

## CHAPTER 4: NETWORK RECOMMENDATIONS

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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 six sections that contain:

- Physical Geographic Description
- Context Relevant Plans & Studies
- Additional Corridor Considerations
- Existing & Proposed 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 Infrastructure* maps are displayed as priority complete street improvement areas or 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:**

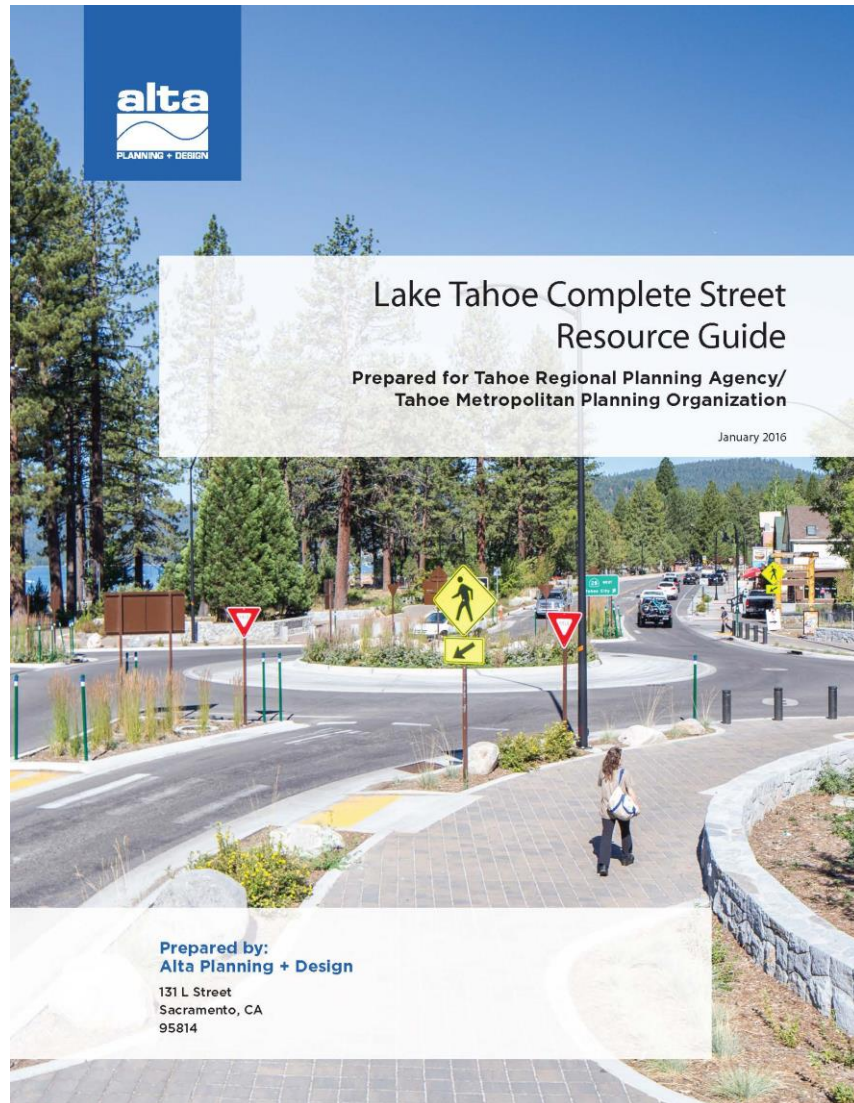
During project design, implementers should review alternatives that seek to meet all user needs by increasing safety, addressing connectivity gaps, and considering constructability. Intersection Control Evaluation (ICE) is quickly becoming a national method for designing the most appropriate, cost effective, 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.



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



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



# 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.
- Application of green pavement coloring addressed in:
- FHWA. Interim Approval (IA-14). 2014.

## Cost

- Cost varies depending on design and site conditions.

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

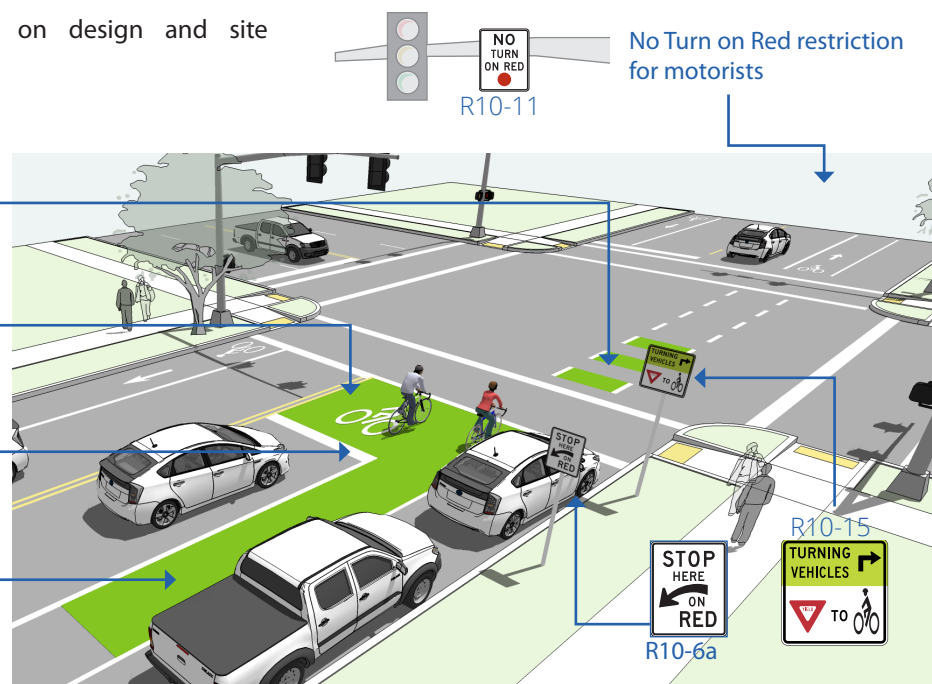
Colored pavement can be used in the box for increased visibility

Wide stop lines used for increased visibility

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

## 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.





# 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 are designed to increase the space between the bike lane and the travel lane and/or parked cars. Buffer striping is called Preferential Lane Longitudinal Markings in Section 3D.02 the MUTCD. 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.

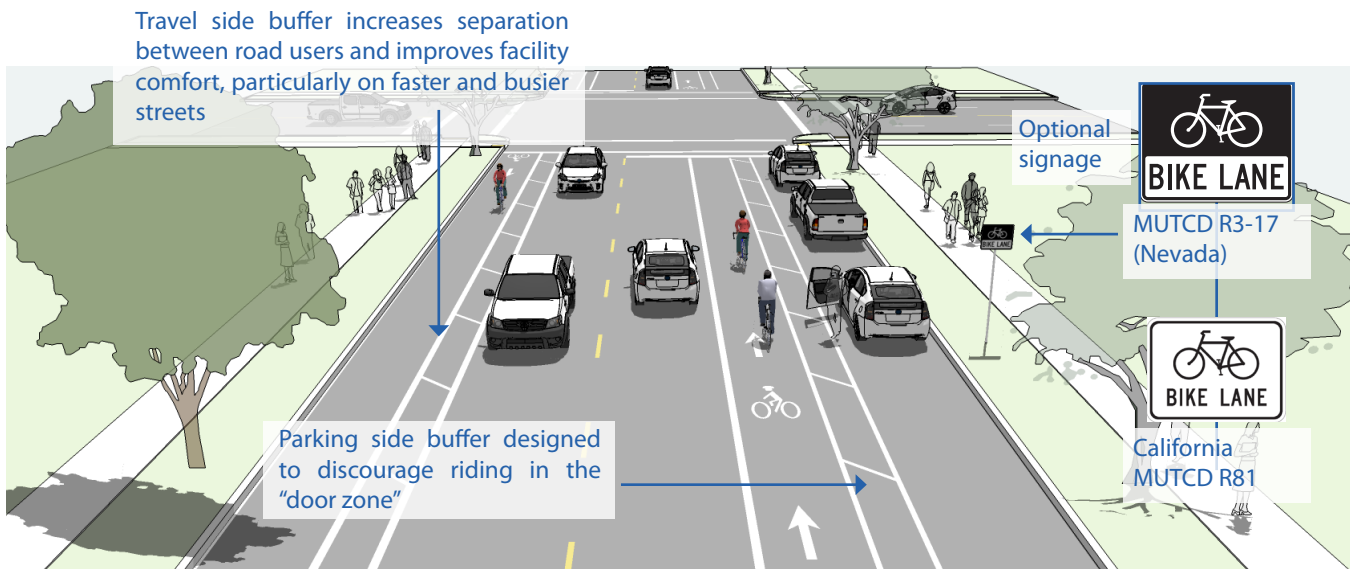
## Discussion

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

- FHWA. Separated Bike Lane Planning and Design Guide. 2015.
- NACTO. Urban Bikeway Design Guide. 2012.
- Caltrans. MUTCD. 2014.

## Cost

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

# INTERSECTIONS WITH SMALL STREETS

The California and Nevada 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. Determination of priority between streets and paths can be found in the TRB Highway Capacity Manual (2010),

## Benefits

Crosswalk markings establish a legal crosswalk at areas away from intersections (MUTCD 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

#### Vertical Deflection:

A raised crossing slows drivers and prepares them to yield to path users.

Median Island:  
Provides 8 foot safety area

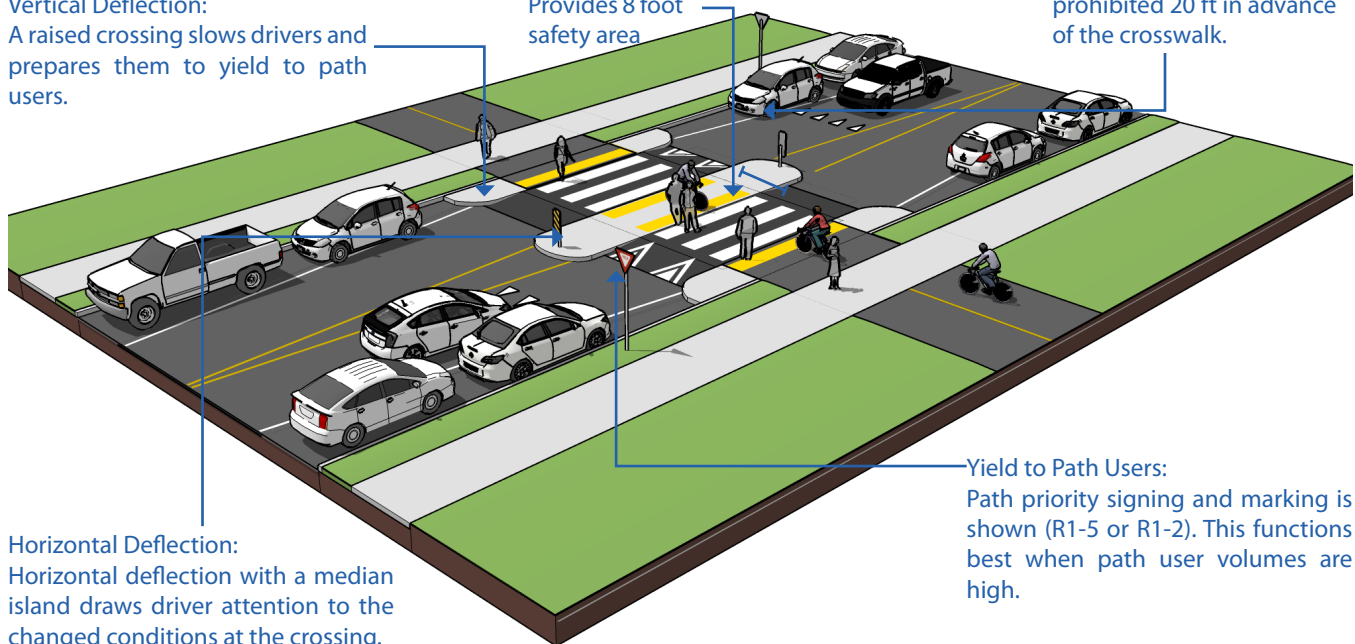
Parking should be prohibited 20 ft in advance of the crosswalk.

#### Horizontal Deflection:

Horizontal deflection with a median island draws driver attention to the changed conditions at the crossing.

#### Yield to Path Users:

Path priority signing and marking is shown (R1-5 or R1-2). This functions best when path user volumes are high.





## Design Summary

### Crossing Geometry

In Nevada, parking is prohibited within 20 feet of any marked crosswalk.

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

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.

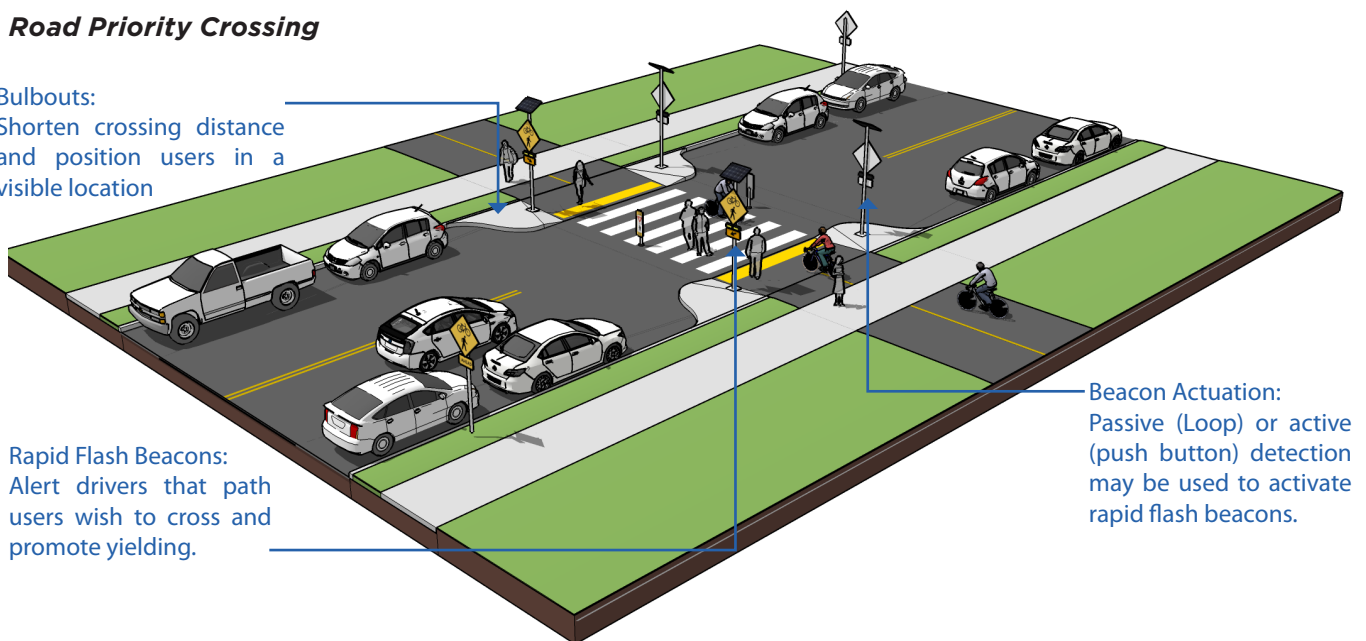
### Road Priority Crossing

#### Bulbouts:

Shorten crossing distance and position users in a visible location

#### Rapid Flash Beacons:

Alert drivers that path users wish to cross and promote yielding.



Beacon Actuation: Passive (Loop) or active (push button) detection may be used to activate rapid flash beacons.

### 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.

## 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. Zeeger. 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.
- NDOT. Standard Specifications for Road and Bridge Construction. 2014.

## 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

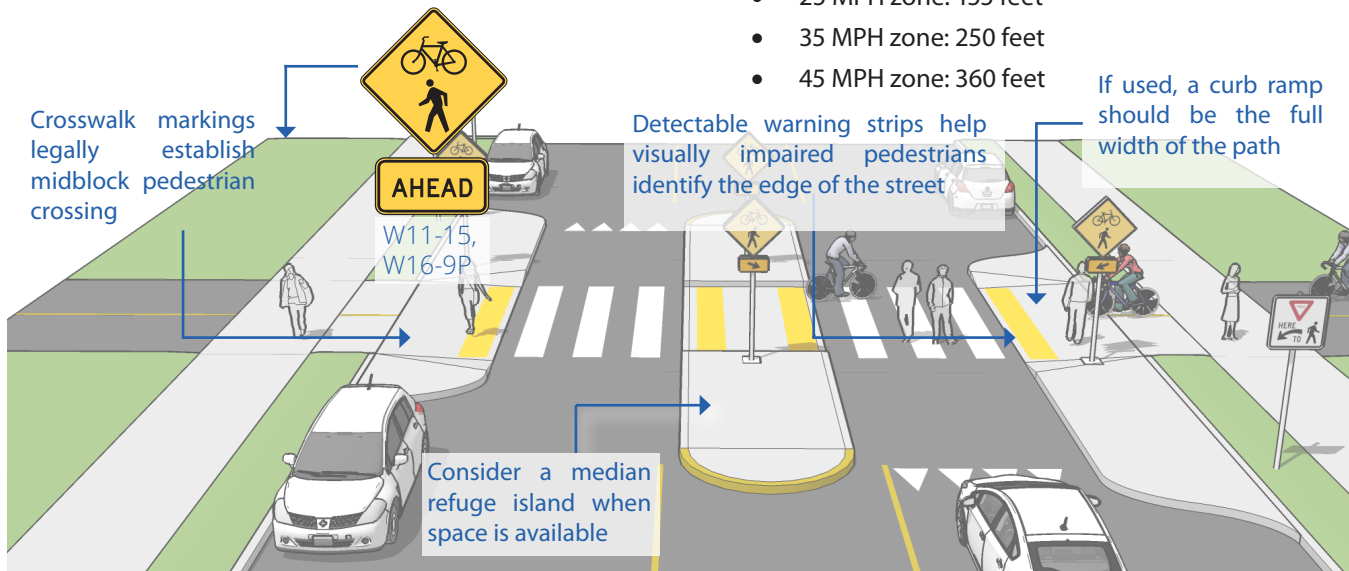
### Maximum traffic volumes

- ≤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.
- NDOT. Process for the Evaluation of Uncontrolled Crosswalk Locations. 2014.

## 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

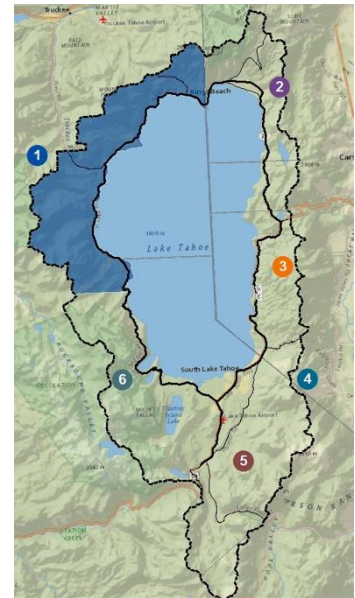


## CORRIDOR 1: STATE ROUTE 89 / STATE ROUTE 28

**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 (Draft)
- Tahoe City Mobility Improvement Study (Draft)
- Tahoe City Road Safety Audit (2015)
- Fanny Bridge / SR 89 Community Revitalization Project



### Additional Corridor Considerations:

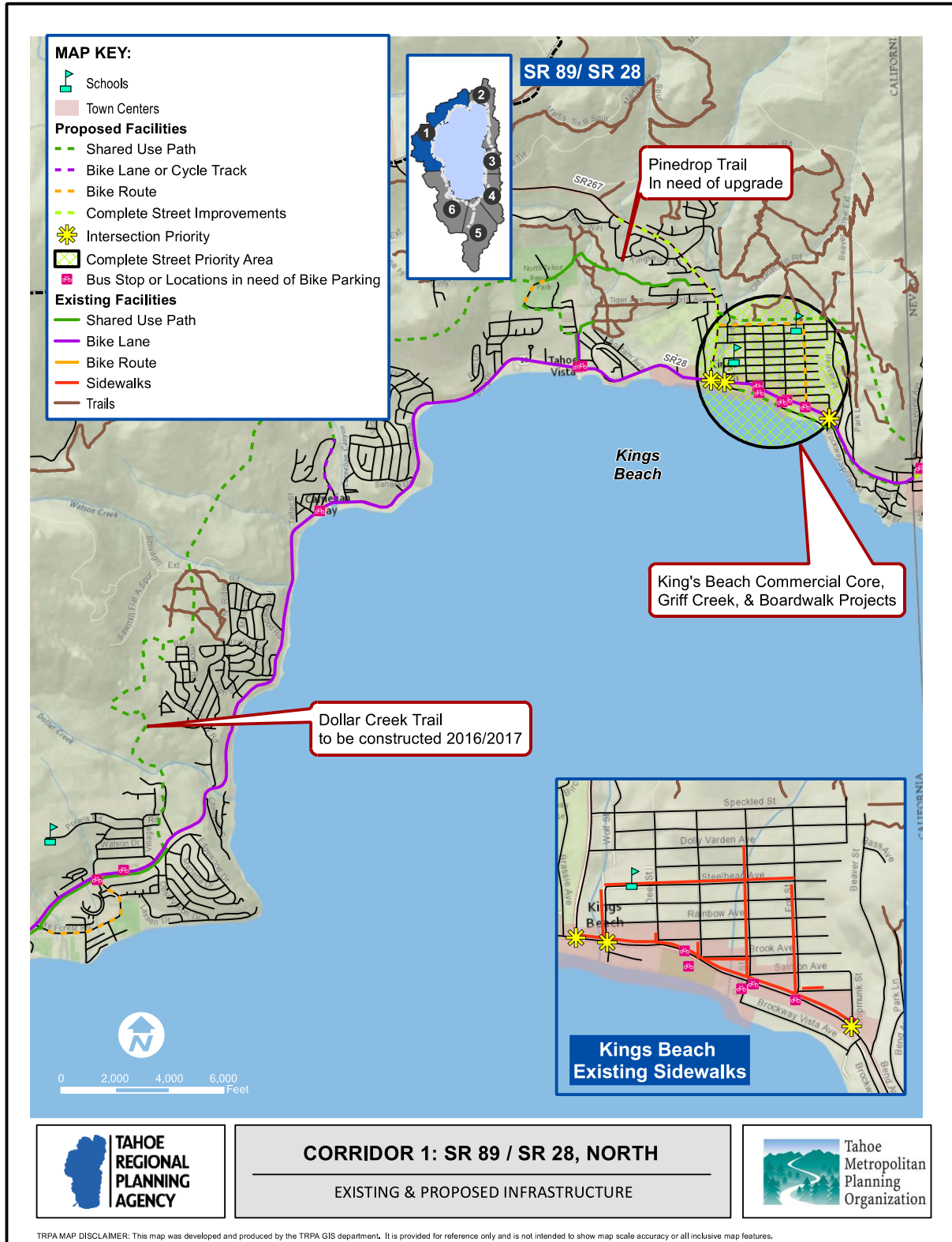
*Community Input:* All recommended needs collected during the community outreach process for this plan were reviewed by Placer County representatives and are included in the proposed infrastructure map for State Route 89 and State Route 28.

*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).



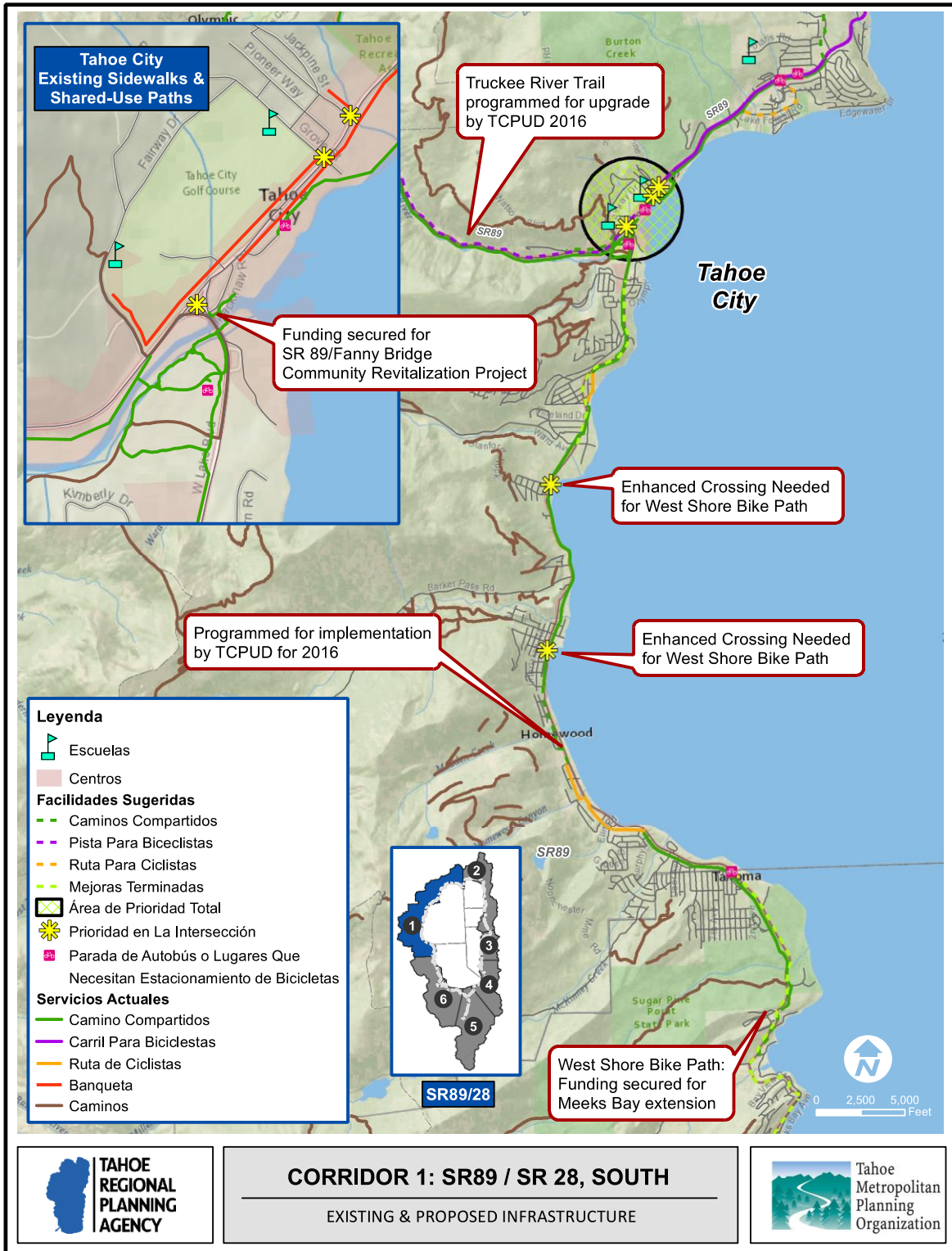
*New SR 89 Bridge & Bike Trail. Rendering: Tahoe Transportation District*

**FIGURE 4-1: CORRIDOR 1 NORTH, EXISTING & PROPOSED INFRASTRUCTURE**

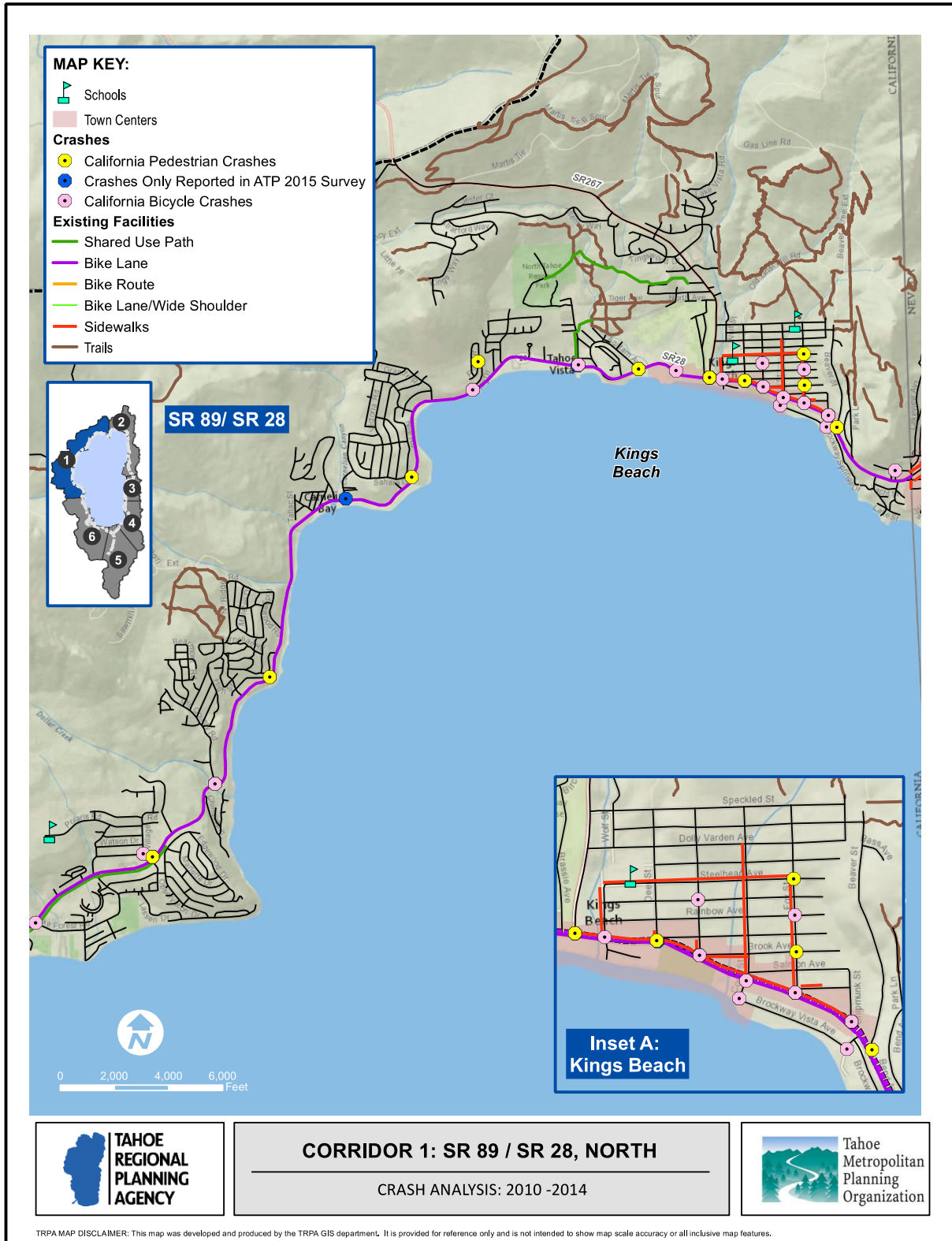




**FIGURE 4-2: CORRIDOR 1 SOUTH, EXISTING & PROPOSED INFRASTRUCTURE**

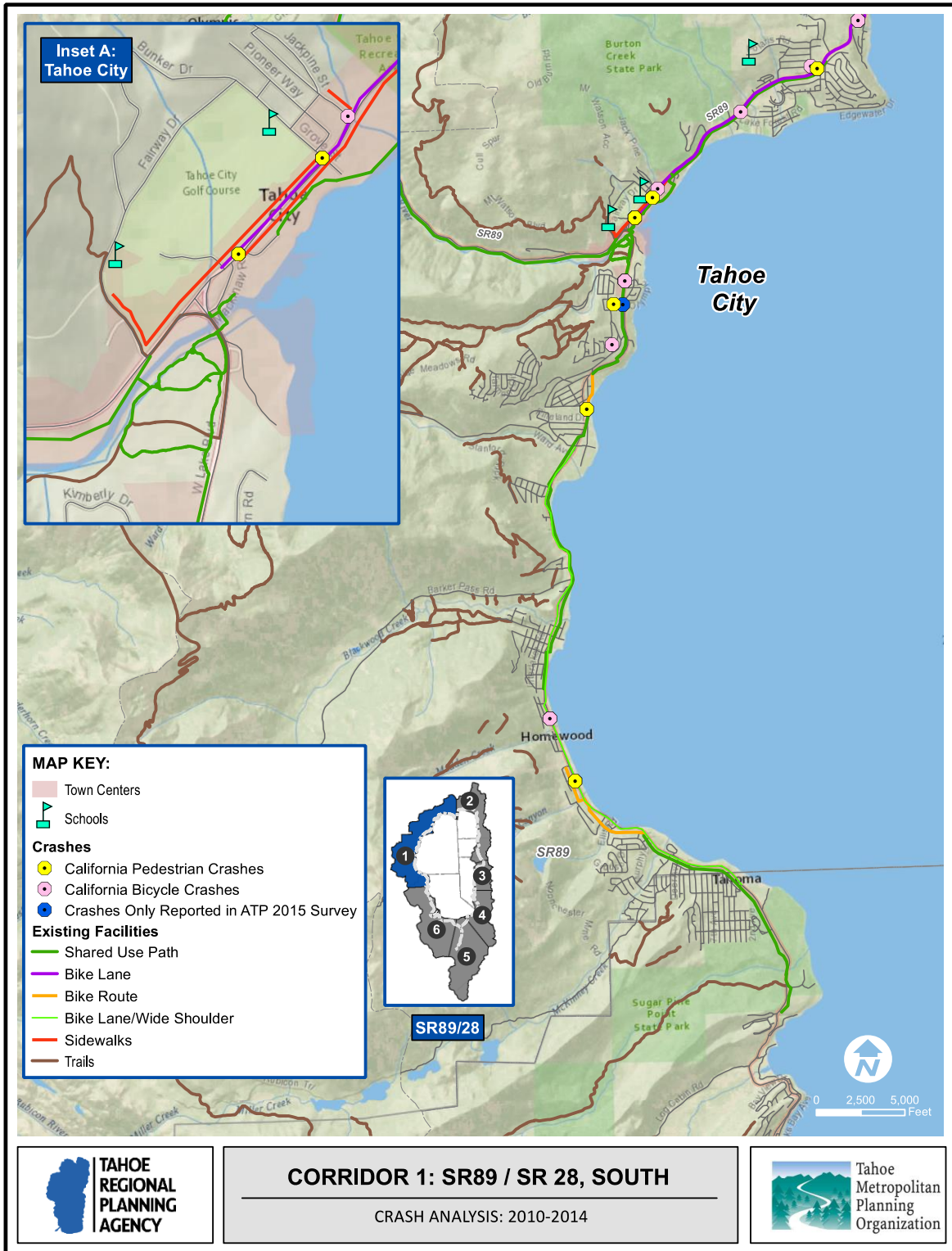


**FIGURE 4-3: CORRIDOR 1 NORTH CRASH ANALYSIS**





**FIGURE 4-4: CORRIDOR 1 SOUTH CRASH ANALYSIS**



## CORRIDOR PROJECT LISTS:

**Table 4-1: Corridor 1 Design Project List**

Project Name	Lead Implementer	Description	Estimated Total Cost	Miles	County/City
West Shore Bike Trail Extension & Improvements - Homewood	TCPUD	C-I / Shared-Use	\$1,804,000	1	Placer County
North Tahoe Regional Bike Trail	Placer County	C-I / Shared-Use	\$15,800,000	4.4	Placer County
Dollar Creek Shared-Use Trail	Placer County	C-I / Shared-Use	\$4,385,000	2.3	Placer County
West Shore Bike Trail Extensions & Improvements - Sugar Pine to Meeks Bay	TTD	C-I / Shared-Use	\$3,600,000	0.6	El Dorado County
<b>TOTAL:</b>			<b>\$25,589,000</b>	<b>8.3</b>	

**Table 4-2: Corridor 1 Planning Project List**

Project Name	Lead Implementer	Description	Estimated Total Cost	Miles	County/City
Lakeside Bike Trail Phase 2C - Mackinaw to Commons Beach	TCPUD	C-I / Shared-Use	\$225,000.	0.2	Placer County
Brockway Vista Multi-Use Trail	Placer County	C-I / Shared-Use	\$2,190,000	0.7	Placer County
National Avenue Shared Use Path	Placer County	C-I / Shared-Use	\$750,000	0.5	Placer County
North Tahoe Regional Bike Trail Connector (Carnelian Woods Ave to Trail)	Placer County	C-I / Shared-Use	\$1,245,000	0.8	Placer County
Summit to Lake Trail	Placer County	C-I / Shared-Use	\$7,000,000	3	Placer County
Brockway Vista Multi-Use Path Extension	Placer County	C-I / Shared-Use	\$2,430,000	0.8	Placer County
State Route 267 Complete Street Improvements	Placer County / Caltrans	Corridor Revitalization / Complete Streets	\$9,570,000	3.2	Placer County



SR 267 to Stateline Shared-Use Path	Placer County	C-1 / Shared-Use	\$3,400,000	1.9	Placer County
SR 89 North Shared-Use Path	Placer County	C-I / Shared-Use Path	\$266,000	0.6	Placer County
State Route 89 Bike Lanes (Tahoe City "WYE" to Basin Boundary)	Caltrans	C-II / Bike Lane	\$36,000	4	Placer County
Carnelian Woods Bike Lanes	Placer County	C-II / Bike Lane	\$4,700	0.5	Placer County
Placer County Bike Route System	Placer County	C-III / Bike Route	\$7,866	2.3	Placer County
<b>TOTAL</b>			<b>27,124,566</b>	<b>18.5</b>	

**Table 4-3: Corridor 1 Priority Intersections:**

Project Name	Lead Implementer	Jurisdiction
Chipmunk Street & SR 28	Caltrans	Placer County
Secline Street & SR 28	Caltrans	Placer County
SR 267 & SR 28	Caltrans	Placer County
West Shore Bike Path (Sequoia Ave) & SR 89	Caltrans / TCPUD	Placer County
West Shore Bike Path (Chinquapin Way) & SR 89	Caltrans / TCPUD	Placer County
Grove Street & SR 28	Caltrans	Placer County
Jackpine Street & SR 28	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.**

# INTERSECTIONS WITH SMALL STREETS

The California and Nevada 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. Determination of priority between streets and paths can be found in the TRB Highway Capacity Manual (2010),

## Benefits

Crosswalk markings establish a legal crosswalk at areas away from intersections (MUTCD 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

#### Vertical Deflection:

A raised crossing slows drivers and prepares them to yield to path users.

Median Island:  
Provides 8 foot safety area

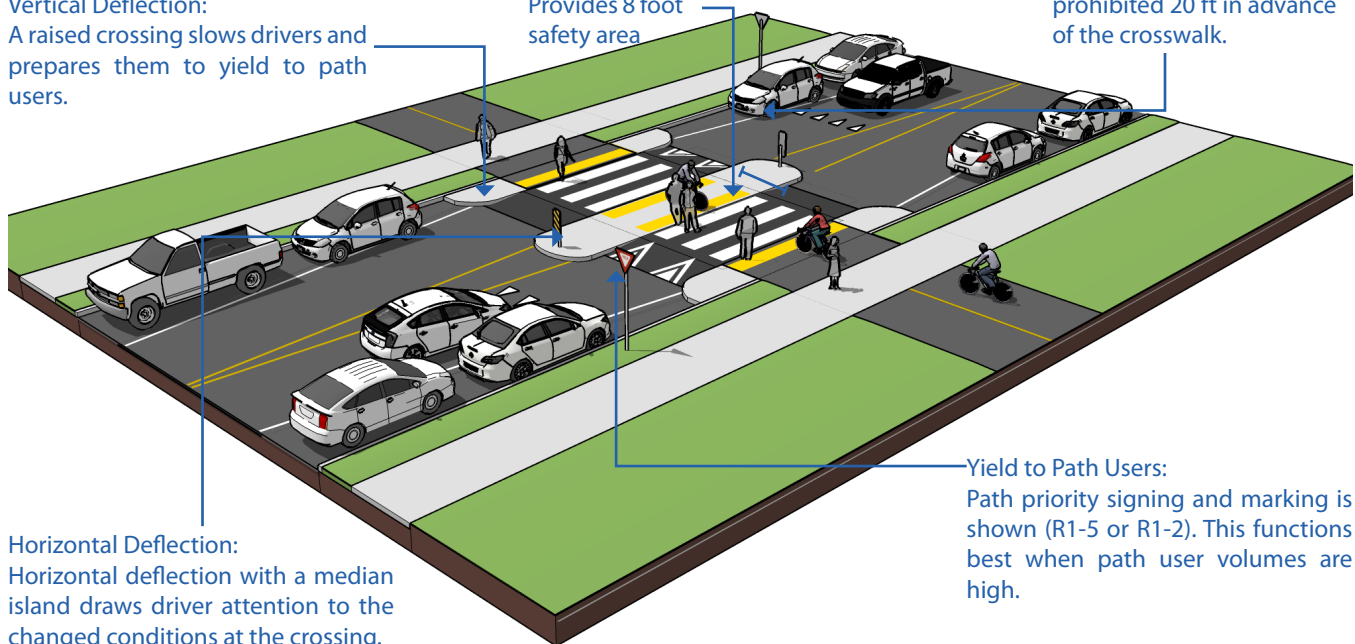
Parking should be prohibited 20 ft in advance of the crosswalk.

#### Horizontal Deflection:

Horizontal deflection with a median island draws driver attention to the changed conditions at the crossing.

#### Yield to Path Users:

Path priority signing and marking is shown (R1-5 or R1-2). This functions best when path user volumes are high.







**Existing conditions**



**Street lighting**

**Rectangular Rapid  
Flashing Beacon**

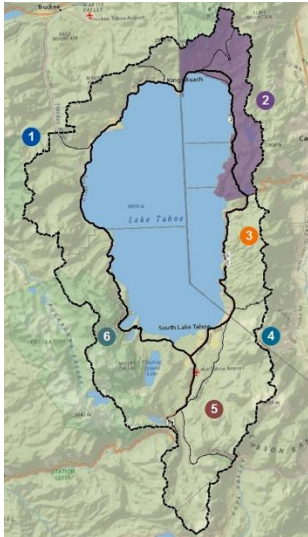
**Visible waiting area  
for trail users**

**High visibility crosswalk**





## CORRIDOR 2: NV STATE ROUTE 28 NATIONAL SCENIC BYWAY



**Physical Geographic Description:** This corridor includes State Route 28 starting from the intersection with US 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
- State Route 28 Corridor Management Plan
- Incline Village Commercial and Tourist Community Plans
- Washoe County Master Plan

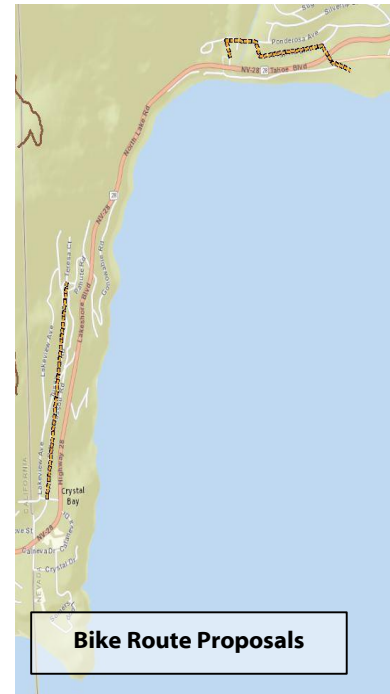
### Additional Corridor Considerations:

*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.

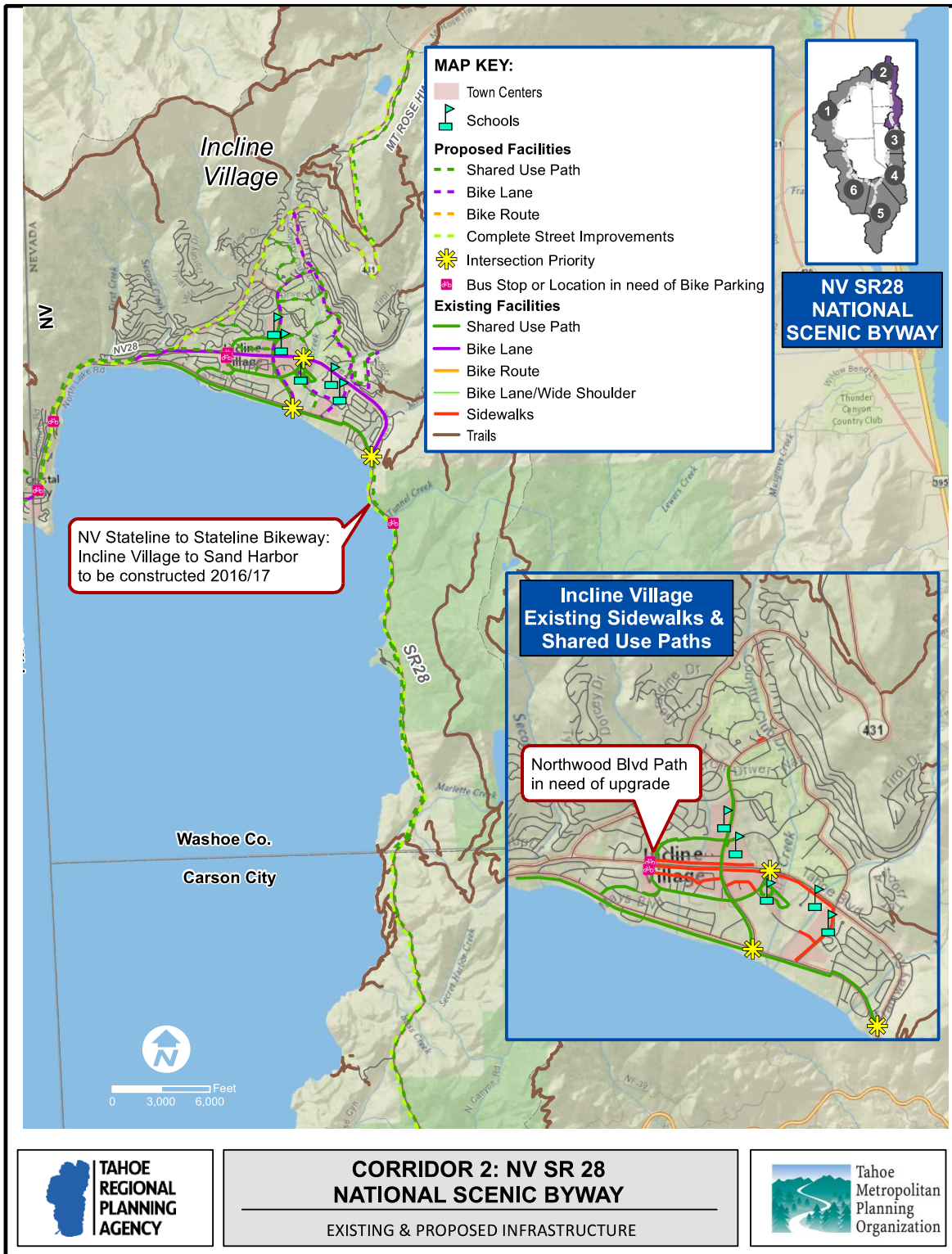
### Proposals include:

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.

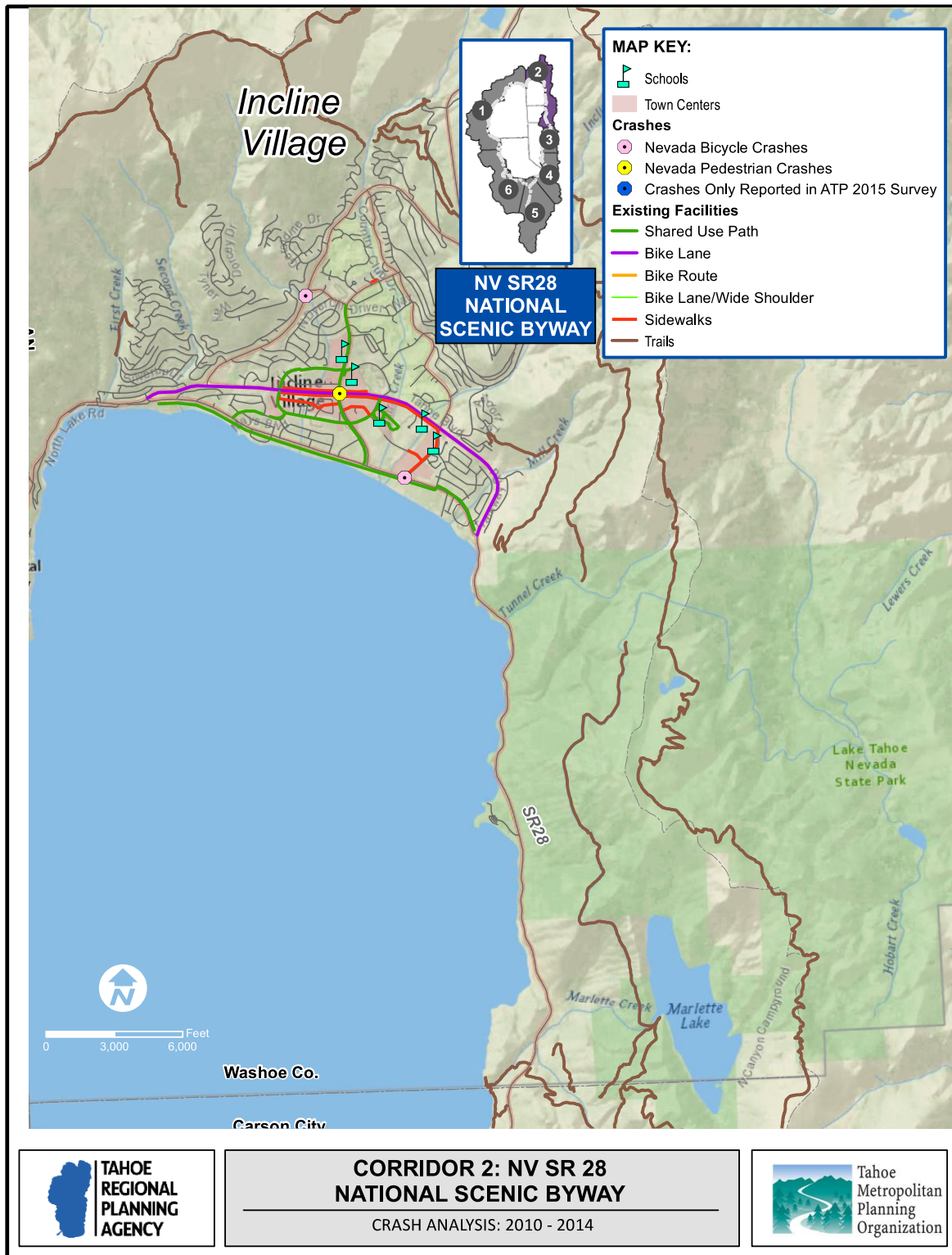


**FIGURE 4-5: CORRIDOR 2 EXISTING & PROPOSED INFRASTRUCTURE**



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.

**FIGURE 4-6: CORRIDOR 2 CRASH ANALYSIS**





## CORRIDOR PROJECT LISTS:

**Table 4-4: Corridor 2 Design Project List:**

Project Name	Lead Implementer	Description	Estimated Total Cost	Miles	County/ City
Nevada Stateline to Stateline Bikeway Phase 2 (Incline to Sand Harbor)	TTD	C-I / Shared-Use	\$14,500,000	5	Washoe County
Nevada Stateline to Stateline Bikeway Phase 3 (Sand Harbor to Spooner Summit)	TTD	C-I / Shared-Use	\$36,200,000	8	Washoe County/Carson City, Douglas County
<b>TOTAL:</b>			<b>\$50,500,000</b>	<b>13</b>	

**Table 4-5: Corridor 2 Planning Project List:**

Project Name	Lead Implementer	Description	Estimated Total Cost	Miles	County/ City
Nevada Stateline to Stateline Bikeway Phase 5 (Crystal Bay to Incline)	TTD	C-I / Shared-Use	\$20,000,000	2.1	Washoe County
Alder Avenue Shared Use Path	Washoe County	C-I / Shared-Use	\$690,000	0.5	Washoe County
Driver Way Shared Use Path	Washoe County	C-I / Shared-Use	\$870,000	0.6	Washoe County
Fairway Blvd Shared Use Path	Washoe County	C-I / Shared-Use	\$660,000	0.4	Washoe County
Village Blvd Shared Use path	Washoe County	C-I / Shared-Use	\$630,000	0.4	Washoe County
Golfers Pass Road Shared Use Path	Washoe County	C-I / Shared-Use	\$1,260,000	0.8	Washoe County
Tanager Street Shared Use Path	Washoe County	C-I / Shared-Use	\$135,000	0.1	Washoe County
Village Green Shared Use Path	Washoe County	C-I / Shared-Use	\$300,000	0.2	Washoe County
Incline Way Shared Use Path	Washoe County	C-I / Shared-Use	\$555,000	0.4	Washoe County
Northwood Blvd Shared Use Path	Washoe County	C-I / Shared-Use	\$660,000	0.4	Washoe County
McCourry Blvd Shared Use Path	Washoe County	C-I / Shared-Use	\$690,000	0.5	Washoe County
Ski Way Shared Use Path	Washoe County	C-I / Shared-Use	\$1,095,000	0.7	Washoe County
Country Club Drive Shared Use Path	Washoe County	C-I / Shared-Use	\$2,325,000	1.6	Washoe County
Old Mt. Rose Highway Shared Use Path	Washoe County	C-I / Shared-Use	\$3,810,000	2.5	Washoe County

SR 28 Shared Use Path: I Lakeshore Drive to NV -431	Washoe County	C-I / 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-I / Shared-Use	\$750,000	0.5	Washoe County
Country Club Drive Bike Lanes (SR 28 to NV -431)	Washoe County	C-II / Bike Lane	\$26,700	2.7	Washoe County
Village Blvd Bike Lanes (Lakeshore Blvd to Country Club Road)	Washoe County	C-II / Bike Lane	\$19,100	1.9	Washoe County
Incline Way Bike Lanes	Washoe County	C-II / Bike Lane	\$5,800	0.6	Washoe County
Ski Way Bike Lanes	Washoe County	C-II / Bike Lane	\$8,100	0.8	Washoe County
<b>TOTAL</b>			<b>\$35,239,700</b>	<b>18.2</b>	

**Table 4-6: Corridor 2 Priority Intersections:**

Project Name	Lead Implementer	Jurisdiction
SR 28 & Northwood Blvd.	NDOT	Washoe County
Lakeshore Blvd & Village Blvd	Washoe County	Washoe County
Lakeshore Blvd & SR 28	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**

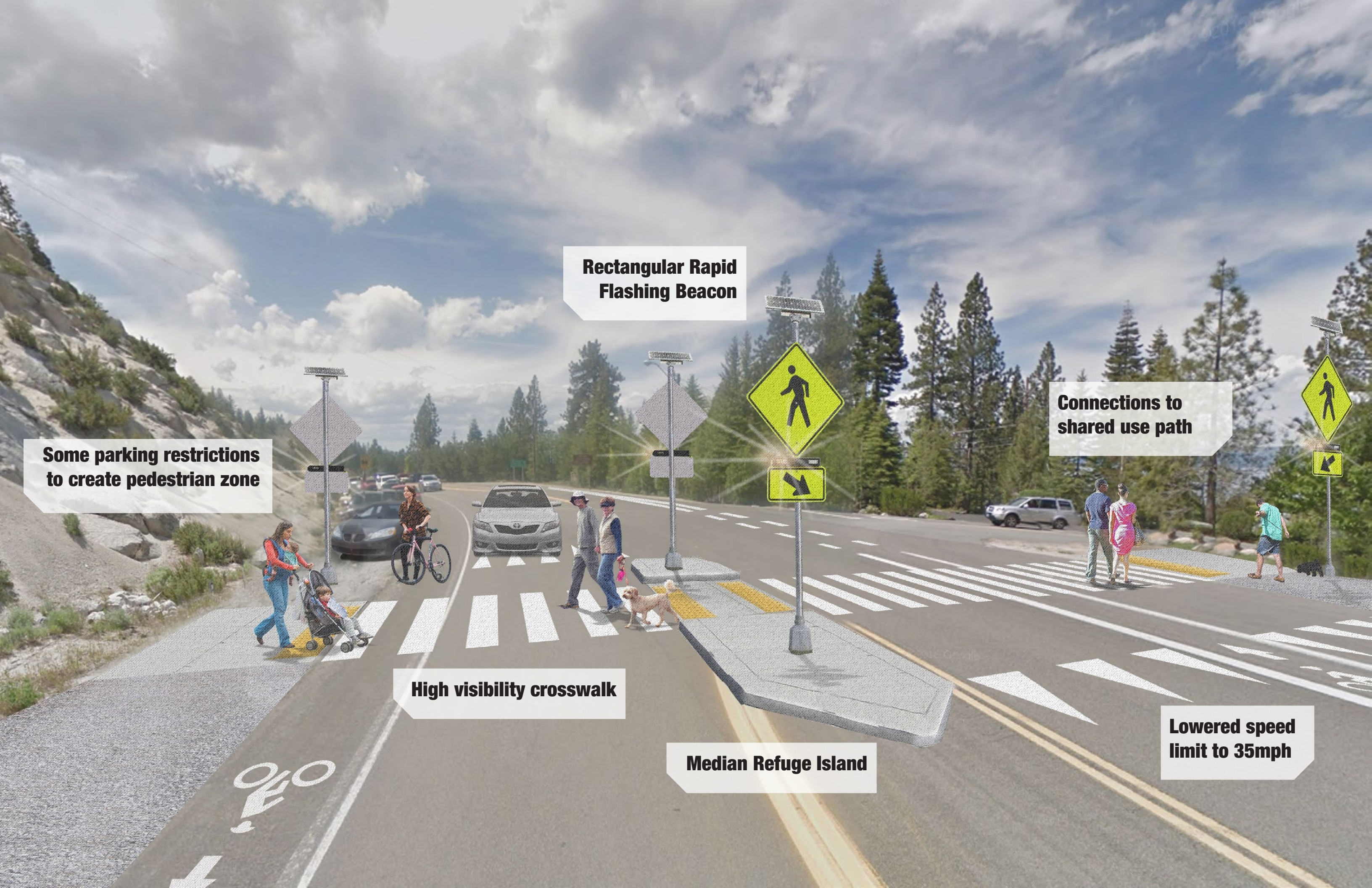
**Rectangular Rapid Flashing Beacon**

**Connections to shared use path**

**High visibility crosswalk**

**Median Refuge Island**

**Lowered speed limit to 35mph**





## CORRIDOR 3: US HIGHWAY 50 EAST SHORE

**Physical Geographic Description:** This corridor starts at the intersection of US 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

### 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.



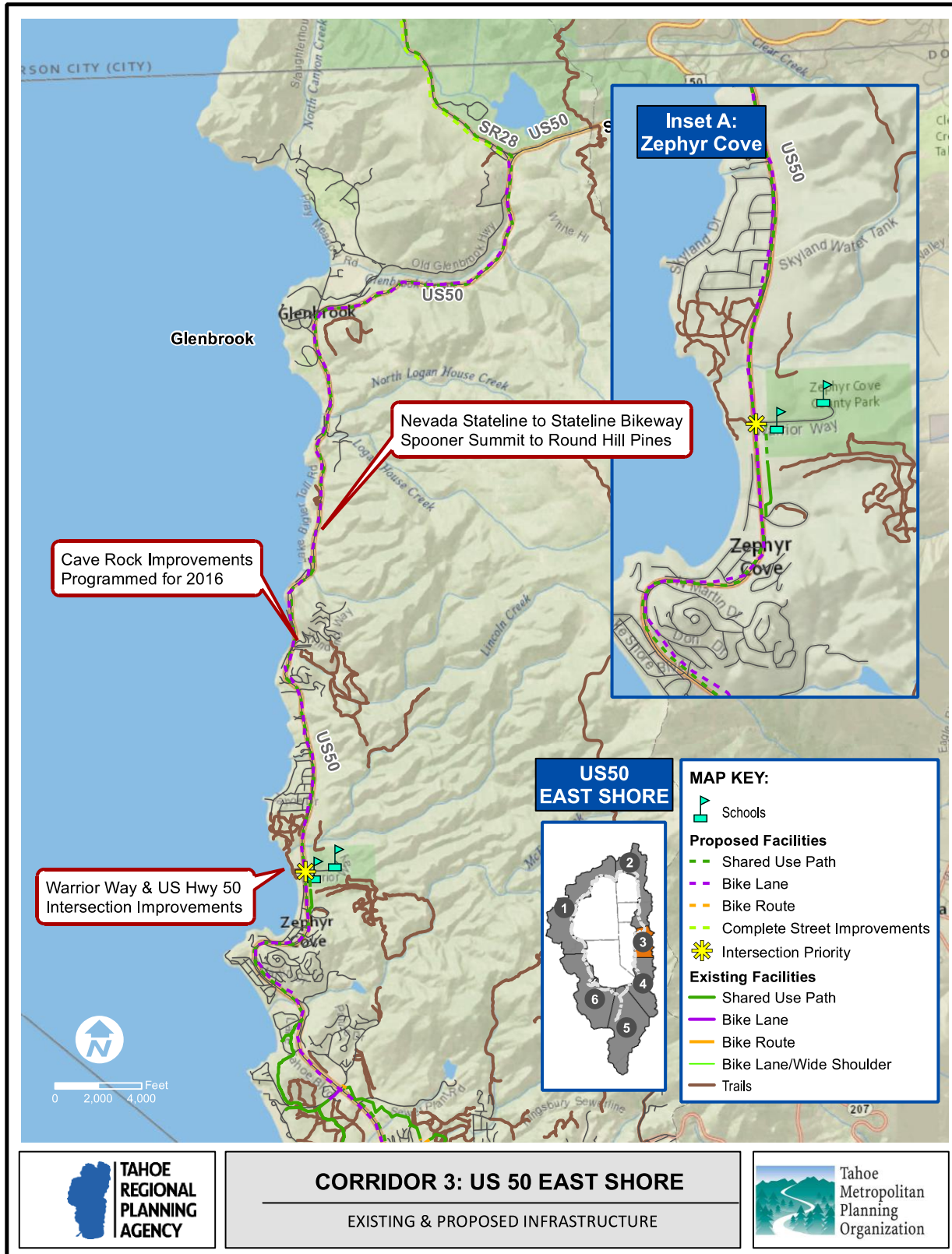
### Proposals include:

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



*Bike Route Proposal: Old Glenwood Highway*

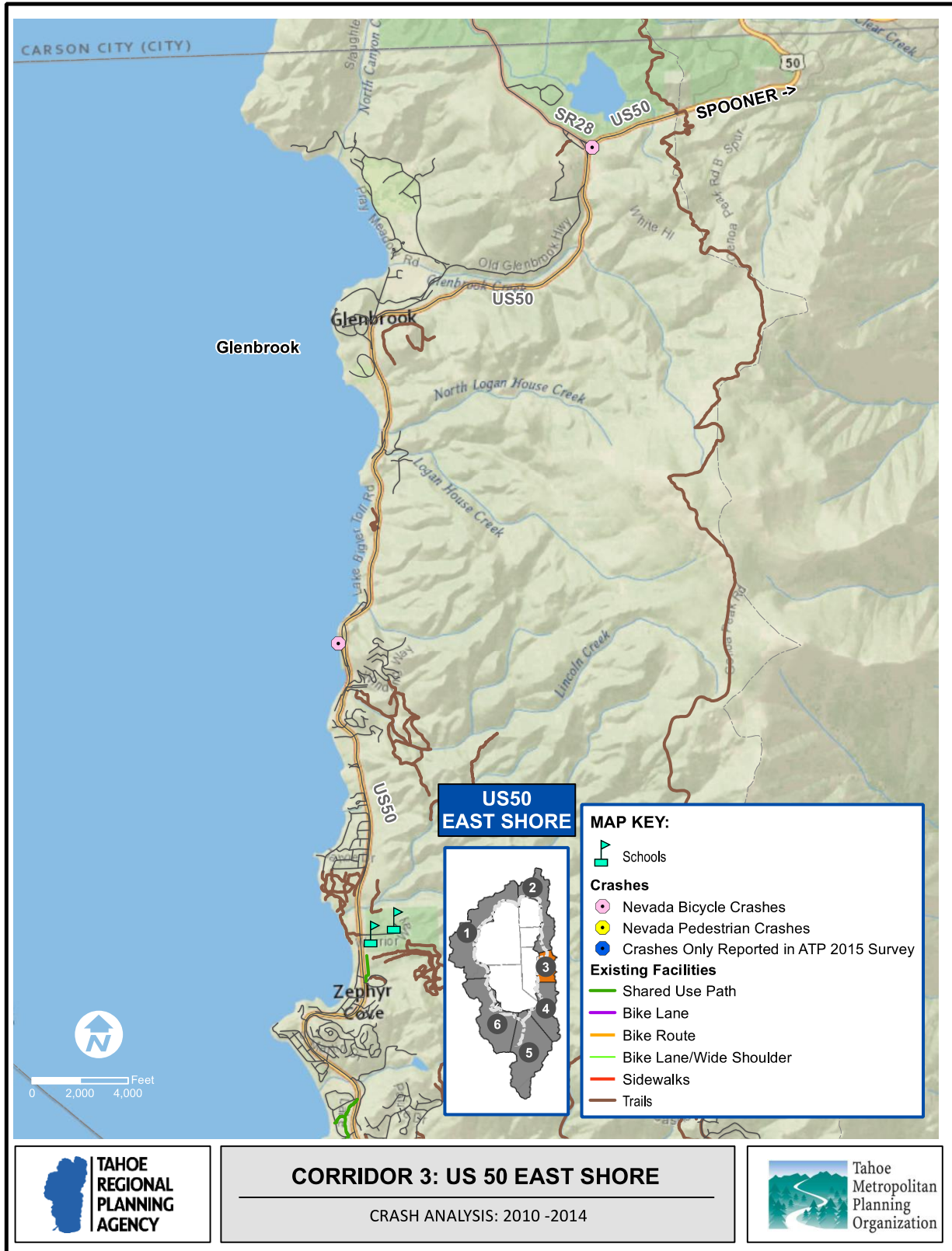
**FIGURE 4-7: CORRIDOR 3 EXISTING & PROPOSED INFRASTRUCTURE**



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.



**FIGURE 4-8: CORRIDOR 3 CRASH ANALYSIS**



**CORRIDOR PROJECT LIST:**

**Table 4-7: Corridor 3 Planning Project List:**

Project Name	Lead Implementer	Description	Estimated Total Cost	Miles	County/City
Nevada Stateline to Stateline Bikeway Phase 4 (Spooner Summit to Round Hill Pines)	TTD	C-1 / Shared-Use	\$32,000,000	10.6	Douglas County
<b>TOTAL:</b>			<b>\$32,000,000</b>	<b>10.6</b>	



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

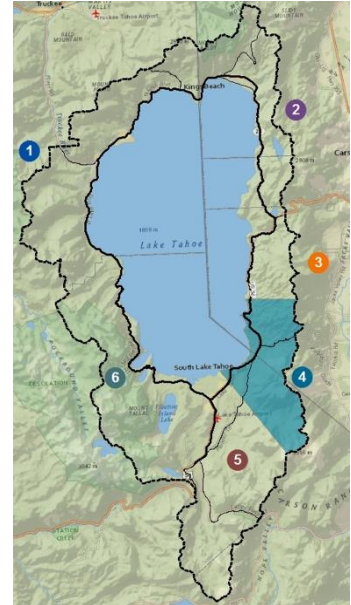
**This corridor was not chosen as a location for the activity at the workshop because the State Route 28 Corridor Management Plan already has renderings and many facilities in the design process.**

## CORRIDOR 4: US 50 SOUTH SHORE

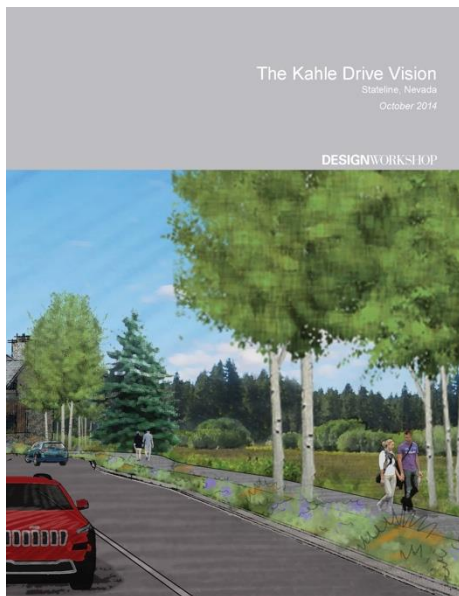
**Physical Geographic Description:** This corridor starts at US Highway 50 from roughly 950 feet northwest of Elks Point Road in Douglas County to the Upper Truckee River Bridge (just west of River Street), in the City of South Lake Tahoe. The corridor also includes Pioneer Trail east of the Trout Creek 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
- Tourist Core Area Plan
- South Shore Wayfinding Plan
- Lake Tahoe Unified School District Safe Routes to School Master Plan
- South Tahoe Middle School Area Connectivity Plan
- Kahle Drive Vision



### Additional Corridor Considerations:



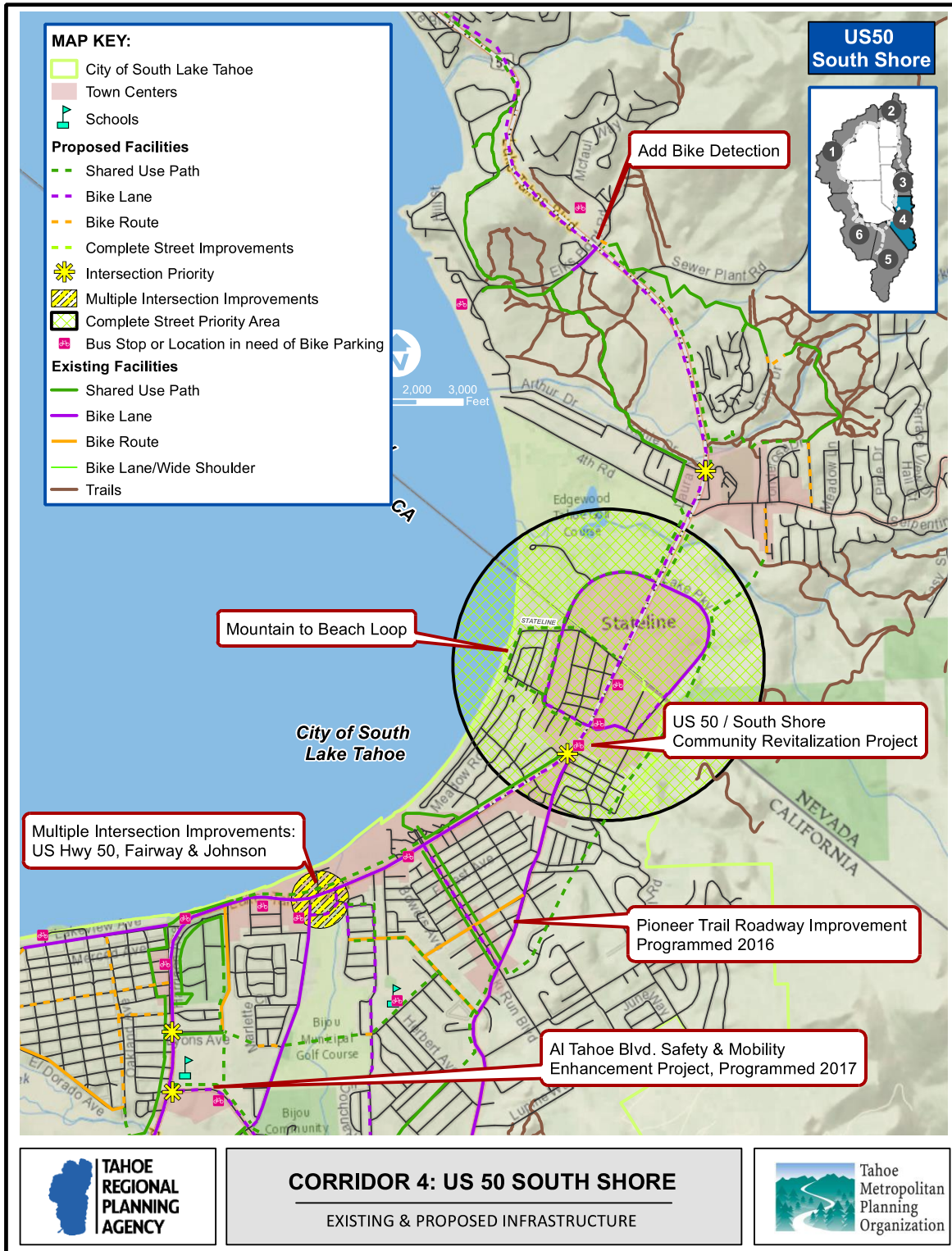
**Community Input:** Stakeholders suggested a variety of Class I/ Shared-use paths that were vetted by city staff, the South Lake Tahoe Recreation Joint Powers Authority Bicycle Advisory Committee, and the Lake Tahoe Sustainability Collaborative Community Mobility Group. Many of the recommendations were 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*. The *Existing & Proposed Infrastructure* maps found in this section show community-suggested bicycle parking needs. For more detailed information on locations in need of bicycle parking, also see Appendix B.

**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.

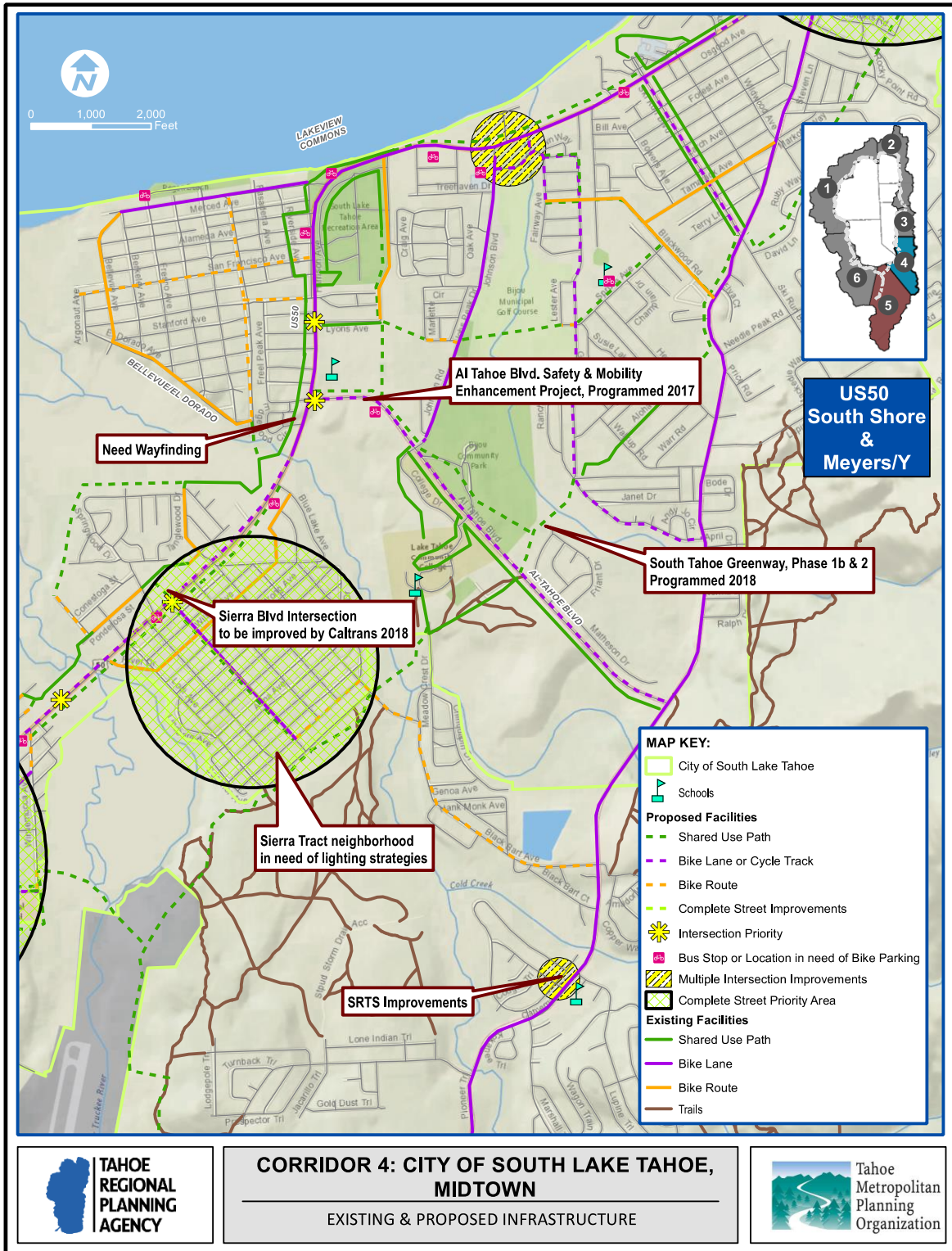
**Utilizing Future Studies & Plans:** City staff indicate they will conduct a citywide parking audit and are in the process of producing a citywide area plan for areas not already included in an existing area plan. Community stakeholders suggest a master plan be developed for the Bijou Bike Park, and 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.



**FIGURE 4-9: CORRIDOR 4 EXISTING & PROPOSED INFRASTRUCTURE**

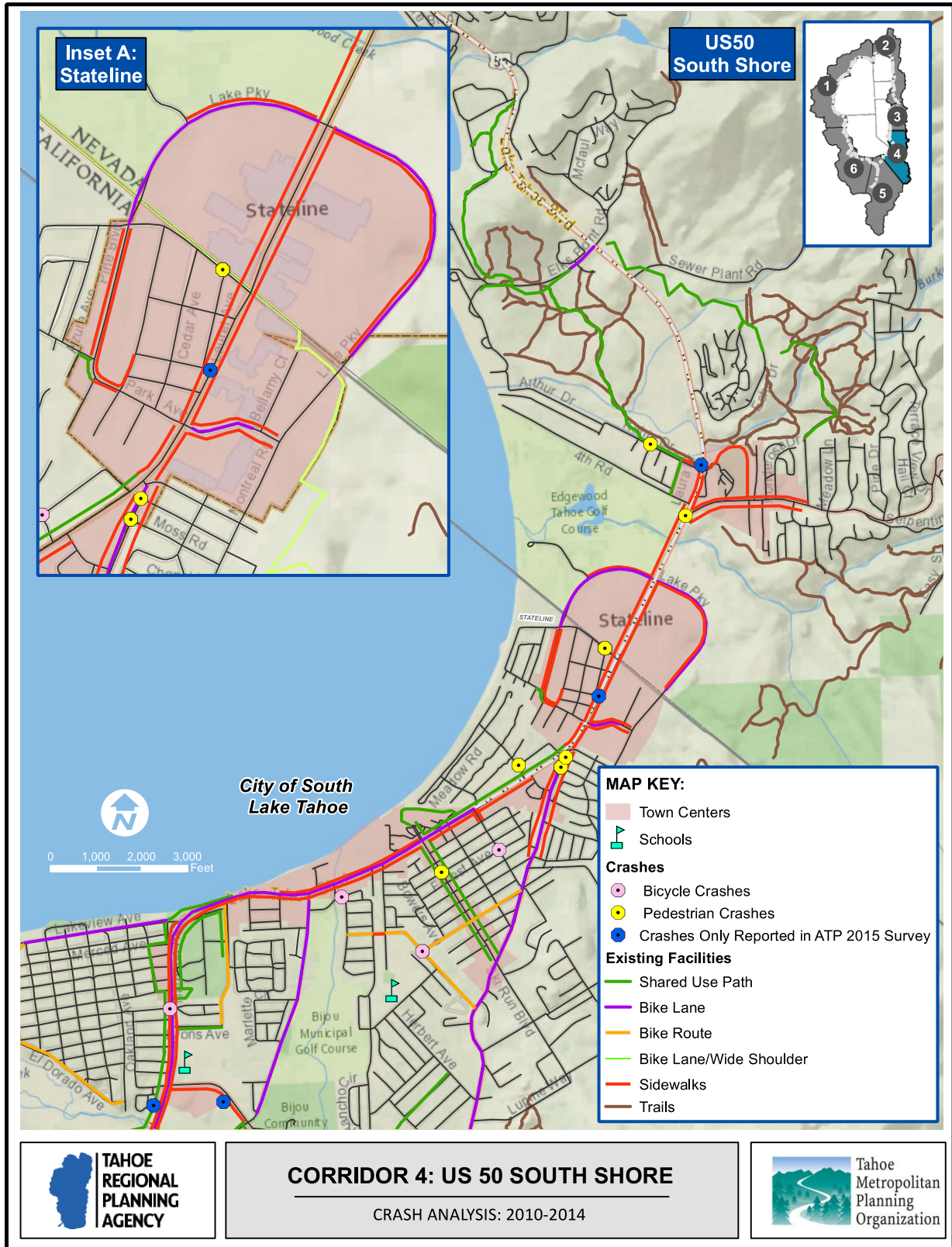


**FIGURE 4-10: CORRIDOR 4 (MIDTOWN) EXISTING & PROPOSED INFRASTRUCTURE**





**FIGURE 4-11: CORRIDOR 4 CRASH ANALYSIS**



## CORRIDOR PROJECT LISTS:

**Table 4-8: Corridor 4 Design Project List:**

Project Name	Lead Implementer	Description	Estimated Total Cost	Miles	County/City
Al Tahoe Safety and Mobility Enhancement Project	City of South Lake Tahoe	C-I / Shared-Use	\$2,160,928	1.9	City of South Lake Tahoe
South Tahoe Greenway Shared-Use Trail (Van Sickle to Sierra Blvd.)	CTC	C-I / Shared-Use	\$5,000,000	2.5	City of South Lake Tahoe
El Dorado Beach to Ski Run Boulevard Bike Trail	City of South Lake Tahoe	C-I / Shared-Use	\$2,200,000	0.8	City of South Lake Tahoe
US Highway 50 Sidewalk or Shared Use Path Construction - Kingsbury Grade to Lake Parkway	TTD / NDOT	C-I / Shared-Use	\$156,600	0.3	Douglas County
Nevada Stateline to Stateline Bikeway Phase 1A (Stateline/Edgewood)	TTD	C-I / Shared-Use	\$3,000,000	0.4	Douglas County
<b>TOTAL:</b>			<b>\$12,517,528</b>	<b>5.9</b>	

**Table 4-9: Corridor 4 Planning Project List:**

Project Name	Lead Implementer	Description	Estimated Total Cost	Miles	County/City
Blackwood Road Safe Routes to School Project	City of South Lake Tahoe	C-I / Shared Use	\$290,000	0.5	City of South Lake Tahoe
Bijou Bike Park Path (Johnson Blvd to Greenway)	City of South Lake Tahoe	C-I / Shared-Use	\$213,750	0.5	City of South Lake Tahoe
South Tahoe Bikeway Extension (Oakland Avenue)	City of South Lake Tahoe	C-I / Shared-Use	\$360,000	0.1	City of South Lake Tahoe
Blackwood Road Shared Use Path (Fairway to Pioneer Trail)	City of South Lake Tahoe	C-I / Shared-Use	\$900,000	0.6	City of South Lake Tahoe
Glenwood Way Shared Use Path (Fairway to Blackwood)	City of South Lake Tahoe	C-I / Shared-Use	\$375,000	0.3	City of South Lake Tahoe
Bijou Meadow East-West Connectivity (SRTS)	City of South Lake Tahoe	C-I / Shared-Use	\$1,350,000	0.4	City of South Lake Tahoe



Rufus Allen Boulevard Shared Use Path (SRTS)	City of South Lake Tahoe	C-I / Shared-Use	\$435,000	0.3	City of South Lake Tahoe
Lyons Avenue to Al Tahoe Blvd. North - South Connectivity (SRTS)	City of South Lake Tahoe / LTUSD	C-I / Shared-Use	\$330,000	0.2	City of South Lake Tahoe
Glenwood Avenue Bike Lanes	City of South Lake Tahoe	C-II / Bike Lane	\$16,000	1.6	City of South Lake Tahoe
Ski Run Bike Lanes	City of South Lake Tahoe	C-II / Bike Lane	\$6,000	0.6	City of South Lake Tahoe
Spruce Avenue Safe Routes to School Project	City of South Lake Tahoe	Corridor Revitalization / Complete Streets	\$203,000	0.4	City of South Lake Tahoe
Mountain to Beach Loop (Park Avenue, Pine Blvd., Lakeshore Blvd, and Stateline Avenue)	City of South Lake Tahoe / TTD	Corridor Revitalization / Complete Streets	\$1,385,000	1	City of South Lake Tahoe
Fairway Avenue Bike Lanes	City of South Lake Tahoe	C-II / Bike Lane	\$3,200	0.3	City of South Lake Tahoe
US 50 Shared Use Path (Kahle to Elk's Point)	NDOT	C-I / Shared-Use	\$3,210,000	1.1	Douglas County
Pine Ridge Drive to Kahle/US 50 Intersection	Douglas County	C-I / Shared-Use	750,000	.5	Douglas County
Nevada Greenway Extension to Kingsbury grade (via Market Street)	Douglas County/ CTC	C-I / Shared-Use	\$2,310,000	0.8	Douglas County
Douglas County Bike Route System	Douglas County	C-III / Bike Route	\$2,242.50	0.7	Douglas County
US 50 Bike Lanes (Stateline to Spooner Summit)	NDOT	C-II / Bike Lane	\$122,100	12.2	Douglas County
<b>TOTAL</b>			<b>\$12,261,292</b>	<b>22</b>	

**Table 4-10: Corridor 4 Priority Intersections:**

<b>Project Name</b>	<b>Lead Implementer</b>	<b>Jurisdiction</b>
Fairway Drive & US 50	Caltrans	City of South Lake Tahoe
Johnson Blvd & US 50	Caltrans	City of South Lake Tahoe
Bal Bijou Road & Us 50	Caltrans	City of South Lake Tahoe
Johnson Blvd & Al Tahoe Boulevard	City of South Lake Tahoe	City of South Lake Tahoe
Kahle Drive & US 50	NDOT	Douglas County
Warrior Way & US 50	NDOT	Douglas 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 4 is the intersection of US Highway 50 and Warrior Way. A roundabout was also suggested at this location as a long term solution.**





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**Existing conditions**





**Sidewalk connection to school and parking**

**Pedestrian Hybrid Beacon**

**Parking restrictions along Highway 50**

**Beach access**

**Bike Lanes**

**CROSSWALK**  
STOP IN FRONT OF CROSSWALK

**NO PARKING ANY TIME**



## CORRIDOR 5: MEYERS / Y

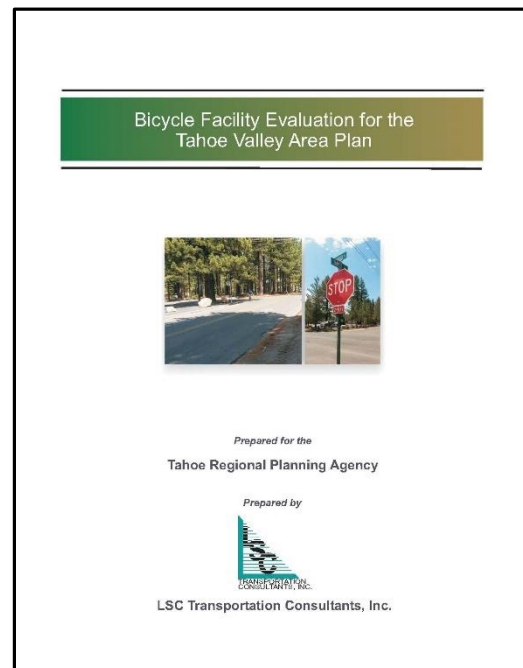
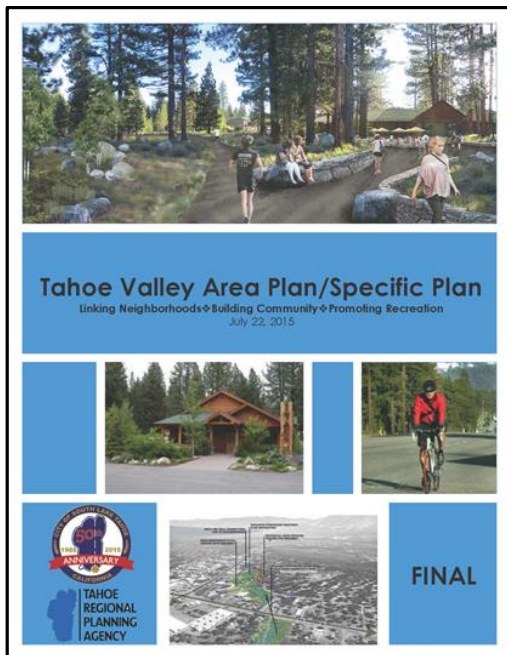
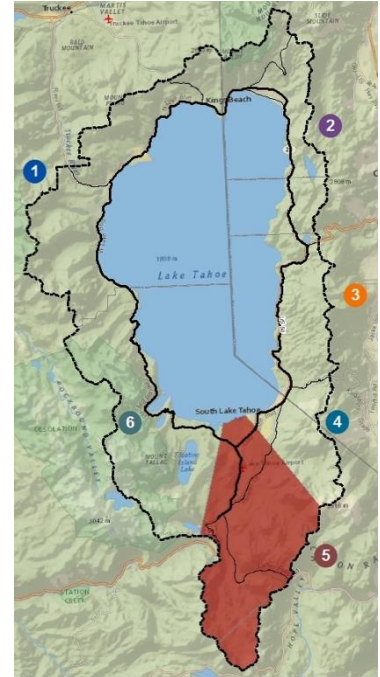
**Physical Geographic Description:** This corridor begins at US Highway 50 west of the Upper Truckee River in the City of South Lake Tahoe and extends to just north of the South Tahoe “Y” and south to include Meyers, located in El Dorado County.

### Context Relevant Plans & Studies:

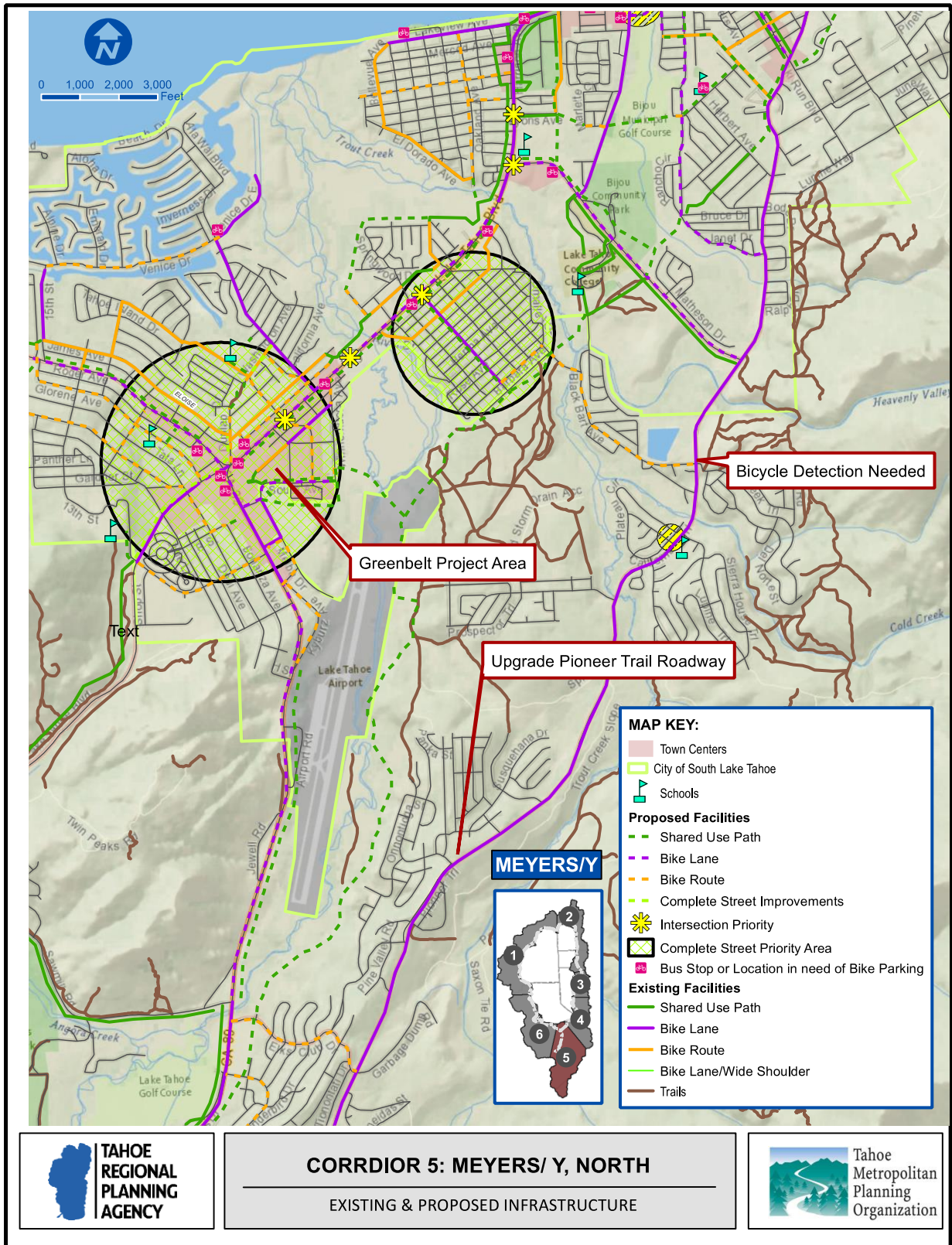
- Meyers Area Plan (Draft)
- Tahoe Valley Area Plan
- Tahoe Valley Area Plan Bicycle Facility Evaluation
- Lake Tahoe Unified School District Safe Routes to School Master Plan
- South Tahoe Middle School Area Connectivity Plan

### 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*.



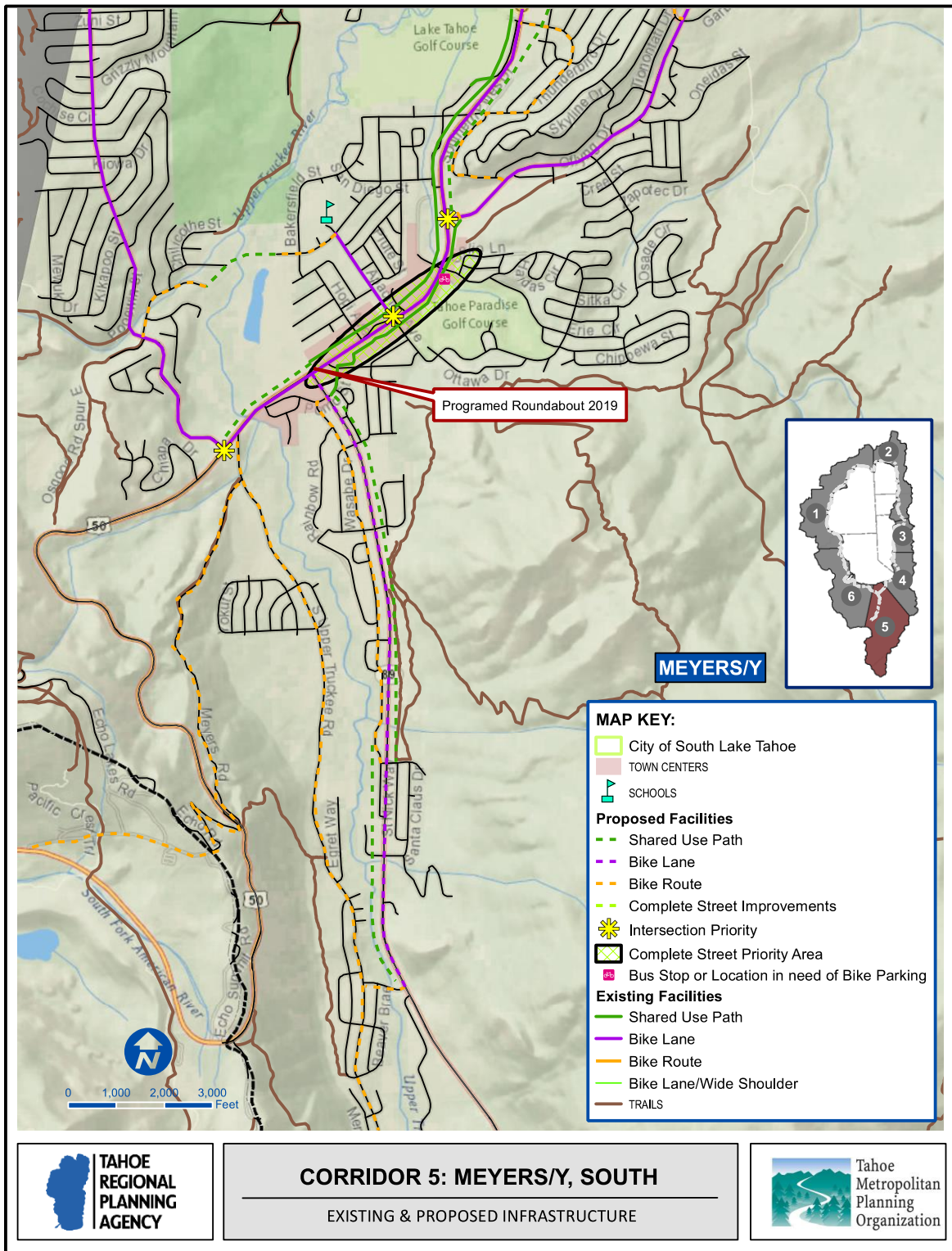
**FIGURE 4-12: CORRIDOR 5 NORTH EXISTING & PROPOSED INFRASTRUCTURE**



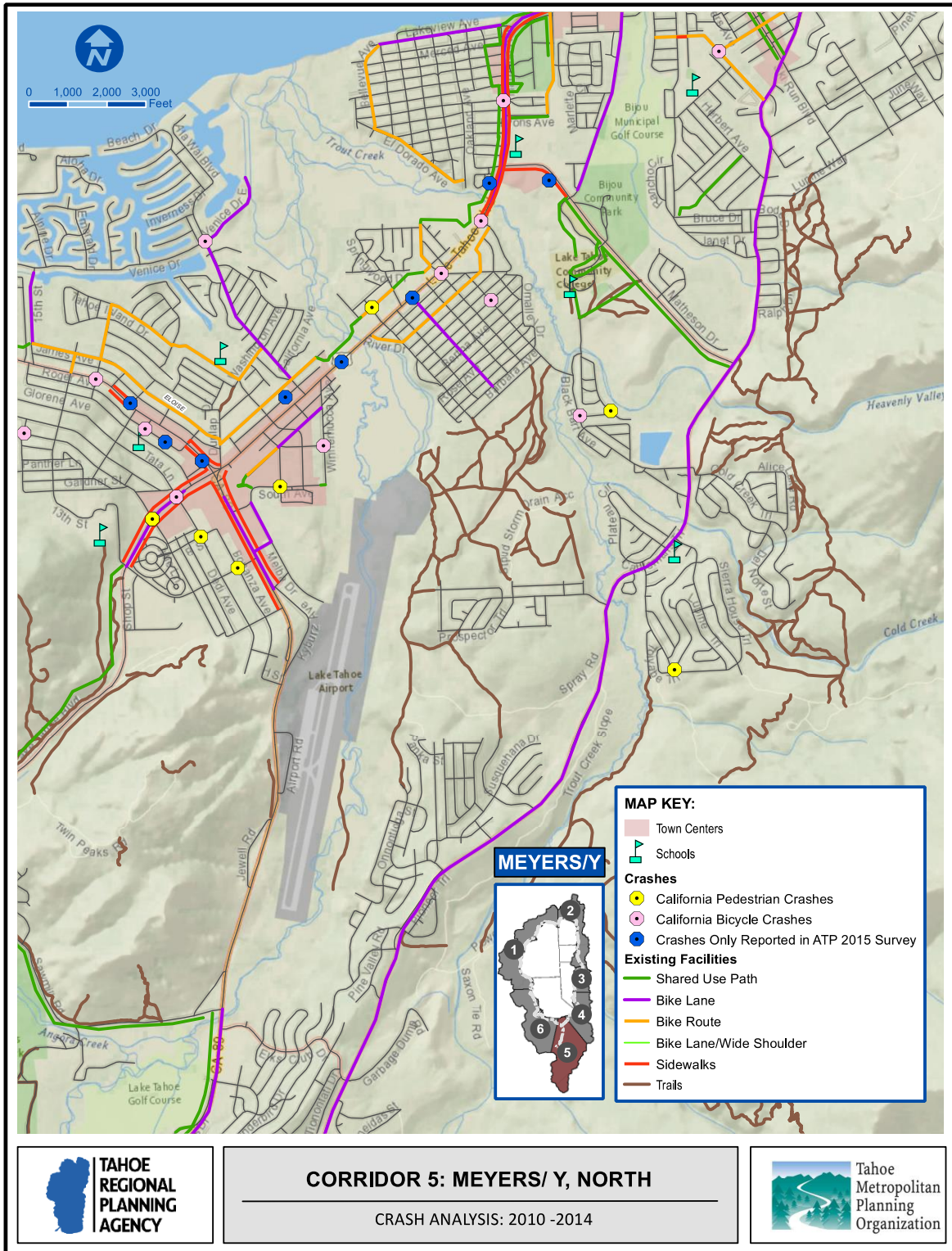
TRPA MAP DISCLAIMER: This map was developed and produced by the TRPA GIS department. It is provided for reference only and is not intended to show map scale accuracy or all inclusive map features.



**FIGURE 4-13: CORRIDOR 5 SOUTH EXISTING & PROPOSED INFRASTRUCTURE**

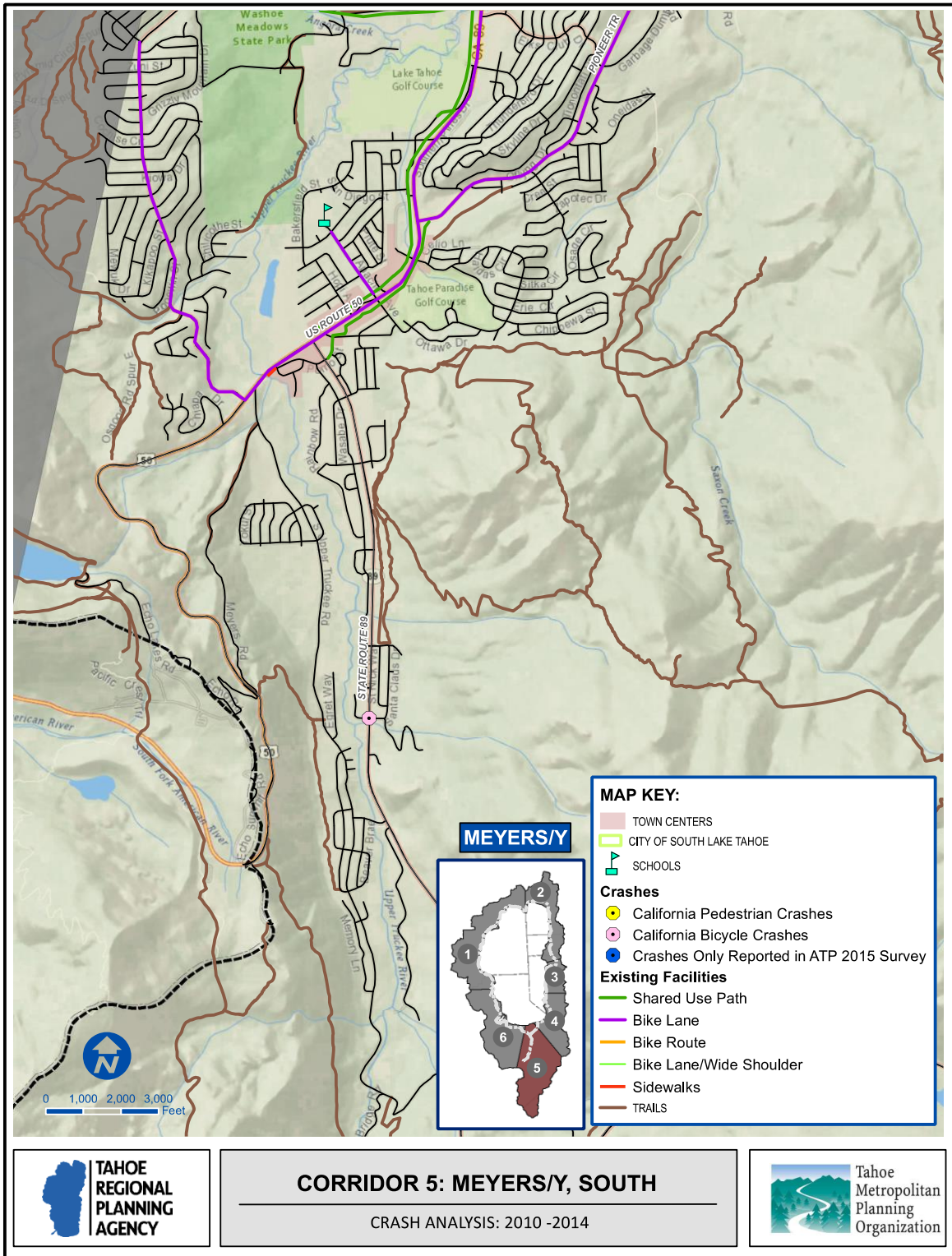


**FIGURE 4-14: CORRIDOR 5 NORTH CRASH ANALYSIS**





**FIGURE 4-15: CORRIDOR 5 SOUTH CRASH ANALYSIS**



## CORRIDOR PROJECT LISTS:

**Table 4-11: Corridor 5 Design Project List:**

Project Name	Lead Implementer	Description	Estimated Total Cost	Miles	County/City
Sierra Boulevard Complete Streets Project (From US Highway 50 to Barbara Avenue)	City of South Lake Tahoe	Corridor Revitalization /Complete Streets	\$1,620,000	0.5	City of South Lake Tahoe
South Tahoe Greenbelt (B Street, Winnemucca, South Avenue)	City of South Lake Tahoe	Corridor Revitalization /Complete Streets	\$2,162,500	1.6	City of South Lake Tahoe
<b>TOTAL:</b>			<b>\$3,782,500</b>	<b>2.1</b>	

**Table 4-12: Corridor 5 Planning Project List:**

Project Name	Lead Implementer	Description	Estimated Total Cost	Miles	County/City
Class I Bike Trail along US Highway 50 from H Street to the City Limits	City of South Lake Tahoe	C-I / Shared-Use	\$600,000	0.4	City of South Lake Tahoe
Class I Bike Trail: Third Street/Tahoe Valley Elementary	City of South Lake Tahoe	C-I / Shared-Use	\$75,400	0.1	City of South Lake Tahoe
South Tahoe Bikeway Connector (US 50 @ Sierra Blvd to Bikeway)	City of South Lake Tahoe	C-I / Shared-Use	\$28,500	0.1	City of South Lake Tahoe
South Tahoe High Shared Use Trail, Safe Routes to School	City of South Lake Tahoe	C-I / Shared-Use	\$450,000	0.2	City of South Lake Tahoe
South Tahoe Bikeway Extension (James Avenue)	City of South Lake Tahoe	C-I / Shared-Use	\$14,250	0.1	City of South Lake Tahoe
Wyoming Avenue to Tahoe Valley	City of South Lake Tahoe	C-I / Shared-Use	\$34,800	0.1	City of South Lake Tahoe



Elementary Safe Routes to School Project					
State Route 89 Shared Use Path (South Tahoe "Y" to 15th Street)	City of South Lake Tahoe	C-I / Shared-Use	\$1,305,000	0.9	City of South Lake Tahoe
South Tahoe Bikeway Extension (Meadow Connection: Sunset Avenue)	City of South Lake Tahoe	C-I / Shared-Use	\$2,010,000	0.7	City of South Lake Tahoe
Gardner Mountain Shared Use Connector Path	City of South Lake Tahoe	C-I / Shared-Use	\$38,000	0.1	City of South Lake Tahoe
Tahoe Valley Shared Use Connector Path (Dunlap)	City of South Lake Tahoe	C-I / Shared-Use	\$87,000	0.2	City of South Lake Tahoe
Washington Avenue Safe Routes to School Project	City of South Lake Tahoe	Corridor Revitalization / Complete Streets	\$200,000	0.2	City of South Lake Tahoe
Lake Tahoe Boulevard Bike Trail Extension to Eloise Bike Route	City of South Lake Tahoe	Corridor Revitalization / Complete Streets	\$1,185,000	0.8	City of South Lake Tahoe
Meyers Bikeway Extension	El Dorado County / Caltrans	C-I / Shared-Use	\$675,000	0.5	El Dorado County
South Tahoe Greenway Future Phases (Meyers to Sierra Blvd)	CTC	C-I / Shared Use	\$14,187,000	5	El Dorado / City of South Lake Tahoe
South Tahoe Greenway "Y" Connector	CTC	C-I / Shared Use	\$1,320,000	0.4	El Dorado County
Class I Bike Path: East San Bernardino - West San Bernardino	El Dorado County	C-I / Shared-Use	\$960,000	0.3	El Dorado County
State Route 89 Class I Bike Trail - Highway 50 to Portal Road	El Dorado County	C-I / Shared-Use	\$3,645,000	2.4	El Dorado County
Class I Bike Trail Along US Highway 50	El Dorado County	C-I / Shared-Use	\$1,935,000	1.3	El Dorado County

from City Limits to Sawmill Road					
US 50 City to Meyers Bike Lanes	El Dorado County / Caltrans	C-II / Bike Lane	\$21,100	2.1	El Dorado County
El Dorado County Bike Route System	El Dorado County	C-III / Bike Route	\$44,609	12.9	El Dorado County
North Upper Truckee Bike Lanes	El Dorado County	C-II / Bike Lane	\$7,100	0.7	El Dorado County
City of South Lake Tahoe Bike Route System	City of South Lake Tahoe	C-III / Bike Route	\$35,018	10.2	City of South Lake Tahoe
<b>TOTAL</b>			<b>\$28,857,777</b>	<b>39.7</b>	

**Table 4-13: Corridor 5 Priority Intersections:**

Project Name	Lead Implementer	Jurisdiction
Grocery Outlet Driveway & US 50	Caltrans	City of South Lake Tahoe
Third Street & US 50	Caltrans	City of South Lake Tahoe
Sierra Blvd & US 50	Caltrans	City of South Lake Tahoe
South Tahoe "Y"	Caltrans / City of South Lake Tahoe	City of South Lake Tahoe
Tahoe Keys & US 50	City of South Lake Tahoe	City of South Lake Tahoe
Pioneer Trail & US 50	Caltrans	El Dorado County
Apache Avenue & US 50	Caltrans	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.**





**Existing conditions**





**Landscaped island**

**Mini traffic circle with yield control**

**Natural surface walkways**



## CORRIDOR 6: STATE ROUTE 89 RECREATION

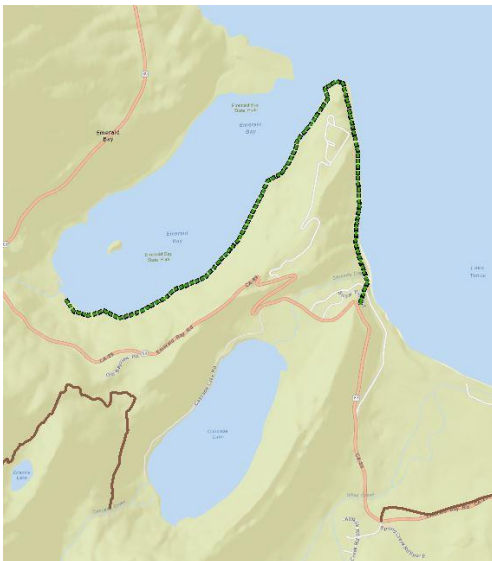
**Physical Geographic Description:** This corridor begins at the northern edge of the City of South Lake Tahoe just past the South Tahoe “Y” and extends to the north into El Dorado County, just past of Meeks Bay.

### Context Relevant Plans & Studies:

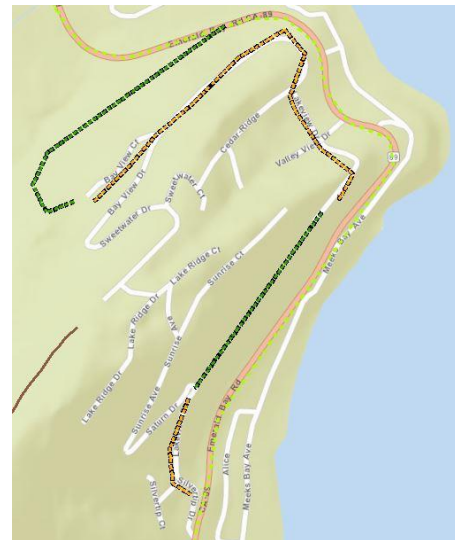
- SR -89 Cascade to Rubicon Bay Bikeway Study
- West Shore Area General Plan
- El Dorado County General Plan

### 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.



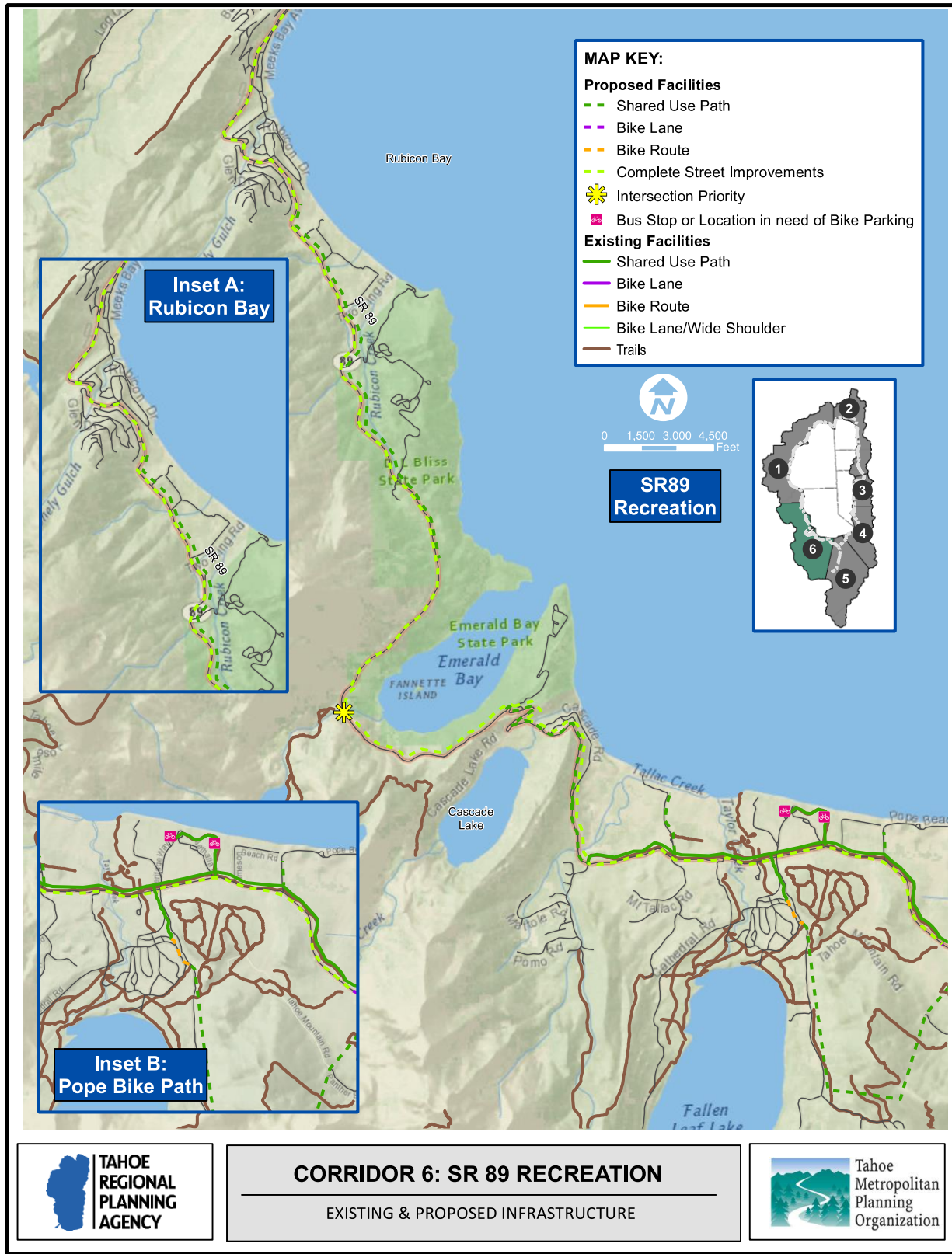
*Emerald Bay Proposal*



*Meeks Bay HOA Proposal*

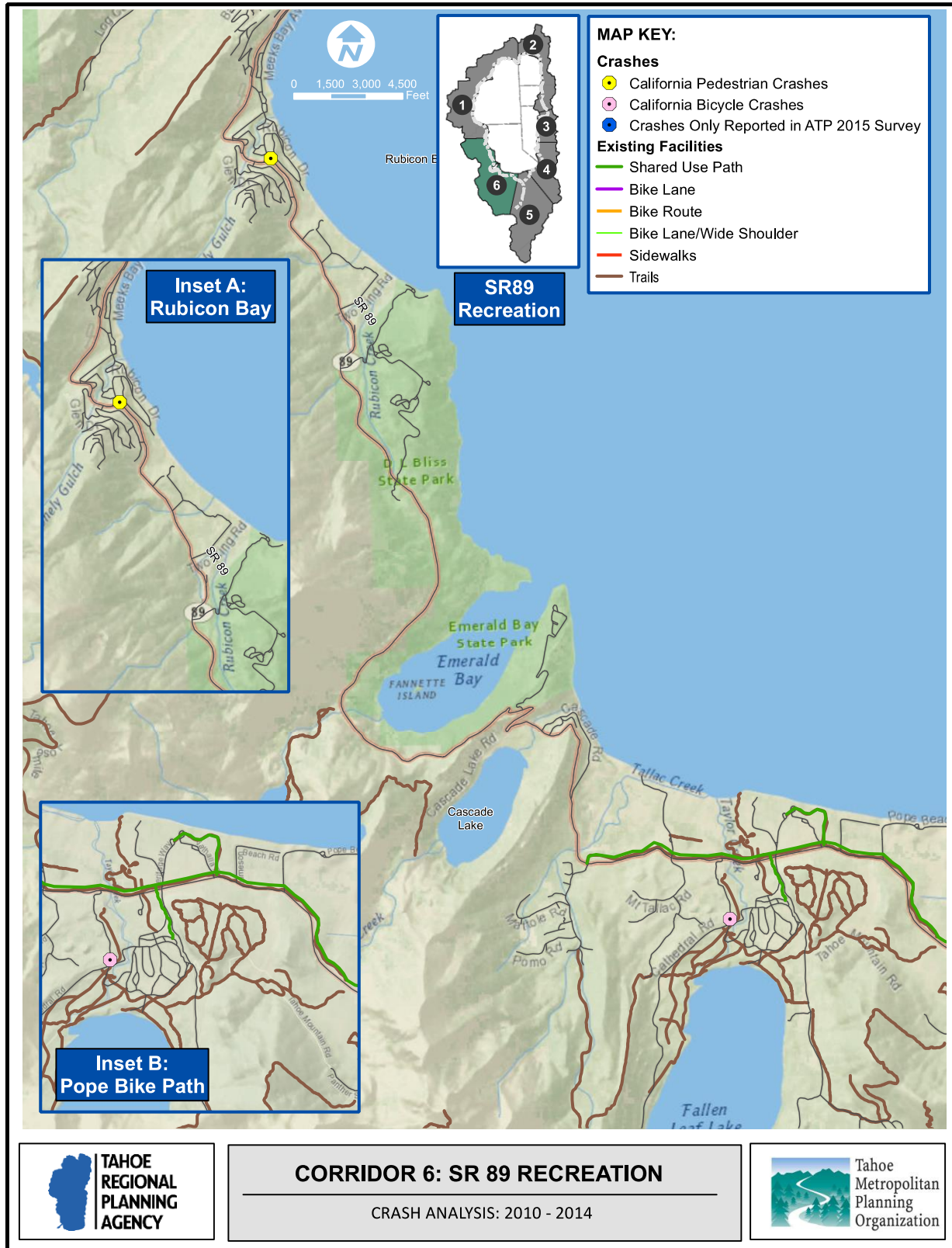


**FIGURE 4-16: CORRIDOR 6 EXISTING & PROPOSED INFRASTRUCTURE**





**FIGURE 4-17: CORRIDOR 6 CRASH ANALYSIS**





## CORRIDOR PROJECT LISTS:

**Table 4-14: Corridor 6 Design Project List:**

Project Name	Lead Implementer	Description	Estimated Total Cost	Miles	County/City
Fallen Leaf Bike Trail	U.S. Forest Service - Lake Tahoe Basin Management Unit	C-I / Shared-Use	\$4,740,000	3.2	El Dorado County
Baldwin Beach Bike Path	U.S. Forest Service - Lake Tahoe Basin Management Unit	C-I / Shared-Use	\$272,600	0.5	El Dorado County
Pope Beach Bike Path	U.S. Forest Service - Lake Tahoe Basin Management Unit	C-I / Shared-Use	\$92,800	0.2	El Dorado County
<b>TOTAL:</b>			<b>\$5,105,400</b>	<b>3.9</b>	

**Table 4-15: Corridor 6 Planning Project List:**

Project Name	Lead Implementer	Description	Estimated Total Cost	Miles	County/City
South Shore Beach Path (Cascade to Spring Creek Road)	U.S. Forest Service - Lake Tahoe Basin Management Unit	C-I / Shared-Use	\$2,610,000	1.7	El Dorado County
West Shore Trail Extension (DL Bliss)	N/A	C-I / Shared Use	\$9,660,000	3.2	El Dorado County
<b>TOTAL</b>			<b>\$12,270,000</b>	<b>4.9</b>	

**Table 4-16: Corridor 6 Priority Intersection:**

Project Name	Lead Implementer	Jurisdiction
Eagle Falls Trailhead & SR 89	Caltrans	El Dorado County

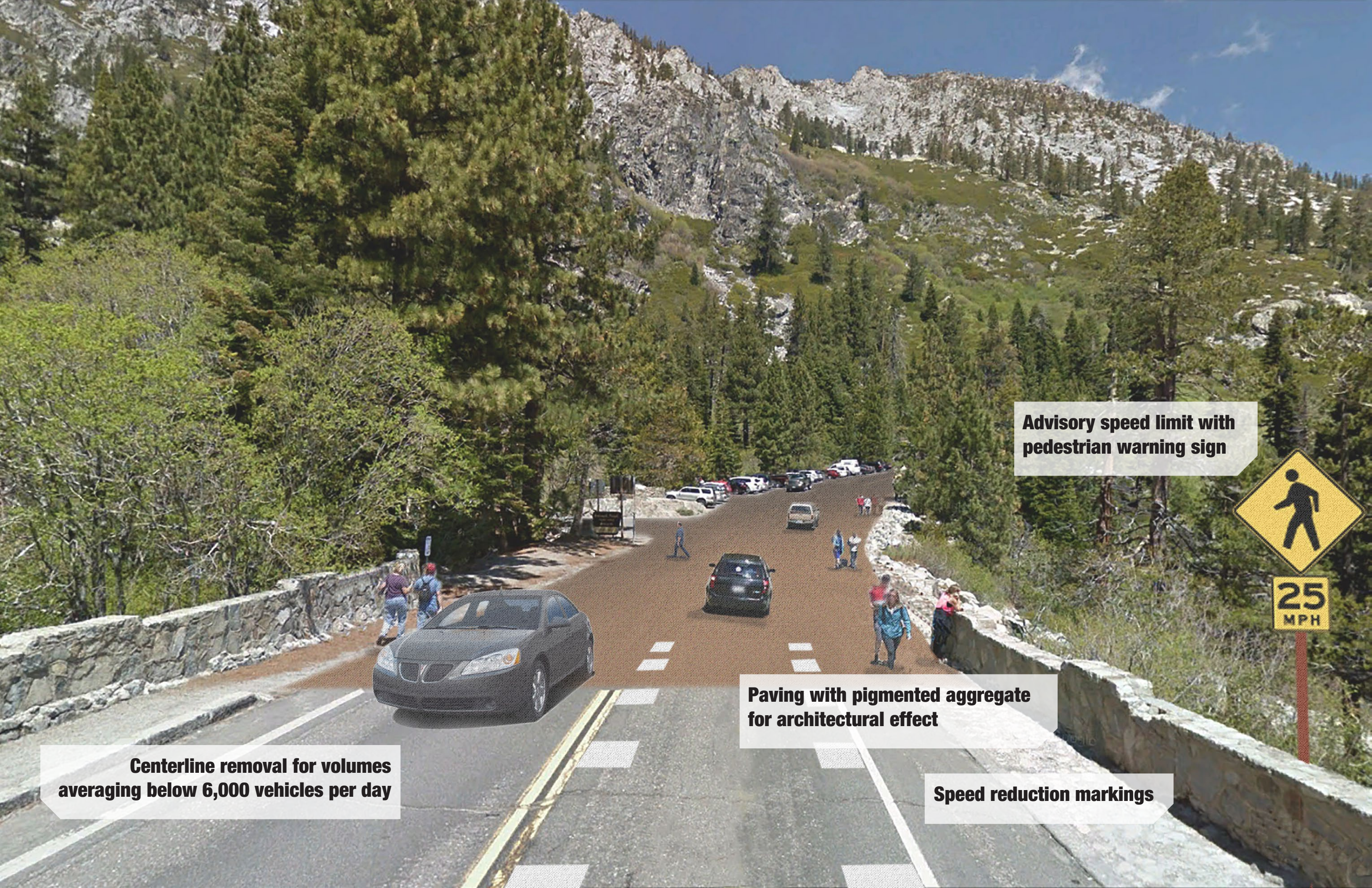
**Please see the following to page for a rendering produced as part of the Transforming Tahoe Transportation Workshop. Participants were asked to evaluate mobility challenges in the Tahoe area and provide recommendations for improvements. The renderings, provided by Alta Planning + Design, illustrate 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**





**Centerline removal for volumes averaging below 6,000 vehicles per day**

**Paving with pigmented aggregate for architectural effect**

**Speed reduction markings**

**Advisory speed limit with pedestrian warning sign**

