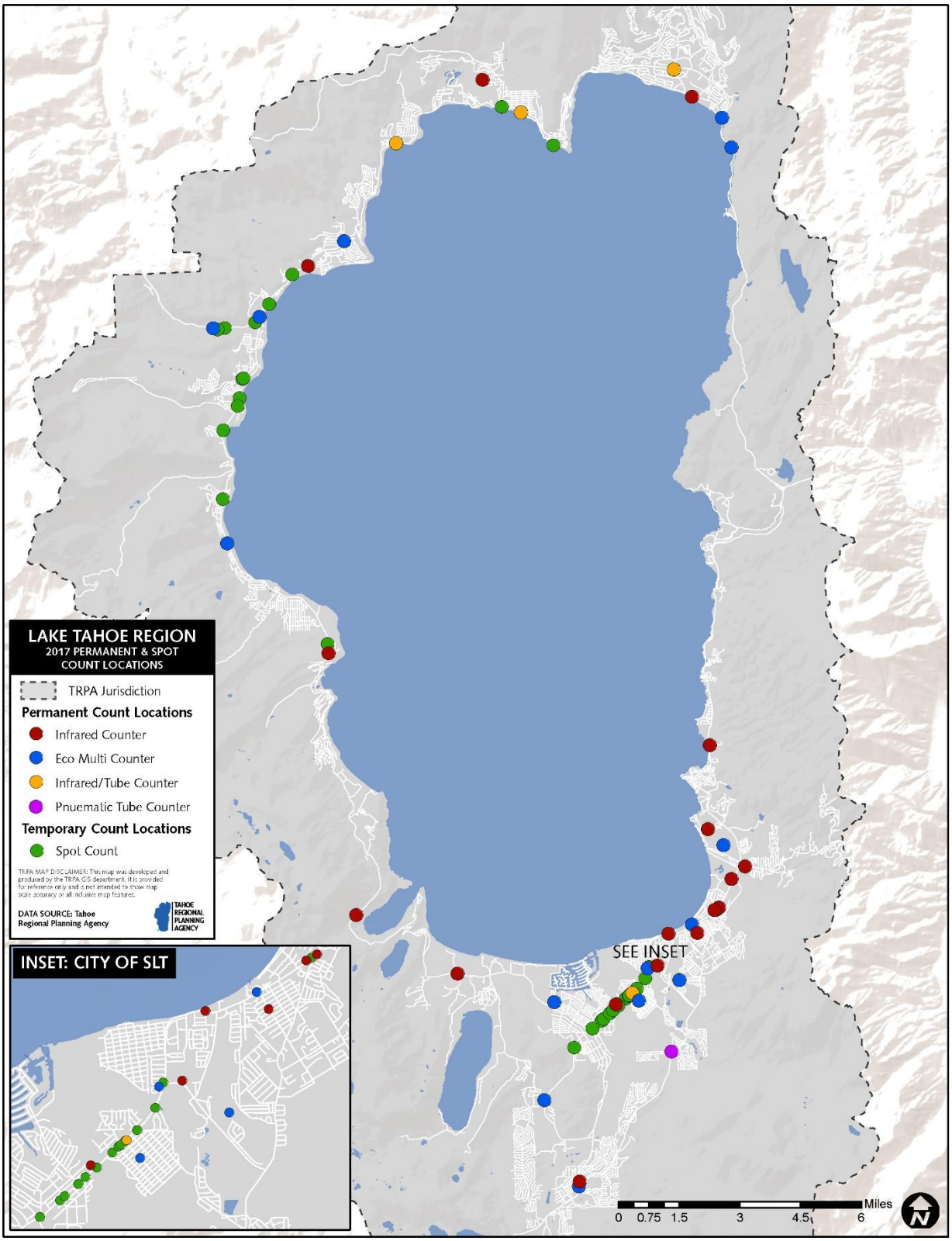
Current Use Patterns

Active transportation trips are not easily measured or projected for an entire region without extensive data collection efforts. To better understand where people are going and how they are getting there, TRPA and partners implemented a comprehensive bicycle and pedestrian monitoring program. In addition to consistent monitoring, TRPA also surveys on a project by project basis. Implementers use monitoring data to understand demand, support construction grant applications and reports, and for future planning. Figure 2-7 illustrates all monitored locations by equipment type. For more detailed analysis and up-to-date data visit the Bicycle and Pedestrian Monitoring page on Lake Tahoe Info: https://monitoring.laketahoeinfo.org/BikePed.



Lake Tahoe Info Monitoring Dashboard

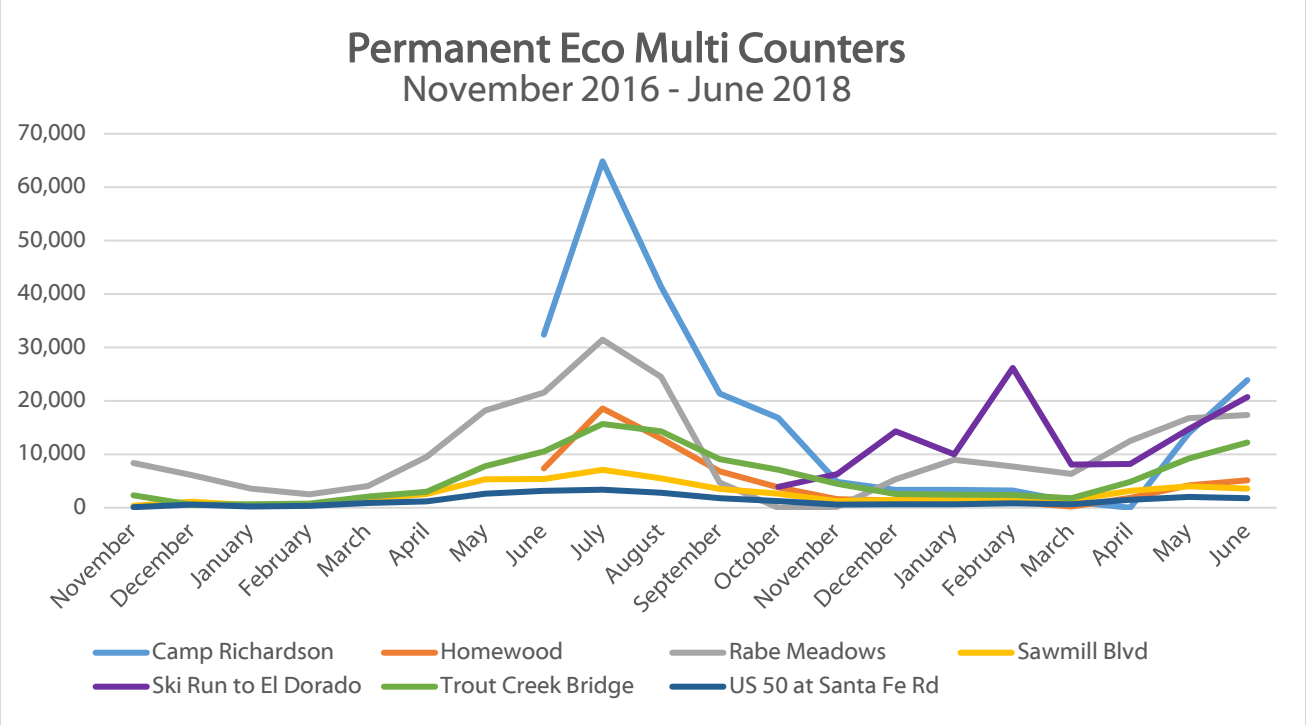
FIGURE 2-7: 2017 AND 2018 TRPA REGIONAL MONITORING LOCATIONS



TRPA and partners collect bicycle and pedestrian use data at 25 different monitoring locations, with several additional planned locations. Data is collected from permanent automatic Ecovision counters, automatic infrared counters, pneumatic tubes, and temporary spot counts. Permanent Ecovision counters count bicyclists and pedestrians, while differentiating between the two users and indicating travel direction. These counters are physically installed in paths and collect data year-round. Infrared counters collect both types of users but do not differentiate or indicate travel direction. Pneumatic tube counters collect data on bicyclists only. The infrared and pneumatic tube counters are rotated annually (called Trend A and B) and collect data year-round on bike lanes, plowed paths and sidewalks.

All monitoring locations were determined as part of the 2015 Bicycle and Pedestrian Monitoring Protocol through specific criteria. However, as needs arise, TRPA provides counters to local jurisdictions and provides in-person spot counts. Figure 2-8 illustrates bicycle and pedestrian use on shared-use paths where permanent Ecovision counters are installed. Counters are installed when possible or when new paths are constructed, so some locations have been collecting information for longer periods of time. Figures 2-9 and 2-10 indicate bicycle and pedestrian use on shared-use paths and sidewalks captured by infrared counters during different trend cycles. The monitoring data included in the graphs does not currently include counts in bike lanes.

FIGURE 2-8: PERMANENT ECO MULTI COUNTERS



New Ecovision multi counters are planned for installation at the following locations:

- Sand Harbor to Incline Village shared-use path
- Sierra Blvd shared-use path

FIGURE 2-9: TREND A COUNT CYCLE

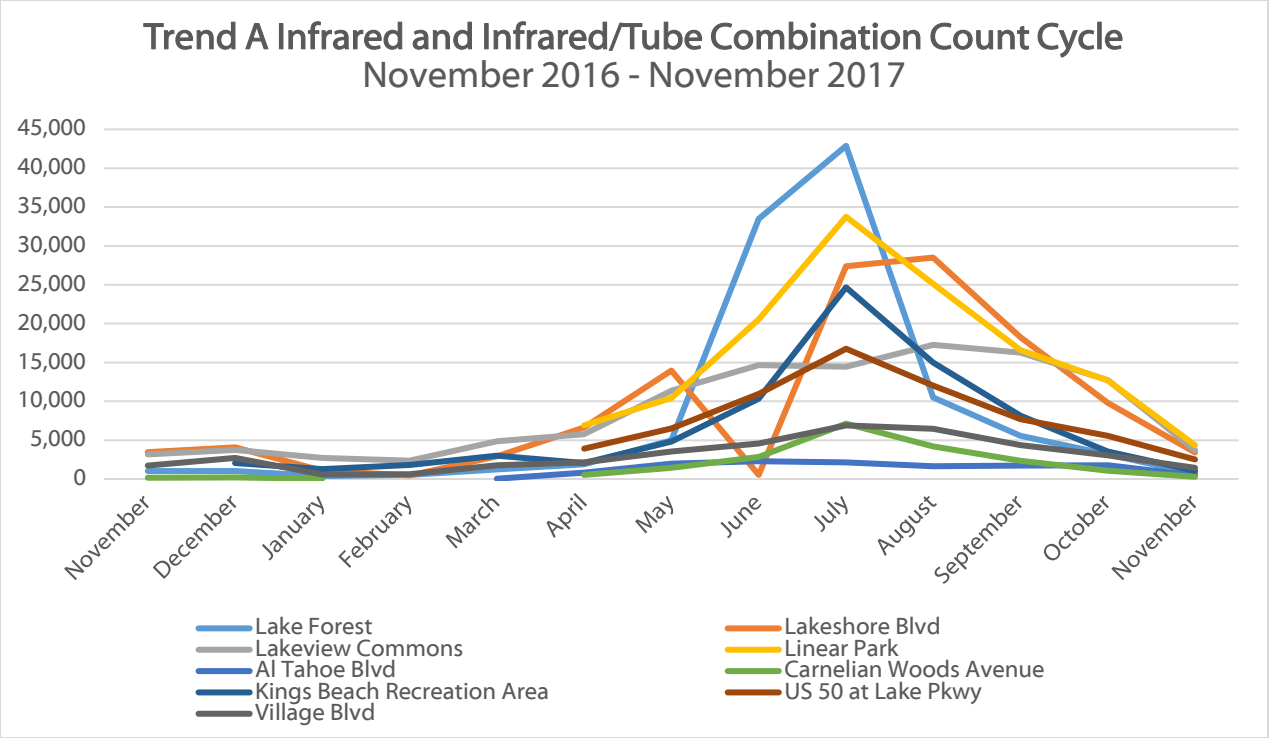
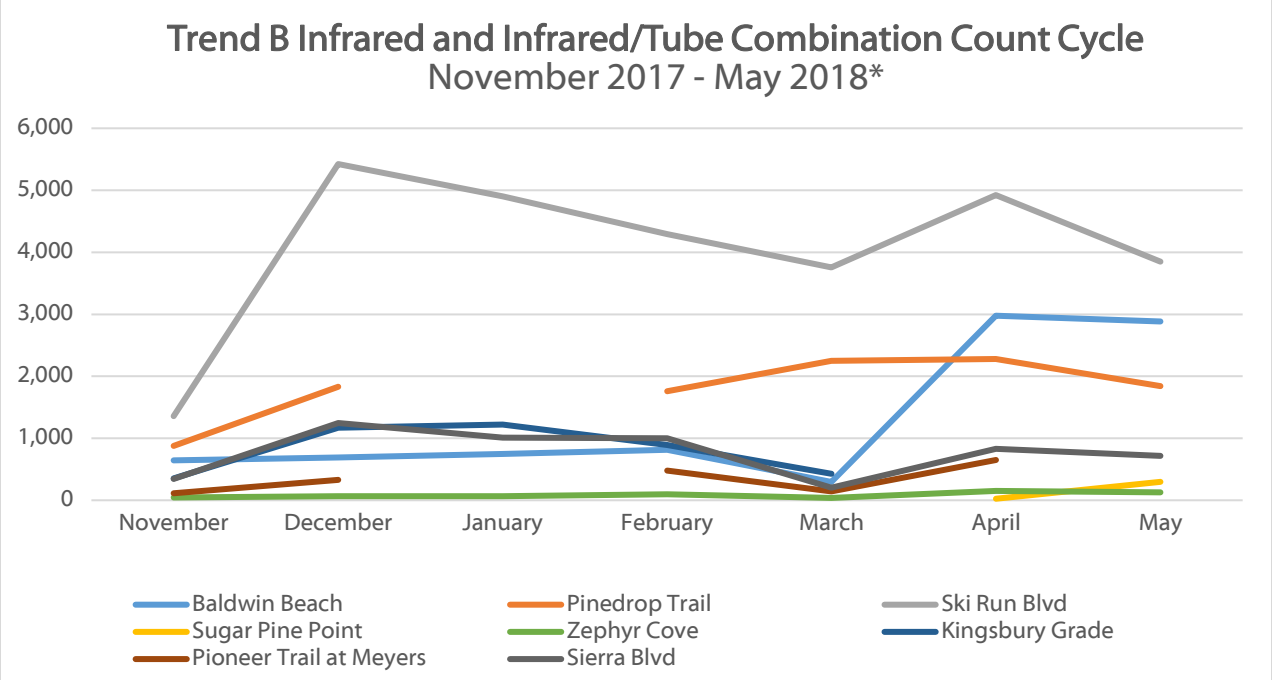


FIGURE 2-10 AND FIGURE 2-11: TREND B COUNT CYCLE



*Gaps in data may be due to counter malfunctions or irretrievable data.

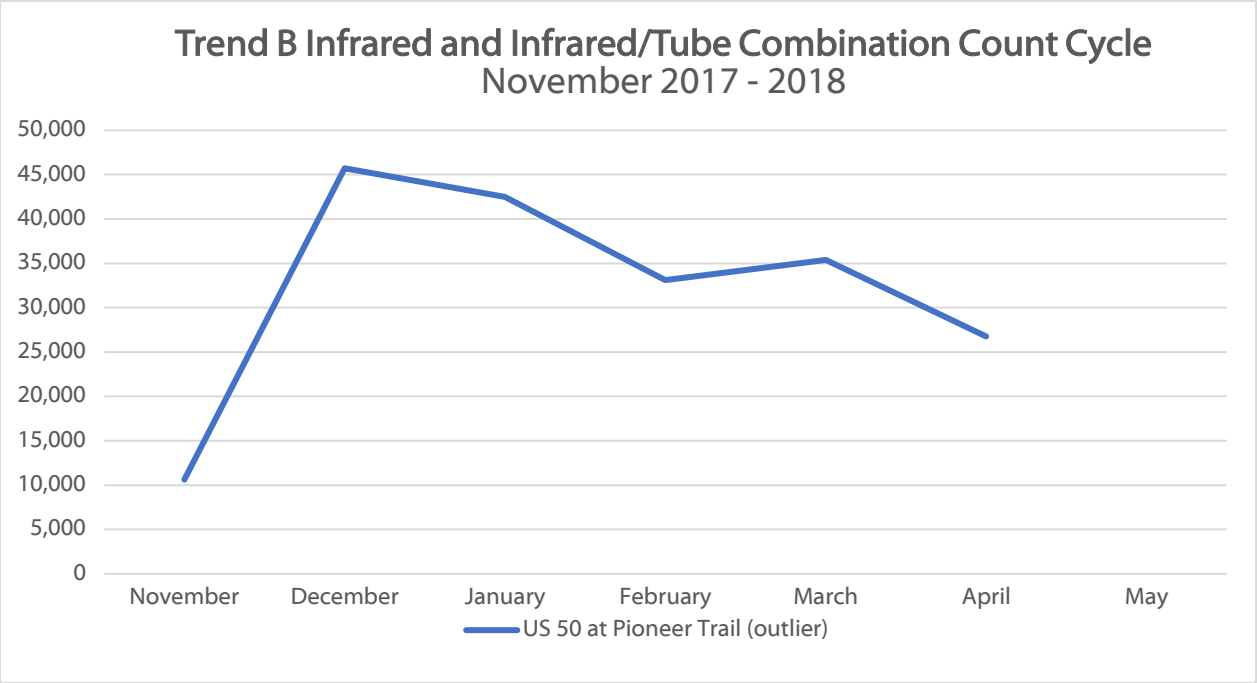
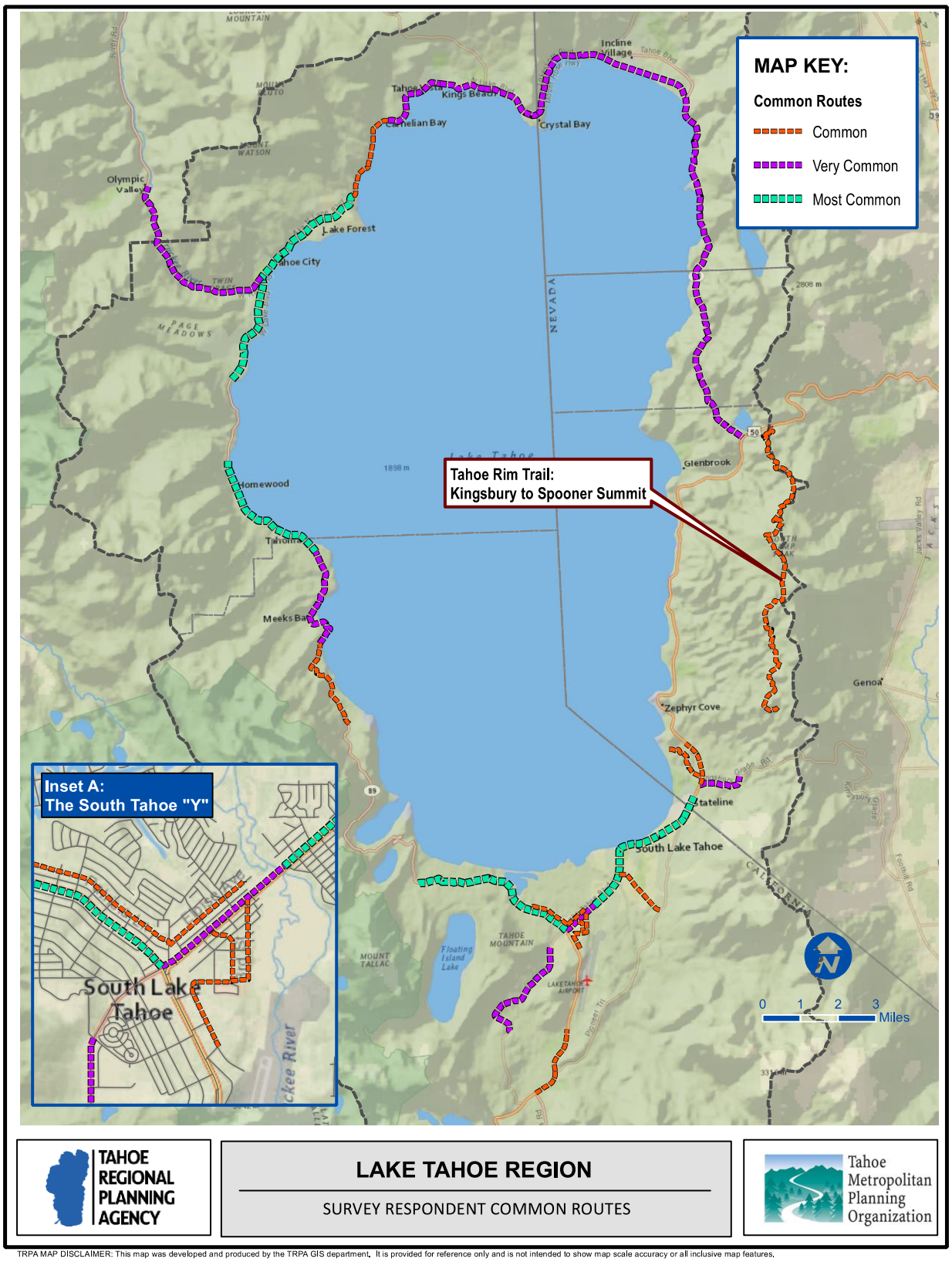

Trend B Infrared and Infrared/Tube Combination Count Cycle
November 2017 - 2018
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
November
December
January
February
March
April
May
US 50 at Pioneer Trail (outlier)

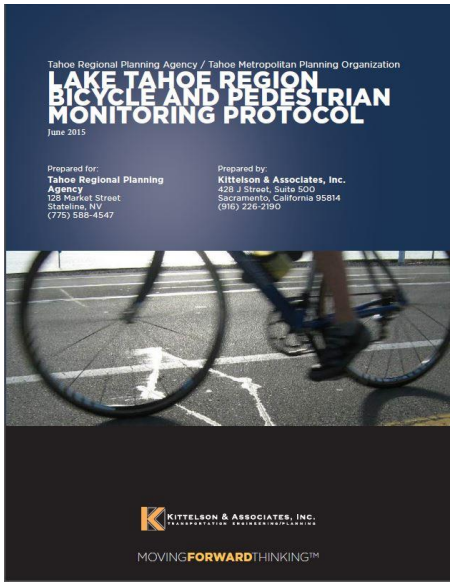
FIGURE 2-12: REGIONAL SURVEY RESPONDENT MOST COMMON ROUTES

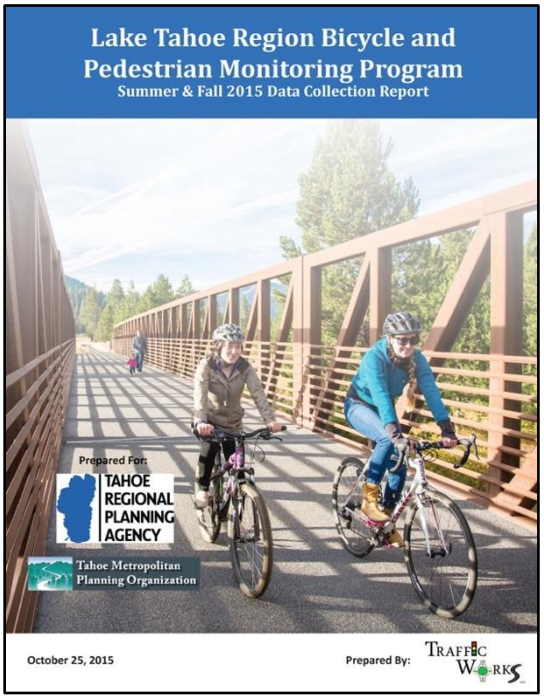


TRPA MAP DISCLAIMER: This map was developed and produced by the TRPA GIS department. It is provided for reference only and is not intended to show map scale accuracy or all inclusive map features.

Estimating Future Volumes

Future active transportation trips will depend on multiple factors, including population, employment, climate, land-use development, and active transportation network build-out. For many years, TRPA/TMPO has maintained a transportation model that estimates future vehicle trips based on land-use scenarios. For the 2010 Bike and Pedestrian Plan, a bike trail user model was developed to predict regional active transportation rates and expected use of individual facilities. TRPA/TMPO began validating the Bike Trail User Model with the 2015 monitoring efforts. TRPA is currently validating and updating the Bike Trail User Model to support local jurisdiction grant applications, reports and to inform the Lake Tahoe regional transportation model.





Using the model, TRPA/TMPO estimated future daily and annual use for the complete regional network. This estimate assumes a high quality, well maintained network of Class I shared-use paths on all major corridors where use is most common in the Tahoe Region. The model yielded an estimate of approximately 40,000 trips on the entire network on a peak summer day and almost 6 million annual trips assuming no winter path maintenance at complete build-out. The estimated 40,000 daily trips represent a four-fold increase over current active transportation rates on Class I shared-use paths. Assuming the same rates of commuting that were reported in the 2007 TRPA/Tahoe Coalition of Recreation Providers surveys, approximately 40 percent of these daily trips would be for commuter purposes. This technical amendment does not include a re-evaluation of this data. However, future updates will use the updated model once available to reassess this data.

2.2 CHALLENGES & STRATEGIES

Although Lake Tahoe offers many regional paths, multi-modal connections, and on-street facilities, barriers to active transportation still exist. Challenges that discourage active transportation and the development of projects to improve active transportation infrastructure include safety, gaps in connectivity, and the high cost of operations, maintenance, and implementation. This section discusses these challenges and offers strategies to alleviate barriers.

Safety

Photo: Mike Vollmer

A bicycle and pedestrian network that people feel safe using is a high priority in active transportation planning and could be a key factor in getting people out of their cars and onto the active transportation network. Safety can be measured in many ways, such as through crash statics, Level of Traffic Stress (LTS), or qualitatively through surveys. TRPA/TMPO has updated crash data through 2017 from state and local agencies and continue to draw from 2015 anecdotal data through community outreach. TRPA/TMPO analyzes safety by identifying multiple crash site locations and by cataloguing locations where users feel comfortable or uncomfortable along the network. State and local crash data is provided by the agencies listed in Table 2-3.

2012-2017 Crash Report:

Multiple agencies are involved in active transportation-related crash reporting, as indicated in Table 2-5 below.

AGENCY TYPE	AGENCY NAME	RESPONSIBILITY		
		Responds to Crash	Records	Submits to State Collection System
State	California Highway Patrol (CHP)	X	X	X
	Nevada Highway Patrol (NHP)	X	X	X
Local	Barton Memorial Hospital		X	
	CSLT Police Department	X	X	X
	Douglas County Sherriff	Only upon request	X	X
	El Dorado County Sherriff	Only upon request		X
	Placer County Sherriff	Only upon request	X	X
	Washoe County Sherriff	Only upon request	X	X

Table 2-2: Agencies Responsible for Crash Reporting. Source: TRPA/TMPO

Accurately reporting crashes is essential for identifying safety needs. Work conducted to support the development of the Lake Tahoe Region Safety Plan[1], which began in October 2017 and will complete in October 2018, identifies **bicycle and pedestrian crash reporting contains data gaps**. As part of the Lake Tahoe Region Safety Plan, partnering agencies are developing a memorandum of understanding (MOU) to identify next steps, roles and responsibilities for improving data collection

[1] Lake Tahoe Region Safety Plan is funded by Caltrans' Systemic Safety Analysis Report Program and NDOT's Highway Safety Improvement Program.

and analysis region-wide. **Crashes may not always be accurately reported due to technical difficulties with recording systems, staff availability, injury severity, and non-reporting by victims.**

Table 2-6 illustrates crashes reported to the states of California and Nevada between 2012 and 2017. Crashes are separated by jurisdiction and injury severity. In some cases, data from 2017 may not be complete because state officials are still updating databases with 2017 information.

Table 2- 3: Reported Crashes between 2012-2017. Source: SWITRS/NHP

Jurisdiction	Total Crashes*	Pedestrian	Bicycle	Injury	Fatal
El Dorado County, CA	27	6	21	23	3
City of South Lake Tahoe, CA	49	17	32	42	4
Placer County, CA	64	21	43	56	2
Carson City, NV	2	1	1	2	0
Douglas County, NV	36	18	18	30	2
Washoe County, NV	16	10	6	11	0
Total	**194**	**73**	**121**	**164**	**11**
Accident Rate:	**6.09%**	This number is derived by dividing the total number of active transportation crashes between 2012-2017 in California and Nevada (194) by the total crashes in the Region over the same period of time (3188). The accident rate decreased one percent from 2015.			
*The sum of injuries and fatalities may be higher or lower than total accidents because sometimes the number of people in the party was greater than 1 or an injury did not occur.					

In depth crash analysis conducted as part of the Lake Tahoe Region Safety Plan identified a variety of intersections and roadway segments with crash histories. Though the Lake Tahoe Region Safety Plan is not yet finalized, the crash analysis is complete. This memorandum can be supplied upon request. This up-to-date crash information, along with 2015 community and stakeholder feedback, was used to identify priority intersection improvement locations, which are shown by corridor in Chapter 4, Network Recommendations. All intersections in the Region, however, could benefit from active transportation improvements.

Barton Memorial Hospital began recording active transportation-related injuries in 2012. TRPA/TMPO conducted outreach to Incline Village Community Hospital to clarify if they also recorded transportation-related injuries. The hospital indicated that it does collect this information but does not consolidate it into any report for public consumption. Barton data is provided and is compared to data available in SWITRS for the City of South Lake Tahoe, El Dorado County, and Douglas County during the same time period. Hospital data does not include area codes or identify if a crash occurred on a mountain bike trail or roadway facility, so this comparison assumes records only include injuries from the Barton Hospital identified primary service area for Lake Tahoe, including the City of South Lake Tahoe, El Dorado County, and Douglas County. Table 2-9 highlights the discrepancy between the number of crashes reported to the state and the number of actual active transportation-related injuries treated by Barton Hospital. One of the recommendations that will come forth in the Safety Improvement Commitment MOU, which is part of the Lake Tahoe Region Safety Plan, include partnering with hospitals to improve data collection within the limits of the Health Insurance Portability and Accountability Act of 1996.

Table 2- 4: SWITRS & Barton Memorial Hospital Crash Data Comparison, 2012-2017. Sources: Barton Memorial Hospital & SWTIRS

SWITRS & Barton Memorial Hospital Crash Data Comparison: 2012 - 2017							
Year Reported & Agency:	2012	2013	2014	2015	2016	2017	**Total Collisions:**
SWITRS	29	29	24	22	20	13	**137**
Barton Memorial Hospital	24	49	77	116	119	57	**442**

Designing for Safety:

Perceptions of safety directly influence people's choice to use active transportation. Poor sight distance, high vehicle volumes and speed, lack of lighting, and lack of infrastructure may cause people to choose to drive even though they may prefer to make their trip by biking or walking. The 2015 Survey asked respondents why they felt locations they indicated were in need of improvement. Their answers are illustrated in the figures below. The issues relayed in the figures, such as not feeling "protected from traffic," should be used as design criteria when designing future projects or reconfiguring roadways.

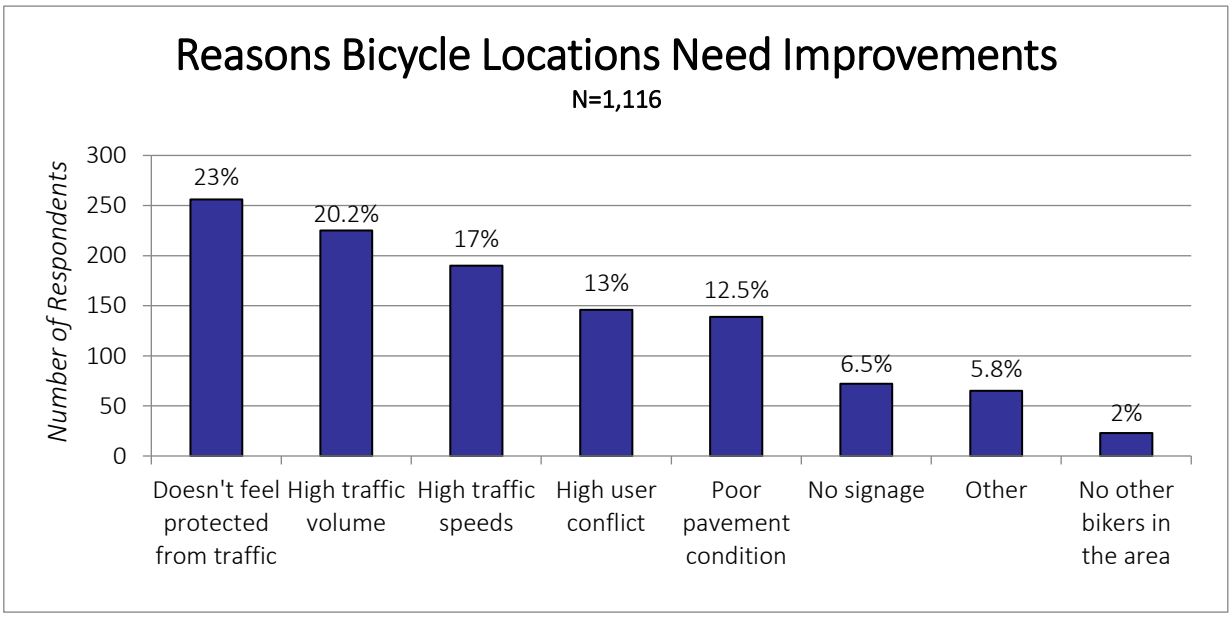


Figure 2-13: Reasons Intersections Need Improvements for Bicyclists. Source: 2015 Active Transportation Plan Survey

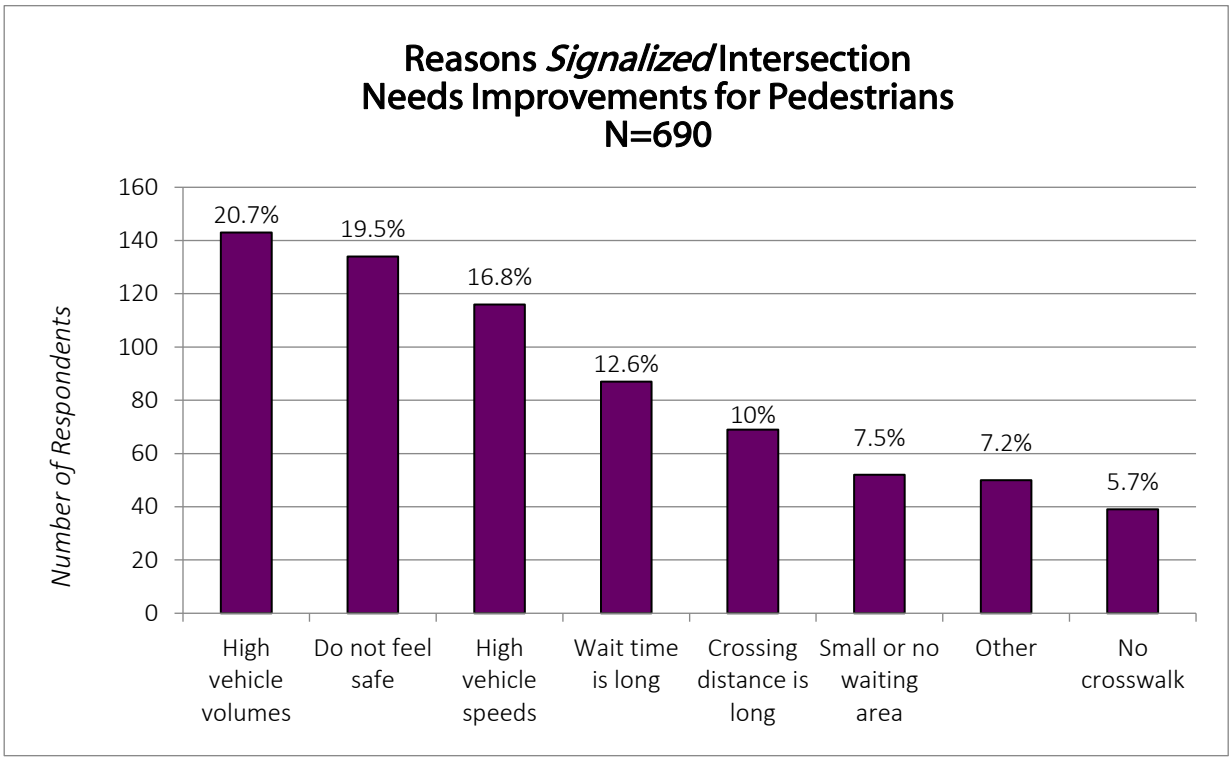


Figure 2-14: Reasons Signalized Intersections Need Improvements for Pedestrians. Source: 2015 Active Transportation Plan Survey

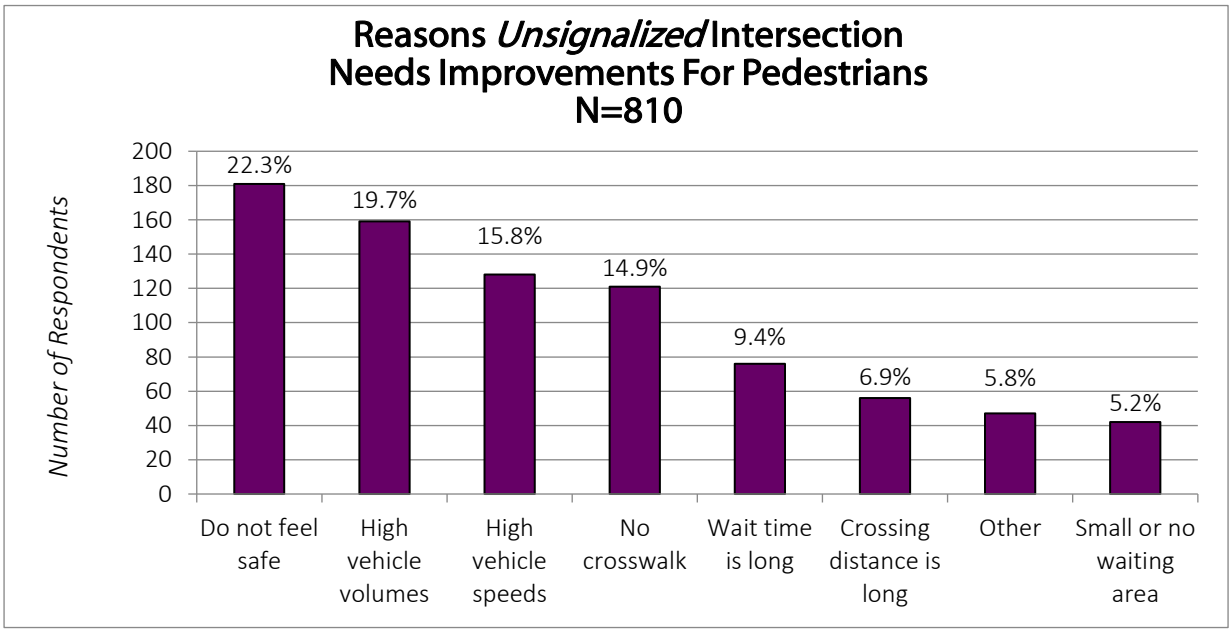


Figure 2-15: Reasons Unsignalized Intersections Need Improvements for Pedestrians. Source: 2015 Active Transportation Plan Survey

Safety - Challenges & Strategies:

The sections above illustrate three clear safety challenges. These challenges are listed below and include recommended strategies as possible solutions.

- **ACCURATE CRASH REPORTING**

  Strategy:

  - *Encourage all crash victims to report incidents to police*. Some ways to encourage this behavior are through education campaigns that inform people how to report, such as calling hotlines. An online self-reporting tool could be developed to support increased reporting. Hospitals can also encourage victims to report their incident to law enforcement.
  - *Ensure law enforcement records all active transportation-related crashes, regardless of injury severity, and includes those records in their report to the state*. This may entail altering the way law enforcement collects information or may require updating technological systems to coordinate with state systems.

- **"HOT SPOT" LOCATIONS IN NEED OF IMPROVEMENT**

  Strategy:

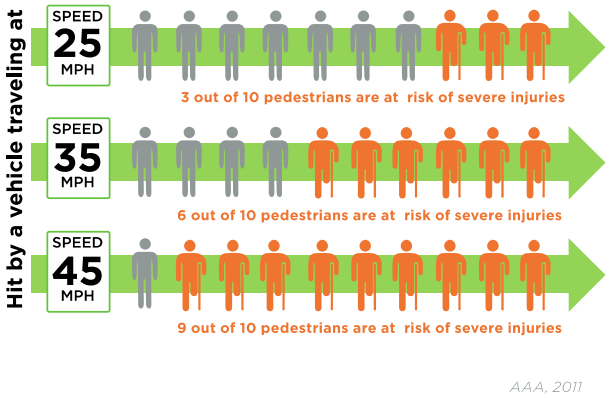
  - *Use 2010-2014 Crash Report and intersection priority locations to prioritize locations for improvement.* Priority locations should be added into capital improvement programs and included in private and public projects, where appropriate.

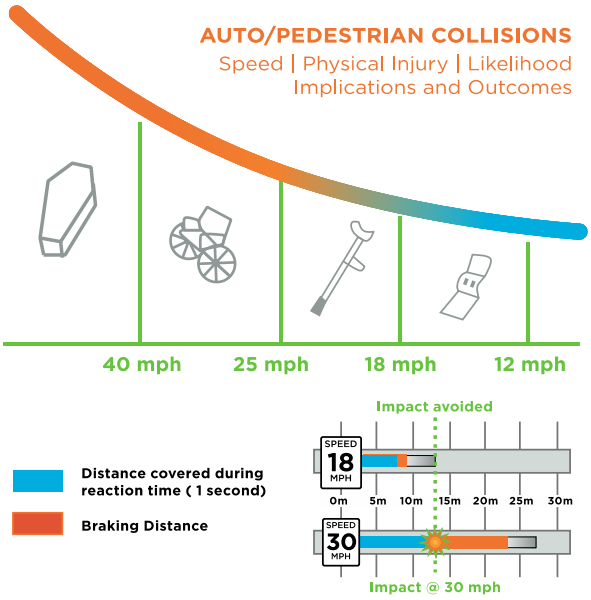
3rd Street & US 50 Intersection, vehicular left turn movement. Photo: Mike Vollmer

DESIGN FOR SAFETY

Strategy:

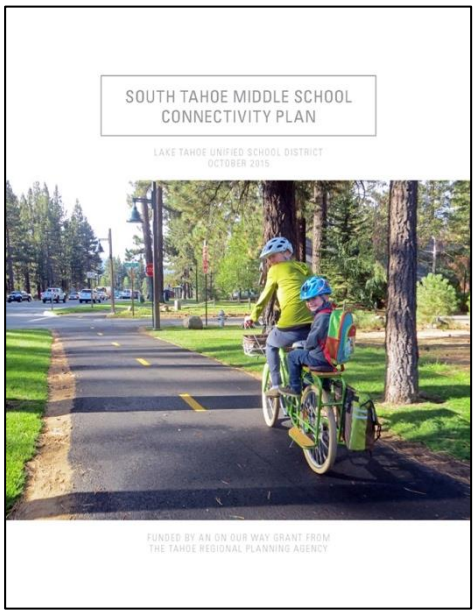
- *Design projects for the safety of all roadway users.* Use the data collected in the 2015 Survey to identify community-perceived risks to safety and design projects to address those issues. Lake Tahoe-specific issues that can be improved through design include lighting crosswalks, decreasing the distance between controlled crossing opportunities, reducing crossing exposure (Distance), and adding designated on-street infrastructure in uphill sections of roadway.





Connectivity

Gaps in connectivity impact a variety of user types in different ways. These differences are explained and analyzed as Level of Traffic Stress, which measures the ability for active transport users to travel between origin and destination without using links that exceed their tolerance for discomfort and that do not involve an undue level of detour. For a family of riders, parents may only feel comfortable taking their children on shared–use paths because they are completely separated from vehicular traffic. If a family cannot take the path from origin to destination, they may choose to drive even if they would prefer to bike. More experienced riders may be more comfortable riding in bike lanes with traffic but may choose not to ride because bike lanes are not well maintained, are poorly designed, or inconsistent. If sidewalks do not extend the entire distance of a common commute or do not exist at all, and pedestrians are forced to walk along the road, they, too, may decide to drive. In many cases, people do not have transportation choices, as explained in the equity section in Chapter 1. At the 2015 Active Transportation Plan community gatherings, attendees were asked to identify top priorities for active transportation planning. *Connectivity is the top priority.*



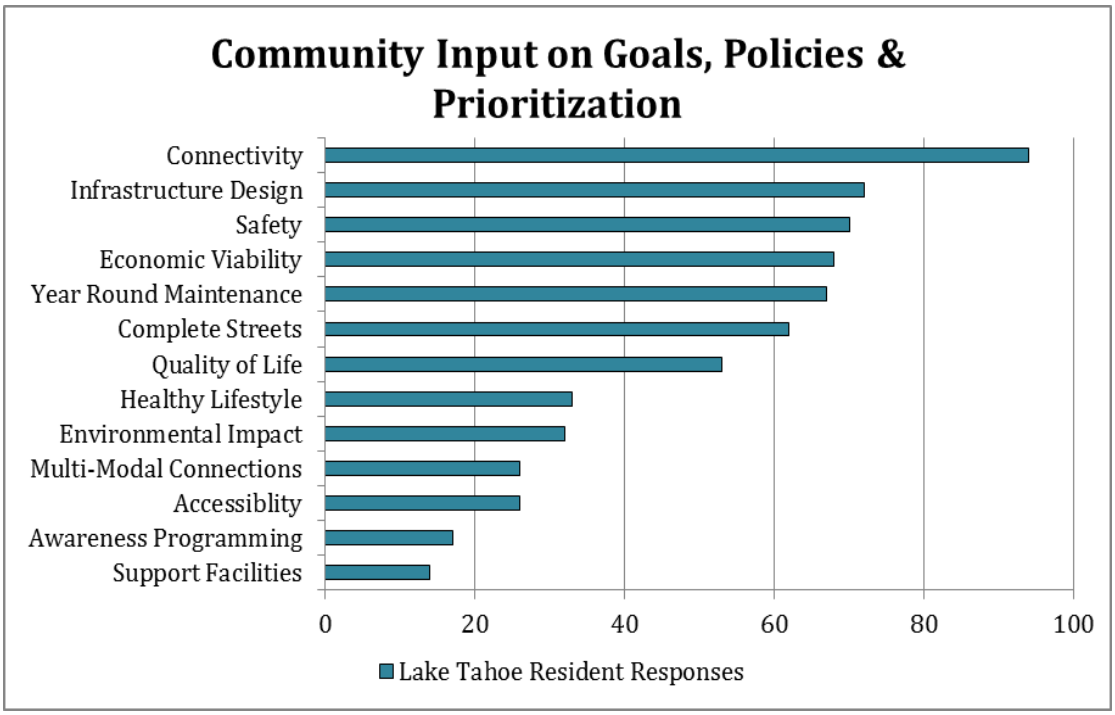


Figure 2-16: Community Input on Goals, Policies, and Priority. Source: 2015 Community Outreach Report

Connectivity - Challenges & Strategies:

The Lake Tahoe Region has a few key locations that sever the active transportation network and act as barriers to increased use. This list is not exhaustive but identifies locations that are major gaps in regional connectivity as of 2018 and do not yet have construction funds. These locations include:

Location	Status	Improvement	Project Lead
SR 89 from Cascade to Meeks Bay	Planning for improvement through SR 89 Recreation Corridor Management Plan development	Complete Street Improvements	Varies
Kings Beach to Crystal Bay	Planning for improvement	Shared-Use Path	Placer County
Crystal Bay to Incline Village	Planning for Improvement	Shared-Use path	Tahoe Transportation District & NDOT
Sand Harbor to Round Hill Pines.	Planning for improvement. Preliminary engineering funds awarded for Round Hill Pines to Zephyr Cove segment.	Shared-Use Path	Tahoe Transportation District & NDOT
SR 28 & US 50 (Nevada)	Planning for Improvement	Complete Street Improvements	NDOT

Table 2-5: Regional Gaps in Connectivity. Source: TMPO

Gaps in Connectivity are illustrated by the following physical infrastructure issues:

- Lack of infrastructure
- Discontinuous infrastructure
- Aged facilities that no longer feel safe
- Intersections that do not accommodate all user types
- Lack of wayfinding to direct users to a preferred network

Strategies to improve conditions and reduce connectivity gaps can involve small efforts such as installing wayfinding signage or large scale construction projects. Implementing agencies should prioritize closing network gaps by placing these projects on their capital improvement program lists. Recently, the City of South Lake Tahoe and El Dorado County have installed wayfinding signage on their trail systems through funding provided by Measure R and Measure S. Placer County, in coordination with the North Lake Tahoe Resort Association, has created a wayfinding manual to assist in the implementation of a comprehensive wayfinding network. Washoe County, as part of a TRPA/TMPO On Our Way Grant Program, is also creating a Signage Master Plan for the State Route 28 Corridor. These are great starts to assisting users on regional trails. The street network could benefit from similar efforts.

West Shore Wayfinding. Photo: Alta Planning + Design

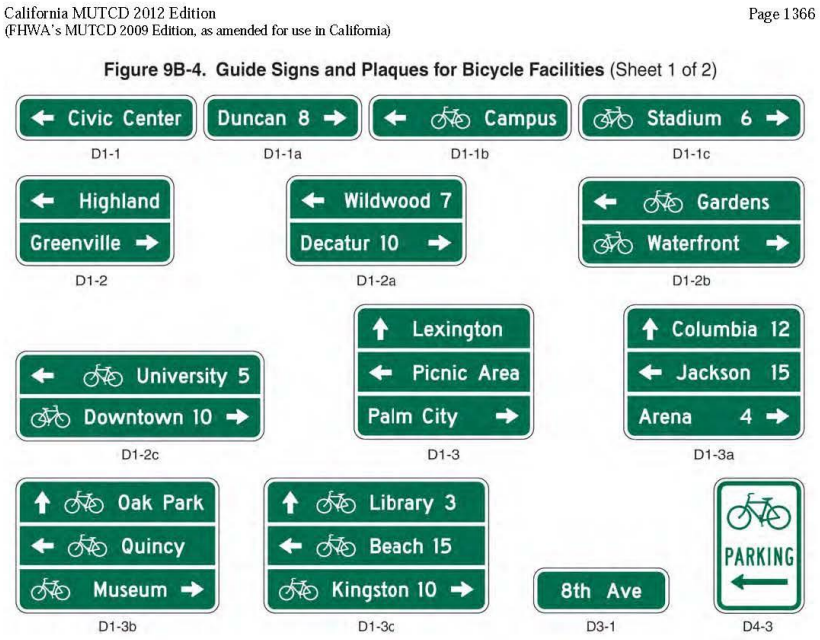
- For regional connectivity gaps, implementation of **large scale projects** may be necessary. These projects can be done in phases, such as first adding bike lanes and later providing a Class I shared-use path when funding is available. Interim projects can help close gaps more quickly at reduced costs. Constructing interim projects may allow more robust

planning, outreach, and funding analysis to be conducted while still meeting the short-term needs of the community.

- For more localized connectivity gaps, **wayfinding signs** are a small improvement that can generate a large benefit. Tourists and residents may not understand that the Lake Tahoe network is comprised of various types of infrastructure, such as bike lanes that connect to bike routes that connect to a shared-use path. Wayfinding offers people recommendations about preferred routes, provides destination and distance information, and acts as a key landmark in case of emergency.

Strategies for improving wayfinding include:

- Be Consistent and use the 4 "D's"
  - Distance
  - Direction
  - Destination
  - Duration
- Integrating wayfinding into structures in the public right-of-way, such as bus shelters, permanent trash cans, and other street furniture. Information must be accessible to people with disabilities.
- Install signs to direct users in the right direction, especially at route decision points.



Constructability

Project construction in the Region has accelerated thanks to the efforts of governmental agencies, funding awards, and advocacy groups. Multiple-resource benefits are also realized as more water quality projects include complete street improvements. Some examples of multi-benefit projects are Caltrans' work on U.S. Highway 50 and State Route 89, and the City of South Lake Tahoe's Greenbelt. Projects anticipated to be completed by 2020 include:

US 50 Water Quality Improvement Project

Location	Improvement	Project Partners	Year of Construction
Al Tahoe Safety and Mobility Enhancement Project	Roadway realignment, Shared-Use Path, Bike Lanes, Sidewalks, Intersection Improvements	Caltrans & City of South Lake Tahoe	2019
SR 89 / Fanny Bridge Community Revitalization Project	Roundabouts, Bike Lanes, Shared-Use Paths, Crossing Improvements, Water Quality Improvements	TTD, Caltrans, TCPUD, and Placer County	2019
Nevada Stateline to Stateline Bikeway (Incline Village to Sand Harbor)	Shared-Use Path, Parking Improvements, Water Quality Improvements	TTD, Washoe County, NDOT	2019
U.S. Highway 50: Trout Creek to South Tahoe "Y"	Bike Lanes, Sidewalks, Intersection Improvements, Water Quality Improvements	Caltrans & City of South Lake Tahoe	2019
South Tahoe Greenway	Shared-Use Path	El Dorado County	2020
U.S. Highway 50 & State Route 89	Intersection Improvements and Shared-Use Path extension	Caltrans	2019
Sierra Boulevard Complete Street Improvement	Bike Lanes, Shared-Use Path, Sidewalk, Intersection Improvements	City of South Lake Tahoe	2019
Pioneer Trail & U.S. Highway 50	Intersection Improvement	El Dorado County & Caltrans	2020 / 21

Table 2-6: Near Term Regional Project Implementation. Source: TMPO

Agencies still face many challenges moving projects into implementation, including a limited construction season and limited funding, and the difficulty of managing traffic control during peak summer travel times. Delaying projects that improve safety can result in preventable injuries or fatalities. One of the goals of this plan is to help agencies identify ways to deliver cost-effective projects to more quickly meet the needs and values of the community.

Implementation – Challenges & Strategies:

HIGH BUILDING COST

Strategies:

- *Be Opportunistic:* Look for nearby or similarly timed projects and identify opportunities to expand the scope to include complete street improvements.
- *Resurface and Repurpose:* If a roadway is programmed for resurfacing, revisit the street striping to include painted active transportation infrastructure.
- *Bundle Funds:* Be creative with funding sources by planning ahead and diversifying sources.
- *Design/Build vs. Construction Manager at Risk vs. Design/Bid/Build:* Cost savings can occur when contractors are brought on board for projects before they have reached 100 percent design. These methods give contractors an opportunity to provide feedback on the implementation challenges they foresee and creates buy-in to implement the project as envisioned.

Round Hill Pines Path Construction. Photo: TTD

PUBLIC SUPPORT

Strategies:

- *Interim Treatments:* During planning and outreach phases, construct low-cost, interim treatments that reflect future project plans. This gives the community a chance to understand the new infrastructure, give feedback, and improve the area in the short-term without large costs. Interim projects give staffers the opportunity to refine and rethink issues to implement better long-term projects. Some examples of interim treatments include:
    - Signs
    - Signal phase readjustment
    - Painted roadway markings
    - Street furniture (planters, benches, tables)
    - Superficial construction
    - Part-time closures

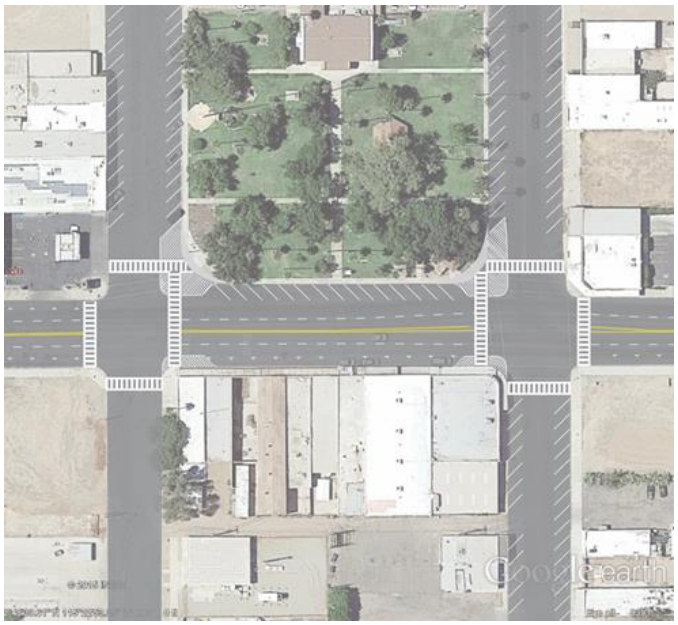
Jackson Hole, WY. Painted Curb Bulbouts. Photo: Alta Planning + Design

- *Phased Implementation:* Similar to interim treatments, phased implementation gives the community a chance to understand the project and experience benefits. As the project draws closer to completion, public support and desire for the project will be stronger.

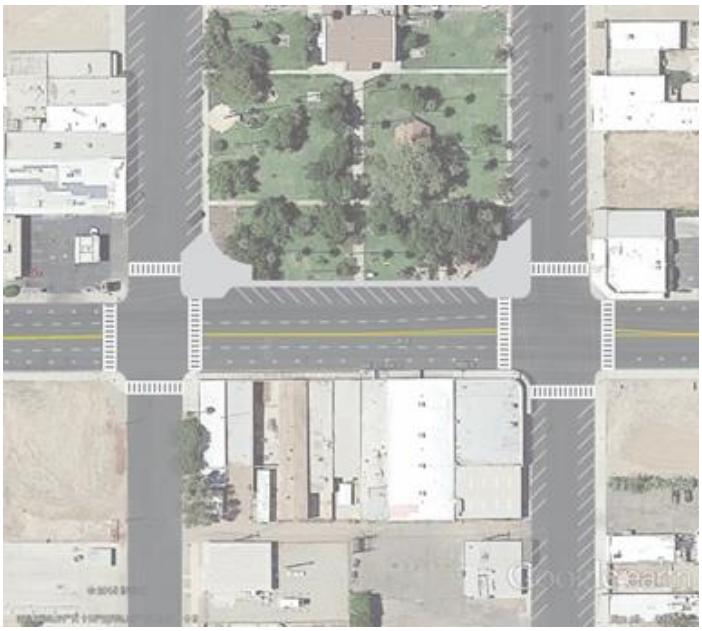
Original Alignment

Phase 1: Painted crosswalks & roadway realignment

Phase 2: Painted Curb Bulbouts & Realigned Crosswalks



Phase 3: Bulbouts made permanent



Example supplied by Alta Planning + Design at the Transforming Tahoe Transportation Workshop

Maintenance

A major component of a healthy transportation network is maintaining and upgrading infrastructure so it is comfortable and safer to use. Some paths and on-street infrastructure in Lake Tahoe were implemented prior to current standards and best practices, or are weathered and need refurbishment. Many local agencies are taking the lead in upgrading the current path system through refurbishment of pavement, expansion of width, and rerouting trails to reduce user conflict and heighten conflict awareness.

Many on-street network upgrades are also needed. In many cases, bike lane striping is faint on the roadway, as agencies restripe at the end of summer and snow removal operations throughout the winter significantly degrade quality. Bike lanes throughout the Region are often minimum width and do not contain some updated design features such as buffers (painted or physical), cycle tracks, and intersection treatments. Table 2-10 highlights the high-priority facilities that are in need of upgrade as of 2018.

Banff, Canada – Cycle Track. Photo: Shay Navarro

Location	Improvement	Project Partners
South Shore Bikeway (Tahoe Trail) Ski Run to Pioneer Intersection.	Refurbish path	City of South Lake Tahoe
Round Hill Pines Path	Refurbish path	Douglas County
Pioneer Trail	Bike Lanes (buffered)	El Dorado County & City of South Lake Tahoe
SR 89 & West Shore Tahoe Trail	Crossing	Caltrans, TCPUD, TTD, and Placer County
Various paths around Incline Village	Refurbish path and bring up to current standards	Washoe County

Table 2-7: Facilities in Need of Upgrade. Source: TMPO

Operations & Maintenance - Challenges & Strategies:

"Transforming Tahoe Transportation: A Workshop on Completing Our Streets" included a robust brainstorming session, presentations, and panel discussions on the challenges associated with maintenance. Strategies used in other locations to overcome similar issues were presented as case studies. More detailed information can be found in Appendix A, the *Lake Tahoe Complete Street Resource Guide.*

ONGOING MAINTENANCE COST

Strategies:

- *Public-Private Partnerships:* The Town of Truckee, Placer County in Kings Beach, and the City of South Lake Tahoe all employ this method. Facility and assessment districts are created when local government and businesses enter into an agreement where the government invests capital funds to build complete street improvements and add value to commercial centers while business owners pay fees to assist in ongoing maintenance. Local examples include the Kings Beach Benefit Assessment District and the Park Avenue Development Maintenance Association.
- *Surcharge on Property Taxes:* This tax can only be implemented by a vote by property owners, per Proposition 218 (for California). Taxes are used for transportation-related maintenance, including refurbishment and snow removal.

Flush Curb. Photo: Alta Planning + Design

- *Design with Maintenance in Mind*: Include maintenance staff during design phase. Maintenance staff understands available resources. They can offer design strategies to alleviate known maintenance limitations.

SNOW REMOVAL

Strategies:

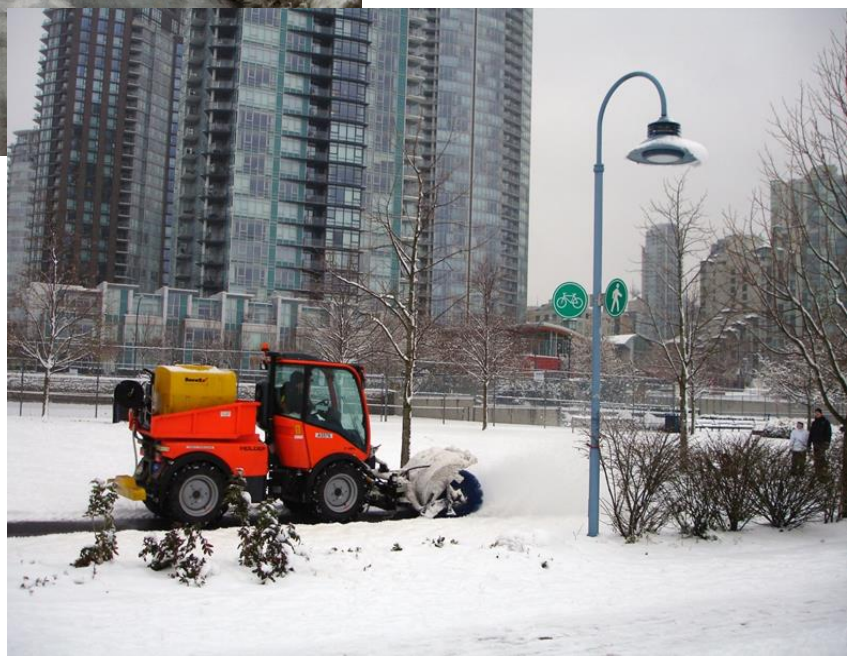
- *Design for Snow Removal:* Design ingress and egress that is wide enough for existing equipment, delineate and defend hardscape, and provide capacity for snow storage on site.
- *Identify Primary Routes*: Not all facilities in the network are appropriate for snow removal. Use count and common route data to identify which routes are most heavily used and for what activity, such as commuting to work or recreation. In some cases, paths may be more appropriate for packing snow and providing cross country ski routes. For commute locations, schedule operations so that ideal conditions occur between 7 a.m. and 7 p.m., with added emphasis on peak travel times of 7-8 a.m. and 4-5 p.m. Begin snow clearing after two inches of accumulation.
- *Get Creative with Equipment*: Create smaller snow plows out of old Jeeps that can remove snow from trails, bike lanes, sidewalks, and pedestrian refuge islands.

TORT LIABILITY

Strategies:

- *Utilize Federal and State Design Flexibility:* Both the FHWA and Caltrans have released memos that direct local jurisdictions to utilize design and funding flexibility in multi-modal design.
    - Caltrans, 2014: "Design Flexibility in Multimodal Design"
    - FHWA, 2013: "Bicycle and Pedestrian Funding, Design, and Environmental Review: Addressing Common Misconceptions."
    - FHWA, 2015: "Revision of Thirteen Controlling Criteria for Design" (Docket No. FHWA- 2015-0020).

Salt Lake City – Buffered Bike Lane
Photo: Alta Planning + Design



Vancouver, BC
Photo: Alta Planning + Design

CHAPTER 4: NETWORK RECOMMENDATIONS
(Updated – 2018 Technical Amendment)

This chapter provides in-depth details and recommendations for each corridor in the Lake Tahoe Region. Through review of existing plans, community outreach, agency stakeholder professional expertise, and previously programmed projects, each corridor illustrates proposed active transportation routes and infrastructure. This chapter is made up of seven sections that contain:

- Physical Geographic Description
- Context Relevant Plans & Studies
- Additional Corridor Considerations
- Existing & Proposed Bicycle Infrastructure Map
- Existing & Proposed Pedestrian & Safety Infrastructure Map
- Crash Analysis Map
- Corridor Project List and Cost Estimates
- A complete street improvement rendering produced as part of "Transforming Tahoe Transportation: A Workshop on Completing Our Streets."

4.1 PROPOSED NETWORK

The proposed network is comprised of planning and design level projects. Projects are included in the planning level project list if they live in planning documents (such as area plans), but have not yet begun in depth project development. Design level projects are further along in project development and could be undergoing design, environmental review, or are ready for construction. More information and recommendations regarding planning and design level projects is provided below.

Planning Level Projects:

Alignments found in this plan are conceptual. As the Region progresses towards the implementation of complete streets, pre-determining location-specific infrastructure or routes may not be the best solution to meet the needs of all users. Infrastructure type and route recommendations found in this plan should be used as a catalyst for project development and for programming into TRPA's EIP and

local jurisdiction's capital improvement programs (CIPs).

Some areas on the *Existing & Proposed Pedestrian and Safety Infrastructure* maps are displayed as complete street improvement stretches of highway. These locations are chosen based on residential and commercial density, lack of existing active transportation infrastructure, and existing plans for redevelopment. These designations do not exclude any other area from considering complete street improvements. All projects within the Region should consider improving the streetscape to increase safety, economic vitality, and mobility for all users.

To provide increased capacity for active transport, this plan also recommends shared-use paths in all appropriate locations rather than sidewalks. Shared-use paths are wider, made of asphalt, and provide a greater barrier from traffic, as they require a five-foot separation from the roadway. Sidewalks are typically adjacent to the roadway and only five feet wide. TRPA/TMPO will continue to track the construction of sidewalks as part of its performance measure reporting system.

Design Level Projects:

During project design, implementers should review alternatives that seek to meet all user needs by increasing safety, addressing connectivity gaps, and considering constructability. Intersection Control Evaluation (ICE) is quickly becoming a national method for designing the most appropriate, cost effective, and complete infrastructure projects. According to FHWA, ICE is a process that several states are adopting and implementing to improve overall performance of their intersections. The key action in the ICE process involves screening all possible alternatives for an intersection project. After the initial screening, a performance-based analysis looks at the safety, capacity, operations, cost, footprint, and right-of-way impacts to understand the value of each alternative. Public and political considerations are also part of the process. Ultimately, the preferred alternative that holistically addresses the project goals is selected and the process and decision are documented in a short report or matrix. When evaluating choices, the preferred alternative may not always be the traditional design or traffic control. The ICE process has been developed and implemented in Minnesota, California, Wisconsin, and Indiana.

Appendix A, the *Lake Tahoe Complete Street Resource Guide* updates the 2010 Bike and Pedestrian

Kahle Drive Vision. Prepared by Design Workshop. TRPA On Our Way Grant, Douglas County

Plan's Appendix A: *Design and Maintenance Recommendations.* The new resource guide builds on previous recommendations by updating design and maintenance best practices and recapping

stakeholder feedback, next steps and actions associated with the "Transforming Tahoe Transportation: A Workshop on Completing Our Streets." Five infrastructure designs are highlighted here as priority considerations for the Region. These designs are chosen based on stakeholder input and community interest. Although each project is location-specific, the five highlighted designs illustrate an ability to improve safety, increase active transport use, increase economic vitality, and address common active transportation barriers in the Region.

BICYCLE INTERSECTION DESIGN

BIKE BOX

A bike box is a designated area located at the head of a traffic lane at a signalized intersection that provides bicyclists with a safe and visible space to get in front of queuing motorized traffic during the red signal phase. Motor vehicles must queue behind the white stop line at the rear of the bike box.

Discussion

Bike boxes are considered experimental by the FHWA. They should be placed only at signalized intersections, and right turns on red shall be prohibited for motor vehicles. Bike boxes should be used in locations that have a large volume of bicyclists and are best utilized in central areas where traffic is usually moving more slowly. Prohibiting right turns on red improves safety for bicyclists yet does not significantly impede motor vehicle travel.

References

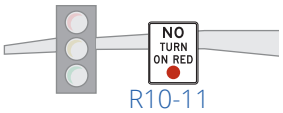
- NACTO. Urban Bikeway Design Guide. 2012.
- FHWA. Interim Approval (IA-14). 2014.

Cost

- Cost varies depending on design and site conditions.

Design Summary

- 14' minimum depth
- A "No Turn on Red" (MUTCD R10-11) sign shall be installed overhead to prevent vehicles from entering the Bike Box.
- A "Stop Here on Red" sign should be post-mounted at the stop line to reinforce observance of the stop line.
- A "Yield to Bikes" sign should be post-mounted in advance of and in conjunction with an egress lane to reinforce that bicyclists have the right-of-way going through the intersection.
- An ingress lane should be used to provide access to the box.
- A supplemental "Wait Here" legend can be provided in advance of the stop bar to increase clarity to motorists.



R10-11

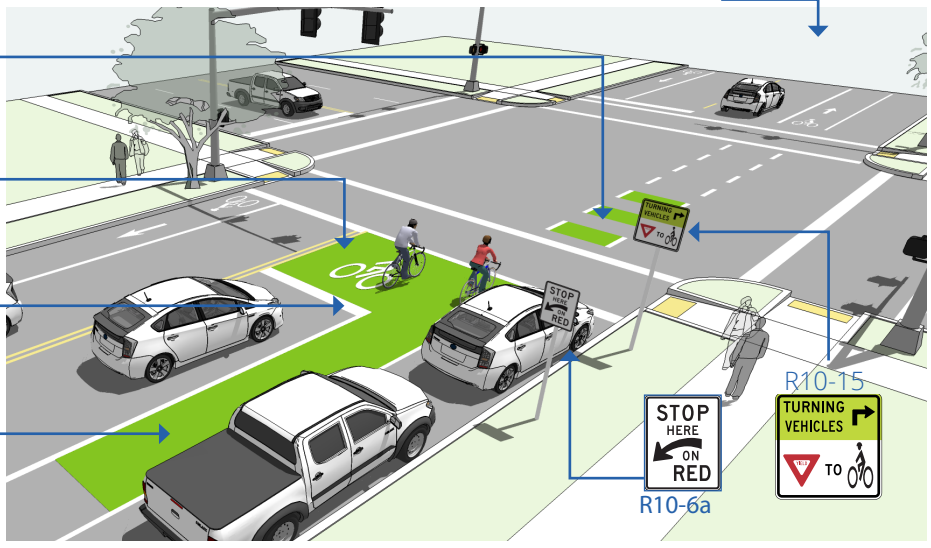
No Turn on Red restriction for motorists

May be combined with intersection crossing markings and colored bike lanes in conflict areas

Colored pavement can be used in the box for increased visibility

Wide stop lines used for increased visibility

If used, colored pavement should extend 50' from the intersection



R10-15

R10-6a

ON-STREET BICYCLE FACILITY DESIGN

BUFFERED BIKE LANE

Buffered bike lanes are conventional bicycle lanes paired with a designated buffer space, separating the bicycle lane from the adjacent motor vehicle travel lane and/or parking lane. Buffered bike lanes follow general guidance for buffered preferential vehicle lanes as per MUTCD guidelines (section 3D-01). Buffered bike lanes are designed to increase the space between the bike lane and the travel lane and/or parked cars. This treatment is appropriate for bike lanes on roadways with high motor vehicle traffic volumes and speed, adjacent to parking lanes, or a high volume of truck or oversized vehicle traffic.

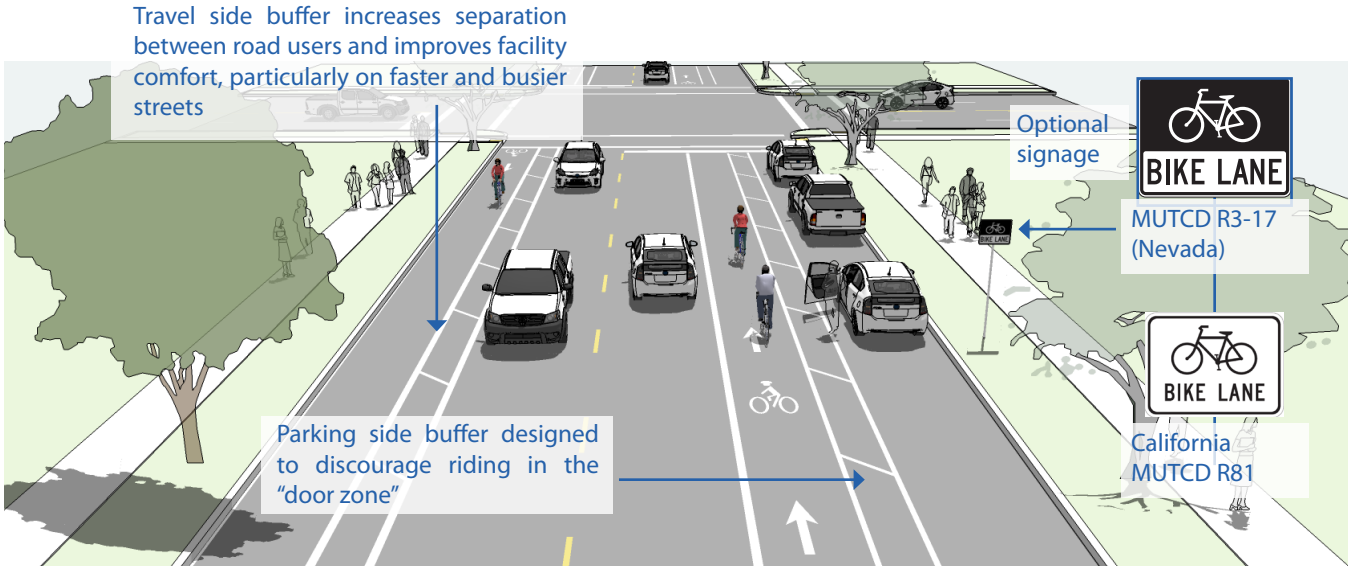
Discussion

Frequency of right turns by motor vehicles at major intersections should determine whether continuous or truncated buffer striping should be used approaching the intersection. Commonly configured as a buffer between the bicycle lane and motor vehicle travel lane, a parking side buffer may also be provided to help bicyclists avoid the 'door zone' of parked cars.

This treatment is appropriate for school zones.

Design Summary

- The minimum bicycle travel area (not including buffer) is 5 feet wide.
- Buffers should be at least 2 feet wide. If 3 feet or wider, mark with diagonal or chevron hatching. For clarity at driveways or minor street crossings, consider a dotted line for the inside buffer boundary where cars are expected to cross.



References

- NACTO. Urban Bikeway Design Guide. 2012.
- Caltrans. MUTCD. 2014.
- FHWA. MUTCD. 2009.
- AASHTO. Guide for the Development of Bicycle Facilities. 2012.

Cost

- Bike Lane: $5,000 - $10,000 per mile

INTERSECTIONS WITH SMALL STREETS

The California Vehicle Code requires that motorists yield right-of-way to pedestrians within crosswalks. This requirement for motorists to yield is not explicitly extended to bicyclists, and the rights and responsibilities for bicyclists within crosswalks is ambiguous. On crossings of minor streets, design solutions should resolve this ambiguity where possible by giving people on bicycles priority within the crossing. Where this is not possible, the design should create conditions and slow speeds that encourage safe interactions in the case of a user error.

Benefits

Crosswalk markings establish a legal crosswalk at areas away from intersections (CAMUTCD Section 3B.18).

Motorists decrease speed in the vicinity of marked crosswalks and crosswalk usage increases with the installations of crosswalk markings (Knoblauch, 2001).

Motorists are statistically more likely to yield right-of-way to pedestrians in a marked crosswalk than an unmarked crosswalk (Mitman, 2008).

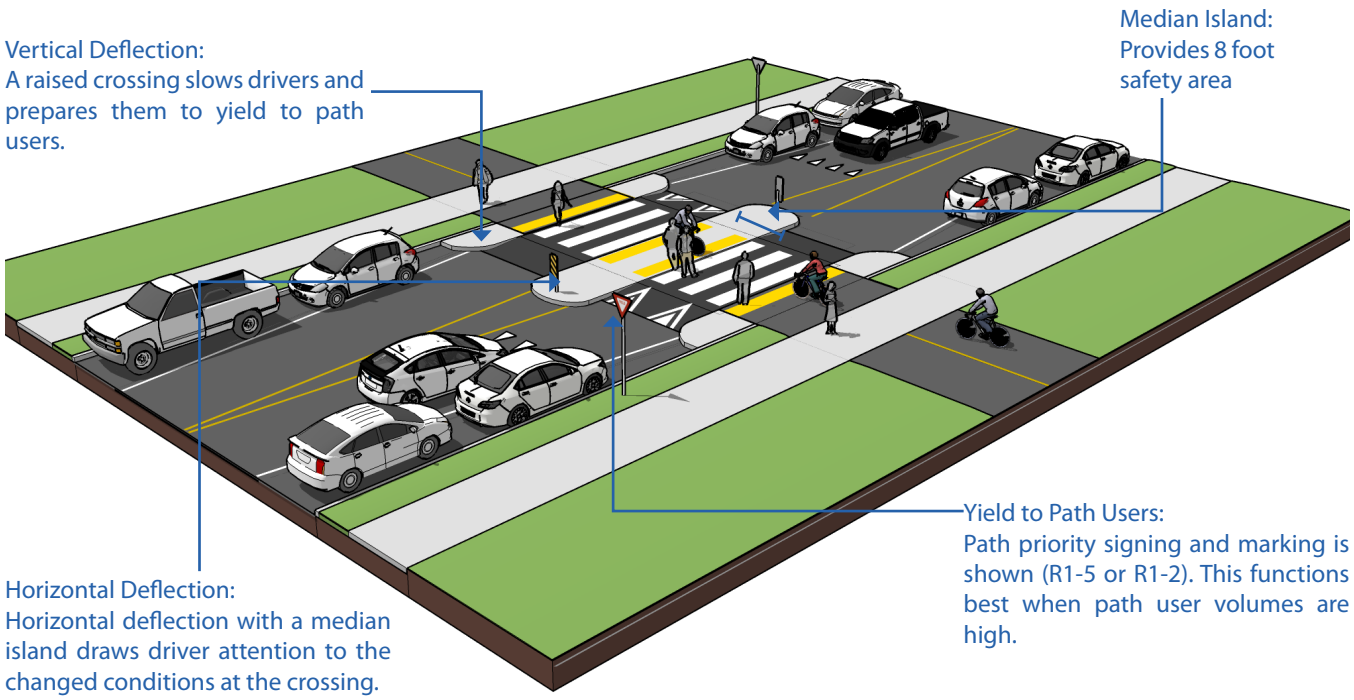
Discussion

Geometric design should promote a high degree of yielding to path users through raised crossings, horizontal deflection, signing, and striping.

The approach to designing path crossings of streets depends on an evaluation of vehicular traffic, line of sight, pathway traffic, use patterns, vehicle speed, road type, road width, and other safety issues such as proximity to major attractions.

On high speed and high volumes roadways, crosswalk markings alone are not a viable safety measure. This supports the creation of more robust crossing solutions (Zeeger, 2001).

Path Priority Crossing



Design Summary

Crossing Geometry

A median safety island should allow path users to cross one lane of traffic at a time. The bicycle waiting area should 8 feet wide or wider to allow for a variety of bicycle types.

To promote yielding to bicyclists the median safety island should be designed to require horizontal deflection of the motor vehicle travel lanes.

Raised crossings should raise 4 inches above the roadway with a steep 1:6 (16%) ramp. The raise should use a sinusoidal profile to facilitate snow plow operation. Advisory speed signs may be used to indicate the required slow crossing speed.

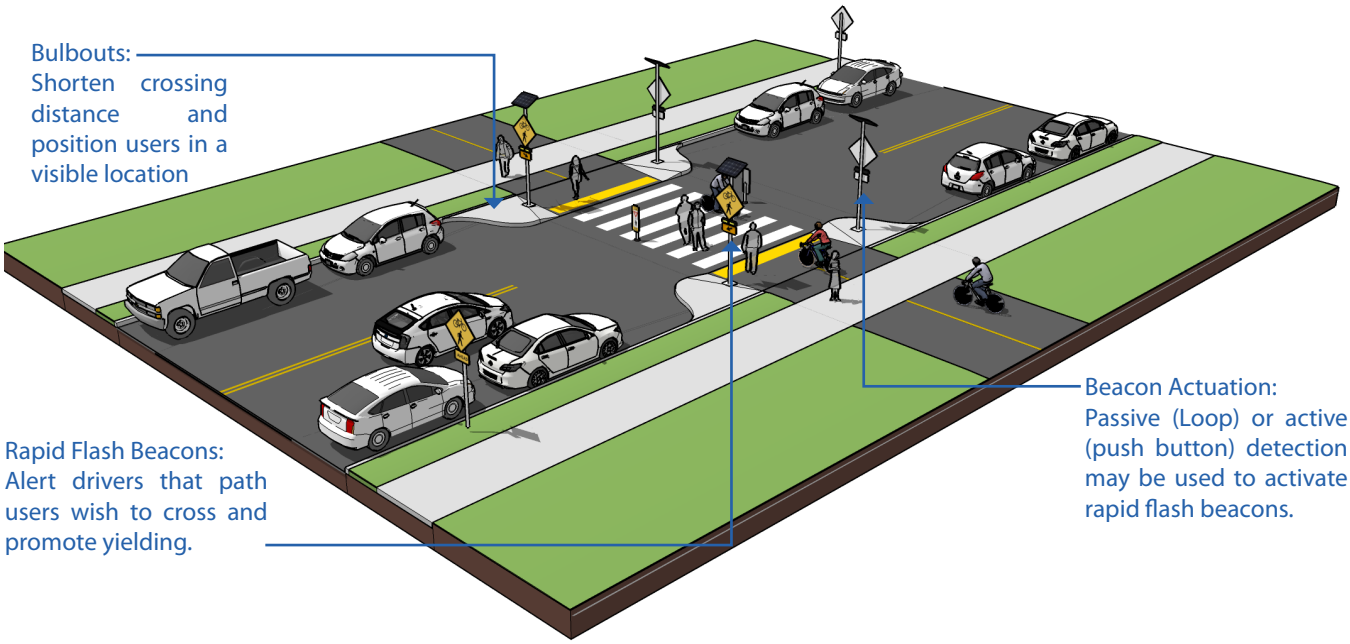
Markings

High-visibility crosswalk markings are the preferred marking type at uncontrolled marked crossings (FHWA, 2013). Transverse lines are "essentially not visible" when viewed from a standard approaching vehicle. (ITE, 2010)

Stop or Yield lines may be used on the roadway 20 ft. in advance of crosswalks when right-of-way priority is given to path users (CA MUTCD 3B.18). A yield line must be paired with a Yield (R1-2) or Yield Here To Pedestrians (R1-5) sign.

In roadway Yield to Pedestrians (R1-6) signs may be used along the centerline point of a crosswalk.

Road Priority Crossing



References

- Caltrans. California Highway Design Manual (CAHDM). 2015.
- Caltrans. California Manual on Uniform Traffic Control Devices (CAMUTCD). 2014.
- ITE. Pavement Marking Patterns Used at Uncontrolled Pedestrian Crossings. 2010.
- Mitman, M.F., Ragland, D.R., and C.V. Zegeer. The Marked Crosswalk Dilemma: Uncovering Some Missing Links in a 35-Year Debate. 2008.
- Knoblauch, R., M. Nitzburg, and R. Seifert. Pedestrian Crosswalk Case Studies. 2001.
- Zeeger, C., J. Stewart, and H. Huang. Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations. 2001.

Cost

- Striped crosswalks costs range from approximately $100 to 2,100 each.
- Curb extension costs can range from $2,000 to $20,000 depending on the design and site condition.
- Rapid flash beacons costs can range from $15,000 to $60,000 depending on the number of beacons.

MARKED/UNSIGNALIZED MID-BLOCK CROSSINGS

A marked/unsignalized crossing typically consists of a marked crossing area, signage and other markings to slow or stop traffic. The approach to designing crossings at mid-block locations depends on an evaluation of vehicular traffic, line of sight, pathway traffic, use patterns, vehicle speed, road type, road width, and other safety issues such as proximity to major attractions. When space is available, using a median refuge island improves user safety by providing pedestrians and bicyclists space to perform the safe crossing of one side of the street at a time.

Discussion

Unsignalized crossings of multi-lane arterials over 15,000 ADT may be possible with features such as sufficient crossing gaps (more than 60 opportunities to cross per hour), median refuges, and/or active warning devices like rectangular rapid flash beacons, and excellent sight distance. For more information see the discussion of active warning beacons.

This treatment is appropriate for crossings located in school zones.

Design Summary

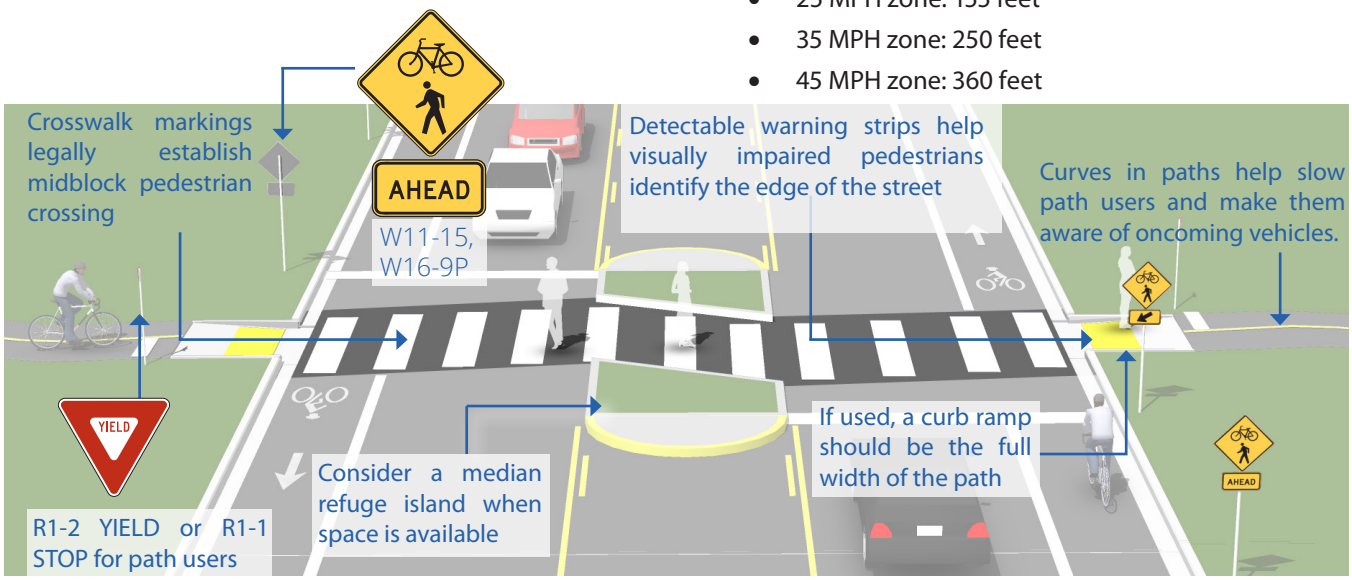
Maximum traffic volumes

- ≤9,000-12,000 Average Daily Traffic (ADT) volume
- Up to 15,000 ADT on two-lane roads, preferably with a median
- Up to 12,000 ADT on four-lane roads with median

Maximum travel speed: 35 MPH

Minimum line of sight

- 25 MPH zone: 155 feet
- 35 MPH zone: 250 feet
- 45 MPH zone: 360 feet



References

- Caltrans. Highway Design Manual. 2015.
- Caltrans. MUTCD. 2014.
- FHWA. MUTCD. 2009.
- AASHTO. Guide for the Development of Bicycle Facilities. 2012.

Cost

- Signage: $125 each
- Marked Crosswalk, $550 each
- Stop limit bars/yield teeth: $200-$530 per set
- Median Refuge Island (optional): $8,500 - $33,000 each

SHARED-USE PATHS

CAUSEWAYS

Causeways or "burm" type path construction may be used to minimize disturbance of water flow in stream environment zones. Paths are elevated above wet ground using a permeable fill material as a base. Path edges incorporate small boulders or a rock riprap to contain the permeable fill. Geotextile mats and other construction materials such as geocells can be incorporated to ensure a stable base on which asphalt or concrete paving may be applied. The path should be built up to an elevation no greater than 30 inches above natural grade.

Design Summary

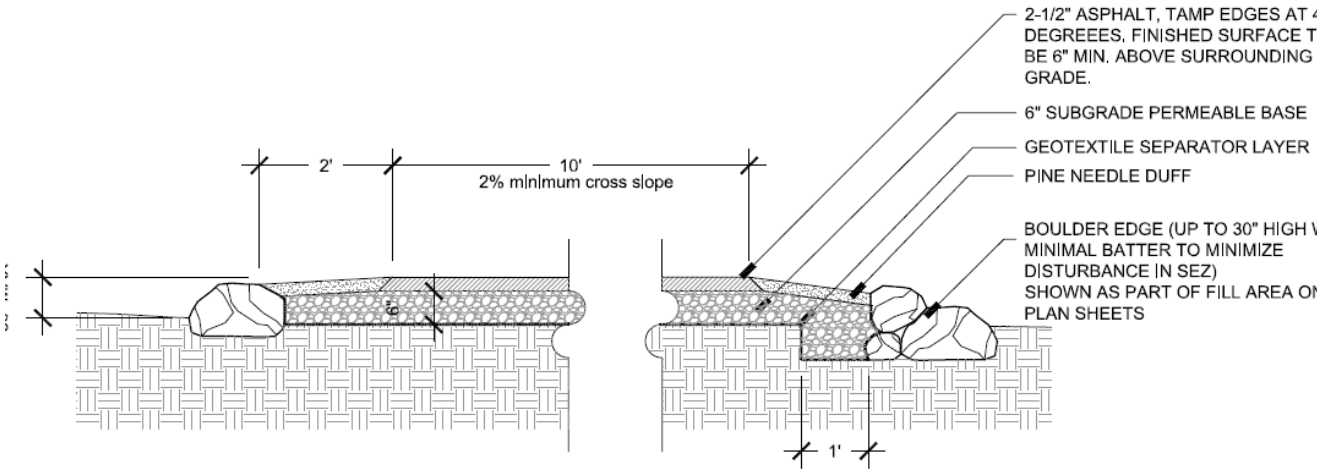
Design Criteria

Design criteria for causeways should meet AASHTO and Caltrans design recommendations for paved shared-use paths.

Base

Path construction and detailing depends on water table and surface flows through site. A stable base for paving must be established while allowing for water flow under path. Base materials should be designed so as not to be compromised by future water flows. Firm mineral soil, coarse-grained soils or granular material, or small, well-graded angular rocks are needed for fill.

It should be noted that AASHTO recommends 42" high railings on any structured path.



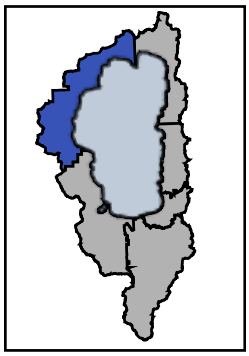
References

- AASHTO. Guide for the Development of Bicycle Facilities. 2012.
- United States Forest Service. Trail Construction and Maintenance Notebook. 2007.
- Caltrans. Highway Design Manual. 2015.

Cost

Dependent on surface type. Native surface and decomposed granite surfaces are less expensive than paving. Paved applications would include the typical cost of a paved path plus the riprap edge support.

STATE ROUTE 89 / STATE ROUTE 28 CORRIDOR



Physical Geographic Description: This corridor starts at the northern boundary of Sugar Pine Point State Park and reaches to the California/Nevada state line in Crystal Bay. The corridor includes both Placer and El Dorado counties, and contains the Tahoma, Homewood, Tahoe City, Carnelian Bay, and Kings Beach areas.

Context Relevant Plans & Studies:

- North Lake Tahoe Community Wayfinding Signage Design Standards Manual
- North Tahoe Parking Study (2015)
- Tahoe Basin Area Plan (2017)
- Tahoe City Mobility Improvement Study (2016)
- Tahoe City Road Safety Audit (2015)
- Fanny Bridge / SR 89 Community Revitalization Project

Additional Corridor Considerations:

Community Input: All recommended needs collected during the community outreach process for this plan were reviewed by Placer County representatives and are included in the proposed infrastructure map for State Route 89 and State Route 28.

Utilizing Existing Studies: To further the implementation of complete street infrastructure in the corridor, Placer County should capitalize on the many studies recently conducted in collaboration with regional and federal partners (Road Safety Audit, Parking Study, Tahoe City Mobility Plan).

2018 Amendment: All projects in the planning and design phases have been updated to reflect current project efforts in the corridor. New maps incorporate additional and updated data including safety analysis conducted during development of the Lake Tahoe Region Safety Plan. Placer County should consider new data and analysis when prioritizing intersection improvements and infrastructure projects in the future.

New SR 89 Bridge & Bike Trail. Rendering: Tahoe Transportation District

FIGURE 4-1: SR 89/28 CORRIDOR – EXISTING AND PROPOSED BICYCLE INFRASTRUCTURE

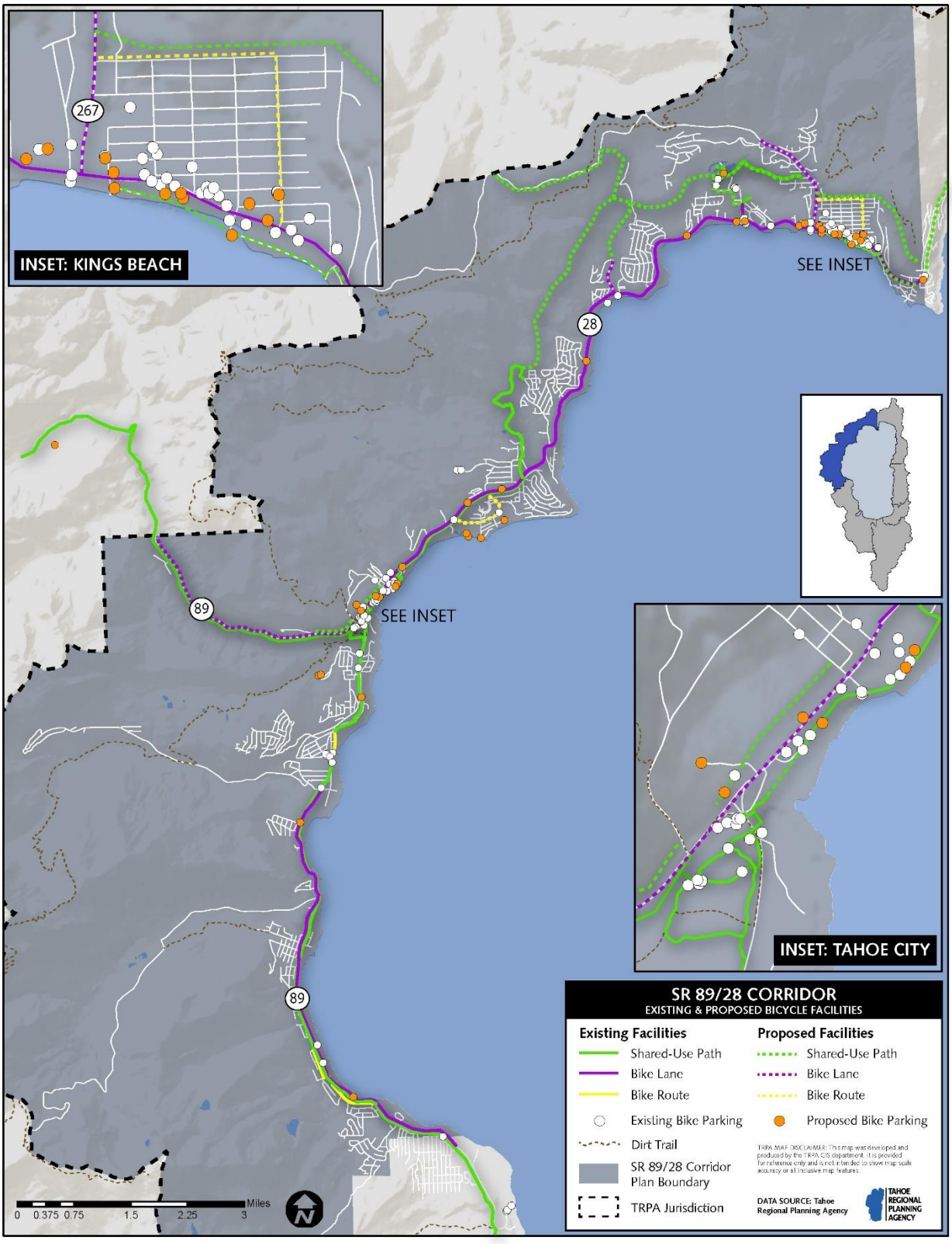


FIGURE 4-2: SR 89/28 CORRIDOR –
EXISTING AND PROPOSED PEDESTRIAN AND SAFETY INFRASTRUCTURE

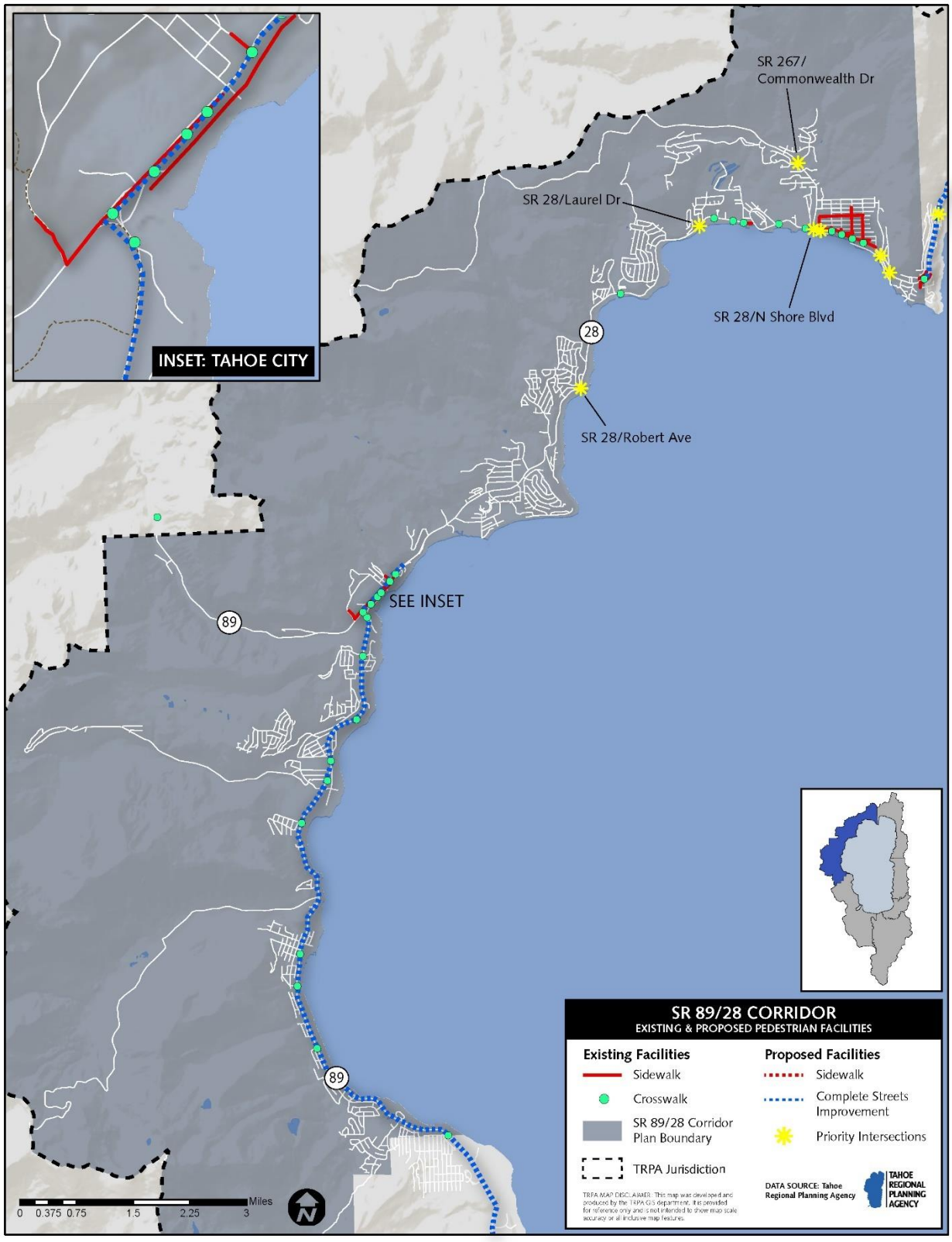
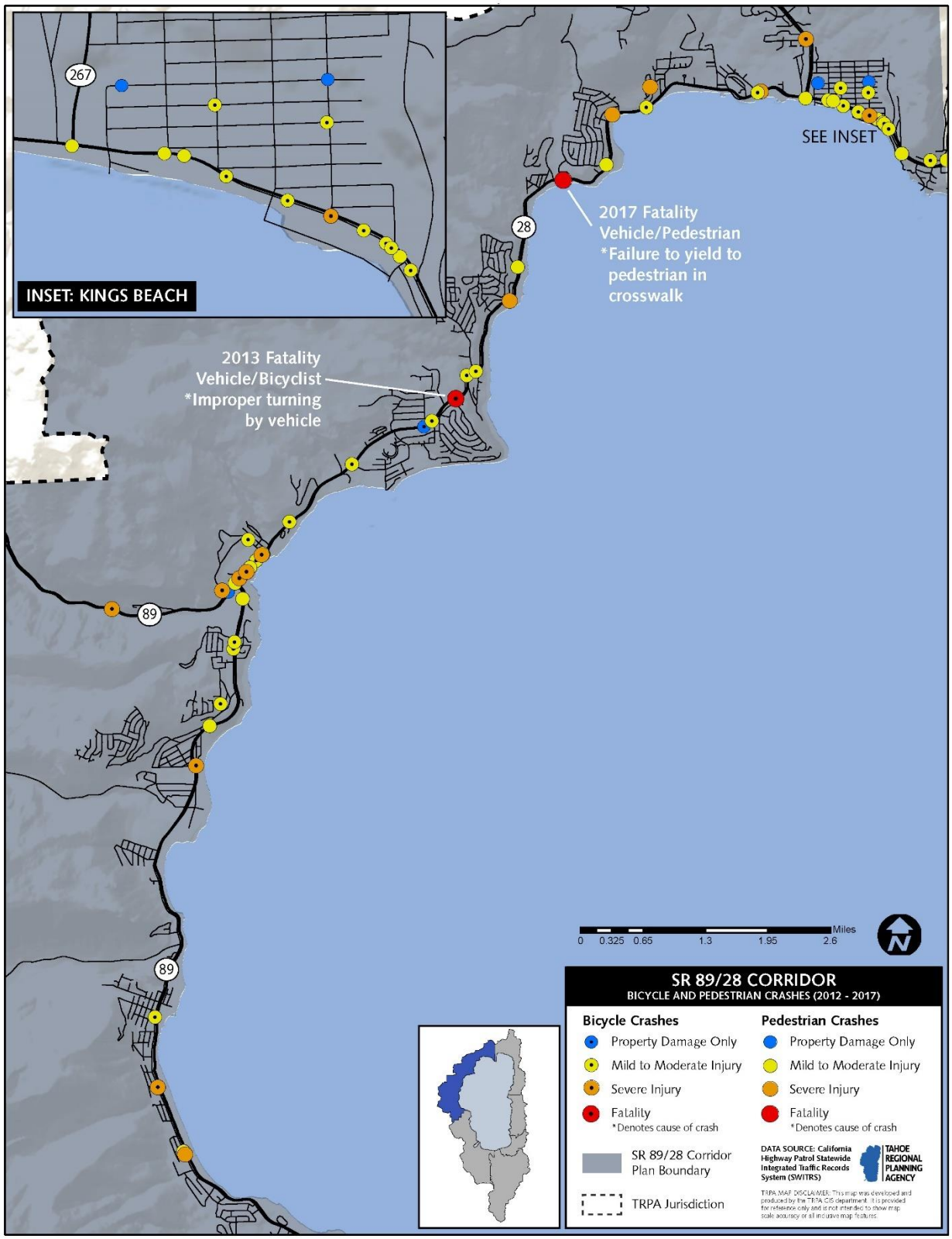


FIGURE 4-3: SR 89/28 CORRIDOR – CRASH ANALYSIS



CORRIDOR PROJECT LISTS:

Table 4-1: SR 89/28 Corridor Design Project List

Project Name	Lead Implementer	Description	Estimated Total Cost	Miles	County/City
Multi-Use Trail to Dog Park and Tennis Courts	NTPUD	C-1 / Shared-Use Path	$192,626	0.3	Placer County
North Tahoe Regional Bike Trail	Placer County	C-1 / Shared-Use Path	$12,000,000	7.8	Placer County
Tahoe City Downtown Access Improvements	Placer County	C-5 / Complete Streets Improvement	$5,000,000	1.5	Placer County
West Shore Highway Crossing Improvements*	Placer County	C-5 / Complete Streets Improvement	$510,000	6.0	Placer County
TOTAL:			**$17,702,626**	**15.5**	

*Project is fully funded

Table 4-2: SR 89/28 Corridor Planning Project List

Project Name	Lead Implementer	Description	Estimated Total Cost	Miles	County/City
Brockway Vista Multi-Use Trail	Placer County	C-1 / Shared-Use Path	$2,430,000	0.8	Placer County
Carnelian Woods Ave	Placer County	C-2 / Bike Lane	$4,726	0.5	Placer County
Crystal Bay – Community Proposes	Placer County	C-1 / Shared-Use Path	$2,208,484	0.7	Placer County
Donner Rd Bike Route	Placer County	C-3 / Bike Route	$620	0.2	Placer County
Fox Sr & Speckled St Bike Route	Placer County	C-3 / Bike Route	$3,205	1.2	Placer County
Lake Forest Road Bike Route	Placer County	C-3 / Bike Route	$2,491	0.9	Placer County
Lakeside Bike Trail Phase 2C – Mackinaw to Commons Beach	Placer County	C-1 / Shared-Use Path	$225,000	0.2	Placer County
Multi-Use Trail to Field #5	NTPUD	C-1 / Shared-Use Path	$99,000	0.1	Placer County
National Avenue to Park	Placer County	C-1 / Shared-Use Path	$750,000	0.5	Placer County
Pine Drop Multi-Use Trail Widening and Extension	NTPUD	C-1 / Shared-Use Path	$448,283	1.2	Placer County

Shared-Use Path: SR 267 – Stateline	Placer County	C-1 / Shared-Use Path	$3,400,000	1.9	Placer County
SR 89 North Shared Use Path	Placer County	C-1 / Shared-Use Path	$1,696,248	0.6	Placer County
SR 89/28 Corridor Complete Street Improvements	Varies	C-5 / Complete Streets Improvement	Varies	2.0	Placer County
State Route 267 Bike Lanes	Caltrans	C-2 / Bike Lane	$15,347	1.5	Placer County
Tahoe City Golf Course Shared-Use Path	Placer County	C-1 / Shared-Use Path	$1,360,031	0.5	Placer County
TOTAL			**$12,643,435**	**12.8**	

Table 4-3: SR 89/28 Corridor Priority Intersections:

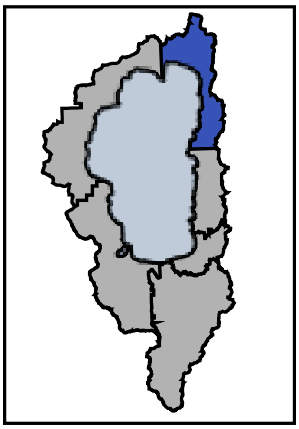
Project Name	Stage	Lead Implementer	Jurisdiction
SR 267 / Commonwealth Dr and Kingswood Dr	Planning	Caltrans	Placer County
SR 28 / Beaver St	Planning	Caltrans	Placer County
SR 28 / Laurel Ave	Planning	Caltrans	Placer County
SR 28 / N Shore Blvd	Design	Placer County / Caltrans	Placer County
SR 28 / Park Ln	Planning	Caltrans	Placer County
SR 28 / Robert Ave	Planning	Caltrans	Placer County
SR 28 / Secline St	Planning	Caltrans	Placer County

Please see the following to page for a conceptual rendering produced as part of the Transforming Tahoe Transportation Workshop. Participants were asked to evaluate mobility challenges in the Tahoe area and provide recommendations for improvements. The renderings, provided by Alta Planning + Design, illustrate near-term complete street options. The location for Corridor 1 is the intersection of State Route 89 and the West Shore Bike Path.


Existing conditions

Visible waiting area for trail users
High visibility crosswalk
Rectangular Rapid Flashing Beacon
Street lighting

NV STATE ROUTE 28 NATIONAL SCENIC BYWAY CORRIDOR



Physical Geographic Description: This corridor includes State Route 28 starting from the intersection with U.S. Highway 50 in the southeast to the state line in Crystal Bay. This corridor is located in Washoe County and Carson City. Incline Village, Sand Harbor State Park, and parts of State Route 431 are located in Corridor 2.

Context Relevant Plans & Studies:

- Mount Rose State Route 431 Corridor Management Plan (2015)
- State Route 28 Corridor Management Plan (2013)
- Incline Village Commercial and Tourist Community Plans
- Washoe County Master Plan
- SR 28 National Scenic Byway Corridor Signage Master Plan (2016)

Additional Corridor Considerations:

Community Input: Stakeholders suggested a variety of bike routes that at this time have not been included because they currently do not connect to any facilities. However, these bike routes should be analyzed by the appropriate implementing agency to determine feasibility and need as adjacent facilities are planned.

2018 Amendment: All projects in the planning and design phases have been updated to reflect current project efforts in the corridor. New maps incorporate additional and updated data including safety analysis conducted during development of the Lake Tahoe Region Safety Plan. Washoe County and Carson City should consider new data and analysis when prioritizing intersection improvements and infrastructure projects in the future.

Proposals include:

1. Bike Route along Wassou/Tuscarora Road – Crystal Bay
2. Bike Route along Logpole Drive, Incline Village

Utilizing Existing Studies: To further the implementation of complete street infrastructure in the corridor, partners should continue implementation of the State Route 28 and State Route 431 Corridor Management Plans and the signage master plan.

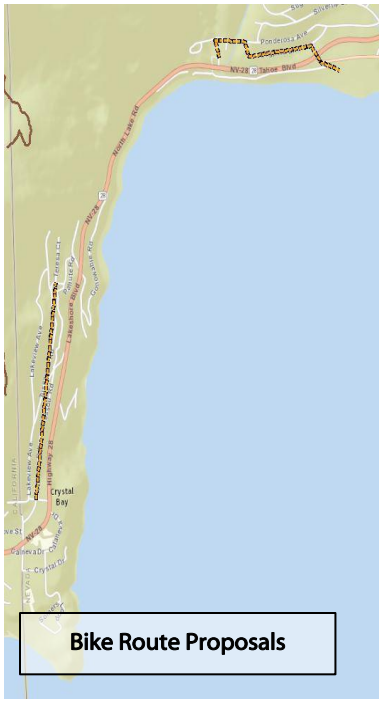


FIGURE 4-4: NV SR 28 CORRIDOR – EXISTING AND PROPOSED BICYCLE INFRASTRUCTURE

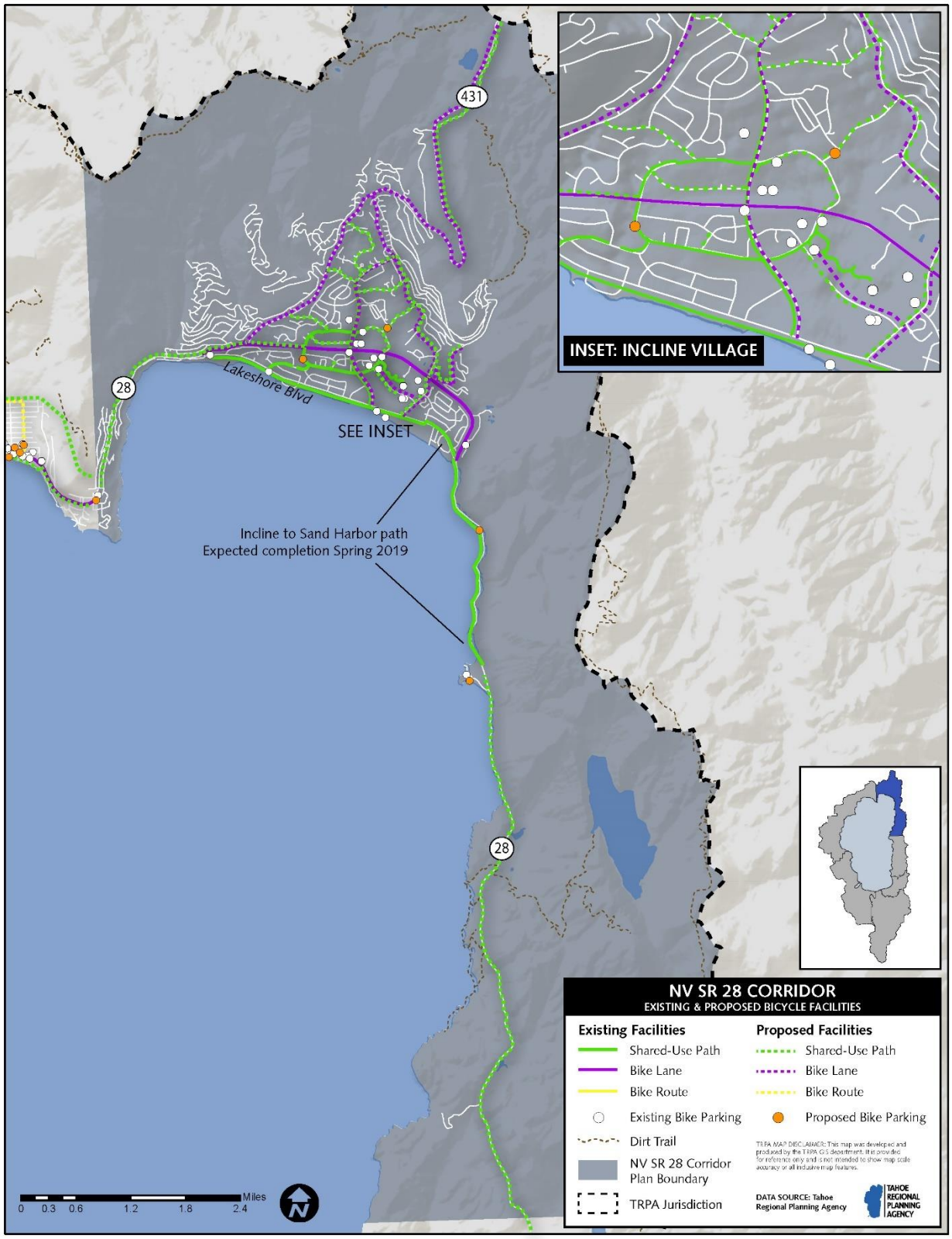


FIGURE 4-5: NV SR 28 CORRIDOR – EXISTING AND PROPOSED PEDESTRIAN AND SAFETY INFRASTRUCTURE

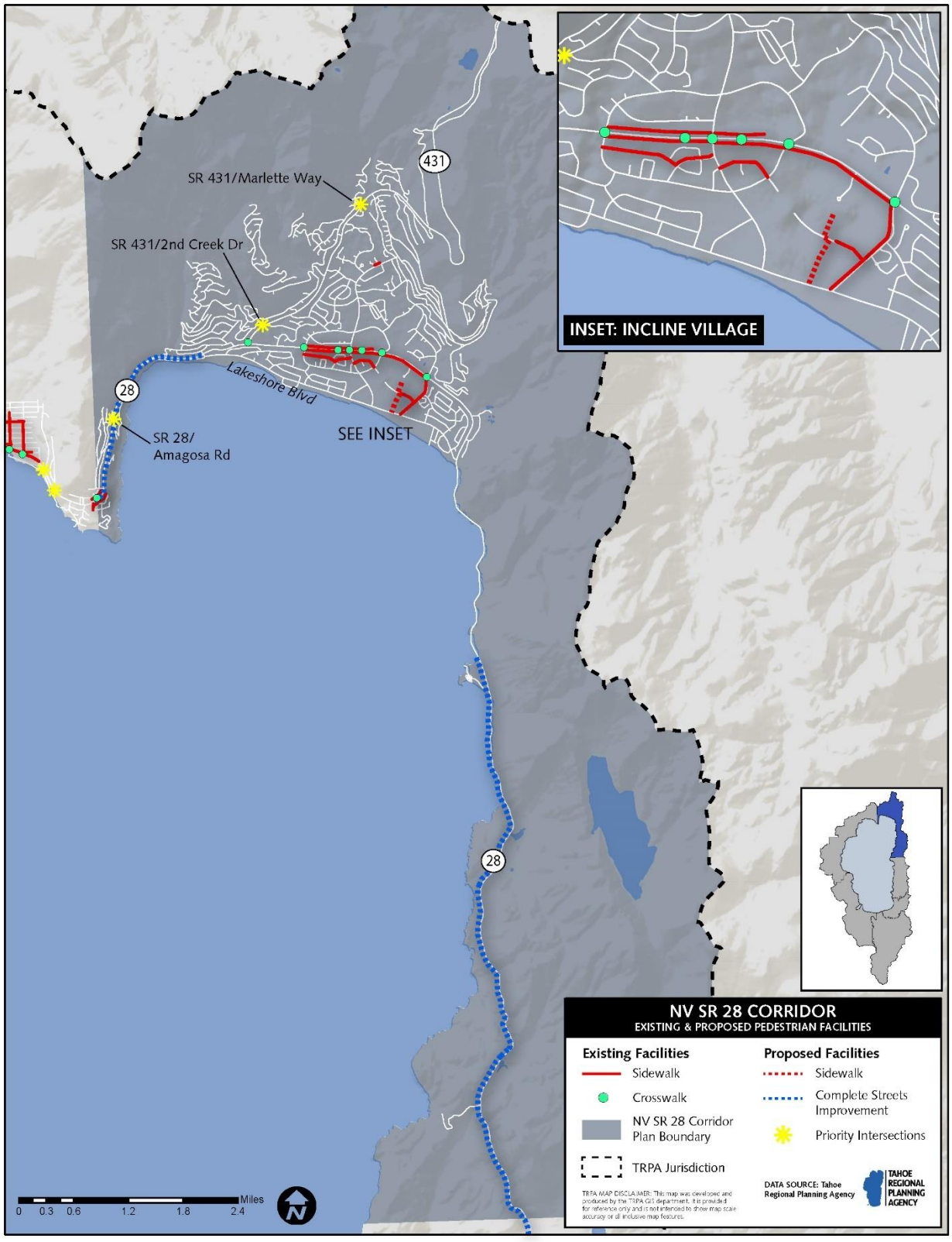
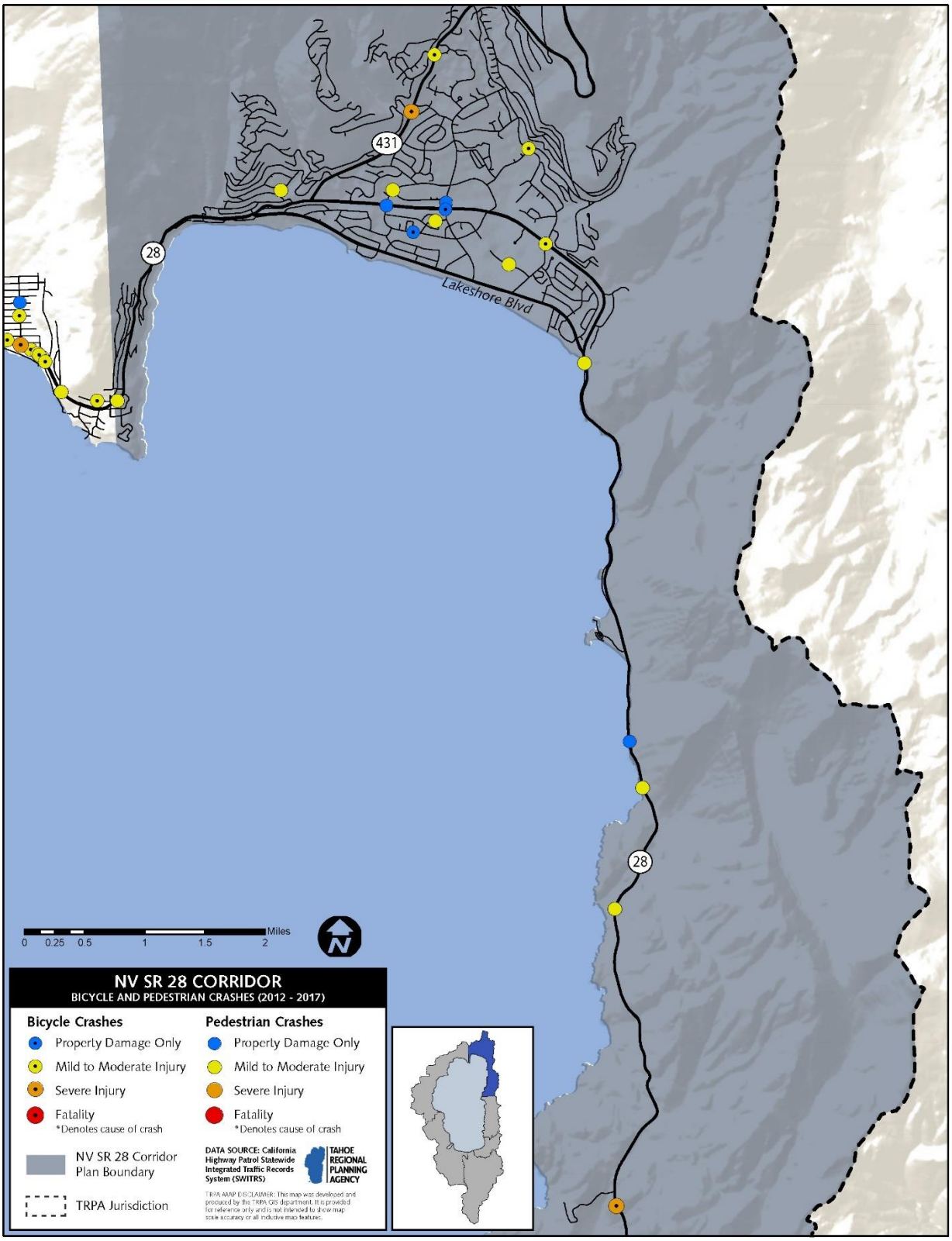


FIGURE 4-6: NV SR 28 CORRIDOR - CRASH ANALYSIS



CORRIDOR PROJECT LISTS:

Table 4-4: NV SR 28 Corridor Design Project List:

Project Name	Lead Implementer	Description	Estimated Total Cost	Miles	County/ City
Nevada Stateline to Stateline Bikeway – Crystal Bay to Incline	NDOT	C-1 / Shared-Use	$20,000,000	2.1	Washoe County
SR 28 Central Corridor Improvements – Sand Harbor to Spooner State Park (Bikeway Phase 3)	TTD	C-1 / Shared-Use	$60,150,000	7.5	Carson City
TOTAL:			**$80,150,000**	**9.7**	

Table 4-5: NV SR 28 Corridor Planning Project List:

Project Name	Lead Implementer	Description	Estimated Total Cost	Miles	County/ City
Alder Ave Shared-Use Path	Washoe County	C-1 / Shared-Use	$690,000	0.5	Washoe County
Bike Lane State Route 431	NDOT	C-2 / Bike Lane	$66,303	6.6	Washoe County
Bike Trail Lakeshore to 431	Washoe County	C-1 / Shared-Use	$750,000	0.5	Washoe County
Class I Bike Trail Along State Route 28 From Preston Field to Northwood Blvd	Washoe County	C-1 / Shared-Use	$750,000	0.6	Washoe County
Country Club Drive Bike Lanes SR 28 to NV 431	Washoe County	C-2 / Bike Lane	$26,700	2.7	Washoe County
Country Club Drive Shared Use Path	Washoe County	C-1 / Shared-Use	$2,325,000	1.6	Washoe County
Driver Way Shared Use Path	Washoe County	C-1 / Shared-Use	$870,000	0.6	Washoe County
Fairway Blvd Shared Use Path	Washoe County	C-1 / Shared-Use	$660,000	0.4	Washoe County
Golfers Pass Road	Washoe County	C-1 / Shared-Use	$1,260,000	0.8	Washoe County
Incline Way Bike Lanes	Washoe County	C-2 / Bike Lane	$5,800	0.6	Washoe County
Incline Way Shared Use Path	Washoe County	C-1 / Shared-Use	$555,000	0.4	Washoe County
McCourry Blvd	Washoe County	C-1 / Shared-Use	$690,000	0.5	Washoe County
Northwood Blvd Shared Use Path	Washoe County	C-1 / Shared-Use	$660,000	0.4	Washoe County
Old Mt Rose Hwy Shared Use Path	Washoe County	C-1 / Shared-Use	$3,810,000	2.5	Washoe County

Ski Way Bike Lane	Washoe County	C-2 / Bike Lane	$8,100	0.8	Washoe County
Ski Way Shared Use Path	Washoe County	C-1 / Shared-Use	$1,095,000	0.7	Washoe County
SR 28 Central Corridor Complete Street Improvements	NDOT/TTD	C-5 / Complete Street Improvement	Varies	7.8	Carson City
SR 28 Crystal Bay Complete Street Improvements	NDOT	C-5 / Complete Street Improvement	Varies	2.3	Washoe County
Tanager Street	Washoe County	C-1 / Shared-Use	$135,000	0.1	Washoe County
Village Blvd Bike Lanes Lakeshore to Country Club	Washoe County	C-2 / Bike Lane	$19,100	1.9	Washoe County
Village Blvd Shared Use Path	Washoe County	C-1 / Shared-Use	$630,000	0.4	Washoe County
Village Green Pathway	IVGID	C-4 / Sidewalk	$300,000	0.4	Washoe County
Washoe County Master Plan Bike / Pedestrian Improvements (Country Club Bike Path)	Washoe County	C-1 / Shared-Use	$784,173	0.5	Washoe County
Washoe County Master Plan Bike / Pedestrian Improvements (College Dr Bike Path	Washoe County	C-1 / Shared-Use	$204,218	0.4	Washoe County
TOTAL			**$16,287,094**	**33.9**	

Table 4-6: NV SR 28 Corridor Priority Intersections:

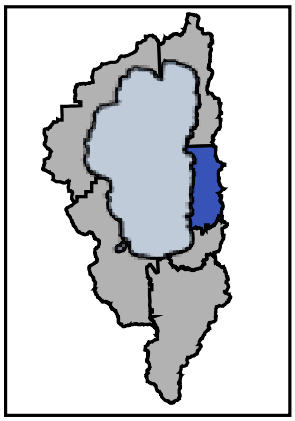
Project Name	Stage	Lead Implementer	Jurisdiction
SR 28 / Amagosa Rd and Gonawabie Rd	Planning	NDOT	Washoe County
SR 431 / 2nd Creek Dr	Planning	NDOT	Washoe County
SR 431 / Marlette Way	Planning	NDOT	Washoe County

Please see the following to page for a conceptual rendering produced as part of the Transforming Tahoe Transportation Workshop. Participants were asked to evaluate mobility challenges in the Tahoe area and provide recommendations for improvements. The renderings, provided by Alta Planning + Design, illustrate near-term complete street options. The location for Corridor 2 is the intersection of Lakeshore Boulevard and State Route 28. A roundabout was also suggested at this location as a long term solution.

Existing conditions

Some parking restrictions to create pedestrian zone
Rectangular Rapid Flashing Beacon
Connections to shared use path
High visibility crosswalk
Median Refuge Island
Lowered speed limit to 35mph

U.S. HIGHWAY 50 EAST SHORE CORRIDOR



Physical Geographic Description: This corridor starts at the intersection of U.S. Highway 50 and State Route 28 and extends to roughly 950 feet northwest of Elks Point Road. This latter point is the northern end of the Round Hill Mall commercial center, and marks where the predominantly rural, low density areas to the north transition to the predominantly developed areas to the south. This corridor is located in Douglas County.

Context Relevant Plans & Studies:

- Tahoe Douglas Area Plan
- Round Hill Community Plan
- Complete Street Focused Road Safety Assessment Report (2016)

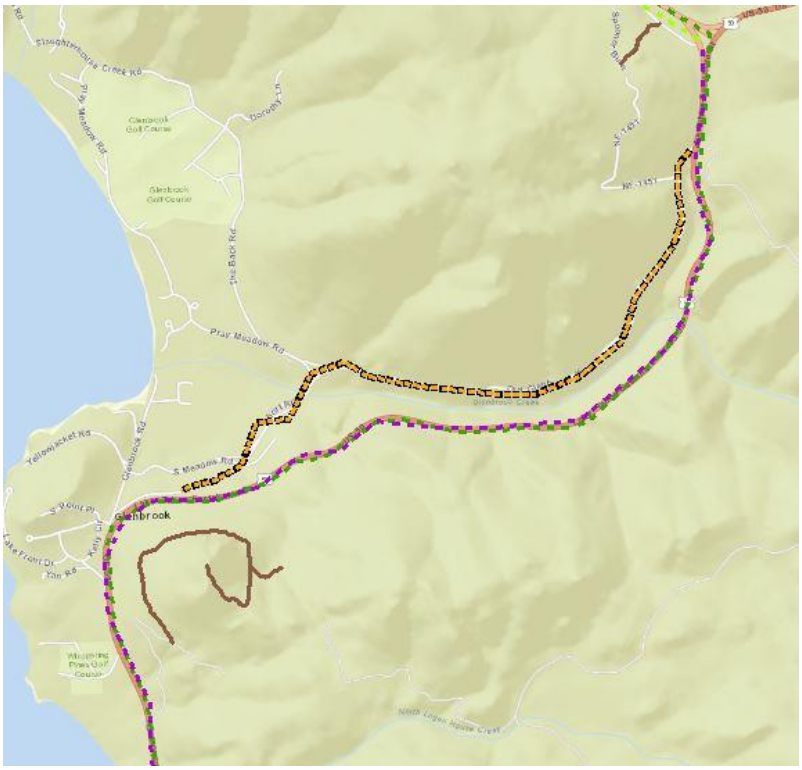
Additional Corridor Considerations:

Community Input: Stakeholders suggested a variety of bike routes that at this time have not been included because they currently do not connect to any facilities. However, these bike routes should be analyzed by the appropriate implementing agency to determine feasibility and need as adjacent facilities are planned.

2018 Amendment: All projects in the planning and design phases have been updated to reflect current project efforts in the corridor. New maps incorporate additional and updated data including safety analysis conducted during development of the Lake Tahoe Region Safety Plan. Douglas County should consider new data and analysis when prioritizing intersection improvements and infrastructure projects in the future. The Tahoe Transportation District has been awarded funds to begin Preliminary Engineering and Environmental Analysis for a section of shared-use path from Round Hill Pines to Zephyr Cove.

Proposals include:

1. Bike Route along Old Highway 50 in Glenbrook.
2. Bike Route in Skyland Park residential area



Bike Route Proposal: Old Glenwood Highway

FIGURE 4-7: U.S. 50 EAST SHORE CORRIDOR - EXISTING AND PROPOSED BICYCLE INFRASTRUCTURE

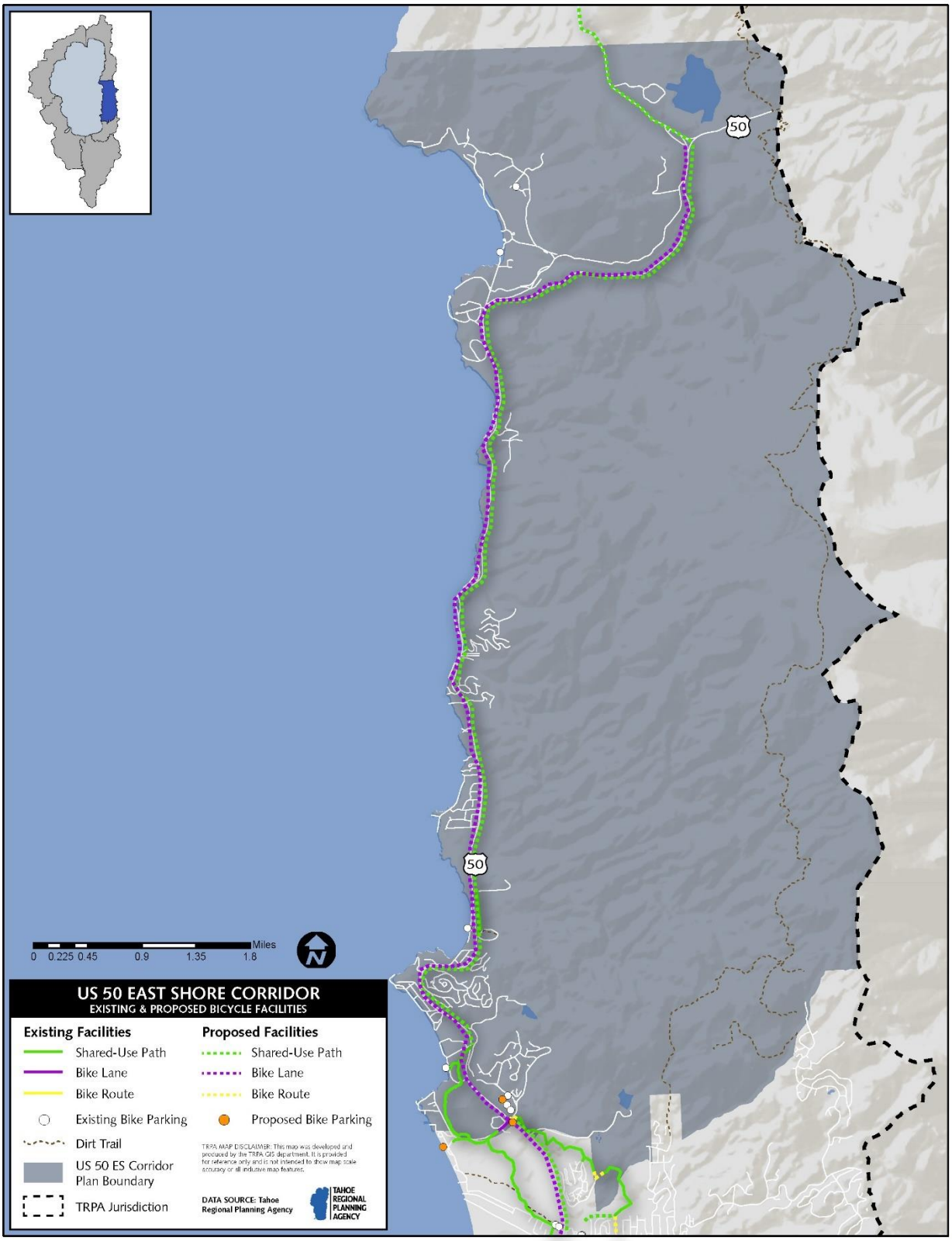


FIGURE 4-8: US 50 EAST SHORE CORRIDOR – EXISTING AND PROPOSED PEDESTRIAN AND SAFETY INFRASTRUCTURE

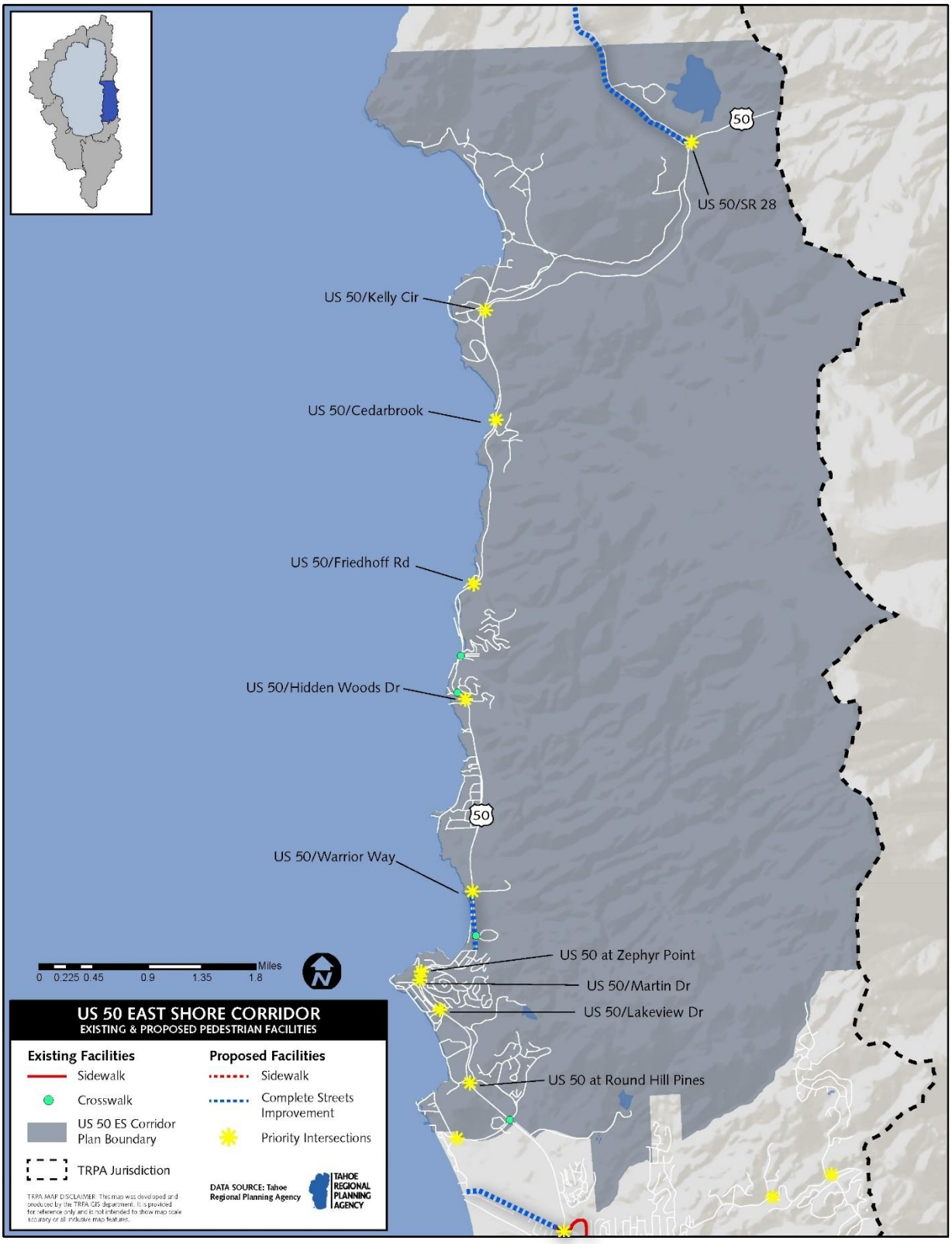
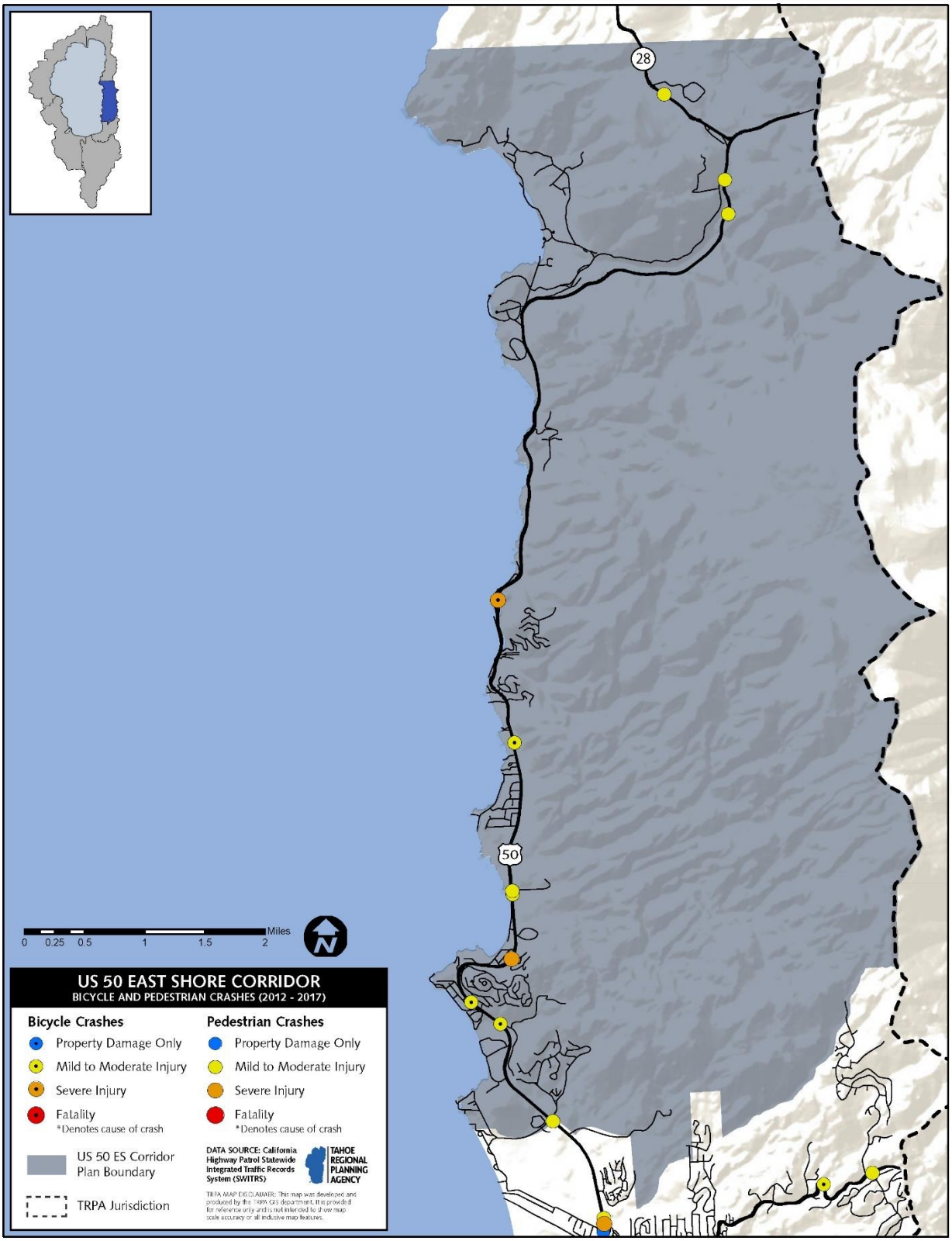


FIGURE 4-9: U.S. 50 EAST SHORE CORRIDOR CRASH ANALYSIS



CORRIDOR PROJECT LIST:

Table 4-7: U.S. 50 East Shore Corridor Design Project List:

Project Name	Lead Implementer	Description	Estimated Total Cost	Miles	County/City
Nevada Stateline to Stateline Corridor Improvements – Glenbrook Entrance to Round Hill Pines	TTD	C-1 / Shared-Use Path	$32,000,000	9.5	Douglas County
TOTAL:			**$32,000,000**	**9.5**	

Table 4-8: US 5.0. East Shore Corridor Planning Project List:

Project Name	Lead Implementer	Description	Estimated Total Cost	Miles	County/City
Round Hill Bike Path Connector (Echo Drive)	Douglas County	C-3 / Bike Route	$371	0.1	Douglas County
Round Hill Bike Path Connector 2 (Round Hill Bike Path to McFaul Way)	Douglas County	C-3 / Bike Route	$3,000	0.1	Douglas County
U.S. Hwy 50 East Side Bike Lane Stateline to Spooner	NDOT	C-2 / Bike Lane	$122,100	12.2	Douglas County
U.S. Hwy 50 (South Side) Shared Use Path	NDOT	C-1 / Shared-Use Path	$3,210,000	1.1	Douglas County
Zephyr Cove Resort Cabin Area Roads and Parking BMP Retrofit	USFS	C-5 / Complete Streets Improvement	$6,250,000	0.5	Douglas County
TOTAL:			**$9,585,471**	**14.0**	

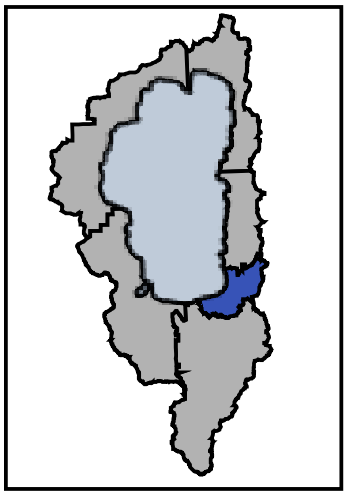
Table 4-9: U.S. 50 East Shore Corridor Priority Intersection List:

Project Name	Stage	Lead Implementer	Jurisdiction
SR 28 / U.S. Hwy 50	Planning	NDOT	Douglas County
U.S. 50 / Round Hill Pines Beach Entrance	Design	NDOT / Central Federal Lands	Douglas County
U.S. Hwy 50 / Cedarbrook	Planning	NDOT	Douglas County
U.S. Hwy 50 / Friedhoff Rd	Planning	NDOT	Douglas County
U.S. Hwy 50 / Hidden Woods Dr	Planning	NDOT	Douglas County
U.S. Hwy 50 / Kelly Cir	Planning	NDOT	Douglas County
U.S. Hwy 50 / Lakeview Dr	Planning	NDOT	Douglas County
U.S. Hwy 50 / Martin Dr	Planning	NDOT	Douglas County
U.S. Hwy 50 / Warrior Way	Design	NDOT	Douglas County
U.S. Hwy 50 / Zephyr Point Entrance	Planning	NDOT	Douglas County

Conceptual Stateline to Stateline Bikeway: SR 28 National Scenic Byway Corridor Management Plan

This corridor was not chosen as a location for the activity at the workshop because the State Route 28 Corridor Management Plan already has renderings and many facilities in the design process.

U.S. 50 SOUTH SHORE CORRIDOR

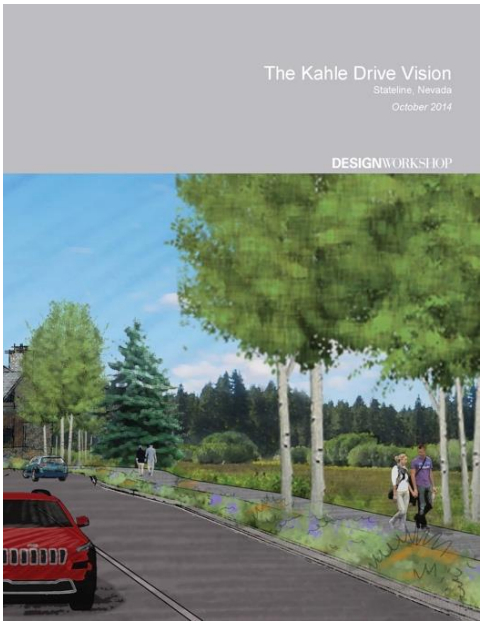


Physical Geographic Description: This corridor starts at U.S. Highway 50 from roughly 950 feet northwest of Elks Point Road in Douglas County to the Upper Truckee River Bridge (just west of River Street), in the City of South Lake Tahoe. The corridor also includes Pioneer Trail east of the Trout Creek Bridge (just northeast of Golden Bear Avenue) and State Route 207 (Kingsbury Grade) west of Pine Ridge Drive.

Context Relevant Plans & Studies:

- Tahoe Douglas Area Plan
- South Shore Area Plan (2013)
- Tourist Core Area Plan (2013)
- South Shore Wayfinding Plan
- Lake Tahoe Unified School District Safe Routes to School Master Plan (2015)
- South Tahoe Middle School Area Connectivity Plan (2015)
- Kahle Drive Vision (2014)

Additional Corridor Considerations:



Community Input: Stakeholders suggested a variety of Class I/ Shared-use paths that were vetted by city staff, the South Lake Tahoe Recreation Joint Powers Authority Bicycle Advisory Committee, and the Lake Tahoe Sustainability Collaborative Community Mobility Group. Many of the recommendations were included in this plan as proposed facilities, were slightly altered, or were not included based on technical expertise. To review all of the community proposed projects for this corridor, please review Appendix B, the *2015 Community Outreach Report.*

Facilities in Need of Upgrade: Stakeholders also noted the Pioneer Trail roadway is in need of upgrade. The City of South Lake Tahoe and El Dorado County are aware of this need and are considering a variety of options to address the issue, which may include roadway reconfiguration, or upgraded bike lanes such as the use of a buffer, a separated bikeway, and rumble strips.

Utilizing Future Studies & Plans: City staff indicate they will conduct a citywide parking audit and are in the process of producing a citywide area plan for areas not already included in an existing area plan. Community stakeholders suggest a master plan be developed for the Bijou Bike Park, and include connecting the Park to nearby facilities, such as the soon to be constructed Greenway, and the middle school. As these studies and plans are developed, the Active Transportation Plan will incorporate any new alignments and recommendations.

2018 Amendment: All projects in the planning and design phases have been updated to reflect current project efforts in the corridor. New maps incorporate additional and updated data including safety analysis conducted during development of the Lake Tahoe Region Safety Plan. Douglas County and the City of South Lake Tahoe should consider new data and analysis when prioritizing intersection improvements and infrastructure projects in the future.

FIGURE 4-10: U.S. 50 SOUTH SHORE CORRIDOR – EXISTING AND PROPOSED BICYCLE INFRASTRUCTURE

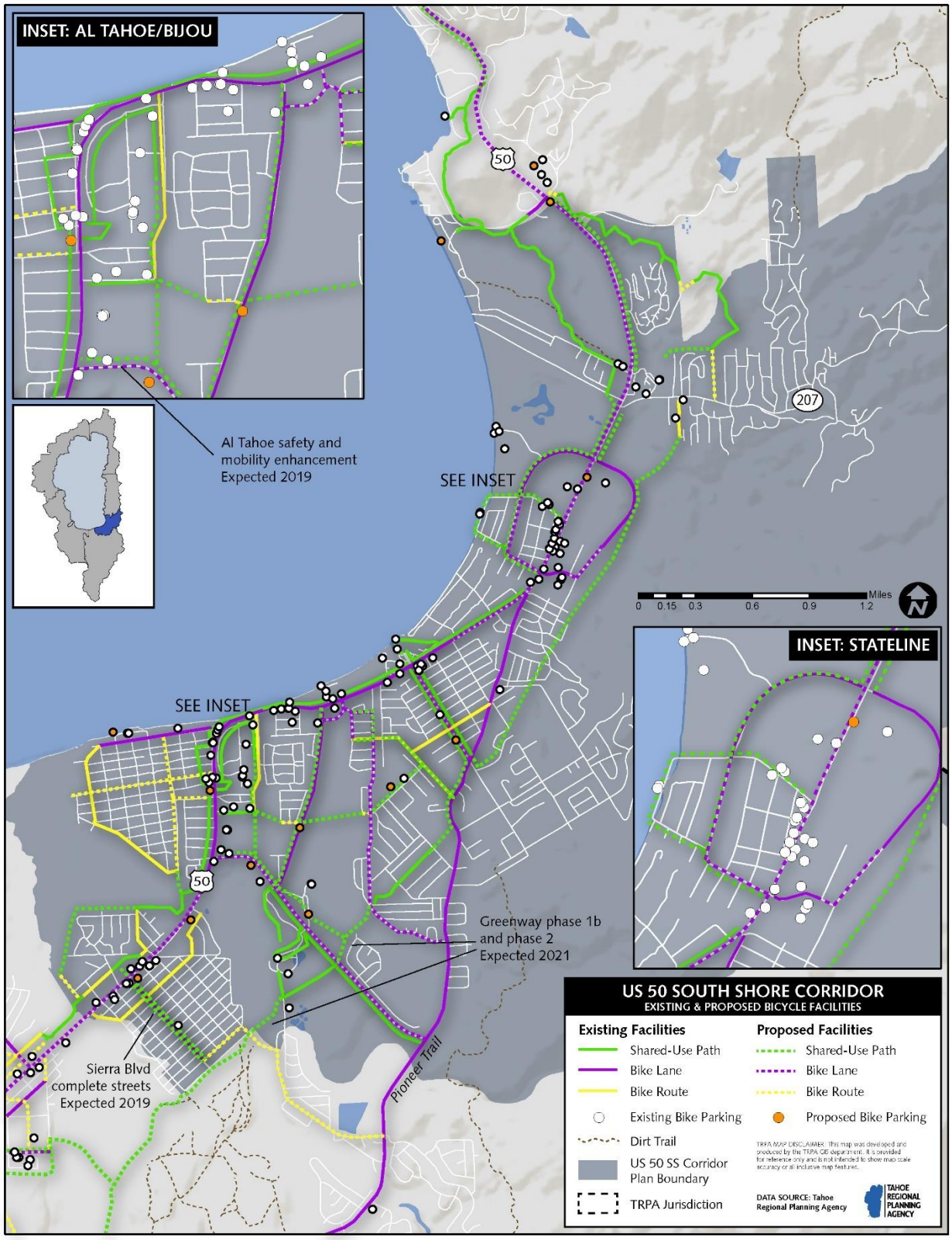


FIGURE 4-11: U.S. 50 SOUTH SHORE CORRIDOR – EXISTING & PROPOSED PEDESTRIAN AND SAFETY INFRASTRUCTURE

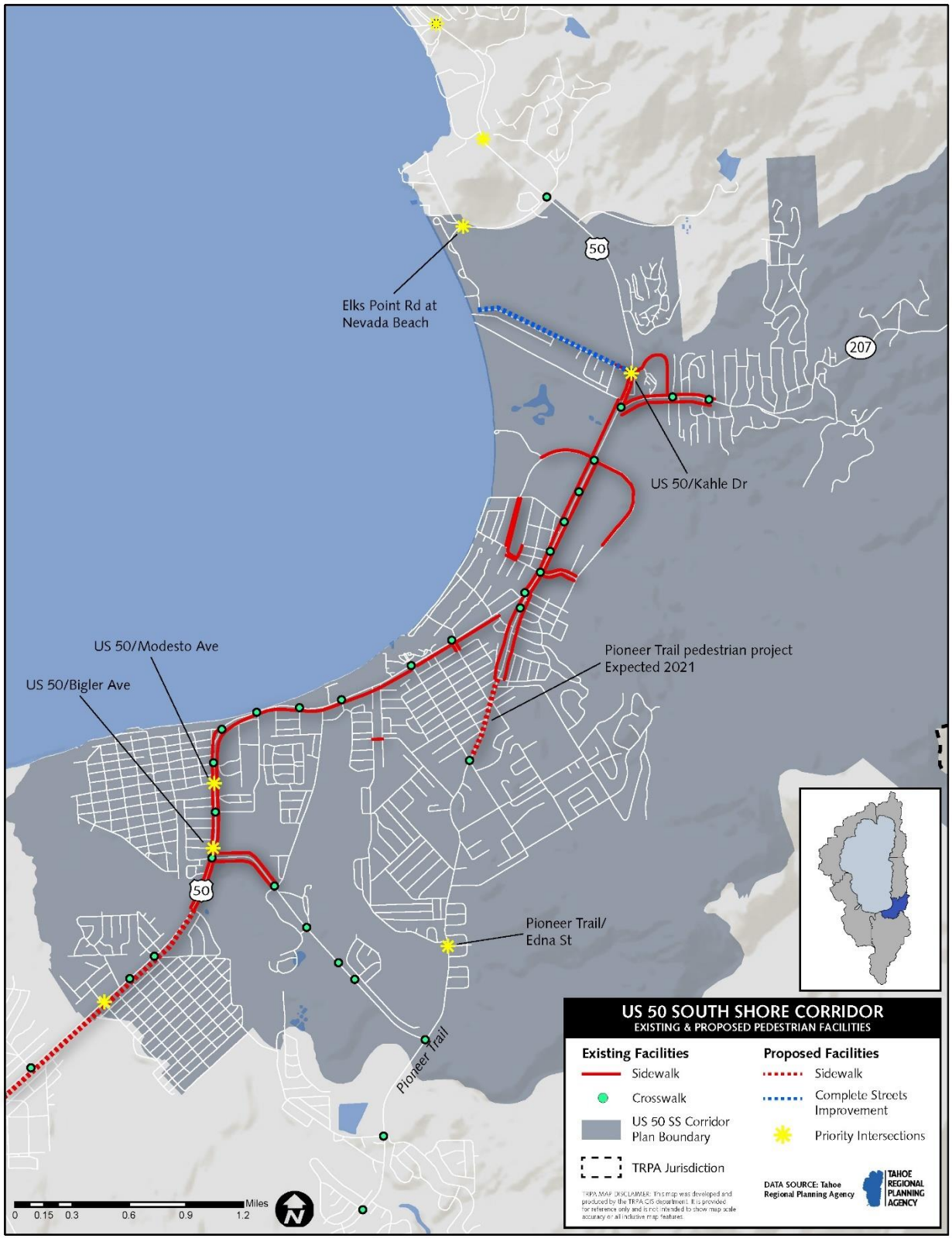
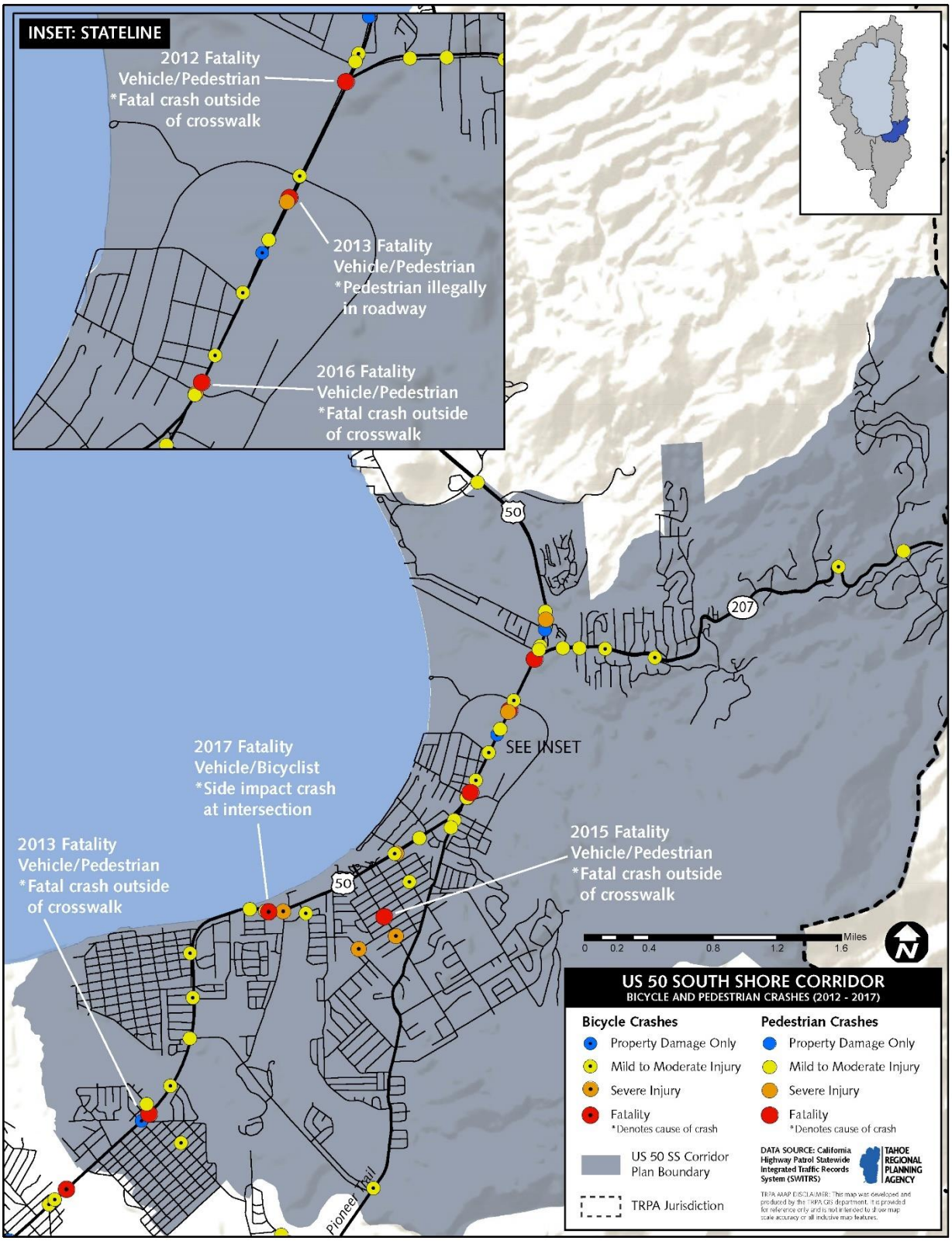


FIGURE 4-12: U.S. 50 SOUTH SHORE CORRIDOR - CRASH ANALYSIS



CORRIDOR PROJECT LISTS:

Table 4-10: U.S. 50 South Shore Corridor Design Project List:

Project Name	Lead Implementer	Description	Estimated Total Cost	Miles	County/City
Al Tahoe Safety and Mobility Enhancement Project*	CSLT	C-1 / Shared-Use Path and C-2 / Bike Lane	$2,380,380	2.0	CSLT
Burke Creek Watershed Stormwater Improvements (Kahle Complete Streets Improvement)	Douglas County/NTCD	C-5 / Complete Streets Improvement	$2,250,000	0.9	Douglas County
Pioneer Trail Pedestrian Project – Phase II	CSLT	C-4 / Sidewalk	$2,110,000	0.5	CSLT
Ponderosa/Sussex Connector to Sierra Tract	CSLT	C-1 / Shared-Use Path	$28,500	0.1	CSLT
South Tahoe Greenway Shared Use Path Connector	CSLT	C-1 / Shared-Use Path	$213,750	0.4	CSLT
South Tahoe Greenway Shared Use Trail Phases 1b & 2*	El Dorado County	C-1 / Shared-Use Path	$5,500,000	0.9	CSLT
TOTAL:			**$12,482,630**	**4.7**	

*Project is fully funded

Table 4-11: U.S. 50 South Shore Corridor Planning Project List:

Project Name	Lead Implementer	Description	Estimated Total Cost	Miles	County/City
Bijou Meadow Connector	CSLT	C-1 / Shared-Use Path	$474,264	0.3	CSLT
Blackwood Road Safe Routes to School Project	CSLT	C-1 / Shared-Use Path	$900,000	0.6	CSLT
Class I Bike Trail – Pine Blvd to End of Linear Park Path (Mountain to Beach Loop Park Ave West)	CSLT	C-1 / Shared-Use Path	$1,385,000	1.3	CSLT
Fairway Ave Bike Lanes	CSLT	C-2 / Bike Lane	$3,747	0.4	CSLT
Fountain Avenue Bike Route	CSLT	C-3 / Bike Route	$753	0.3	CSLT
Glenwood Way Bike Lanes	CSLT	C-2 / Bike Lane	$16,000	1.6	CSLT

Glenwood Way Shared Use Path	CSLT	C-1 / Shared-Use Path	$375,000	0.3	CSLT
Johnson Blvd Connector Bike Route	CSLT	C-3 / Bike Route	$286	0.1	CSLT
Johnson Blvd Intersection Gap	CSLT	C-2 / Bike Lane	$339	0.03	CSLT
Johnson Blvd Shared Use Path	CSLT	C-1 / Shared-Use Path	$1,468,786	1.0	CSLT
Lake Parkway East (Loop Road) Bike Lane	CSLT	C-2 / Bike Lane	$2,167	0.2	CSLT
Los Angeles Ave Bike Route	CSLT	C-3 / Bike Route	$524	0.2	CSLT
LPF 2 – Round Hill Bike Path Connector	Douglas County	C-1 / Shared-Use Path	$750,000	0.3	Douglas County
Lyons Ave Connector to Marlette Circle	CSLT	C-1 / Shared-Use Path	$82,042	0.1	CSLT
Middle School SR2S Project – Rufus Allen Connector	CSLT	C-1 / Shared-Use Path	$435,000	0.3	CSLT
Nevada Greenway Kingsbury Connector via Market St	Douglas County	C-1 / Shared-Use Path	$2,310,000	0.8	CSLT
Nevada Stateline to Stateline Bikeway Laura Drive to Stateline (Phase 1A)	TTD	C-1 / Shared-Use Path	$3,000,000	0.9	Douglas County
Park Ave Bike Lanes	CSLT	C-2 / Bike Lane	$2,022	0.2	CSLT
Park Ave (East) Bike Lane	CSLT	C-2 / Bike Lane	$560	0.1	CSLT
Pine Blvd Bike Lane	CSLT	C-2 / Bike Lane	$3,059	0.3	CSLT
Pine Ridge Drive Bike Route	Douglas County	C-3 / Bike Route	$749	0.3	Douglas County
Oakland Ave Bike Route	CSLT	C-3 / Bike Route	$1,949	0.7	CSLT
Rufus Allen Blvd Shared Use Path	CSLT	C-1 / Shared-Use Path	$330,000	0.2	CSLT
San Francisco Bike Route	CSLT	C-3 / Bike Route	$2,082	0.8	CSLT
Ski Run Blvd Bike Lanes	CSLT	C-2 / Bike Lane	$6,000	0.6	CSLT
South Shore Tahoe Trail (South Tahoe Bikeway) Extension, Oakland Ave	CSLT	C-1 / Shared-Use Path	$360,000	0.1	CSLT
South Shore Tahoe Trail (South Tahoe Bikeway) Meadow Connection	CSLT	C-1 / Shared-Use Path	$2,010,000	0.7	CSLT

South Shore Tahoe Trail (South Tahoe Bikeway) Sunset Drive Connector	CSLT	C-3 / Bike Route	$430	0.2	CSLT
South Tahoe Greenway Shared Use Trail Planning and Future Phases (Phase 3 Ski Run to Van Sickle)	CTC	C-1 / Shared-Use Path	$7,844,000	1.9	CSLT
Spruce Ave Safe Routes to School	CSLT	C-2 Shared-Use Path and C-3 / Bike Route	$203,000	0.5	CSLT
US Hwy 50 Shared Use Path (Lake Parkway to 207)	NDOT	C-1 / Shared-Use Path	$157,424	0.3	Douglas County
US Hwy 50 (South Side) Shared Use Path	NDOT	C-1 / Shared-Use Path	$3,210,000	1.1	Douglas County
US Highway 50 Water Quality Improvement Project – Wildwood to Stateline	Caltrans	C-2 / Bike Lane	$2,222,000	0.9	CSLT
TOTAL			**$27,760,183**	**17.2**	

Table 4-12: U.S. 50 South Shore Corridor Priority Intersections:

Project Name	Stage	Lead Implementer	Jurisdiction
Elks Ave / Elks Point Rd	Planning	Undetermined	Douglas County
Pioneer Trail / Edna St	Design	CSLT	CSLT
SR 207 / Ansaldo Acres Rd	Planning	NDOT	Douglas County
SR 207 / S Benjamin Dr	Planning	NDOT	Douglas County
U.S. Hwy 50 / Bigler Ave	Planning	Caltrans	CSLT
U.S. Hwy 50 / Kahle Dr	Planning	NDOT	Douglas County
U.S. Hwy 50 / Lodi Ave	Implementation	Caltrans	CSLT
U.S. Hwy 50 / Modesto Ave	Planning	Caltrans	CSLT

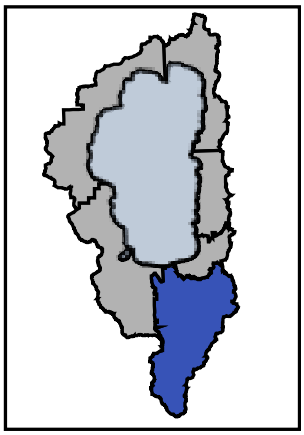
Please see the following to page for a conceptual rendering produced as part of the Transforming Tahoe Transportation Workshop. Participants were asked to evaluate mobility challenges in the Tahoe area and provide recommendations for improvements. The renderings, provided by Alta Planning + Design, illustrate near-term complete street options. The location for Corridor 4 is the intersection of US Highway 50 and Warrior Way. A roundabout was also suggested at this location as a long term solution.

Existing conditions

Sidewalk connection to school and parking
Parking restrictions along Highway 50
Bike Lanes
Pedestrian Hybrid Beacon
Beach access

MEYERS / Y CORRIDOR

Physical Geographic Description: This corridor begins at US Highway 50 west of the Upper Truckee River in the City of South Lake Tahoe and extends to just north of the South Tahoe "Y" and south to include Meyers, located in El Dorado County.



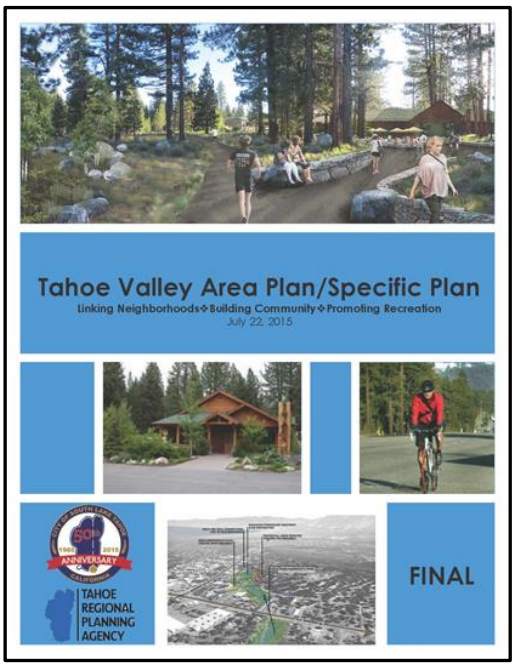
Context Relevant Plans & Studies:

- Meyers Area Plan (2018)
- Tahoe Valley Area Plan (2015)
- Tahoe Valley Area Plan Bicycle Facility Evaluation (2014)
- Lake Tahoe Unified School District Safe Routes to School Master Plan (2015)
- South Tahoe Middle School Area Connectivity Plan (2015)

Additional Corridor Considerations:

Community Input: Stakeholders suggested a variety of Class I / Shared-use paths. Suggestions were vetted by El Dorado County, City of South Lake Tahoe, the South Lake Tahoe Recreation Joint Powers Authority Bicycle Advisory Committee, and the Lake Tahoe Sustainability Collaborative Community Mobility Group. Many of the recommendations were included as proposed facilities in this plan, were slightly altered, or were not included based on technical expertise. To review community-proposed projects for this corridor, please review Appendix B, the *2015 Community Outreach Report.*

2018 Amendment: All projects in the planning and design phases have been updated to reflect current project efforts in the corridor. New maps incorporate additional and updated data including safety analysis conducted during development of the Lake Tahoe Region Safety Plan. El Dorado County and the City of South Lake Tahoe should consider new data and analysis when prioritizing intersection improvements and infrastructure projects in the future.



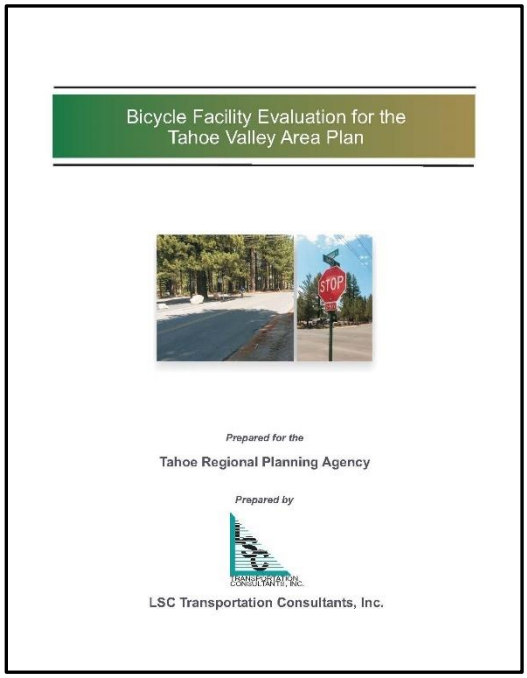


FIGURE 4-13: MEYERS Y CORRIDOR – EXISTING AND PROPOSED BICYCLE AND PEDESTRIAN INFRASTRUCTURE

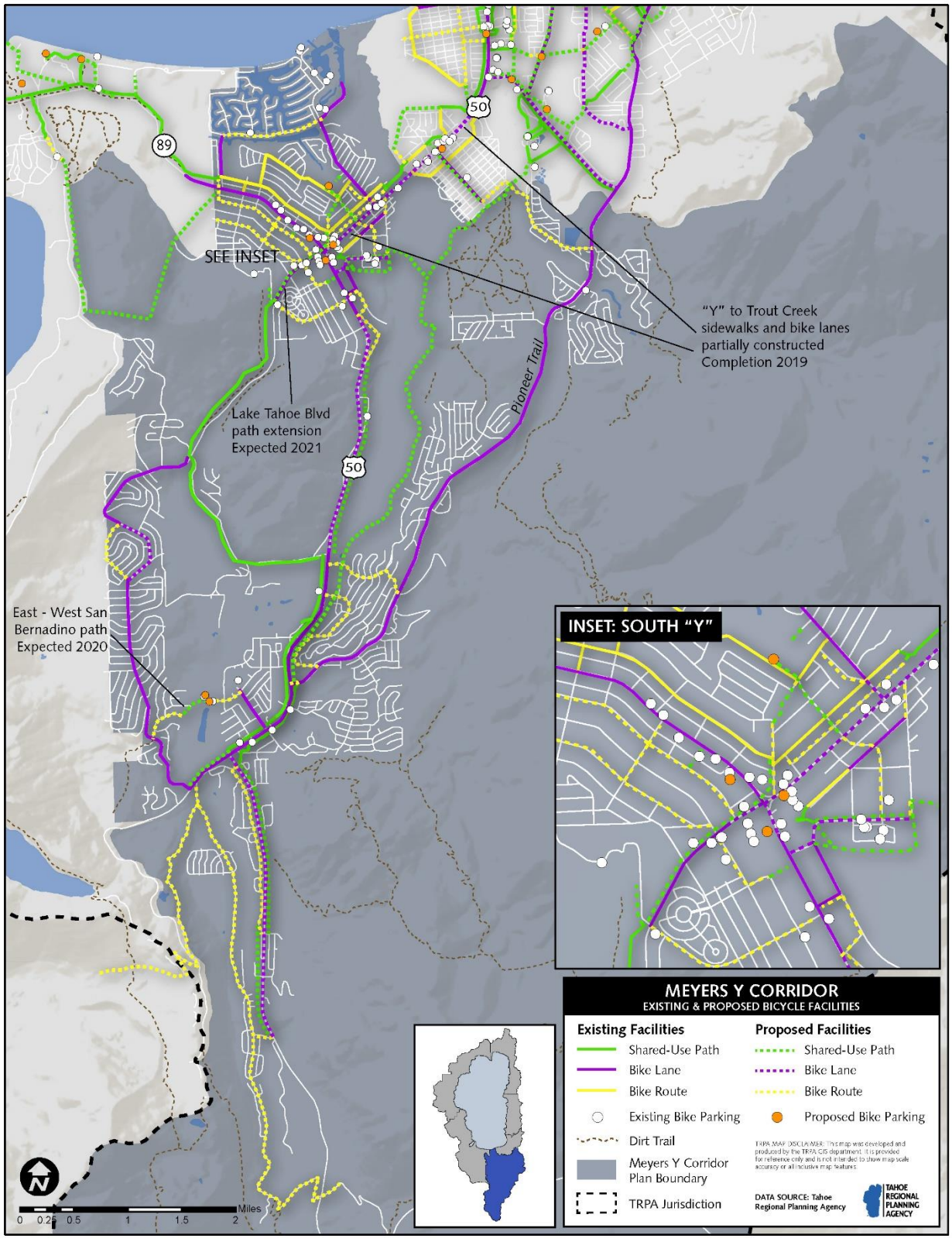


FIGURE 4-14: MEYERS Y CORRIDOR – EXISTING AND PROPOSED PEDESTRIAN AND SAFETY INFRASTRUCTURE

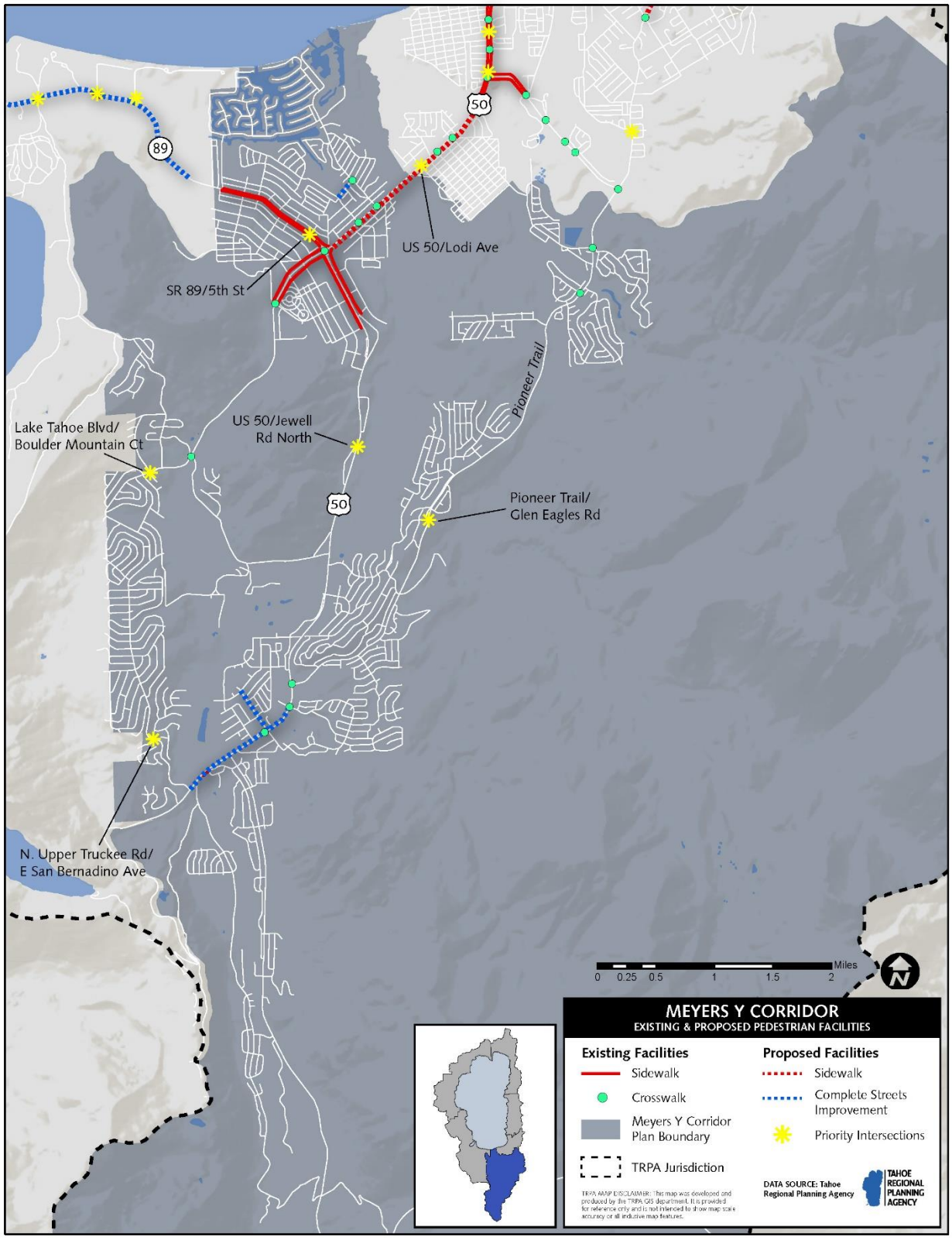
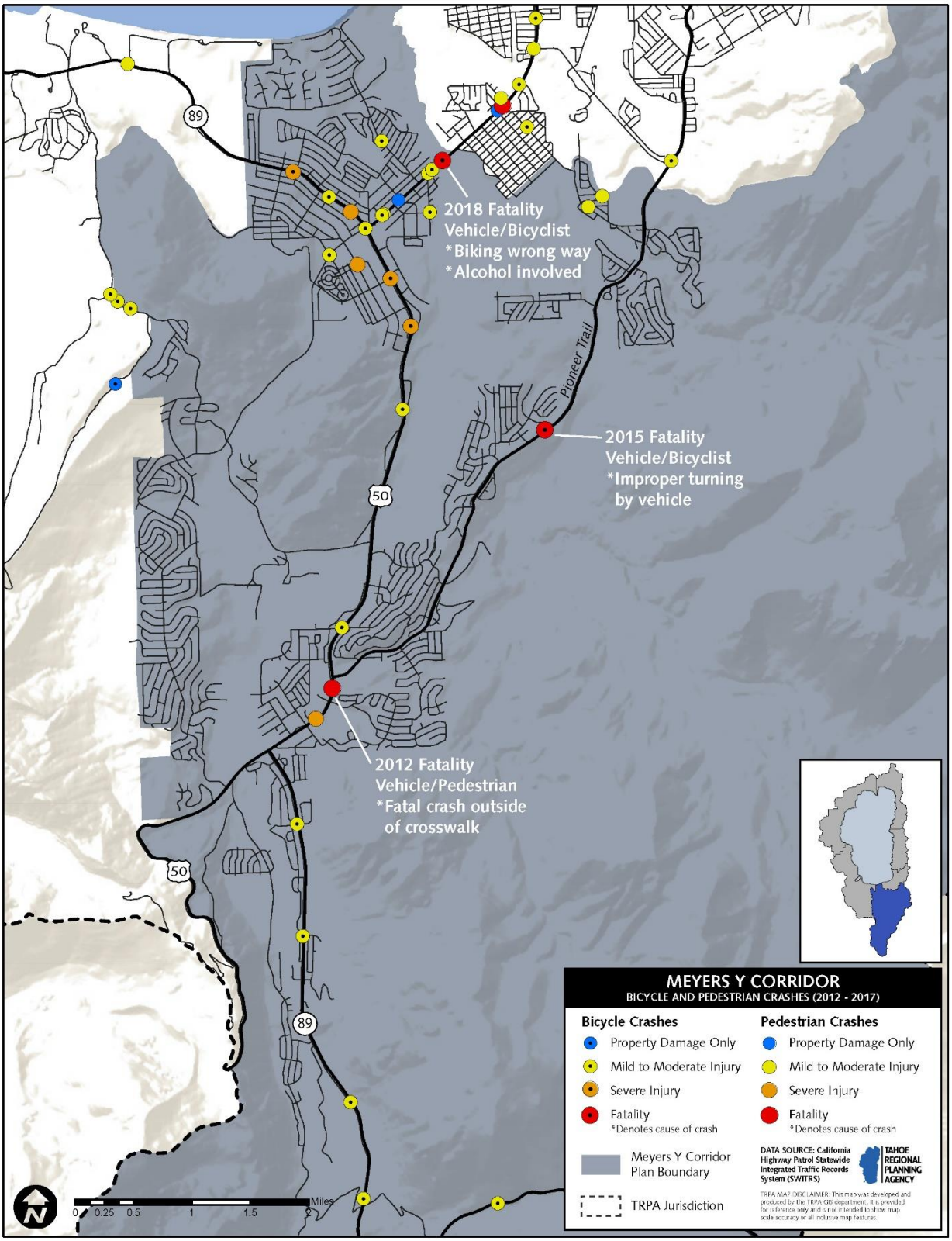


FIGURE 4-15: MEYERS Y CORRIDOR - CRASH ANALYSIS



CORRIDOR PROJECT LISTS:

Table 4-13: Meyers Y Corridor Design Project List:

Project Name	Lead Implementer	Description	Estimated Total Cost	Miles	County/City
Apache Avenue Pedestrian Safety and Connectivity Project	El Dorado County	C-1 / Shared-Use Path	$1,873,650	0.4	El Dorado County
Class I Bike Path: East San Bernadino – West San Bernadino	El Dorado County	C-1 / Shared-Use Path	$1,662,000	0.3	El Dorado County
Lake Tahoe Boulevard Class I Bike Trail (Vikings Way to South Wye)	CSLT	C-1 / Shared-Use Path	$4,250,000	0.8	CSLT
Meyers Corridor Operational Improvement Project	El Dorado County	C-5 / Complete Streets Improvement	$12,807,903	1.1	El Dorado County
U.S. Hwy 50 – Meyers Path Extension*	Caltrans	C-1 / Shared-Use Path	$675,000	0.5	El Dorado County
TOTAL:			**$21,268,553**	**6.3**	

*Project is fully funded

Table 4-14: Meyers Y Corridor Planning Project List:

Project Name	Lead Implementer	Description	Estimated Total Cost	Miles	County/City
Blitzen Rd Bike Route	El Dorado County	C-3 / Bike Route	$4,229	1.5	El Dorado County
C Street Bike Route	CSLT	C-3 / Bike Route	$217	0.1	CSLT
Class I Bike Trail Along Highway 50 from H Street to City Limits	CSLT	C-1 / Shared-Use Path	$600,000	0.4	CSLT
Class I Bike Trail Along US Highway 50 from City Limits to Sawmill Road	El Dorado County	C-1 / Shared-Use Path	$2,900,000	1.3	El Dorado County
Class I Bike Trail: Third Street / Tahoe Valley Elementary	CSLT	C-1 / Shared-Use Path	$75,400	0.4	CSLT

Class III Bike Route Along Venice Drive (From Tahoe Keys to 15th St)	CSLT	C-3 / Bike Route	$35,000	0.9	CSLT
Council Rock Bike Route	CSLT	C-3 / Bike Route	$576	0.2	CSLT
D Street Bike Route	CSLT	C-3 / Bike Route	$1,904	0.7	CSLT
Dunlap Dr Bike Route	CSLT	C-3 / Bike Route	$741	0.3	CSLT
E Street Bike Route	CSLT	C-3 / Bike Route	$291	0.1	CSLT
Gardner Mountain Bike Route Connection to Pope Beach Path	CSLT	C-3 / Bike Route	$6,196	2.2	CSLT
Gardner Mountain Connector Path	CSLT	C-1 / Shared-Use Path	$38,000	0.1	CSLT
Hwy 50 City to Meyers Bike Lanes	Caltrans	C-2 / Bike Lane	$21,000	2.1	CSLT
Hwy 50, Y Intersection Area	Caltrans	C-2 / Bike Lane	$1,303	0.1	CSLT
James Ave Bike Route	CSLT	C-3 / Bike Route	$1,669	0.6	CSLT
Kyburz Ave Bike Route	CSLT	C-3 / Bike Route	$1,319	0.5	CSLT
Lake Tahoe Blvd Bike Lanes	CSLT	C-2 / Bike Lane	$1,600	0.2	CSLT
Martin/Black Bart Bike Route	CSLT	C-3 / Bike Route	$2,896	1.1	CSLT
Meadow Vale / Southern Pines Bike Route	El Dorado County	C-3 / Bike Route	$3,383	1.2	El Dorado County
Melba Drive Bike Route	CSLT	C-3 / Bike Route	$434	0.2	CSLT
Mount Rainier Drive Bike Route	El Dorado County	C-3 / Bike Route	$1,613	0.6	El Dorado County
North Upper Truckee / Lake Tahoe Blvd Bike Lanes	El Dorado County	C-2 / Bike Lane	$7,100	0.7	El Dorado County
Old Luther Pass Highway	El Dorado County	C-3 / Bike Route	$7,721	2.8	El Dorado County

Pioneer Connector Signage	El Dorado County	C-3 / Bike Route	$245	0.1	El Dorado County
Portal Drive Bike Route	El Dorado County	C-3 / Bike Route	$436	0.2	El Dorado County
San Bernadino Ave Bike Route	El Dorado County	C-3 / Bike Route	$691	0.3	El Dorado County
San Bernadino (West) Bike Route	El Dorado County	C-3 / Bike Route	$1,064	0.4	El Dorado County
South Tahoe Bikeway Extension James Connector	CSLT	C-1 / Shared-Use Path	$14,250	0.03	CSLT
South Tahoe High Access Road	CSLT	C-1 / Shared-Use Path	$450,000	0.2	CSLT
South Tahoe Greenway Shared Use Trail Planning and Future Phases (Sierra Tract to Meyers)	CTC	C-1 / Shared-Use Path	$7,844,000	5.0	El Dorado County
South Tahoe Greenway Winnemucca Ave Connector Bike Route	CSLT	C-3 / Bike Route	$161	0.1	CSLT
South Tahoe Greenway "Y" Connector	CSLT	C-1 / Shared-Use Path	$3,000,000	0.4	CSLT
South Upper Truckee Road Bike Route	El Dorado County	C-3 / Bike Route	$13,431	4.9	El Dorado County
SR 89 Shared Use path South Tahoe "Y" to 15th St	CSLT	C-1 / Shared-Use Path	$504,280	0.9	CSLT
State Route 89 Bike Lanes	El Dorado County	C-2 / Bike Lane	$24,994	2.5	El Dorado County
State Route 89 Class I Bike Trail – Highway 50 to Portal Road	El Dorado County	C-1 / Shared-Use Path	$3,000,000	2.4	El Dorado County
Tahoe Valley Connector Path Dunlap	CSLT	C-1 / Shared-Use Path	$87,000	0.2	CSLT
Tahoe Valley Elementary / Wyoming Connector	CSLT	C-1 / Shared-Use Path	$34,800	0.1	CSLT
Tahoe Valley Greenbelt – B Street Path Connector, Barton Path Connector,	CSLT	C-1 / Shared-Use Paths and C-2 / Bike Lane	$6,000,000	1.6	CSLT

South Ave Bike Lanes)					
Tata Ln Bike Route	CSLT	C-3 / Bike Route	$783	0.3	CSLT
Third Street Bike Route	CSLT	C-3 / Bike Route	$1,116	0.4	CSLT
Upper Tahoe Keys Blvd Bike Lane	CSLT	C-2 / Bike Lane	$924	0.1	CSLT
Washington Avenue Safe Routes to School Project	CSLT	C-1 / Shared-Use Path and C-3 / Bike Route	$200,000	0.2	CSLT
Winnemucca Ave Bike Route	CSLT	C-3 / Bike Route	$363	0.1	CSLT
TOTAL			**$24,891,132**	**38.3**	

Table 4-15: Meyers Y Corridor Priority Intersections:

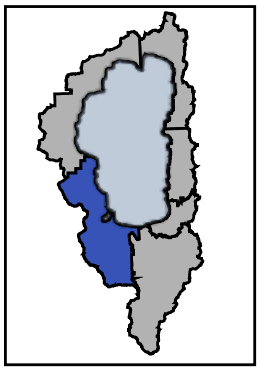
Project Name	Stage	Lead Implementer	Jurisdiction
Lake Tahoe Blvd / Boulder Mountain Ct	Planning	El Dorado County	El Dorado County
N Upper Truckee Rd / E San Bernadino Ave	Design	El Dorado County	El Dorado County
Pioneer Trail / Glen Eagles Rd	Planning	El Dorado County	El Dorado County
SR 89 / 15th St	Planning	Caltrans	El Dorado County
U.S. Hwy 50 / Jewell Rd North	Planning	El Dorado County	El Dorado County

Please see the following to page for a conceptual rendering produced as part of the Transforming Tahoe Transportation Workshop. Participants were asked to evaluate mobility challenges in the Tahoe area and provide recommendations for improvements. The renderings, provided by Alta Planning + Design, illustrate near-term complete street options. The location for Corridor 5 is the intersection of Tahoe Island Boulevard and Washington Street.

STOP
Existing conditions

Landscaped island
Mini traffic circle with yield control
Natural surface walkways
YIELD

STATE ROUTE 89 RECREATION CORRIDOR



Physical Geographic Description: This corridor begins at the northern edge of the City of South Lake Tahoe just past the South Tahoe "Y" and extends to the north into El Dorado County, just past of Meeks Bay.

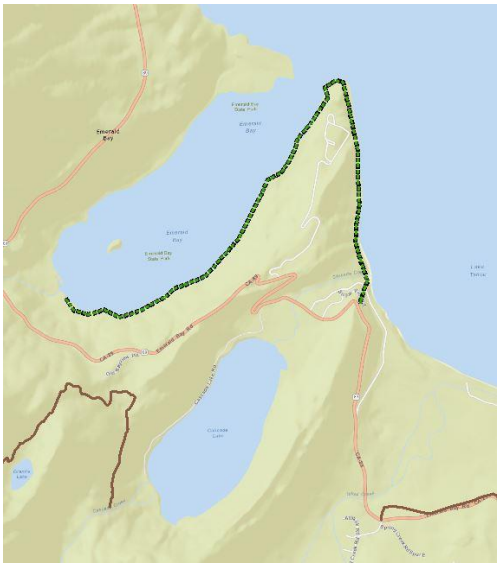
Context Relevant Plans & Studies:

- SR -89 Cascade to Rubicon Bay Bikeway Study
- West Shore Area General Plan
- El Dorado County General Plan
- SR 89 Recreation Corridor Management Plan (Under Development)

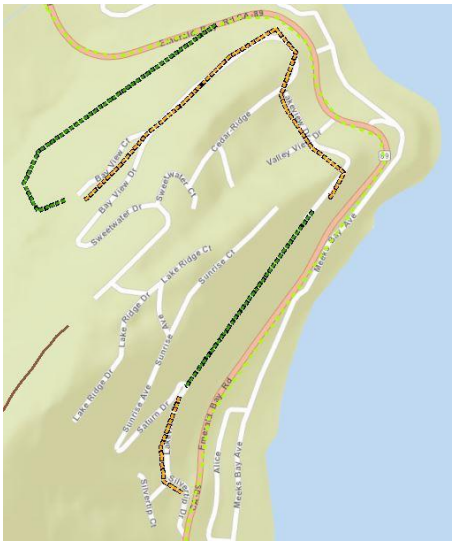
Additional Corridor Considerations:

Community Input: The Meeks Bay Homeowners Association has proposed a variety of bike routes and Class I/shared-use paths for the Meeks Bay area that at this time have not been included because they currently do not connect to any facilities. However, these proposals should be analyzed by the appropriate implementing agency to determine feasibility and need as adjacent facilities are planned. Also proposed by the community is a path that follows the shoreline of Emerald Bay to connect users to Vikingsholm. At this time the route has not been included in the proposed project list for this corridor. However, this suggestion should be analyzed by the appropriate implementing agency to determine feasibility and need. The Corridor Connection Plan currently in development for this corridor should review these suggestions and incorporate if determined desirable.

2018 Amendment: All projects in the planning and design phases have been updated to reflect current project efforts in the corridor, specifically the SR 89 Recreation Corridor Connection Plan. New maps incorporate additional and updated data including safety analysis conducted during development of the Lake Tahoe Region Safety Plan. El Dorado County should consider new data, analysis, and the Recreation Corridor Plan when prioritizing intersection improvements and infrastructure projects in the future.



Emerald Bay Proposal



Meeks Bay HOA Proposal

FIGURE 4-16: SR 89 RECREATION CORRIDOR – EXISTING AND PROPOSED BICYCLE INFRASTRUCTURE

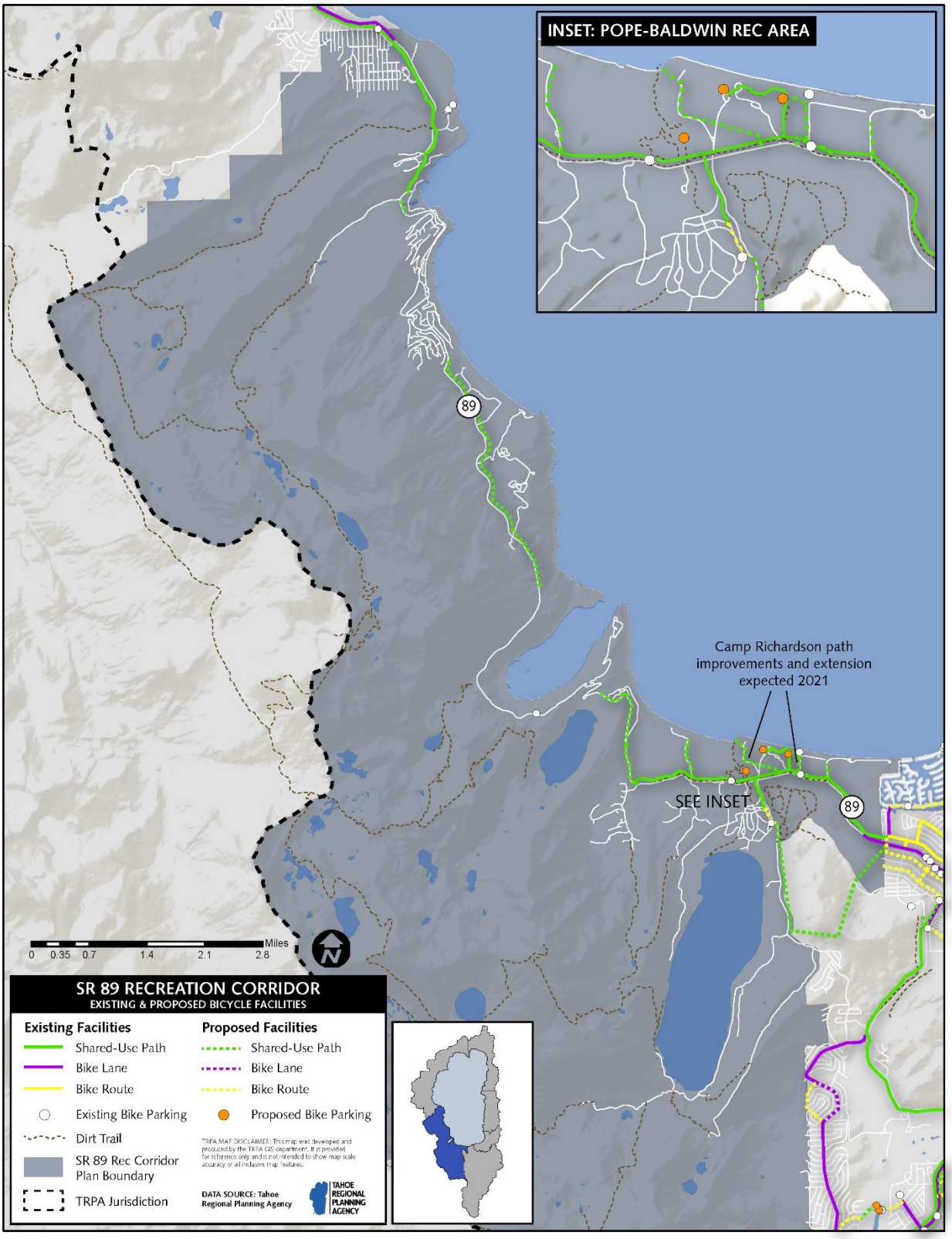


FIGURE 4-17: SR 89 RECREATION CORRIDOR – EXISTING AND PROPOSED PEDESTRIAN AND SAFETY INFRASTRUCTURE

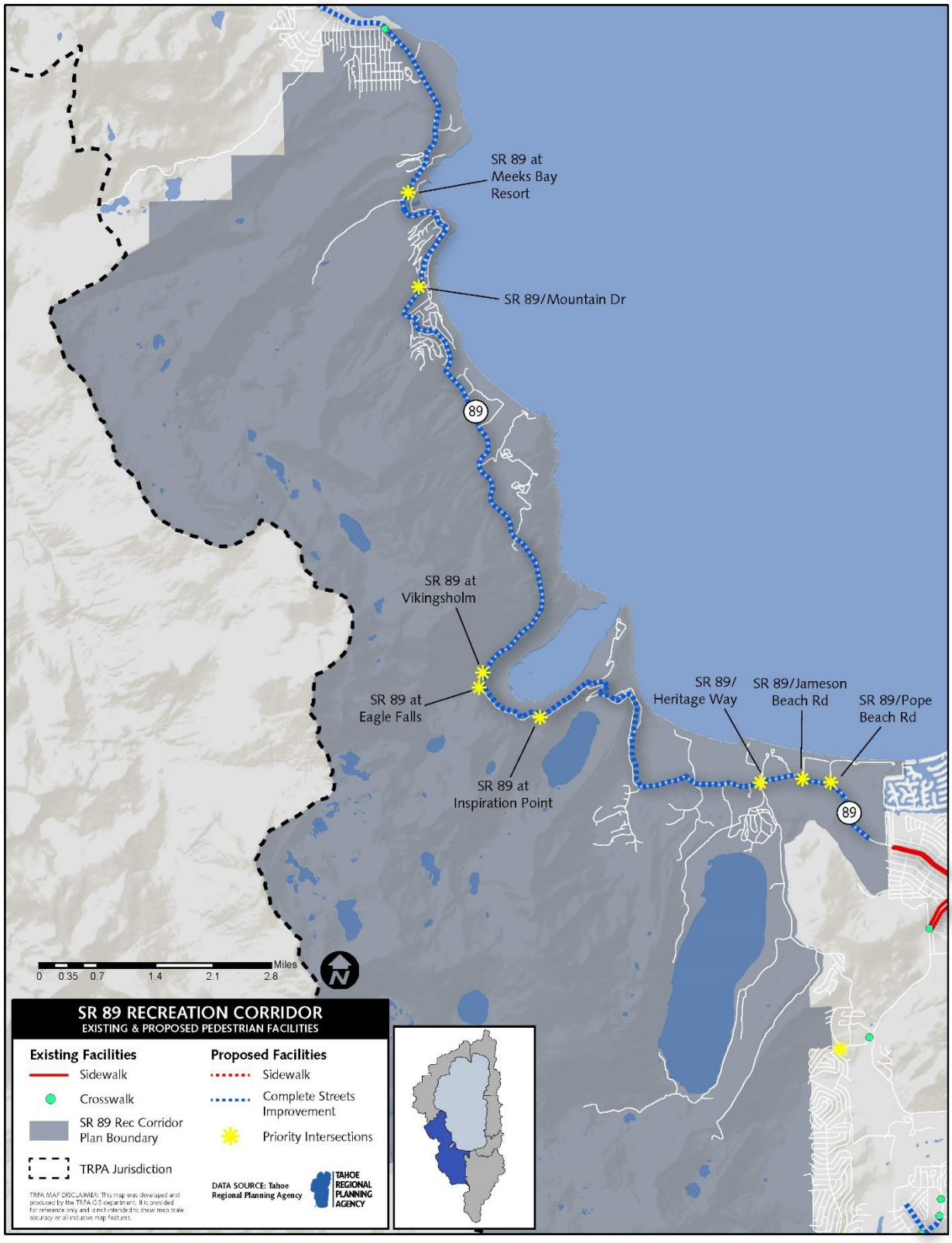
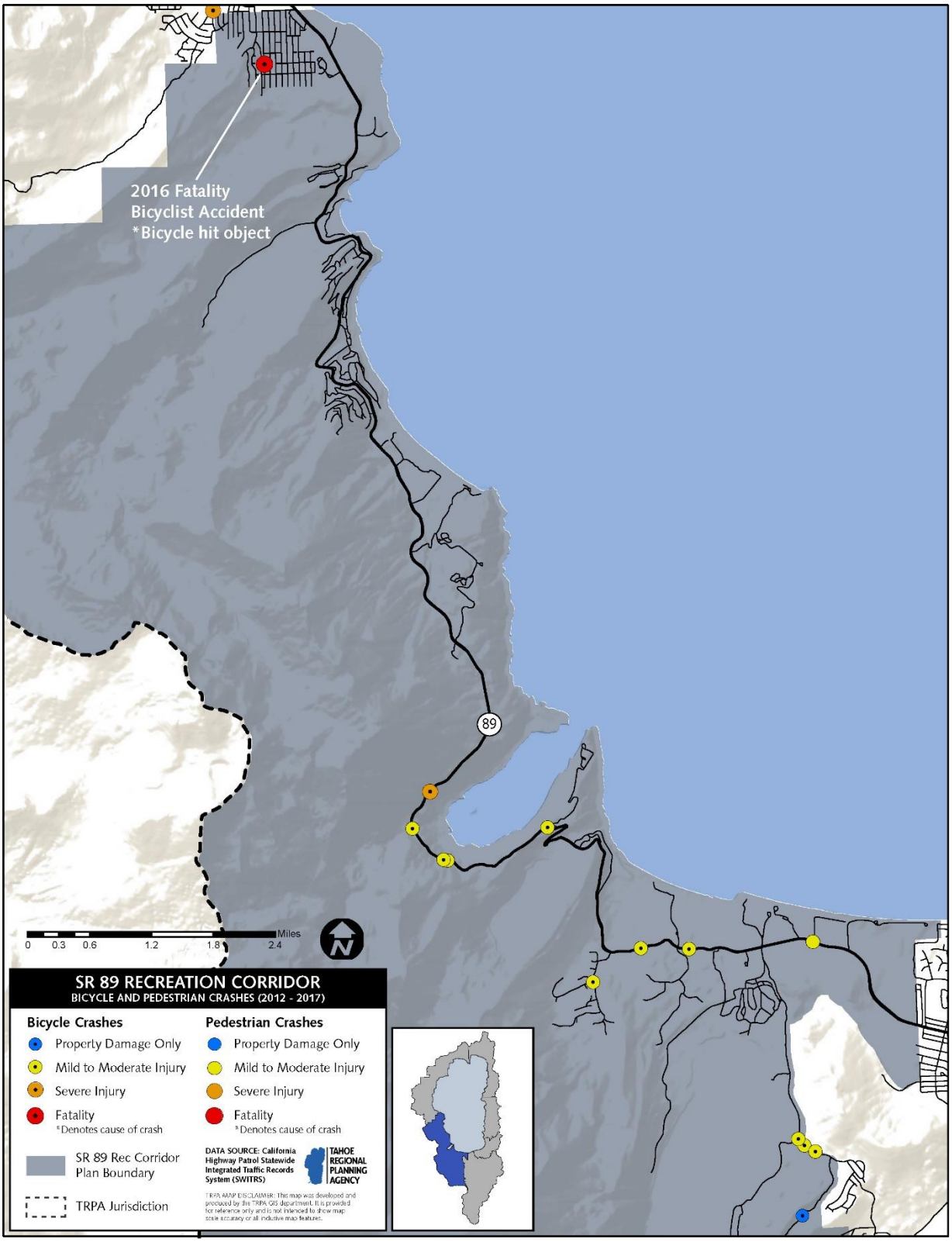


FIGURE 4-18: SR 89 RECREATION CORRIDOR - CRASH ANALYSIS



CORRIDOR PROJECT LISTS:

Table 4-16: SR 89 Recreation Corridor Design Project List:

Project Name	Lead Implementer	Description	Estimated Total Cost	Miles	County/City
Baldwin Beach Bike Path	USFS	C-1 / Shared-Use Path	$272,600	0.5	El Dorado County
Camp Richardson Resort & Campground BMPs & Retrofit*	USFS	C-1 / Shared-Use Path	$225,000	0.5	El Dorado County
Fallen Leaf Road Pavement Rehabilitation and Recreational Access Project	El Dorado County	C-1 / Shared-Use Path	$3,115,028	3.2	El Dorado County
Fallen Leaf Road Pavement Rehabilitation and Recreational Access Project	USFS / El Dorado County	C-3 / Bike Route	$4,740,000	0.2	El Dorado County
Meeks Bay Highway Corridor Improvements	USFS	C-1 / Shared-Use Path	$1,500,000	0.2	El Dorado County
Pope Beach Bike Path	USFS	C-1 / Shared-Use Path	$92,800	0.2	El Dorado County
TOTAL:			**$27,320,428**	**5.6**	

*Project is fully funded

Table 4-17: SR 89 Recreation Corridor Planning Project List:

Project Name	Lead Implementer	Description	Estimated Total Cost	Miles	County/City
South Shore Tahoe Trail Extension (Spring Creek to Cascade)	USFS	C-1 / Shared-Use Path	$2,610,000	1.6	El Dorado County
SR 89 Recreation Corridor Complete Street Improvements	Various	C-5 / Complete Streets Improvement	Varies	16.9	El Dorado County
TOTAL			**Varies**	**18.5**	

Table 4-18: SR 89 Recreation Corridor Priority Intersection:

Project Name	Stage	Lead Implementer	Jurisdiction
SR 89 / Pope Beach Rd	Planning	Undetermined	El Dorado County
SR 89 / Eagle Falls Parking	Planning	Undetermined	El Dorado County
SR 89 / Heritage Way	Planning	Undetermined	El Dorado County
SR 89 / Inspiration Point	Planning	Undetermined	El Dorado County
SR 89 / Jameson Beach Rd	Planning	Undetermined	El Dorado County
SR 89 / Meeks Bay Resort Entrance	Planning	Undetermined	El Dorado County
SR 89 / Mountain Dr	Planning	Caltrans	El Dorado County
SR 89 / Vikingsholm Parking	Planning	Undetermined	El Dorado County

Please see the following to page for a rendering produced as part of the Transforming Tahoe Transportation Workshop. Participants were asked to evaluate mobility challenges in the Tahoe area and provide recommendations for improvements. The renderings, provided by Alta Planning + Design, illustrate some of the complete street options. The location for Corridor 6 is the section of State Route 89 stretching from Inspiration Point to the Eagle Falls Trailhead.

Existing conditions

Advisory speed limit with pedestrian warning sign
25 MPH
Paving with pigmented aggregate for architectural effect
Speed reduction markings
Centerline removal for volumes averaging below 6,000 vehicles per day

CHAPTER 6: IMPLEMENTATION PLAN

(Updated – 2018 Technical Amendment)

Implementation is by far the most challenging aspect of creating a successful active transportation network. Significant obstacles can include acquisition of right-of-way, securing construction and maintenance funding, designing projects that provide access for all roadway users, and meeting environmental standards. Partners must work together to find common ground on project designs, locations, and funding mechanisms. This chapter outlines the actions that partnering agencies should take to implement the goals and policies in Chapter 3. Benchmarks have also been listed that will help partners implement actions in a timely fashion. To assist in project development, Section 6.2 contains cost estimates that can be used as a resource when estimating full project cost. This can be helpful for grant applications, or when budgeting various funding sources (such as TRPA Air Quality Mitigation Fees) for project implementation. In section 6.3, the project list is explained, and can be found in Appendix H. Finally, this chapter also includes funding strategies.

2018 Amendment: One of the main drivers of this technical amendment is to report out on progress. The actions outlined in 2016 were determined through technical advisory committee collaboration and public feedback and sought to implement the 2016 policies. This updated section describes the progress of implementation and determines next steps for actions that have not yet been fully implemented. In some cases, recommendations are included to improve action implementation. Additionally, after consulting with local jurisdictions, the project prioritization criteria and process have been eliminated from the Plan. The criteria is not being utilized and the process does not provide the intended benefit.

Kahle and Laura Drive Intersection. Photo: Mike Vollmer.

6.1 ACTIONS

SECTION 1: NETWORK DESIGN

1.A	
Action	Public and private entities should continue to focus planning and funding efforts on the remaining priority projects that will connect a complete shared-use path around the lake.
Benchmark	At least one new project will be 100 percent designed and funded by 2018.
Analysis: *Fully Implemented* 	Phase two of the SR 89/Fanny Bridge Community Revitalization Project has been 100 percent designed and funded with construction underway. This phase of the project adds complete streets improvements and extends the west shore bike path from Sugar Pine Point State Park to Meeks Bay. For more information on this project, visit https://eip.laketahoeinfo.org/Project/FactSheet/03.01.02.0016 in the EIP Tracker.

1.B	
Action	TRPA will supply guidelines on the design/build process for implementing entities to review when considering transportation-related projects. TRPA will coordinate educational opportunities through webinars and workshops on the many design/build processes available. Implementing agencies will create a document that outlines their design/build process and make available for the community.
Benchmark	TRPA will create guidelines and conduct one webinar by end of 2016. Complete street workshop will be held in November 2015. TRPA will request implementing agencies submit design/build process and provide online for community by end of 2017.
Analysis: *Mostly Implemented* 	The TRPA hosted a Complete Streets Workshop on November 18th and 19th, 2015 for local, regional, and state agency partners. More than 60 people representing jurisdictions around the Lake Tahoe Region and the State of California and Nevada attended the workshop. Participants developed a list of key next steps to continue momentum and realize progress. The two main products of the workshop were the Lake Tahoe Complete Street Resource Guide and renderings of proposed improvements generated by workshop participants. TRPA, as the Bikeway Partnership lead, hosted a three-and-a-half-hour webinar and in-person meeting on snow maintenance practices for shared use-paths on December 2016. Participants heard from and engaged with Eagle County, CO., Truckee, CA., and the City of Calgary, Canada.
Next Steps	The Complete Street Resource Guide identifies a series of action items for jurisdictions within the Tahoe Region that re-focused the priorities for action 1.B:

	1. Move towards adopting a complete street strategy or policy. If a policy is present, review it to see how it could be more effective and supported through standards, code, and other agency policies. 2. Identify at least one pilot project where small changes could create big improvements. Use it as a learning opportunity to test coordination and cooperation between staff, elected officials, and the public. Pilot projects can use interim materials and be flexible in their approach. Report back at annual complete streets meeting on lessons learned. 3. Examine the funding realities. Complete streets elements should be seen as essential components of the agency's transportation infrastructure rather than as optional elements which must be funded separately. Take steps towards identifying or creating new local funding sources such as paid parking, fees, taxes, etc. City of South Lake Tahoe led the way accomplishing complete street action 2 with their buffered bike lane and roadway reconfiguration on Al Tahoe Boulevard. Through the Bikeway Partnership, TRPA will work with local agencies to identify who has or is in need of Complete Street Policies, identify additional pilot project locations, and identify who has or is in need of local complete street funding opportunities.

1.C	
Action	TRPA will annually request betterment projects or maintenance plans (for appropriate time horizon) for all roadway improvement projects.
Analysis: *Implementation Underway* 	In 2016, TRPA reached out to local maintenance jurisdictions to request information on Capital Improvement Projects (CIPs) and betterment projects. All projects listed in CIPs at that time were documented in a Betterment Project and Maintenance Plan Protocol Memorandum. In 2018, TRPA requested jurisdictional maintenance information from local agencies and spatially documented this information for every road and intersection in the Tahoe Region.
Next Steps	TRPA will partner with all implementing jurisdictions to develop a process for including active transportation improvements into betterment projects. This process may identify an update to TRPA permitting processes to ensure betterment projects are including active transportation facilities and other in-roadway improvements when appropriate. A new betterment project program will be developed by 2020 and incorporated into the next update of the ATP.

1.D	
Action	TRPA will continue to provide funding, monitoring, and conduct outreach for the SRTS program and project implementation. TRPA is available to provide assistance if requested. Local jurisdictions should also adopt SRTS plans and prioritize STRS funding and implementation of associated engineering projects. Law Enforcement agencies should conduct enforcement activities around schools at the beginning of each school year.
Benchmark	TRPA will continue to offer On Our Way grants for the remainder of 2015, school locations will be used as criteria for choosing monitoring sites, and outreach to

	all school districts to be completed by 2015. LTUSD will adopt SRTS Plan in 2015, CSLT and El Dorado County will adopt SRTS Plan in 2016 and review projects for inclusion on CIP list by 2018. Law Enforcement will implement education activities by start of 2016 school year.
Analysis: *Fully Implemented* 	The On Our Way grant program launched in March 2014 and funded 11 projects through 2015. In total, TRPA distributed $464,571 amongst five local jurisdictions, one school district, two non-profits, and one advocacy group. Projects were results driven and included robust community outreach. Some notable accomplishments include: • $2.1 million ATP grant awarded to City of South Lake Tahoe for high priority project recommended in South Tahoe Area Connectivity Plan: Al Tahoe Boulevard Safety Enhancement Project • $2.9 million HSIP grant awarded to El Dorado County for intersection improvements at Pioneer Trail and U.S. Highway 50 • Inclusion of Tahoe City Mobility Study recommendations into Placer County Area Plan and SR 89/Fanny Bridge Community Revitalization project • New transit stop at Spooner Summit providing access to the Tahoe Rim Trail • New logo and regional name for loop around the lake: Tahoe Trail.  LTUSD adopted the Safe Routes to School Master Plan in November 2015. CSLT and El Dorado County adopted the plan in January 2016 and April 2016, respectively. The final adopted plan is available online at http://www.trpa.org/transportation/library/ under the Safe Routes to School Shelf. In 2017, TRPA staff, Lake Tahoe Bicycle Coalition (LTBC) and Community Mobility Group volunteers piloted the SRTS programmatic activities with in-class presentations at all Lake Tahoe Unified School District schools and a full day bicycle rodeo event at the South Tahoe Middle School. In 2018, the program was expanded to include a series of in-class presentations to Incline Elementary School. Law enforcement officers hosted several bicycle rodeos at Lake Tahoe Unified School District schools during the Lake Tahoe Bike Challenge in 2015, 2016, 2017, and 2018 with volunteer assistance from the Lake Tahoe Bicycle Coalition and TRPA staff. In March 2018, TRPA hired a Travel Management Coordinator with part of their job focused on expanding the SRTS program to include all Tahoe Region schools for the 2018 / 2019 school year. In 2018, TRPA staff, LTBC volunteers, and law enforcement officers presented SRTS to 739 students, hosted bicycle safety rodeos for 1,203 students, and coordinated bike to school events for 813 students.
Next Steps	TRPA will continue to encourage law enforcement to conduct warning enforcement at the beginning of the school year, will continue to assist with bicycle rodeo activities and will continue expanding events to the North Shore.

SECTION 2: FACILITY MAINTENANCE

2.A	
Action	Local jurisdictions should continue current winter maintenance while using data to identify and seek opportunities to expand programs. Regional bikeways and SRTS projects should be prioritized for winter maintenance. TRPA to monitor winter use patterns to help identify locations in need of winter maintenance and to research incentives to support winter maintenance programs.
Benchmark	Local jurisdictions will create or expand winter maintenance programs by 2019 if appropriate. Winter monitoring will begin by TRPA in 2016. Formal requests will be made to state agencies for spring striping maintenance by end of 2016.
Analysis: ***Fully Implemented*** 	Local jurisdictions maintain 25 miles of shared-use paths during the winter, an increase of 11 miles from 2015. Each jurisdiction will continue to expand maintenance operations as resources permit. Some recent highlights from the program include winter maintenance on the City of South Lake Tahoe's new Ski Run Blvd to El Dorado Beach path and TCPUD's Lakeside Path in Tahoe City. To capture data on winter path usage, TRPA began counting active transportation users in Winter 2016 on paths and sidewalks that are consistently plowed. As winter maintenance operations expand, TRPA will expand winter monitoring. All monitoring data is published online and can be found at: https://monitoring.laketahoeinfo.org/BikePed TRPA has worked with the Community Mobility Group on formally requesting spring striping maintenance, and has made requests through Road Safety Audit reports, and during multiple meetings.

2.B	
Action	Consistent with TRPA Code of Ordinances section 36.5.5, TRPA will include Maintenance Responsibilities Chart and Plan template as part of TRPA and local jurisdiction permit application packets (when appropriate), and ensure this information is located within permits. Minor technical amendments may be necessary to Code section.
Benchmark	Template will be included into packet and technical amendments to Code completed by end of 2016.
Analysis: ***Fully Implemented*** 	The Maintenance Responsibilities Chart and Plan is now part of the permitting process and can be accessed on the TRPA website under Permitting/Applications & Forms/Transportation. Entities responsible for the construction and maintenance of all projects containing active transportation facilities are required to fill out the maintenance plan prior to permit issuance. The plan is intended to clarify responsibilities for capital improvements and annual infrastructure operations and identify funding needs and sources. In October 2017, code section 36.5.5 was amended to include appropriate language for the updated maintenance responsibilities chart and plan. This amendment can be found here: http://www.trpa.org/wp-content/uploads/Code-Amendment-Changes-Table.pdf.

2.C	
Action	TRPA will annually update jurisdictions on available Air Quality Mitigation funds. TRPA will request that local jurisdictions submit five-year plans with estimated project fund requests.
Benchmark	TRPA will update EIP reporting process and update Code through technical amendments to assist local jurisdictions, if necessary, by end of 2016.
Analysis: *Implementation Underway* 	Through the continuous improvement initiative, TRPA's EIP department updated the mitigation fund process to provide regular updates to jurisdictions and simplify the process for requesting funds. The program was streamlined and organized so jurisdictions can easily view balances and request funds directly from the EIP department. TRPA also updated the reporting process to include a five-year EIP project list and projected expenditures on the EIP Tracker. The project list includes projects from each jurisdiction. The tracker also allows jurisdictions to estimate project costs and list fund and match sources.
Next Steps	Code and technical amendments that address mitigation funds will be developed and included in Code amendments by the end of 2018.

SECTION 3: MULTI-MODAL CONNECTIONS

3.A	
Action	TTD to continue to work in partnership with TRPA and local jurisdictions on the corridor connection process. Community organizations and private entities will use data collected on bike parking location needs and either purchase and install or create programs to help increase bike parking. TRPA is available to provide technical assistance and outreach on multi-modal connections. An example of such assistance could be a forum on first and last mile solutions that includes governmental and private entities. Local jurisdiction will address adequate bike parking needs by working with local property owners during project review process.
Benchmark	Corridor connection plans complete by end of 2017, TRPA will work with local jurisdictions to set bike parking increase target by end of 2017, TRPA will complete first and last mile forum by end of 2016, and local jurisdictions will have increased equitable parking facilities to appropriate target by 2018.
Analysis: *Mostly Implemented* 	TTD completed the Linking Tahoe: Corridor Connection Plan in 2017. The plan includes a wide range of data and analysis about each corridor that is used as a baseline for more detailed implementation planning. In March 2018, TRPA, TTD, and USFS began developing the SR 89 Recreation Corridor Management Plan, estimated to be finalized in 2019. TRPA partnered with the Federal Highway Administration (FHWA) and the Bi-State Consultation on Transportation Working Group to kick off enhancements to Tahoe's travel management program. The first and last mile forum, dubbed the "Travel Management Workshop", was held on December 5, 2017 at the Hard Rock Hotel and Casino. Over 50 people attended the workshop from the private and public sector as well as participants from both state DOTs and surrounding regional transportation agencies. The workshop included presentations on the travel management

	framework, existing efforts, emerging technologies, and facilitated group discussions to identify the Region's strengths, opportunities, aspirations and desired results, big ideas for next steps, and assessing alignment around those ideas to begin implementation. TRPA, with help from local jurisdictions and volunteers, took inventory on existing bike parking throughout the Region in 2017 and 2018. There are 326 existing bike racks with an additional 200 racks set for installation in 2018 through the Lake Tahoe Bicycle Coalition's newly created Bike Parking Program. The Bike Parking Program is funded by the Tahoe Fund and the Nevada Department of Tourism and provides bike racks and fix it stations at public locations region-wide. TRPA analysts are using the existing bike parking data to begin establishing baseline targets for local jurisdictions to increase bike parking. Initial bike parking analysis was used to determine proposed locations for new bike racks. Proposed bike rack locations are included in the maps in Chapter 4: Network Recommendations. Existing bike parking locations are available on the LTBC interactive bike map. The bike map includes a tool where users can request a new bike rack via the map, and that info is sent to TRPA transportation planners. The map can be found at: http://map.tahoebike.org/
Next Steps	TTD received funding through TRPA's 2018 Regional Grant Program to lead the next corridor plan, the U.S. Highway 50 East Corridor, slated to begin in early 2019. TRPA will continue to update bike parking files as new bike racks are installed and will work with local jurisdictions to establish targets at the parcel level. Once established, TRPA will work with local jurisdictions and businesses to increase bike parking within their jurisdictions by supporting and advertising the LTBC Bike Parking Program. Before the next ATP update, GIS staff will finalize criteria and work with locals to set bike parking targets with new data and investigate options for incorporating new bike parking target requirements into the ATP Checklist.

3.B	
Action	Using TRPA data, TTD will seek to increase bicycle carrying capacity on high-use routes by seeking additional funding and upgrading infrastructure to meet current standards and available technologies.
Benchmark	Bicycle carrying capacity increased by 2018.
Analysis: ***Fully Implemented*** 	In 2016, TTD added nine new buses to their fleet. All buses were equipped with two-position bike racks, which increased the total bicycle carrying capacity of the transit fleet. TTD also added three hybrid buses each with three-position bike racks. All of TTD's existing fleet is equipped with racks to improve multi-modal connectivity in South Lake Tahoe.
Next Steps	TTD will continue researching options to increase the bicycle carrying capacity of the existing fleet by purchasing a bike trailer or adding to the existing two-position bike racks.

SECTION 4: PROJECT IMPLEMENTATION

4.A	
Action	TRPA will facilitate the 2015 complete street workshop, develop next steps memorandum to guide responsible agency actions, and provide Lake Tahoe Complete Street Resource Guide to all implementing agencies. Local jurisdictions will adopt and/or update current policies if necessary and use guidance for all future projects.
Benchmark	TRPA will conduct workshop in fall of 2015 and supply Lake Tahoe Complete Streets Resource Guide by summer of 2016. Local jurisdictions will adopt and upgrade policies and processes by end of 2018. These updates will live in area plans, general plans, and engineering standard documents.
Analysis: *Fully Implemented* 	TRPA hosted a Complete Streets workshop on November 18th and 19th, 2015 for local, regional, and state agency partners. More than 60 people representing jurisdictions around the Lake Tahoe Region and the State of California and Nevada attended the workshop. Local partners received a hard copy of the Lake Tahoe Complete Streets Resource Guide after the workshop. The guide is often referenced during project development. Agencies continue to update their existing policies and incorporate complete streets planning practices into their future projects and plans.

4.B	
Action	TRPA will update Code of Ordinances Section 36.5.2 to include all active transportation users. This Code section addresses standards for commercial, tourist accommodation, public service and multi-family residential projects. Language updates would include replacing "pedestrian circulation system" with "active transportation circulation systems."
Benchmark	Code updated by end of 2016.
Analysis: *Fully Implemented* 	In October 2017, the TRPA Code of Ordinances Section 36.5.2 and Chapter 90 were updated to reflect language changes regarding that incorporate all active transportation users. The updated Code now refers to "active transportation circulation systems" as opposed to "pedestrian circulation systems." TRPA continues to use "active transportation" in plans, documents, and applications when referring to bicyclists, pedestrians, and other non-auto modal users. These Code amendments can be found here: http://www.trpa.org/wp-content/uploads/Code-Amendment-Changes-Table.pdf.

4.C	
Action	TRPA will include active transportation support and end-of-trip facilities questions and recommend standard conditions of approval in appropriate permit application packages and permit approval checklists for use by TRPA and local jurisdictions.
Benchmark	To be updated by end of 2016.

Analysis: *Mostly Implemented* 	In Spring 2018, TRPA incorporated the Active Transportation Plan Checklist into the applications and permitting process. The ATP checklist is designed to ensure project applicants consider and include active transportation facilities into projects where applicable. Project-specific application checklists identify which applicants are required to fill out the ATP checklist. Applicants filling out the checklist are prompted to complete the Maintenance Responsibilities Chart and Plan, describe how their project promotes intermodal connectivity, provide traffic management plans for rerouting bicyclists and pedestrians during construction, and provide details on whether or not the project includes end-of-trip facilities or wayfinding.
Next Steps	In Fall 2018, TRPA will make technical amendments and checklist revisions to add references to the new ATP checklist and old references to the Bicycle and Pedestrian Plans will be replaced with references to the 2016 Active Transportation Plan and 2018 technical amendment. TRPA will also encourage local jurisdictions to include the ATP checklist into their permitting processes.

4.D	
Action	TRPA will bi-annually update the Active Transportation Plan sections that analyze crash, health, and infrastructure data with assistance from partnering agencies.
Benchmark	Next update will occur in 2017.
Analysis: *Fully Implemented* 	As part of the 2018 ATP Amendment, TRPA updated all data tables and maps to reflect updates to crash, health, and infrastructure. Partnering agencies provided updates to planning and design project lists to ensure projects are eligible for future funding opportunities. Updated maps and data tables can be found throughout Chapter 4: Network Recommendations.

4.E	
Action	TRPA will coordinate partnership meetings among local agencies that should work together to implement local projects. Meetings should take place twice annually, in the spring and fall of each year.
Benchmark	First meeting will be held in February 2016.
Analysis: *Fully Implemented* 	Beginning in February 2018, TRPA hosted two partnership coordination meetings with Tahoe transportation agencies. The meetings provide a valuable venue to discuss Regional funding opportunities, performance-based planning, and stay up-to-date on each jurisdiction priorities projects. With positive feedback and support following the meetings, TRPA plans to continue organizing inter-agency coordination group meetings quarterly.

4.F	
Action	TRPA will work with local partners and advocacy groups to engage Lahontan and secure the Water Board's concurrence as to the merits of code provision 30.4.6.D.3 and discuss their approval of the necessary changes to Lahontan regulations to fully activate the TRPA Code provision in California.
Analysis: *Fully Implemented* 	In 2014, the Lahontan Water Board revised their Basin Plan to recognize TRPA code provisions relating to coverage and coverage exemptions. Specifically, Section 5.4: Lake Tahoe HU Land Capability and Coverage Limitations was updated "to reference the Tahoe Regional Planning Agency (TRPA) and local government regulations and planning documents and remove outdated references to regulations no longer in effect or not applicable to the Lahontan Water Board's authority." A summary of the 2014 Basin Plan Amendments can be found online.

SECTION 5: EDUCATION, ENCOURAGEMENT, EVALUATION, AND ENFORCEMENT PROGRAMMING

5.A	
Action	All actions for this policy for the LTUSD are located in the *Lake Tahoe Unified School District Safe Routes to School Master Plan.* All other districts without a SRTS master plan should seek to assess current conditions, consider developing a SRTS master plan, or implement some of the recommended programming in the LTUSD SRTS Master Plan as appropriate for their schools. TRPA should continue to offer support through funding and outreach for SRTS planning.
Benchmark	Program actions in LTUSD SRTS master plan implemented by end of 2016.
Analysis: *Fully Implemented* 	After a very successful 2016 Bike to School effort, in conjunction with the annual Tahoe Bike Challenge, the SRTS program expanded its focus to include an educational safety component. An in-class curriculum was developed to reach, educate and promote, not only safe biking and walking, but to increase student use of busing, carpooling, walking and biking to school. Part of the program includes hosting annual bike rodeos at all LTUSD schools during the Tahoe Bike Challenge in June. TRPA staff and Community Mobility Group members met with school administrators and PTAs to recruit champions to help organize classes. In 2017, the SRTS education program included in-class presentations on pedestrian, bicycle and traffic safety to all LTUSD 2nd, 4th, and 6th grade classes, reaching 937 students. Additionally, TRPA, along with the Lake Tahoe Bicycle Coalition organizes an extensive bike rodeo at the middle school to teach sixth graders about nutrition, bike fit, repair, and bike skills. With the help of the CHP, all LTUSD elementary schools participate annually in bicycle rodeos and win useful prizes, such as bike helmets and bike locks. In 2018, 739 students around the Region were engaged in SRTS outreach in their classrooms, 464 took part in bicycle rodeos, and 839 rode their bikes to school during bike to school week. In March 2018, TRPA hired a Travel Management Coordinator who will continue to enhance the regional SRTS program and expand events to the North Shore.

Next Steps	During the next two years, the SRTS program will expand through the following actions: • A SRTS to "How to" guide will be developed for the schools to use to develop and organize their individual school programs. • Work with the schools to develop a regular bike to school day • Promote biking to school at "Back to School" events and organize parent/student bike committees at each school • Expand program to all elementary and middle schools on the North Shore

5.B	
Action	Through the Bikeway Partnership, continue to coordinate wayfinding efforts and identify "Rules of the Trail" etiquette strategies that are consistent region-wide. Community organizations, private entities, and implementing agencies should work together to generate campaigns and signage to educate users.
Benchmark	Wayfinding implementation increased by end of 2016, "Rules of the Trail" considered and adopted, if appropriate, by Bikeway Partnership by mid-2016, and implemented by various agencies/organizations by end of 2017.
Analysis: ***Mostly Implemented*** 	Signage developed collaboratively as part of the State Route 28 National Scenic Byway Corridor Signage Master Plan are being installed along the corridor to incorporate consistent wayfinding signage in East Tahoe, and North, West, and South Tahoe signage will be implemented in 2018 and 2019 /20. Since 2016, the Bikeway Partnership has been developing a "Trail Etiquette" campaign. Campaign development is in its final stages and is expected to be finalized by December 2018. The Lake Tahoe Bicycle Coalition created rack cards, radio PSAs, and TV commercials in 2017 to promote safe and courteous biking practices. The rack card lists rules of the trail and rules of the road for bikers and also reminds drivers to obey the 3-Feet for Safety Law when passing bikers on the road.
Next Steps	The Bikeway Partnership will finalize "Trail Etiquette" campaign in 2018 and will begin installing in 2019.

5.C	
Action	TRPA will bi-annually implement, act as a clearing house, and report on data collected through monitoring implementation. TRPA will work with local and state agencies on securing and implementing permanent data collection infrastructure. TRPA will consider expanding the monitoring protocol to include implementation of a Travel Diary and/or the continuation of intercept surveys.
Benchmark	Monitoring reports will be released in January of every other year (next to be 2018). Permanent counting infrastructure to be implemented by end of 2016 and monitoring protocol to enter second phase by end of 2020.
Analysis: ***Fully Implemented***	TRPA annually reports out on monitoring programs including streams, stream environment zones (SEZ), noise, air quality, wildlife, Tahoe Yellow Cress, and bicycle and pedestrian use. The monitoring report includes actions

	implemented as part of the Bicycle and Pedestrian Monitoring Protocol that was adopted in 2015. In 2016, TRPA purchased automated bicycle and pedestrian counters that collect year-round data, differentiate between bikers and walkers, and collect directional information. Through partnerships with local jurisdictions, counters were installed throughout the Region on paths. TRPA also monitors temporary counters that collect travel data in bike lanes and sidewalks that don't have permanent counters installed. In 2017, TRPA and partners collected count data from 25 different regional locations. TRPA and agency partners also conducted spot counts at 28 different sites around the Region. All data collected from the counters and spot counts is uploaded to the Lake Tahoe Info Monitoring Dashboard and available for public download: https://monitoring.laketahoeinfo.org/BikePed.
Next Steps	TRPA will continue to collect data from permanent and temporary counters around the Region and conduct spot counts as needed and report on trends as part of the TRPA Annual Monitoring Report.

5.D	
Action	TRPA will annually produce the Active Transportation Implementation Report as part of the TRPA Annual Report and update the plan every four years.
Benchmark	Implementation report will be released in 2017, and Active Transportation Plan will be updated in 2020.
Analysis: ***Implementation Underway*** 	After careful consideration, TRPA decided to incorporate implementation reports into the two-year amendment and four-year update of the ATP. Consolidating the implementation report into the amendment and plan update is more efficient and allows more time to focus on implementing proposed actions.
Next Steps	The ATP will be assessed for an update in 2020 and will include a second report on action implementation and next steps or new actions as appropriate.

5.E	
Action	Law enforcement agencies will utilize funding sources to increase enforcement and education programs that increase active transportation safety. For more information about how to accomplish this policy, please see Chapter 5.
Benchmark	On an ongoing basis, TRPA will request enforcement agencies to submit information on when enforcement and education programs are conducted. This information will be included in TRPA's Implementation Report.
Analysis: ***Fully Implemented***	During the Lake Tahoe Bike Challenge in June, local law enforcement officers volunteer at bike to school events teaching students about bicycle safety and the rules of the road. TRPA staff assist officers with set up and rodeo implementation.

Next Steps	Law enforcement will continue to volunteer at bike to school events during the Lake Tahoe Bike Challenge and host bicycle rodeos at the elementary schools. During the next two years, TRPA plans to expand these events to the North Shore and recruit local law enforcement in Tahoe City, Incline Village, and Kings Beach to assist and eventually organize the events.

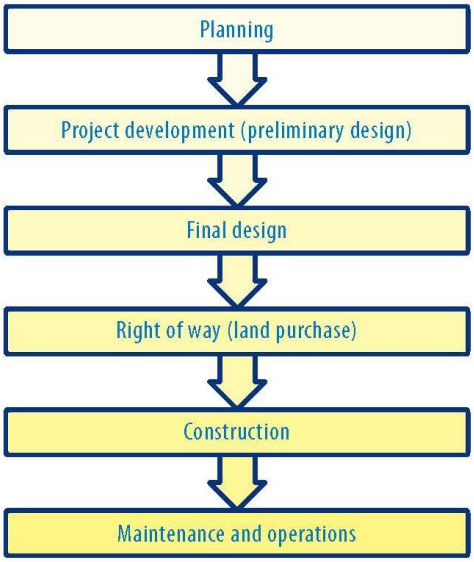
6.2 BALANCING COST AND BENEFITS

Implementation of the active transportation network incurs short and long terms costs, while also affording benefits to transportation users, the environment, and the community. To determine the potential effectiveness of a project in comparison to the cost, increasingly governmental agencies are conducting cost benefit analysis. This type of analysis compares potential benefits such as reduction in VMT, increased physical activity (health), and decreased crash incidence to total project cost. A variety of tools are available, such as the *California Active Transportation Program Benefit/Cost Tool*, which can be accessed on the Caltrans website. Cost/benefit tools are used for detailed analysis that quantifies data collected for specific projects. For high-level project prioritization, as is conducted for this plan, assessment of cost and benefits are conducted through the use of broad quantitative and qualitative criteria.

Sawmill Bike Path. Photo: Mike Vollmer

Cost Estimates: Phase, Type, & Total Project Components

Project Phase: Implementation of the active transportation network involves many planning phases and sources of funding. Often, active transport facilities are included as parts of other projects, such as water quality improvements on the state highway system. When considering the full cost of projects, implementers must include all phases of work, including planning, design, environmental review, construction, and on-going maintenance. It is difficult to assess the cost of each phase, as it is highly dependent on project type, size and the amount of community outreach and environmental review. This is based on a variety of factors such as ease of implementation, right-of-way constraints, level of community support, and geography. Table 6-1 illustrates current cost estimates of annual maintenance by agency, and what those activities include.



Agency	Cost	Cost Unit	Description	Snow Removal
City of South Lake Tahoe	$7,500.00	per mile per year	sweeping, clearing, striping, vegetation management, and crack filling	No
	$9,500.00		Same as above, including snow blowing.	Yes
Douglas County	$35,000.00	per year	trash removal, sweeping, vegetation management, seal and repair	No
	$5,585.00		Snow removal (in some areas only)	Yes
El Dorado County	$10,000.00	per year	Sweeping, striping, clearing, brushing, & sign replacement	No
Placer County	$82,000.00	per mile per year	crack filling, vegetation removal, power washing	Paths = No Sidewalks = Yes
Washoe County	Not available			
Tahoe City Public Utility District	$12,000.00	per year	Sweeping, crack sealing, vegetation trimming, minor repairs, etc.	No
North Tahoe Public Utility District	$10,000.00	per year	Clearing, vegetation management, crack sealing	No

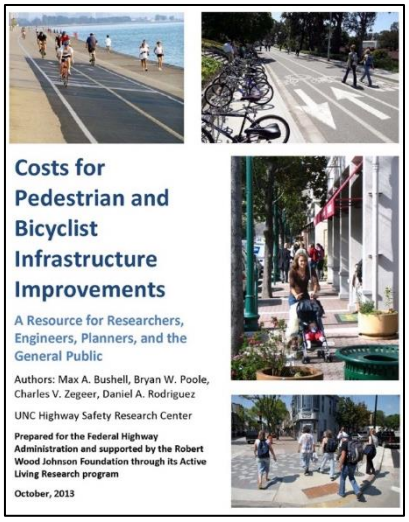
Table 6-1: Region-wide Agency Annual Maintenance Cost Estimates. Source: TMPO

Project Type: High-level, average costs are used to generate an overall estimated cost by project type, such as implementation of a Class I/shared-use path, or a sidewalk. These are rough costs based on historical local cost data, current project data, national research, level of improvement, and geographic considerations. For this plan, high-level costs are used as a criterion for determining project prioritization level (organized as high, medium, and low). Table 6-2 is used to determine high-level costs associated with projects in this plan.

FACILITY TYPE	ESTIMATED COST*	COST UNIT
Class III/Bike Route		
Signage	$600.00	each
Sharrows	$90.00	each
Class II/Bike Lane		
Striping only	$5,000.00	Per Mile
Stripping & Bike Lane Arrow	$10,000.00	Per Mile
Class I/Shared Use Path		
New 10' wide paved trail on public land, already graded ROW with minimal site improvements necessary	$475,000.00	Per Mile
New 10' wide paved path on public land, relatively flat ground with minimal site improvements, no major structures, and some grading required	$580,000.00	Per Mile
New 10' wide paved path on public land, relatively flat ground with grading and drainage facilities, small walls, short stretches of board walk and or minor bridge structures, small trail head improvements (parking, restrooms)	$1,500,000.00	Per Mile
New 10' wide paved path on public land, requiring substantial grading on steeper slopes, large wall sections, major bridge structures, major drainage improvements, new trail head facilities (parking, possibly restrooms)	$3,000,000.00	Per Mile
Refurbished existing trail	$250,000.00	Per Mile
Upgrade of existing trail to meet current standards	$360,000.00	Per Mile
Pedestrian		
New Sidewalk (5ft)	$240,000.00	Per Mile
New Sidewalk including Cub & Gutter	$750,000.00	Per Mile
Refurbished Sidewalk	$120,000.00	Per Mile
Crosswalk	$550.00	each
*All costs include labor to install and purchase of necessary materials		

Table 6-2: Project Type High Level Cost Estimates. Source: TMPO

Detailed Project Components: A FHWA 2013 report conducted research on average infrastructure improvement costs nationwide. For the report, *Costs for Pedestrian and Bicyclist Infrastructure Improvements: A Resource for Researchers, Engineers, Planners, and the General Public*, provides median and average prices for infrastructure improvements. These costs were generated by making over 1,700 cost observations. Though costs can vary depending on state, geography, or local regulations, the costs provided are robust estimates that can be used for project development and funding requests. More detailed cost information can also be found in Appendix A: *Lake Tahoe Complete Street Resource Guide.*



6.3 FUNDING STRATEGIES

Construction of the active transportation network at Lake Tahoe is a partnership between federal, state, and local agencies. Partners work together to combine funding sources and construction and maintenance responsibilities. Project expenditures are tracked by all agencies in the Region and are consolidated in the transportation tracker, located online at https://transportation.laketahoeinfo.org/. This helpful tool can segregate projects by infrastructure type, jurisdiction, funding source, and more.

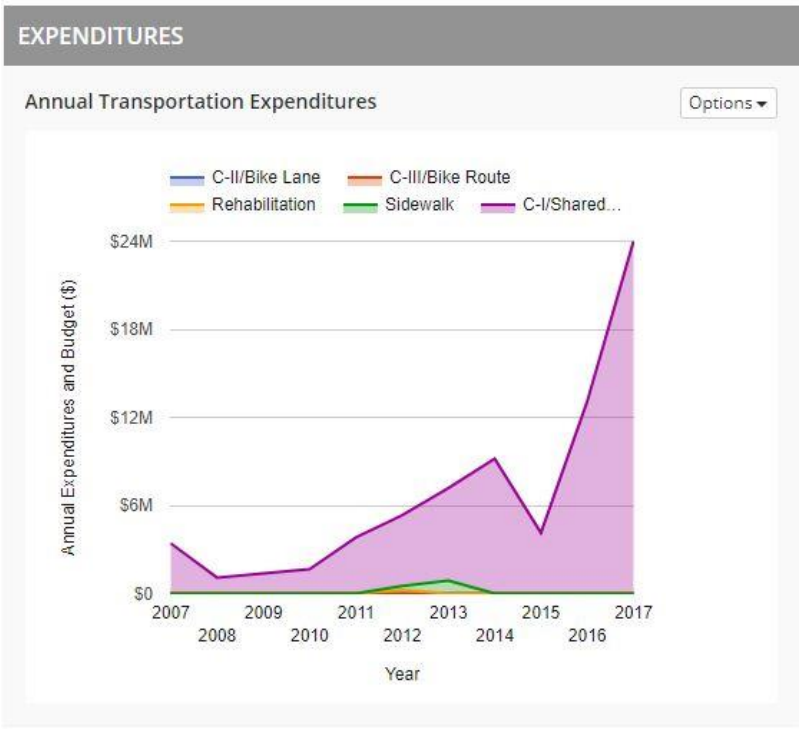


Figure 6-1: Annual Expenditures by Transportation Objective. Source: EIP Tracker.

Between 2012 and 2017, an estimated total of over $62 million funded the completion or rehabilitation of active transportation infrastructure at Lake Tahoe. This estimate is derived from the transportation tracker. Some of these projects also include water quality improvements, which increases the total amount of expended funds. Overwhelmingly, most expended funds constructed shared-use paths, as shown in Figure 6-1. Another estimated $200 million in project investments are undergoing design or implementation and expected to be completed by 2022.

The existing network of 137 miles represents a substantial implementation and long-term investment. To add approximately 200 miles of facilities will require significant funding. The total cost of complete build out of the entire network as proposed is over $250 million.

Funding Sources

Many projects will use federal and state funding sources made available through formula allocation methods, such as the Surface Transportation Block Grant Program (STBG). Some of the proposed network will be constructed using formula allocated funds as part of future development and roadway projects. However, a substantial portion of project implementation will rely on grant funds or other revenues.

LIST OF FEDERAL, STATE, AND LOCAL GRANT PROGRAMS:

**Note: The below list is non-exhaustive, but is a starting point when researching possible grant opportunities.*

FEDERAL:

The federal government offers a wide variety of funding sources. The FHWA offers a very helpful website that lists all funding opportunities and eligible project components on their website: http://www.fhwa.dot.gov/environment/bicycle_pedestrian/funding/funding_opportunities.cfm

Specific program requirements must be met and eligibility must be determined on a case-by-case basis. For example: Transit funds must provide access to transit; Congestion Mitigation and Air Quality Improvement Program (CMAQ) must benefit air quality; Highway Safety Improvement Program (HSIP) projects must be consistent with the State Strategic Highway Safety Plan and address a highway safety problem; NHPP must benefit National Highway System (NHS) corridors; the Federal Lands and Tribal Transportation Programs (FLTTP) must provide access to or within federal or tribal lands.

Highway Safety Improvement Program (HSIP)

HSIP are federal funds that are administered by State departments of transportation. The purpose of the Highway Safety Improvement Program (HSIP) is to significantly reduce traffic fatalities and serious injuries on public roads, including non-state-owned public roads and roads on tribal land. HSIP funds are eligible for work on any public road or publicly owned bicycle or pedestrian pathway or trail, or on tribal lands for general use of tribal members, that improves safety for its users.

CALIFORNIA:

Active Transportation Program

The Active Transportation Program is designed and developed to promote bicycle and pedestrian projects that support SB 375 goals and to bring additional funding to these projects. The Active Transportation Program consolidates four existing programs into a single program, with the most recent cycle of funding (cycle 4) providing approximately $440 million. The program will be funded from a combination of federal and state funds. The four programs that were consolidated are the federal Transportation Alternatives Program, federal and state Safe Routes to Schools programs, and the state Bicycle Transportation Account program.

Metropolitan Planning Organizations (MPOs) with a population over 200,000 receive 40 percent of the ATP funds for sub-allocation. Fifty percent of Active Transportation Program funds are administered via a statewide competitive program. Small urban and rural areas are guaranteed at least 10 percent of the funds within the statewide program. Disadvantaged communities are guaranteed at least 25 percent of the entire program's funding.

Systemic Safety Analysis Report Program (SSARP)

The Systemic Safety Analysis Report Program will enable local agencies to apply a more comprehensive approach to their safety programs and provide them the opportunity to include a systemic proactive approach for evaluating their local roadway systems. When the SSAR's funded by this program are complete, local agencies will be encouraged to use the results documented in the SSAR to address safety issues on their local roadway networks and help prepare future HSIP applications. TRPA received a SSARP grant in 2016 to develop the Lake Tahoe Region Safety Plan.

Wildwood. Photo: Mike Vollmer.

NEVADA:

Complete Streets Program

Enacted in 2013, this program promotes the retrofitting of streets or highways that are under the jurisdiction of the board of county highway commissioners for the primary purpose of adding or significantly repairing facilities which provide street or highway access considering all users, including, without limitation, pedestrians, bicycle riders, disabled persons, persons who use public transportation, and motorists. Nevada counties must adopt a complete street policy to access the funds, which are generated by donations to Nevada Department of Motor Vehicles.

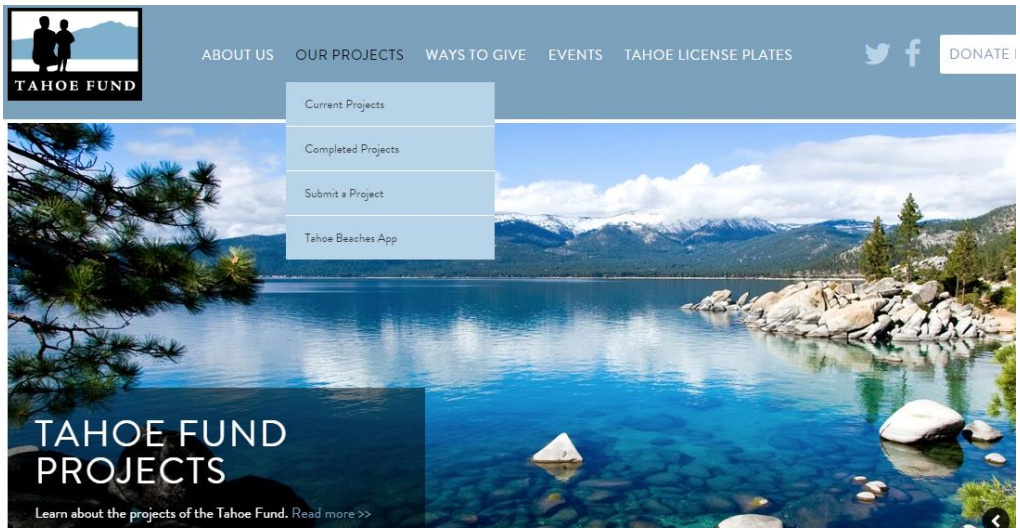
Bicycle/Pedestrian Safety Education Program

This program provides safety education funding to local jurisdictions and programs in Nevada. The funds are generated from driver's license fees.

TAHOE-SPECIFIC:

Tahoe Fund

The Tahoe Fund inspires the private community to support environmental improvement projects that improve watersheds and lake clarity, enhance outdoor recreation, and build a greater sense of stewardship in the Tahoe Basin. The Tahoe Fund has supported implemented of many projects region-wide, including the new Bicycle Parking Program.



TRPA On Our Way Grant Program
The purpose of the program is to help Lake Tahoe communities identify neighborhood-level transportation and community improvements to meet region-wide sustainability goals of:

- creating walkable, mixed use centers
- encouraging biking, walking, and transit use
- supporting economic vitality
- reducing impacts to the environment

Local jurisdictions, non-profit organizations, educational institutions, other formalized community groups, and government agencies are eligible to apply. The products of the On Our Way program will inform the Regional Transportation Plan Update, the Regional Plan, area plans, and other local and regional plans or codes, and are intended to lead to construction of capital improvements or the approval of new policies and programs. This program ended in 2015 and is not being reinstated at this this time.

North Lake Tahoe Resort Association (NLTRA):
The NLTRA supports active transportation projects in North Tahoe through its capital investment program. The program uses Transient Occupancy Tax funding to help pay for projects that are in conformance with the NLTRA's strategic goals and the North Lake Tahoe Tourist Development Plan.

Linking Tahoe: Regional Grant Program:
In 2017, TRPA developed the Regional Grant Program to support local projects that work towards implementing the 2017 Linking Tahoe: Regional Transportation Plan transportation network. Using an enhanced performance-based evaluation system, TRPA developed a priority list and awarded Congestion Mitigation and Air Quality Improvement Program (CMAQ), Active Transportation Program (ATP), Nevada Transportation Alternative Program (TAP), and Surface Transportation Block Grant Program (STBG) funding to locals around the Region in 2017 and 2018. In total, local jurisdictions have received almost $10 million through the Regional Grant Program since its inception in 2017.

NATIONAL NON-PROFIT:

People for Bikes Community Grant Program
This program supports bicycle infrastructure projects and targeted advocacy initiatives that make it easier and safer for people of all ages and abilities to ride. Visit the grants awarded database for examples of funded projects.

THANK YOU!

Thank you to all project partners, community members, and elected officials, for your continued support promoting and building active transportation infrastructure at Lake Tahoe. This plan illustrates our progress in the Lake Tahoe Region and provides a vision for our continued success. Together, we can continue to support innovative complete street projects that improve the mobility and safety of all roadway users. And for those about to actively transport: We salute you!


Logan Shoals. Photo: Tom Lotshaw

linkingtahoe.com

View the plan online: trpa.org/activetransportationplan

TAHOE
REGIONAL
PLANNING
AGENCY