



# NEVADA COUNTY PEDESTRIAN IMPROVEMENT PLAN



Prepared for:



NEVADA COUNTY  
TRANSPORTATION  
COMMISSION

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## 1. INTRODUCTION

### PURPOSE

The Nevada County Pedestrian Improvement Plan is intended to guide and influence pedestrian infrastructure, policies, programs, and development standards to make walking in Nevada County more safe, comfortable, convenient, and enjoyable for all pedestrians. The ultimate goal of this Plan is to increase the number of persons in Nevada County that walk for both utilitarian and recreational purposes. It strives to improve accessibility for the disabled but does not intend to replace an ADA transition plan.

The Pedestrian Improvement Plan has been developed to complement the general plans of all Nevada County jurisdictions: Nevada County, the City of Grass Valley, the City of Nevada City, and the Town of Truckee.

### BACKGROUND

Before this Pedestrian Improvement Plan, no jurisdiction in Nevada County had an adopted plan for pedestrian improvements. In 2010, the Nevada County Transportation Commission (NCTC) was awarded a Community-Based Transportation Planning Grant from Caltrans to develop the first pedestrian plan for the County and its jurisdictions.

### PROJECT ADVISORY COMMITTEE

A Project Advisory Committee (PAC) consisting of representatives from each of Nevada County's jurisdictions was consulted regularly throughout the Plan's development. Members included:

- Mike Woodman (NCTC)
- Shannon Culbertson (Caltrans)
- Steven Castleberry (Nevada County)
- Bjorn Jones (City of Grass Valley)
- Bill Falconi (City of Nevada City)
- Becky Bucar (Town of Truckee)
- Ray Bryars (Live Healthy Nevada County)

### CONTENTS

The Pedestrian Improvement Plan includes five chapters:

1. Existing Conditions – examines existing levels of pedestrian activity, existing pedestrian infrastructure, and pedestrian-vehicle collision data
2. Goals and Policies – sets forth the vision and objectives for the Plan
3. Proposed Pedestrian Projects – shows the proposed sidewalk network and improvement prioritization
4. Implementation – discusses funding sources and provides grant-ready fact sheets for high-ranking projects
5. Design Guidance – provides examples of positive design practices for implementation with new infrastructure



## 2. EXISTING CONDITIONS

Nevada County is located in the foothills and high country of California's Sierra Nevada range. It is bounded by the State of Nevada and three California counties: Placer, Yuba, and Sierra. Nevada County's geography is diverse; the foothills are known for their gold-country character and have fairly mild winters. Meanwhile, areas with elevations over 7,000 feet in eastern Nevada County can see annual snowfall totals exceed several feet.

As of 2009, the US Census Bureau estimates that the County's population is approximately 97,000. A significant proportion of the County's residents live within three major communities:

- Town of Truckee – population 13,900
- City of Grass Valley – population 11,000
- City of Nevada City – population 3,000

In the remainder of Nevada County, the character is predominantly rural and development is sporadic. Planned rural communities, such as Alta Sierra, Lake of the Pines, and Tahoe Donner, exist throughout the County.

### EXISTING LEVELS OF WALKING

While Nevada County is generally rural, walking is a common mode of transportation within the County's developed communities. The cities of Grass Valley and Nevada City and the Town of Truckee are among California's oldest communities, and each has a historic downtown business area that dates back to the 1800s. Surrounding residences are located close to the downtown areas. Table 1 shows the existing percentage of home-work trips made by walking in these three Nevada County jurisdictions.

<b>TABLE 1: EXISTING HOME-WORK WALK MODE SPLIT</b>		
<b>Jurisdiction</b>	<b>Home-Work Walk Mode Split</b>	
	<b>Intracity<sup>1</sup></b>	<b>Overall<sup>2</sup></b>
Grass Valley	10%	5%
Nevada City	22%	9%
Truckee	5%	3%

Notes:  
<sup>1</sup> Intracity home-work trips account for residents of a city who work in that same city (i.e., live and work in Grass Valley)  
<sup>2</sup> Overall home-work trips account for all residents of a city regardless of where they work  
 Source: 2000 Census Journey to Work

As shown in Table 1, the intracity home-work walk mode share of total trips ranges between five percent (Truckee) and 22 percent (Nevada City). As expected, the overall home-work walk mode share is lower than the intracity mode split because people are less likely to walk to work when their destination is farther away.



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Home-work trips account for only a fraction of all walking trips. Trips for other purposes, such as school and shopping, are also commonly completed on foot. Additionally, each jurisdiction's downtown attracts significant numbers of tourists; the "park once" nature of each of the downtown areas encourages visitors to walk.

Outside of the downtown areas, travelers are less likely to choose walking as a mode of transportation. Because of the distance between origins and destinations, lack of sidewalks, and automobile-oriented development, these areas see reduced levels of walking.

Areas of the unincorporated County also experience walking trips, although at a much reduced rate compared to the developed communities. Pedestrian activity in areas such as Alta Sierra, Lake of the Pines, and Tahoe Donner is most likely recreational in nature.

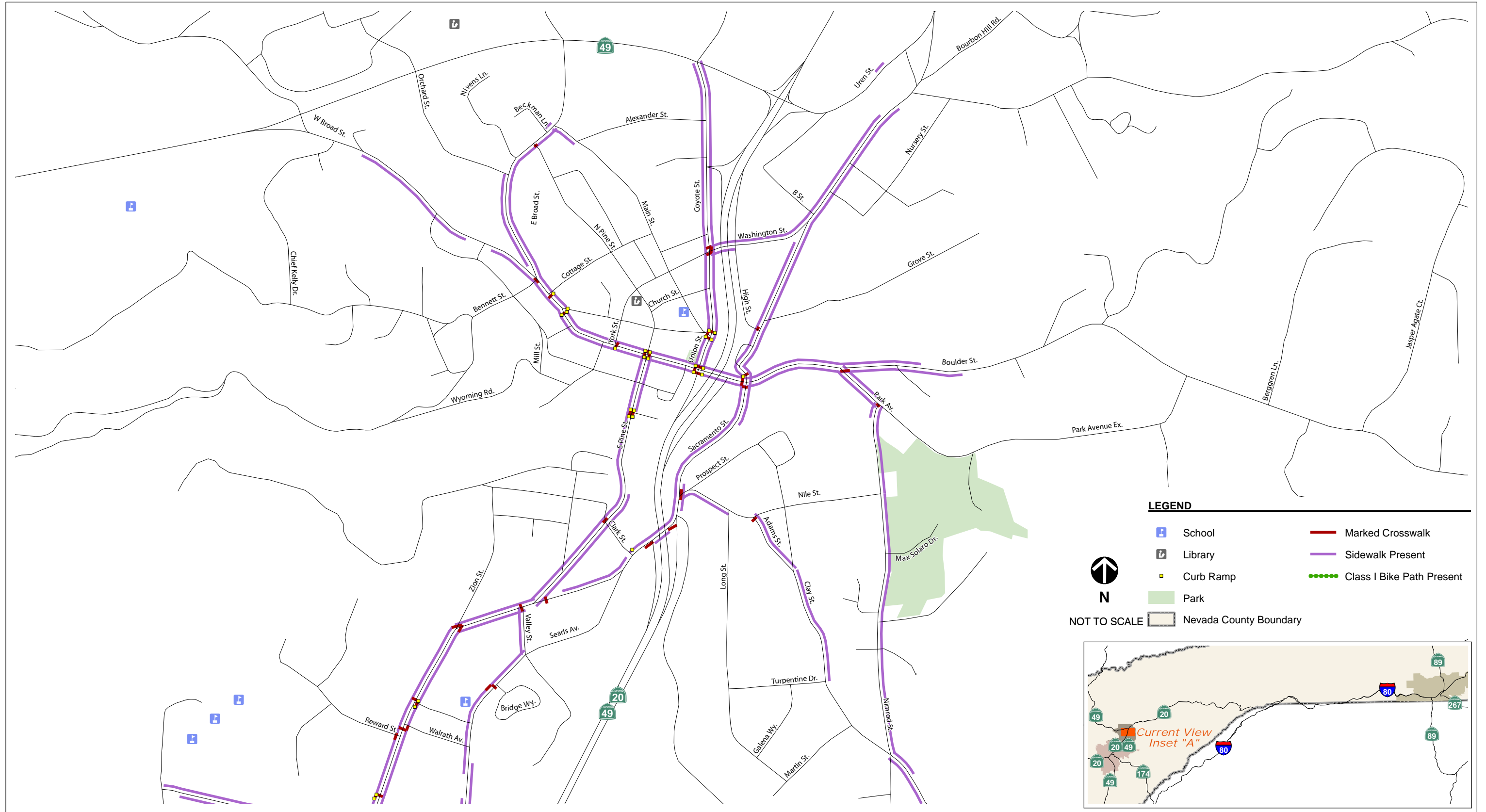


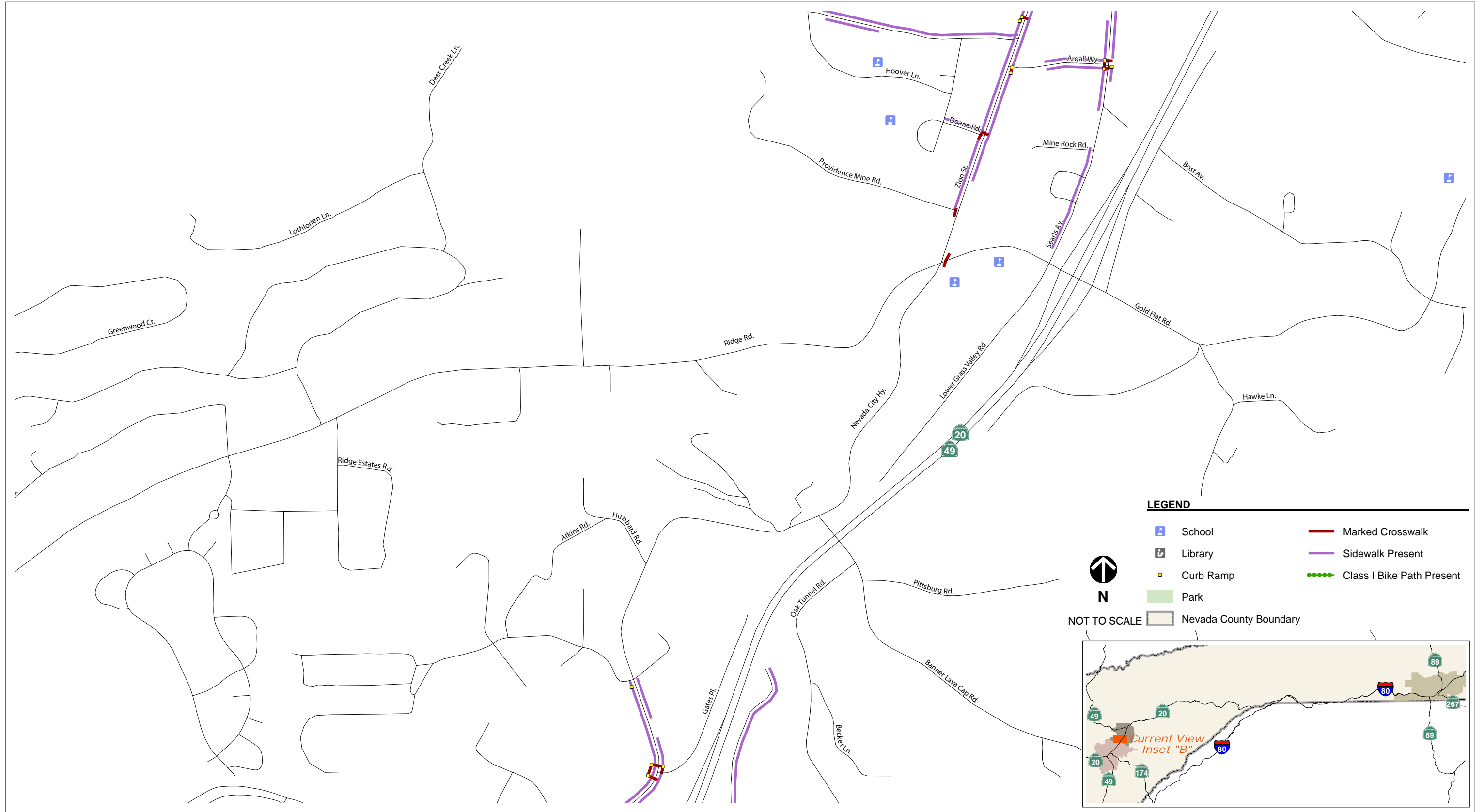
Grass Valley, Nevada City, and Truckee each have thriving downtown areas with high levels of pedestrian activity

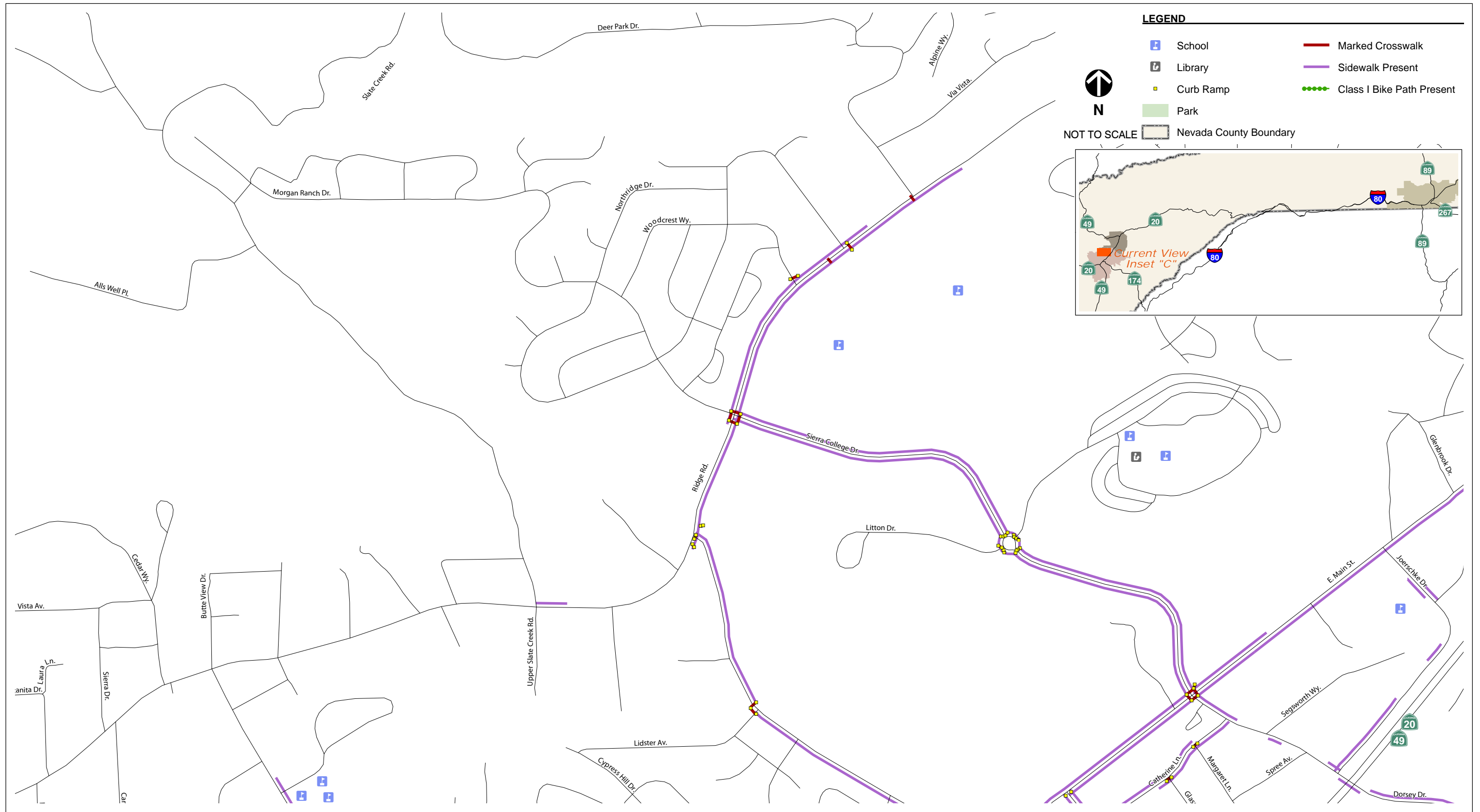
### **EXISTING PEDESTRIAN INFRASTRUCTURE**

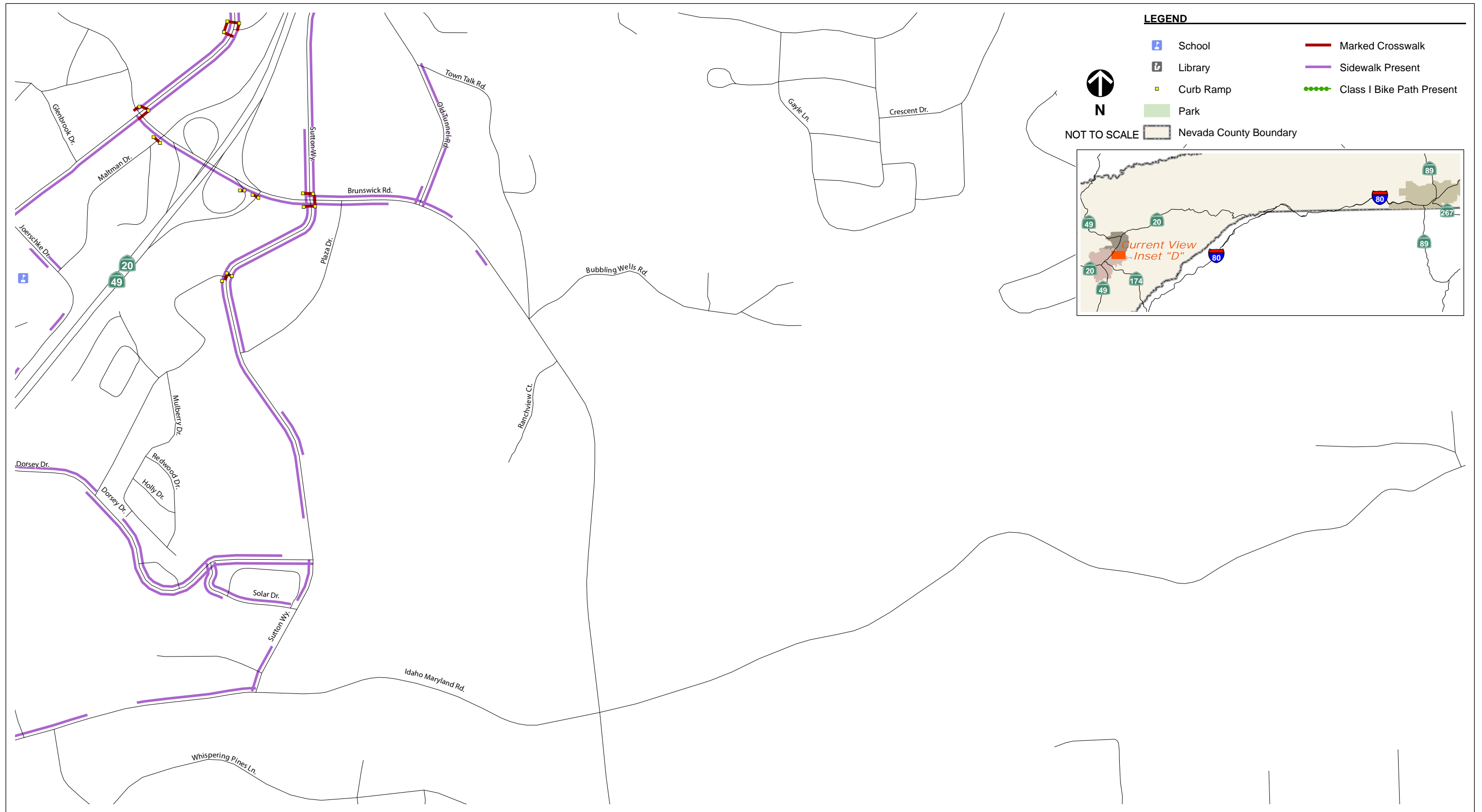
During the kick-off meeting, the Project Advisory Committee determined the major roadways likely to currently have pedestrian traffic or provide access to key pedestrian destinations (with potential for latent pedestrian traffic). Following this meeting, an inventory of existing sidewalks, marked crosswalks, and curb ramps was performed on those roadways using Global Positioning System (GPS)-linked video. Based on this inventory, Figures 1A-1I show the locations of existing pedestrian infrastructure for the roadways studied; sidewalks do exist on other roadways not studied in this plan. Throughout Nevada City, Grass Valley, and Truckee, sidewalks are intermittent. Marked crosswalks are provided both at intersections and mid-block; however, many marked crosswalks need maintenance. Curb ramps are provided at many, but not all, crosswalks. The inventory includes additional detail beyond that illustrated in the maps, including the style of crosswalk striping and the curb ramp design (i.e., whether the ramp is directional or diagonal and if it has truncated (detectable) domes).

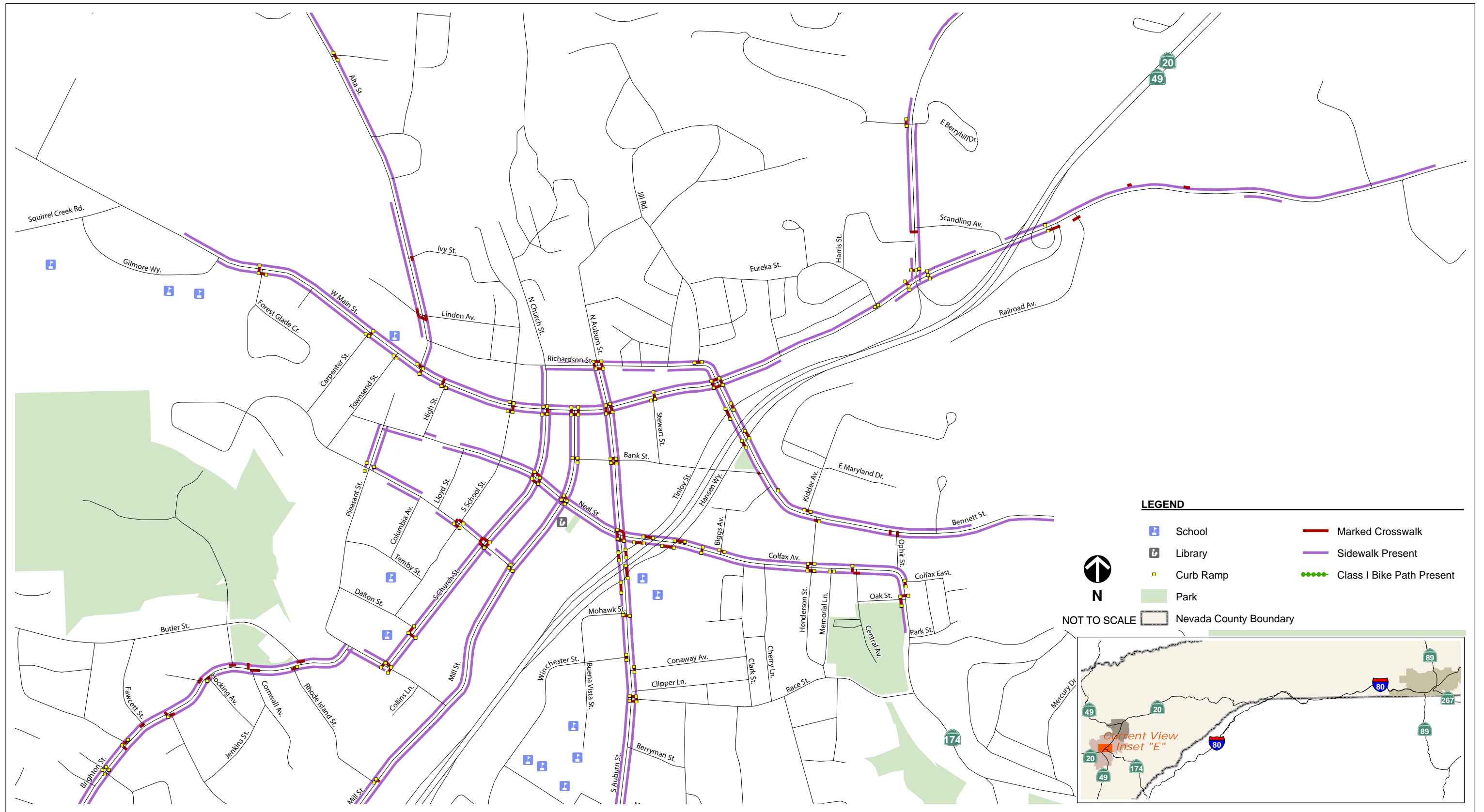




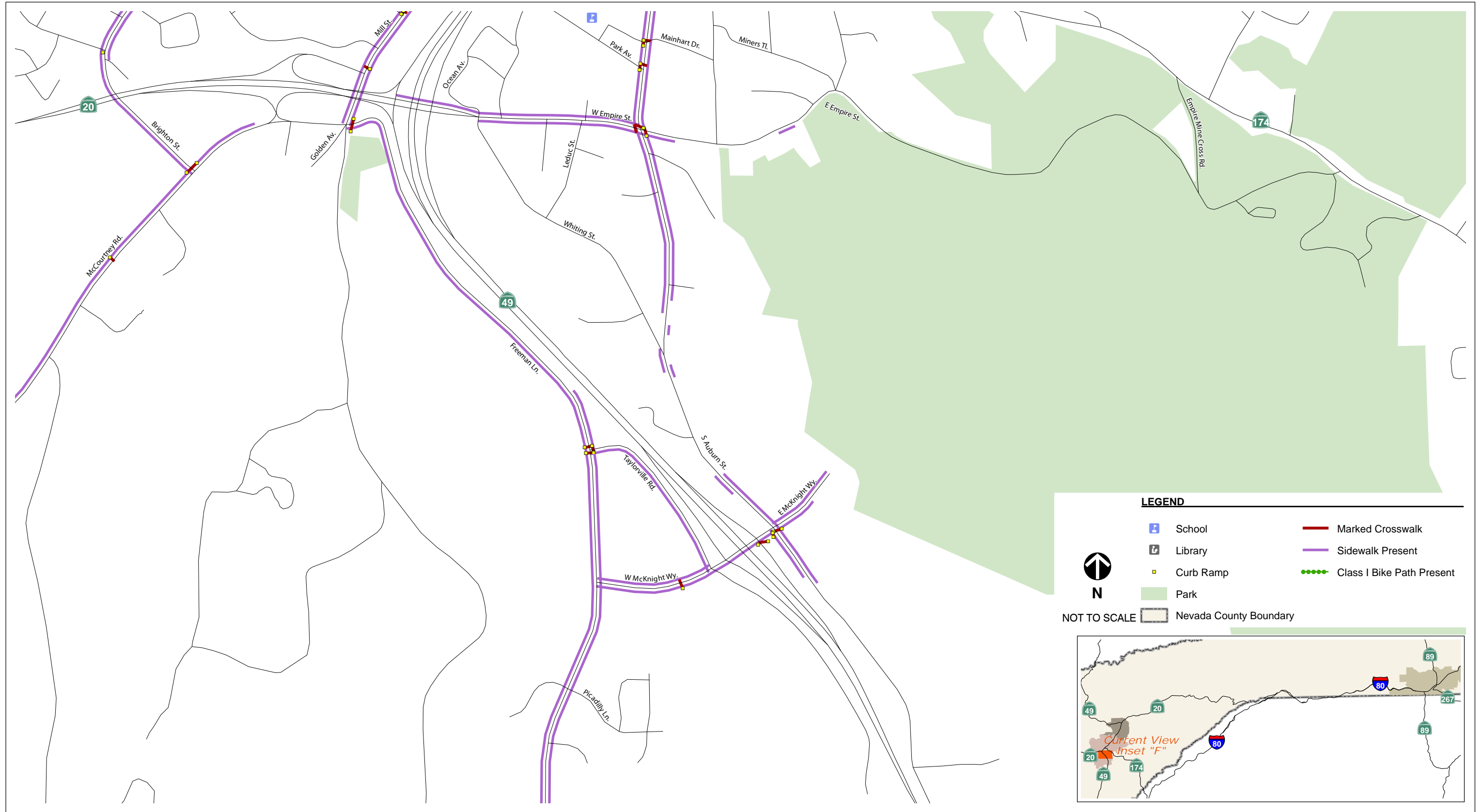


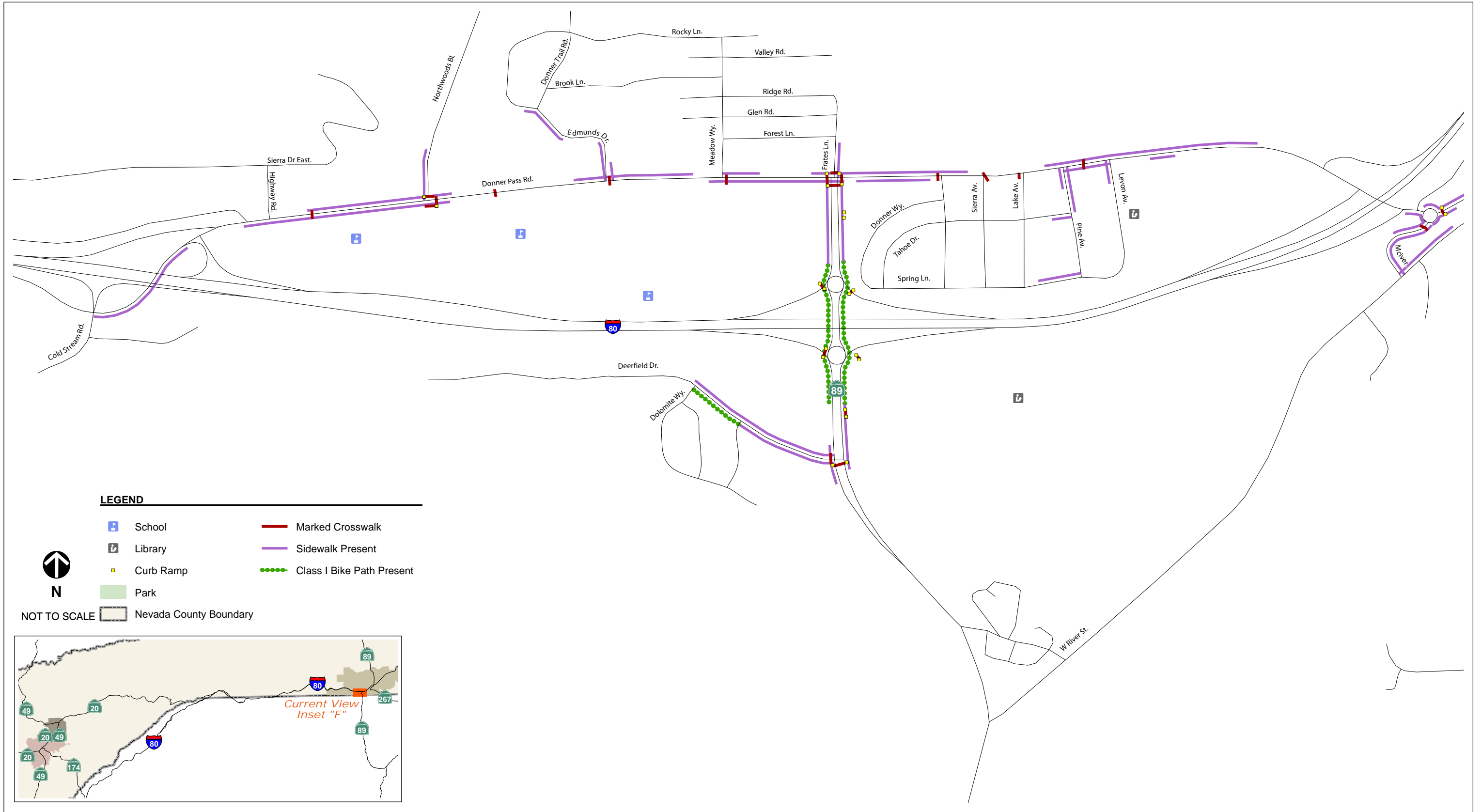


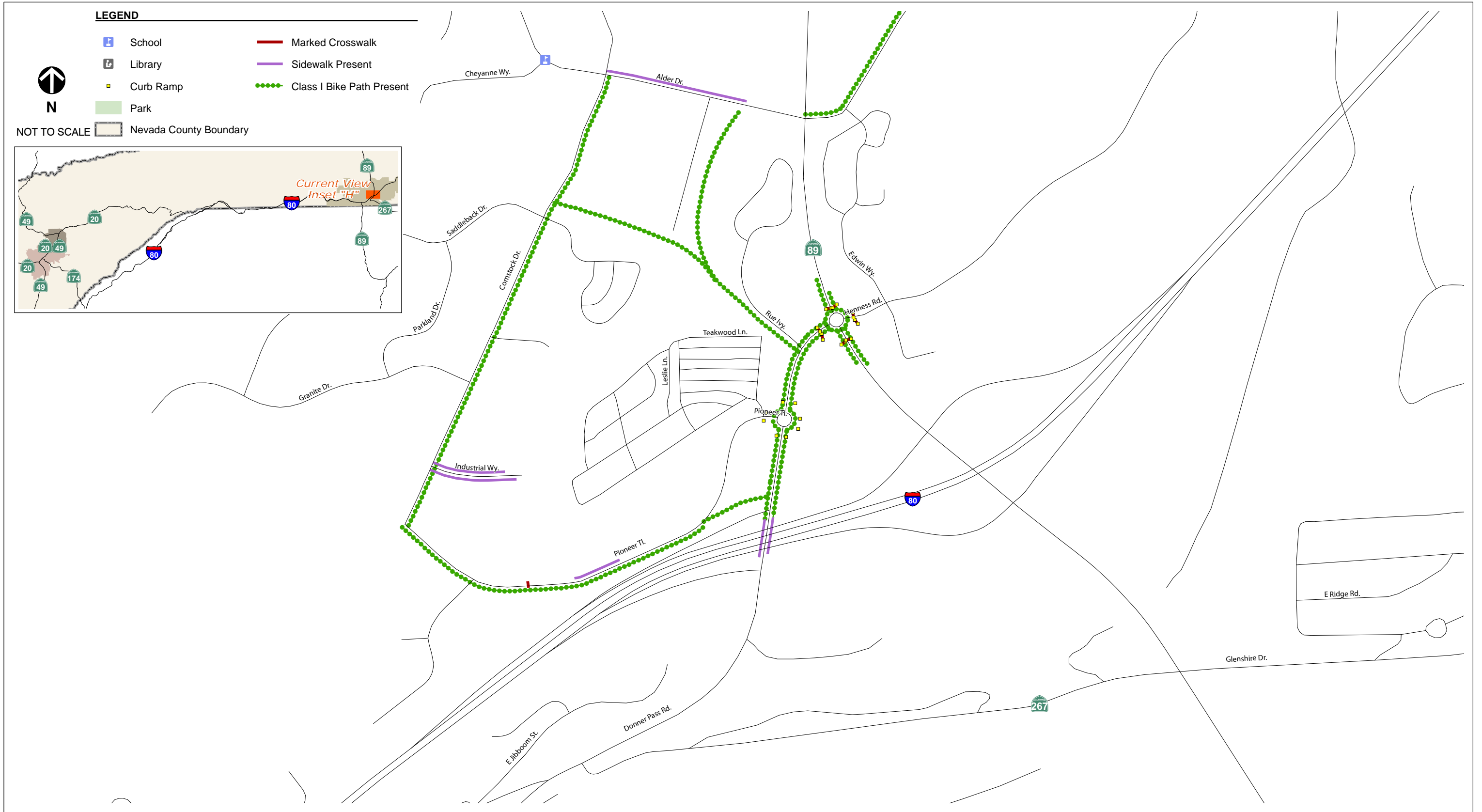




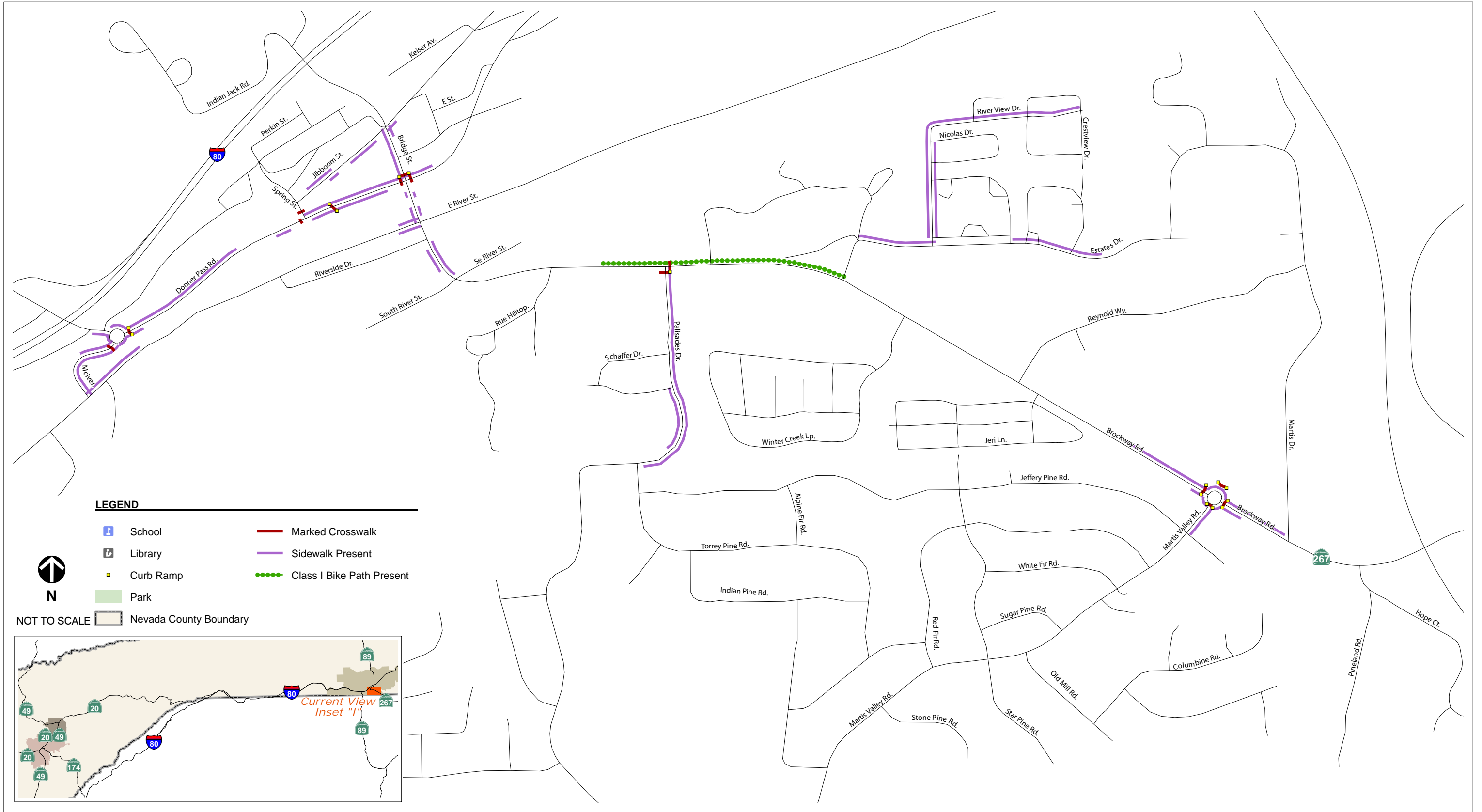














## COLLISION ANALYSIS

Existing pedestrian collision data was reviewed to identify collision locations within the County.

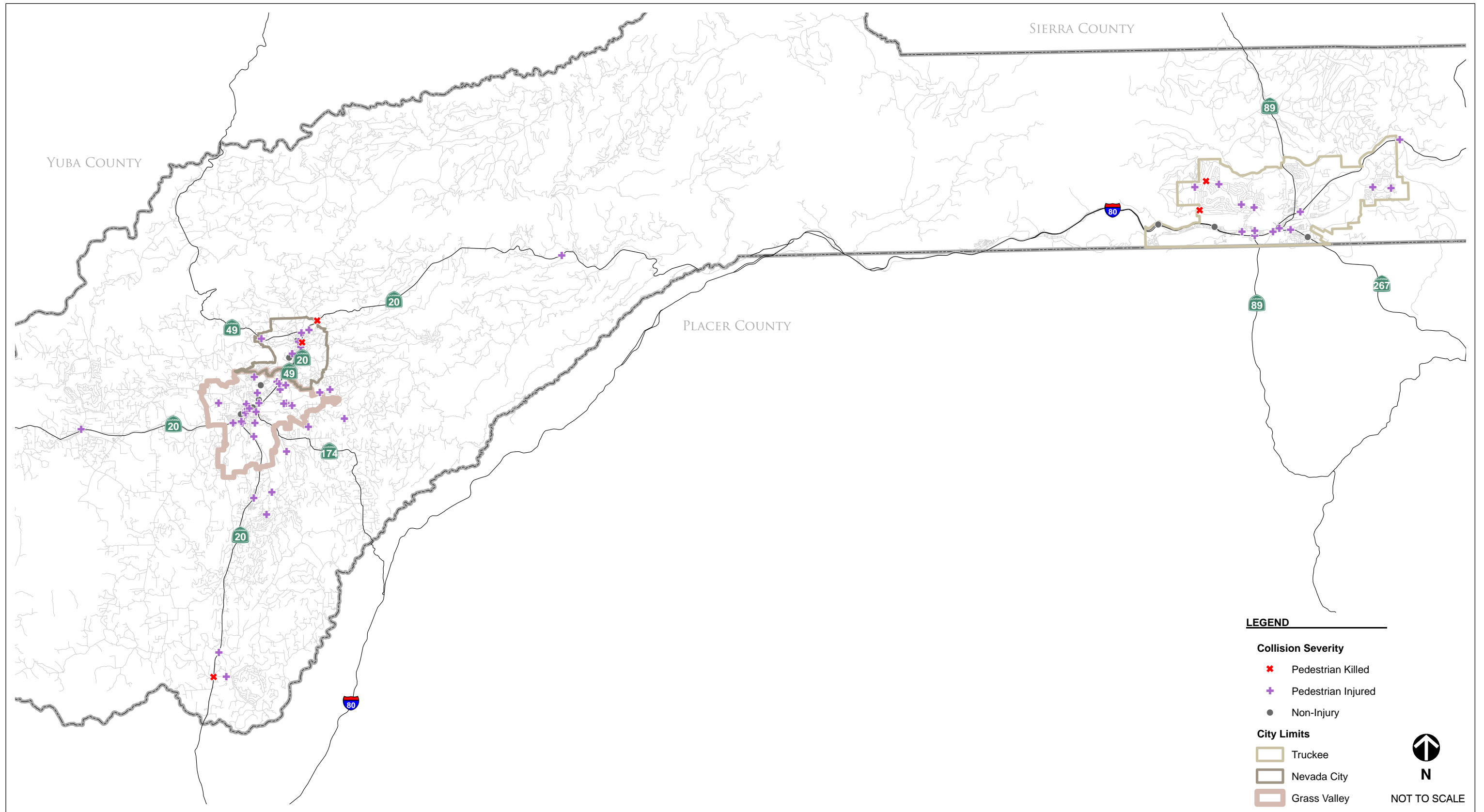
Collision data was accessed from the California Highway Patrol Statewide Integrate Traffic Records System (SWITRS). This data represents all reported pedestrian-vehicle collisions occurring in Nevada County during the six-year period from January 2004 to December 2009. Table 2 summarizes the collision data by year and severity of collision. Five fatalities were reported during the six-year period. Most of the collisions (84 percent) resulted in some form of injury. Figures 2A-2C show the locations of these pedestrian collisions.

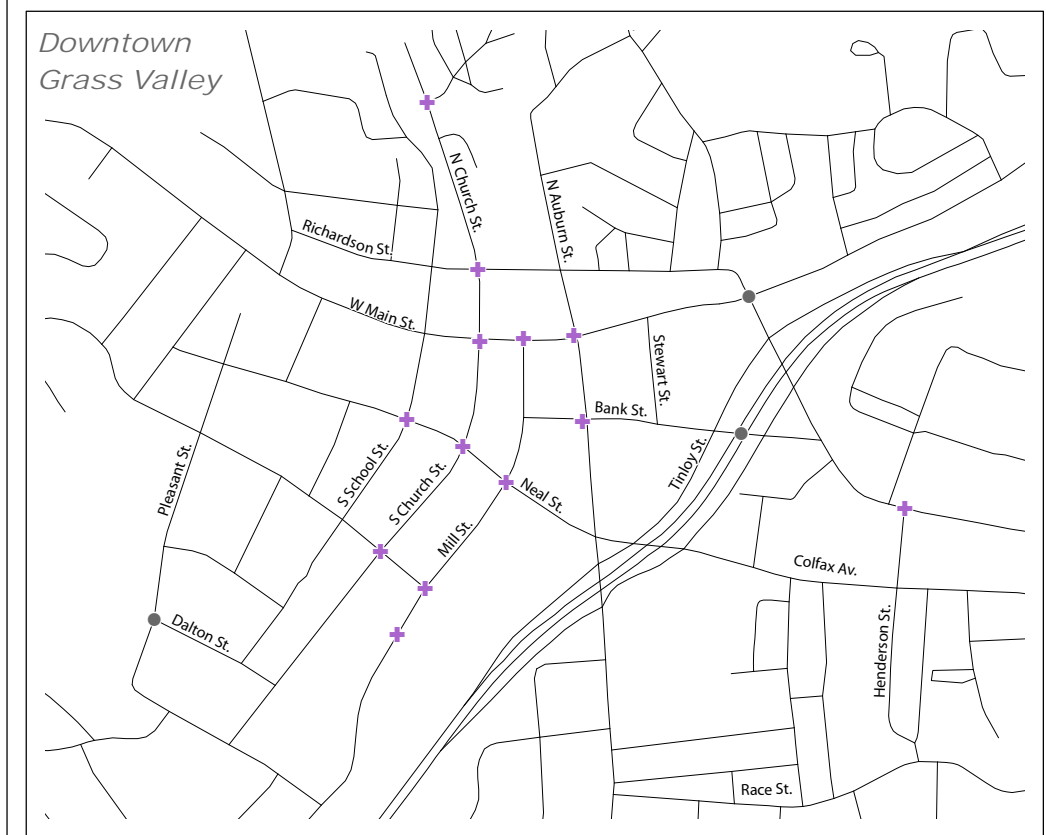
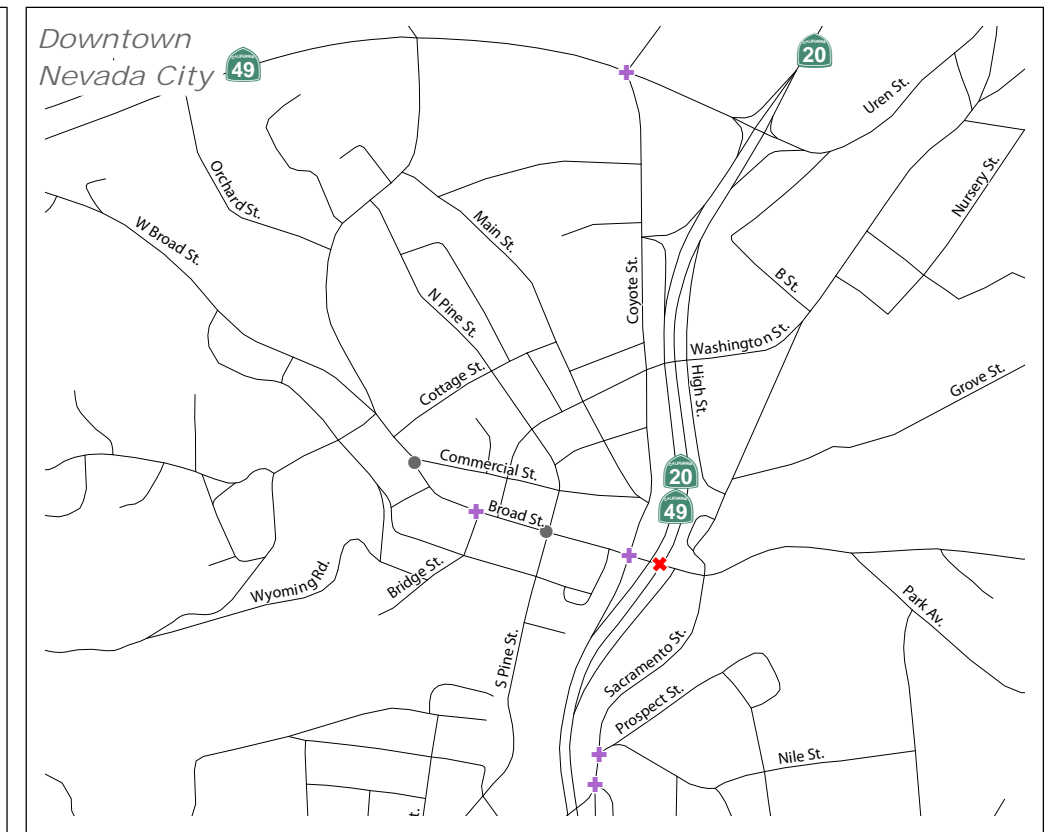
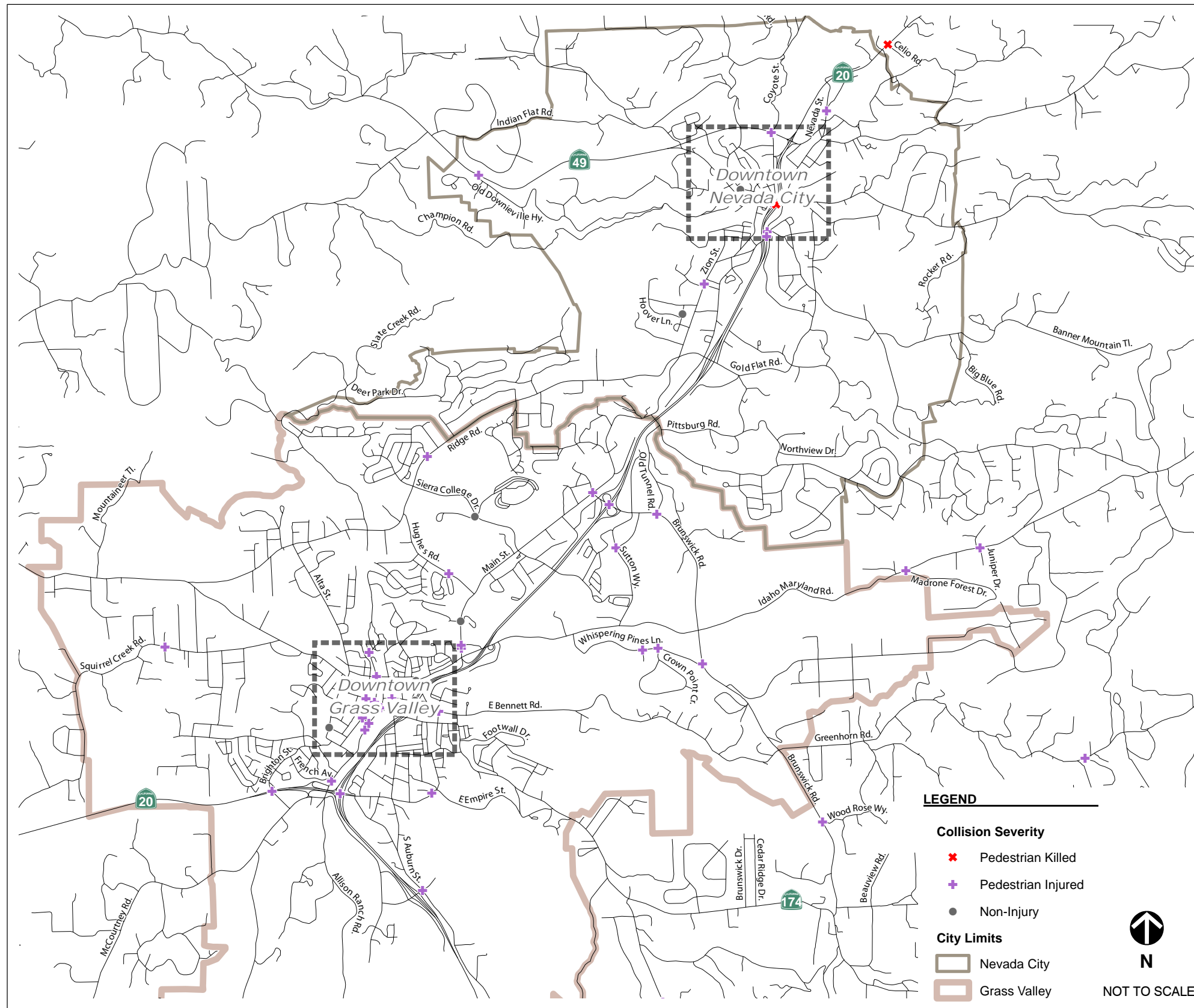
<b>TABLE 2: NEVADA COUNTY PEDESTRIAN COLLISION SUMMARY (JANUARY 2004 – DECEMBER 2009)</b>			
<b>Year</b>	<b>Total Collisions</b>	<b>Injury Collisions</b>	<b>Fatal Collisions</b>
2004	13	11	1
2005	17	13	2
2006	20	17	1
2007	20	16	1
2008	30	28	0
2009	5	3	0
<b>Total</b>	<b>105</b>	<b>88</b>	<b>5</b>

Source: Nevada County Collision Data

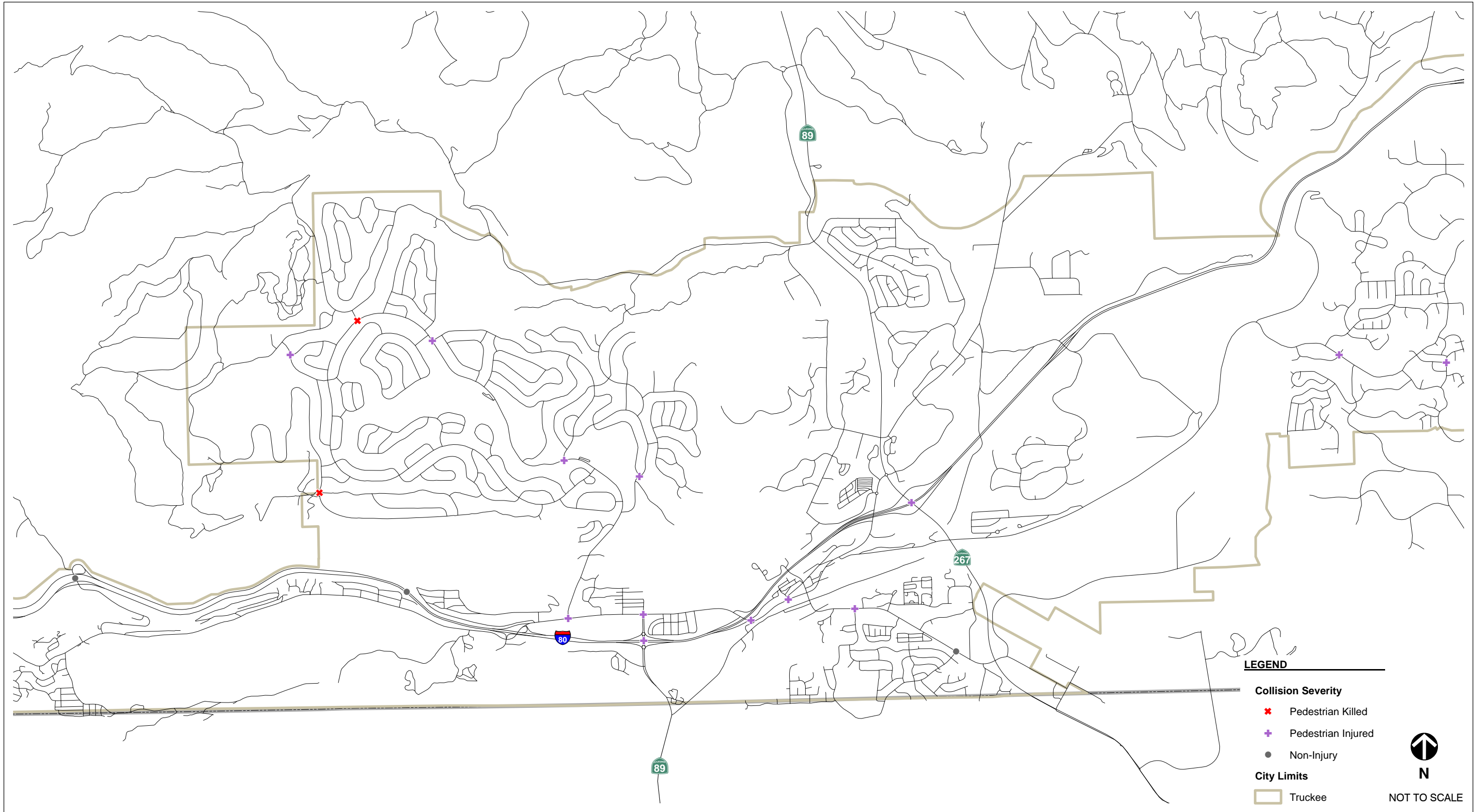
Minor collisions that involve pedestrians, whether with vehicles or bicycles, are generally underreported. Additionally, collisions that occur on off-street paths and trails are not included in the SWITRS data.

The SWITRS data was also analyzed for the Primary Collision Factors (PCFs). Table 3 shows the most common PCFs for pedestrian collisions in Nevada County.











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<b>TABLE 3: NEVADA COUNTY PEDESTRIAN COLLISION SUMMARY PRIMARY COLLISION FACTORS (JANUARY 2004 – DECEMBER 2009)</b>				
<b>Primary Collision Factor</b>	<b>Number of Collisions</b>			
	<b>Non-Injury</b>	<b>Injury</b>	<b>Fatality</b>	<b>Total</b>
Pedestrian Violation (Pedestrian not yielding or crossing illegally)	1	21	3	25
Vehicle Traveling at Unsafe Speed	0	21	0	21
Pedestrian Right of Way (Driver not yielding)	4	11	0	15
Unknown	2	10	0	12
Other	5	25	2	32
Source: Nevada County Collision Data				

As shown in Table 3, the most common Primary Collision Factors (PCFs) were pedestrians crossing illegally (such as crossing against a signal or midblock between signals), drivers operating at an unsafe speed, and drivers not yielding the right-of-way to pedestrians in crosswalks.

Perhaps a more telling source of information in the SWITRS data than the PCFs is the Pedestrian Action variable, which describes what the pedestrian was doing immediately before the collision occurred. Table 4 shows the most common Pedestrian Actions for pedestrian collisions in Nevada County.

<b>TABLE 4: NEVADA COUNTY PEDESTRIAN COLLISION SUMMARY PEDESTRIAN ACTIONS (JANUARY 2004 – DECEMBER 2009)</b>				
<b>Pedestrian Action</b>	<b>Number of Collisions</b>			
	<b>Non-Injury</b>	<b>Injury</b>	<b>Fatality</b>	<b>Total</b>
Walking In Road, Including Shoulder	6	48	3	57
Crossing Not in Crosswalk	3	14	1	18
Crossing in Crosswalk at Intersection	1	14	1	16
Walking, Not in Road	2	6	0	8
Crossing in Crosswalk Not at Intersection	0	3	0	3
Other	0	3	0	3
Source: Nevada County Collision Data				

As shown in Table 4, the most common pedestrian actions were Walking In Road, Including Shoulder; Crossing Not in Crosswalk; and Crossing in Crosswalk at Intersection. These actions preceding a collision suggest infrastructure enhancements, especially when paired with education and enforcement efforts, may improve pedestrian safety in Nevada County.



## EXISTING POLICIES AND GUIDELINES

This section summarizes the policy context for pedestrian planning throughout Nevada County and its jurisdictions.

The policies in the existing plans lay the groundwork for this Plan, in many cases calling for the development and implementation of the Plan. Later chapters of this Plan provide recommendations on changes or enhancements to the existing policies and design guidelines.

### ***Nevada County Plans***

#### Nevada County General Plan

Page 4-10 notes that Nevada County has a limited number of exiting bicycle and pedestrian trails and their use is predominantly recreational in nature.

Several Goals and Policies of the *General Plan* relate to pedestrian travel:

**Policy LU-4.1.4:** Consistent with legal and funding constraints, the following types of road improvement projects shall be emphasized in the County Capital Improvement Program:

- d. Projects needed to improve the use of other modes of transportation, including, but not limited to, public transportation facilities (transit facilities and stops), park and ride facilities, bikeways, non-motorized trails, and pedestrian facilities.

**Goal MV-4.1:** Provide for the safe and efficient movement of people and goods in a manner that respects the rural character of Nevada County.

**Goal MV-4.2:** Provide for a transportation system design that facilitates the transportation of people, goods, and services in support of the General Plan and the economy.

**Program MV-4.2.3:** Pursue funding for projects to improve roadway, bicycle, and pedestrian safety on Nevada County roads.

**Goal RD-4.1:** Reduce dependence on the automobile.

**Goal RD-4.2:** Increase the availability of alternative modes of transportation.

**Goal RD-4.4:** Encourage land use patterns that reduce the need for new roadways and promote the use of alternative transportation modes:

**Policy RD-4.3.1:** All discretionary and ministerial non-residential projects shall consider the feasibility of providing transit alternatives to automobile transportation and ways to reduce the dependence on the automobile. For projects generating 50 or more employees, the applicant shall prepare an analysis documenting means to reduce automobile dependence. Wherever feasible, measures documented in the analysis shall be incorporated into the project. This process shall be coordinated with the applicable Transportation Management Association (TMA) or successor agencies.

**Policy RD-4.3.3:** Nevada County shall work with local Transportation Management Associations (TMAs) to increase opportunities for ridesharing, transit use and other means of reducing demand for additional roadway capacity.



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**Policy RD-4.3.4:** Minimize the need to commute by:

- a. Providing for an adequate amount of residential, commercial, and industrial designations in proper balance, as shown on the General Plan Land Use Maps; and
- b. Encouraging Economic Development and Public Facility policies that support local employment opportunities

**Policy RD-4.3.7:** Sidewalks or walkways are encouraged as frontage improvements for all discretionary permits within Community Regions, as shown on the General Plan Land Use Maps, including all non-residential projects and all residential projects with an overall density greater than one dwelling unit per gross acre. To the extent feasible, pedestrian use shall be included within the roadway prism.

**Policy RD-4.3.8:** County road improvement projects shall incorporate improvements consistent with the Nevada County Pedestrian and Bicycle Master Plans.

**Policy RD-4.3.9:** Bridges and other public road facilities that are designated as components of or connections for non-vehicular trails and pathways, as shown on the Bicycle, Pedestrian or Non-Motorized Trail Master Plans, shall be designed and constructed to ensure the safety and security of all users.

**Program RD-4.3.1:** The County shall cooperate with the Nevada County Transportation Commission, to prepare and implement a Pedestrian Master Plan that provides for a comprehensive system of sidewalks, pathways and trails within established Community Boundaries that are designed to encourage pedestrian use. Emphasis will be placed on connecting residential areas to commercial and industrial areas; development of direct, efficient, safe and aesthetically pleasing routes; and practical mechanisms for utilizing existing public and quasi-public rights-of-way for pedestrian use.

The Plan shall be implemented through (but not limited to) the development review process to ensure that:

- a. Routes are analyzed and designed in relation to a project's neighboring uses and development pattern;
- b. Convenient and pre-existing access is retained and improve, if feasible; and
- c. New development adjacent to or including any designated pedestrian trail shall be designed to connect to the existing pedestrian trails system.

**Goal EP-4.1:** Minimize adverse impacts of the circulation system on the natural and historic environment.

**Goal EP-4.2:** Protect the natural environment in development and maintenance of the transportation system.

**Goal EP-4.3:** To the extent feasible, encourage the reduction of Greenhouse Gas emissions during the design phase of construction projects.

**Goal EP-4.4:** To the extent feasible, encourage the development of energy efficient circulation patterns.

**Policy CP-4.4.3:** Recognize and protect, to the extent feasible, existing historical districts and other historical features during the development of roadway systems.





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**Program 4.4.1:** Review the feasibility of developing an ordinance that provides incentives for developers in return for pedestrian, bicycle, or transit orientated design features.

### Standard Drawings

**Standard Drawing A-2** shows the required cross section for the local rural road system minor collector and local class 3 road. No sidewalk is required; four feet paved shoulders are only required if the roadway is on an adopted bicycle route.

**Standard Drawing A-3** shows the required cross section for the local urban road system urban/commercial street. The minimum sidewalk width is four feet.

**Standard Drawing A-11** shows the required cross section for the local community area road system multi lane street with two-way turn lane. The minimum sidewalk width is five feet.

**Standard Drawing B-5** shows the detail for a sidewalk driveway crossing.

**Standard Drawing B-6** shows the detail for a sidewalk driveway crossing with type “E” curb and gutter.

**Standard Drawing E-1** shows the required cross section for the local urban road system multi-lane street with two-way turn lane. The minimum sidewalk width is five feet below 3,000 feet elevation and four feet above 3,000 feet elevation.

### Zoning Ordinance

**Table L-II 2.4.D** summarizes allowable use and permit requirements for commercial districts. Dwelling units that are a part of a mixed-use development may not exceed four units per acre and require a Use Permit.

**Table L-II 2.4.E** summarizes site development standards for commercial districts. Where a roadway’s Right of Way is at least 50 feet wide, at least 10 feet of setback is required from the edge of Right of Way. Where a roadway’s Right of Way is less than 50 feet wide, at least 35 feet of setback is require from the Right of Way center line.

**Section L-II 4.1.8** summarizes development standards for pedestrian pathways:

- A. **Purpose.** To encourage the development of pedestrian walkways to, between, and within developments.
- B. **Standards.**
  1. All projects in Community Regions shall be designed to provide pedestrian paths, trails, sidewalks or other hard-surfacing that links the proposed project with adjacent properties.
  2. Discretionary projects in Rural Regions shall be evaluated, and where topography, sensitive resources or other site constraints do not preclude construction of pedestrian pathways, projects shall be designed to provide a link to adjacent properties.
  3. All projects shall provide interior linkages between uses, including distinct pedestrian access from parking areas.
  4. If a County-wide Pedestrian Master Plan has been adopted, the project shall be consistent with the goals and applicable policies of that Plan.



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**Section L-II 4.2.9** summarizes size development standards for parking. The standards do not preclude the installation of parking behind buildings (thereby allowing the building to be as close as possible to the street). The standards do not require an ADA accessible pedestrian path from the street to the building's main entrance through the parking lot.

### ***Grass Valley***

#### Grass Valley General Plan

Page 8-8 mentions that pedestrian trails have been planned for Grass Valley; however, existing trails are limited. Page 8-9 discusses the importance of implementing Transportation System Management (TSM) and Transportation Demand Management (TDM) strategies to increase the efficiency of the existing transportation system; currently, no TSM or TDM programs exist in Grass Valley.

According to 1990 Census data, 6 percent of Grass Valley residents report walking as their means of transportation to work.

#### Design Standards

**Table 6-1** provides the Right of Way widths for different classes of streets and different types of sidewalk (attached versus detached).

**Section 6-6** describes requirements for sidewalks and specifies that sidewalks shall be constructed adjacent to all public streets, the minimum required width is five feet, and that curb ramps shall be provided at all intersections.

**Section 6-7** describes requirements for pedestrian walks and bike paths. The minimum width for pedestrian walks is five feet; the minimum width for combined pedestrian/bike paths is ten feet.

#### Construction Standards

**Standard Drawing ST-3** shows the required cross section for both rolled and vertical curb and gutter. In both cases the minimum sidewalk width is five feet.

**Standard Drawings ST-4, ST-5, and ST-6** show the required details for different cases of curb ramps. Each case requires truncated domes and slopes that are compliant with ADA requirements. No details are provided as to the provision of directional curb ramps.

**Standard Drawing ST-9** shows the required details for residential and commercial driveways.

**Standard Drawing ST-9** shows the required details for a shared use path. The required width is ten feet.

**Standard Drawings ST-14 and ST-15** show the required details for various minor residential streets. The minimum required sidewalk width is five feet. Sidewalks can either be attached or detached from the curb.

**Standard Drawing ST-16** shows the required details for a primary residential street. The minimum required sidewalk width is five feet. Sidewalks can either be attached or detached from the curb.

**Standard Drawing ST-17** shows the required details for a collector street. The minimum required sidewalk width is five feet. Sidewalks can either be attached or detached from the curb.



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**Standard Drawing ST-18** shows the required details for a modified collector street (1). The minimum required sidewalk width is five feet. Sidewalks are detached from the curb with a landscaped buffer four feet wide.

**Standard Drawing ST-19** shows the required details for a modified collector street (2). The minimum required sidewalk width on one side is five feet; that sidewalk is attached to the curb. The other side of the roadway has a path detached from the curb that is ten feet wide.

**Standard Drawing ST-20** shows the required details for a collector street with parking. The minimum required sidewalk width is five feet. Sidewalks can either be attached or detached from the curb.

**Standard Drawing ST-21** shows the required details for an arterial street. The minimum required sidewalk width is five feet. Sidewalks can either be attached or detached from the curb.

**Standard Drawing ST-25** shows the required details for a residential raised intersection. The intersection includes a stamped asphalt section. Angled curb ramps provide access to the crosswalks.

**Standard Drawing ST-26** shows the required landscape sight distance for streets with either detached or attached sidewalk. The detached sidewalks are “wandering” (i.e., curved).

**Standard Drawing ST-32** shows the required details for a bollard.

### Downtown Streetscape Standards Manual

**Page 12** shows the standards required for truncated domes in Downtown Grass Valley.

**Page 14** shows the required style of trash receptacles and newspaper racks.

### South Auburn Street Master Plan

The South Auburn Street Master Plan recommends pedestrian improvements, including sidewalks, pathways through nearby parking areas, and pedestrian plazas, for the Auburn Street Master Plan Study Area (bounded by Bank Street to the north, Auburn Street to the west, Neal Street to the south, and the Holiday Inn Express to the east).

### Development Code

**Chapter 17.21** summarizes the development standards within Traditional Community Development Zones. In all cases, mixed use residential land use is permitted. Front setback from the property line ranges between zero and 15 feet.

**Table 2-10** summarizes allowable land use types and permit requirements for commercial and industrial zones. Mixed use residential land use is permitted in the C-1, C-2, and OP zones; mixed use residential in the CBP zone requires a use permit. **Table 2-11** summarizes the development standards within commercial zones. No front setback is required.

**Table 3.3** summarizes parking requirements by land use type. The standards do not preclude the installation of parking behind buildings (thereby allowing the building to be as close as possible to the street). The standards do not require an ADA-accessible pedestrian path from the street to the building’s main entrance through the parking lot.



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### ***Nevada City***

#### Nevada City General Plan

Among the goals of the *Nevada City General Plan* are to “preserve Nevada City’s special character.”

A policy of the Nevada City General Plan is to “encourage the construction of pedestrian and bicycle pathways where appropriate, to provide safe alternatives to vehicular travel.”

#### Design Standards

Nevada City uses standard Caltrans specifications for roadways.

#### Zoning

**Title 17** of the *Municipal Code of Nevada City* outlines the City’s zoning requirements. Chapter 17 specifically discusses the land uses allowed in each of the zones. Mixed use residential is allowed in the Local Business Zone, the General Business Zone. Minimum front yards for the different types of commercial zones are:

- Office and Professional Zone – 25 feet
- Local Business Zone – 25 feet
- General Business Zone – none
- Employment Center Zone – 25 feet

### ***Town of Truckee***

#### General Plan

The Vision for Truckee specifies that “development will be pedestrian oriented and provide public access to recreation and open space.”

Several Goals, Policies, and Actions of the *Truckee General Plan* relate to pedestrian travel.

#### *Land Use Element*

**DSA-P4:** Increase opportunities for pedestrian circulation, including improved access across the railroad tracks, and improved access between parking areas and businesses.

**Policy P5.4:** Discourage new “strip” commercial development and encourage site design for new commercial projects that provides for pedestrian/bicycle access and proper building scale and proportion relative to the pedestrian realm.

**Policy P6.2:** Maintain and enhance Downtown as the heart of Truckee and as the Town’s premier tourist destination thorough the following methods, and through Action A6.2:

- Aggressively facilitate pedestrian-oriented development in the Downtown through implementation of the Downtown Specific Plan.



## NEVADA COUNTY PEDESTRIAN IMPROVEMENT PLAN

**Policy P6.3:** Improve the quality and character of development along Donner Pass Road in the Gateway Area, including improvements that encourage a pedestrian-oriented environment and that facilitate walking and bicycle use.

### *Community Character Element*

**Policy P6.9:** Provide open spaces and gathering areas in Downtown to encourage public activities. Provide an integrated pedestrian and bicycle network that links these open spaces and other destination points within Downtown.

**Policy P6.10:** Create pedestrian and bicycle connections in the Downtown that encourage people to walk between different activity centers such as Commercial Row, Jibboom Street, Brickeltown, West River Street and the new Railyard area.

**Policy P6.11:** Enhance pedestrian and bicycle connections between the Downtown and to adjacent neighborhoods, the Hilltop area, and the Cemetery area, and enhance the important physical and visual connection to the Truckee River.

**Policy P8.1:** Encourage the redevelopment of the Gateway Area from an auto-oriented, strip-commercial dominated corridor, to a place that invites pedestrian activity and provides gathering places and opportunities for interaction.

**Policy P8.3:** Avoid future strip commercial development in the area, and encourage the rehabilitation of existing strip commercial development to improve pedestrian access and activity, and visual appearance.

**Policy P8.4:** Improve the pedestrian- and bicycle-friendliness of the corridor through sidewalk and streetscape improvement that address issues such as sidewalk continuity, paving materials and signage, links between adjoining properties, and connections to the town's network of trails and bikeways.

**Policy P8.5:** Encourage design oriented to the pedestrian realm through the following measures:

- Building design along Donner Pass Road that is proportionate to the width of the street that it fronts, is oriented to the street, and minimizes setbacks from the public right-of-way.
- Appropriate design and siting of parking facilities to minimize their visual impact and break up their massing.
- Design of facades and building frontages that provide pedestrian-scale detail and a high level of visual interest along the street frontage, including storefront display windows, articulated massing, and fine-grain architectural detail.

**Policy P8.9:** Utilize needed street and intersection improvements as an opportunity to incorporate streetscape enhancements and improvements for pedestrians and cyclists, as well as automobiles. Roadway improvements shall be implemented with consideration of the need to balance the need for efficient traffic movement with other broad goals for the corridor.

**Policy P9.1:** Promote redevelopment and infill of existing auto-oriented commercial centers and corridors with pedestrian-friendly mixed use development.

**Policy P9.2:** Encourage all existing and new mixed use centers to create a "park once environment" that provides a variety of uses within walking distance.



## NEVADA COUNTY PEDESTRIAN IMPROVEMENT PLAN

**Policy P9.4:** Enhance pedestrian connections from nearby residential areas to local shopping centers so as to enhance the mixed use quality of Truckee's commercial centers and their surrounding residential areas; reduce the need to drive to access daily needed goods and services; and provide safe and convenient pedestrian connections.

**Policy P9.5:** Require new mixed use centers to incorporate site planning and design that reflects walkability and opportunities for indoor and outdoor social interaction, including clustered buildings, parking dispersed into smaller lots, as well as pedestrian-scale design features.

**Action A9.1:** Conduct a "pedestrian-shed" study aimed at all residences located within a quarter-mile radius or ten-minute walk of an existing or future mixed use center, and use the results of the study to determine appropriate design solutions and implementation strategies to improve the pedestrian safety and accessibility of each center.

**Policy P10.4:** Improve pedestrian connections and ensure that facilities such as bike racks are provided at all neighborhood centers.

### *Circulation Element*

Among the Circulation Element's Guiding Principles are:

- Ensure that new development minimizes impacts on the roadway network, is integrated into the existing transportation system, and provides for use of alternative modes.
- Reduce automobile travel demand to reduce impacts on the Town's roadway system, lessen the need for new or expanded road facilities to accommodate increased demand, and decrease pollutants emissions from automobiles.

**Figure CIR-2** shows the Existing and Proposed Trail and Bikeway Network.

**Table CIR-5** identifies Roadway and Intersection Improvements, including improvements to the Highway 89 South "Mousehole" to improve pedestrian safety.

**Policy P1.5:** Ensure that existing and future roadway, sidewalk and bikeway standards, and the implementation of such standards, take Truckee's climatic conditions into account.

**Action A1.6:** Amend the Public Improvements and Engineering Standards (PIES) to identify cross-sections for all arterial and collector roads, including existing and future rights-of-way, paving widths, sidewalk and bike lane locations, and edge treatments (landscaping, lighting, etc.).

**Policy P4.2:** Require planning for land use and transportation systems in new growth areas that provides opportunities for residents, employees, and those without vehicles to accomplish many of their trips by walking, bicycling, or using transit.

**Policy P6.2:** Use road and intersection improvement projects as an opportunity to improve the aesthetic quality of the intersection or roadway in question. Such improvements could include sidewalk installations, landscaping, medians, improved street lighting, or pavement treatments.

**Goal CIR-9:** Reduce vehicle trips as a means to minimize demands on the existing roadway system, reduce the future need for new or expanded road facilities, and reduce energy consumption and air pollution.

**Policy P9.1:** Promote the use of transportation control measures (TCMs) that divert automobile trips to transit, walking, and bicycling.





## NEVADA COUNTY PEDESTRIAN IMPROVEMENT PLAN

**Policy P9.2:** Promote land use and transportation strategies that will reduce automobile trips, particularly implementation of compact, pedestrian-oriented development, mixed uses, live-work projects, neighborhood-serving commercial and mixed use centers, and clustered and infill development.

**Goal CIR-10:** Provide a safe, comprehensive, and integrated system of facilities for pedestrians and cyclists and other non-motorized modes of transportation.

**Policy P10.3:** Identify and implement new pedestrian facilities beyond those identified in the *Trails and Bikeways Master Plan* and Downtown Streetscape Plan. These facilities may include, but not be limited to, pedestrian facilities along Donner Pass Road between Cold Stream Road and South Shore Drive, along Highway 89 South, and along West River Street.

**Policy P10.4:** Ensure that streetscape and urban design plans for the Gateway corridor and Brockway Road include pedestrian connections to the Downtown's pedestrian network.

**Policy P10.6:** Use road and intersection improvements as an opportunity to improve bicycle and pedestrian facilities.

**Policy P10.7:** Encourage the provision of bicycle routes along State highways, especially a bicycle/pedestrian facility along State Route 89 under the Union Pacific tracks, in association with safety improvements at the Mousehole.

**Policy P10.8:** Pursue all available sources of funding for the development and improvement of trails for non-motorized transportation (bikeways, and pedestrian and equestrian trails).

**Policy P10.9:** Promote non-motorized travel (bicycle, pedestrian, and equestrian) through appropriate facilities, programs, and information, including through the school system and local media.

**Policy P10.10:** Require major development projects to include pedestrian facilities and bikeways.

**Policy P10.11:** Enforce pedestrian and bicycle access standards for all new development and require developers to finance and install pedestrian walkways, equestrian trails, and multi-use trails in new development, as appropriate and necessary, to address circulation needs. Consider and work towards a mean by which the requirements of the *Trails and Bikeways Master Plan* can be met by affordable housing projects.

**Policy P10.12:** Provide facilities that separate bicycle and pedestrian traffic from vehicular traffic whenever it is feasible to do so.

**Action A10.3:** Develop a strategy to implement sidewalk, bikeway, and streetscape improvements in the Downtown area, along Donner Pass Road in the Gateway area, and along Brockway Road.

**Action A10.4:** Develop, potentially as a supplement or amendment to the *Trail and Bikeways Master Plan*, a pedestrian facilities plan that would provide a comprehensive study of existing pedestrian districts and facilities, needed pedestrian facilities such as sidewalks, crosswalks and links to transit and nodes of community activity, and provide programs to effectively implement them.



## NEVADA COUNTY PEDESTRIAN IMPROVEMENT PLAN

### Standard Drawings

The following Standard Drawings are from the Town of Truckee Public Improvement and Engineering Standards.

**Standard Drawing SD-1** shows the required cross section for arterials with and without parallel parking. Where sidewalks are required, they shall be four feet wide.

**Standard Drawing SD-4** shows the required cross section for arterials with a two-way center turn lane with and without parallel parking. Where sidewalks are required, they shall be four feet wide.

**Standard Drawing SD-9** shows the required cross section for a class I bike path. Class I bike paths shall be eight feet wide.

**Standard Drawing SD-15** shows the alternatives for roadway edges. For Type E curb with sidewalk, the sidewalk shall be four feet wide.

**Standard Drawing SD-19** shows the required details for curb ramps. The curb ramp shown is a diagonal curb ramp. No requirements for truncated domes are shown.

**Standard Drawing SD-20** shows the required details for modified curb ramps. No requirements for truncated domes are shown.

**Standard Drawing SD-21** shows the required standard for sidewalks. The necessary width for sidewalks is four feet.

**Standard Drawing SD-22** shows the required details for a meandering sidewalk.

**Standard Drawing SD-23** shows the required details for handicap ramps. The curb ramp shown is a diagonal curb ramp. No requirements for truncated domes are shown.

**Standard Drawing SD-24** shows the detail for a sidewalk driveway crossing. A level landing for pedestrians is not provided.

**Standard Drawing SD-25** shows the detail for a handicap ramp and a commercial frontage entrance.

### Downtown Specific Plan

The Truckee Downtown Specific Plan is an important Town planning document that focuses on walkability and pedestrian activity in the Downtown area. The plan includes policies to improve pedestrian circulation and access, to make pedestrian-friendly connections, and to improve walkability and safety. The plan also identifies the need for mixed use land uses that promote pedestrian travel and streetscape improvements to enhance the pedestrian experience. In addition, new pedestrian facilities are identified in the Pedestrian and Bicycle Circulation Map.

### Development Code

The Development Code contains several relevant guidelines related to pedestrian facilities. Specifically, section 18.24.040 (General Design Guidelines), section 18.24.050 (Design Guidelines for Specific Land Uses), and Chapter 18.50 (Parking Design Guidelines) each have many requirements relating to pedestrian amenities and circulation.

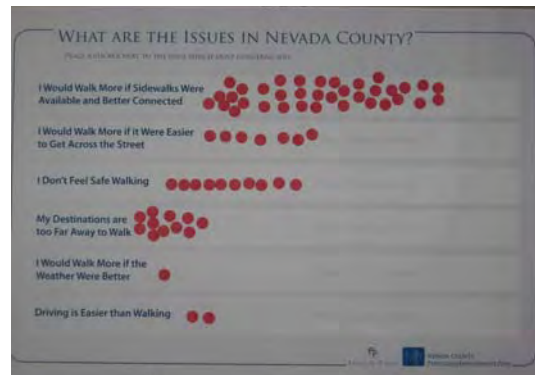




## PUBLIC INPUT

Public participation was an important element in the development of the Pedestrian Improvement Plan. The County and its jurisdictions solicited input regarding existing conditions and desired locations for improvement. The process relied on the “Advocacy Planning” approach. The goal of this approach was to develop a community-supported vision for pedestrian improvements in Nevada County. The planning process included the following public outreach activities:

- **Public Workshops** – Public workshops were held in Grass Valley on August 3, 2010, at Grass Valley City Hall and on August 4, 2010, at the Truckee Community Center. The purpose of these workshops was to gather feedback from Nevada County stakeholders on existing barriers to pedestrian travel and desired improvements. Attendees marked desired improvements on maps and addressed concerns directly with staff from the County, its jurisdictions, and the consultant team.



Participants of the public workshops and market events voted on the issues surrounding pedestrian travel in Nevada County

- **Markets** – Staff from NCTC facilitated booths at the Grass Valley Thursday Night Marketplace, the Nevada City Farmers Market, and at the Truckee Farmers Market. Exhibits at the booths were used to solicit feedback regarding barriers to pedestrian travel and desired improvements.
- **Comment Cards** – Comment cards were distributed at the public workshops, at the various market booths, and online.

Key findings from the public participation include:

### **Countywide**

Workshop and market participants completed an exercise where they answered the question “What are the issues for pedestrians in Nevada County?” Of the six options available for selection, the following were the three most common:

- I would walk more if sidewalks were available and better connected
- I don't feel safe walking
- My destinations are too far away to walk



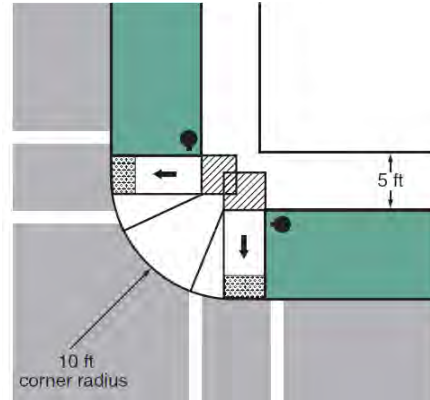
## NEVADA COUNTY PEDESTRIAN IMPROVEMENT PLAN

Workshop participants also voted for their preferred types of pedestrian infrastructure improvements. The most preferred infrastructure improvements were:

- Advanced stop bars (at intersections)
- Reduced turn (corner) radii
- Bulbouts and pedestrian refuge islands
- Enhanced crosswalk striping
- Additional crosswalks and curb ramps



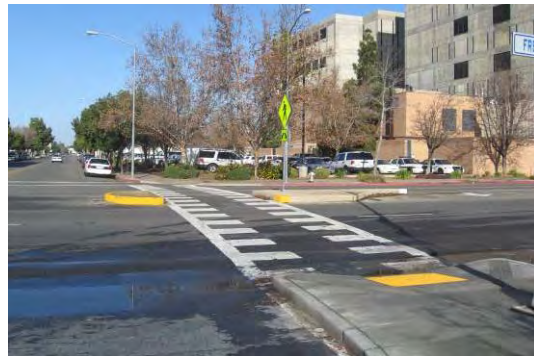
Advanced stop bars are placed in crosswalks; they keep vehicles from encroaching into the crosswalk when stopped at a red indication



When going around a corner, motorists drive slower if the radius of a curb is smaller; lower vehicle speeds are safer for pedestrians



Bulbouts decrease crossing distance and improve visibility



Refuge islands allow pedestrians to cross a street in two stages and improve motorist and pedestrian visibility of crosswalks



## NEVADA COUNTY PEDESTRIAN IMPROVEMENT PLAN



The pattern of paint in crosswalks can vary; yellow crosswalks denote a crosswalk near a school. The above striping pattern illustrates a "ladder" crosswalk.



Curb ramps make crosswalks and sidewalks accessible for wheelchairs, strollers, and bikes; the yellow "truncated domes" alert blind and vision-impaired pedestrians as they approach a street

Workshop and market participants also commented on maps of Nevada County's jurisdictions, noting existing barriers to pedestrian travel and desired improvements. The following is a summary of the major themes from these map comments:

### ***Truckee***

- Sidewalks were recommended on Brockway Road south of Donner Pass Road to connect land uses south of the Truckee River
- Crosswalks were recommended in several locations throughout Truckee
- Sidewalks were recommended on Donner Pass Road, especially west of the State Route (SR) 89 intersection and east of the Interstate 80 (I-80) interchange
- Sidewalks were recommended on SR 89 south of I-80
- Improvements were recommended for the "Mousehole" on SR 89 underneath the Union Pacific Railroad tracks

### ***Nevada City***

- Improvements were recommended in places with staircases on the sidewalk and in places where the sidewalk is elevated significantly from the roadway
- Crosswalks were recommended in several locations throughout Nevada City
- Sidewalks and crosswalk maintenance was recommended in several locations throughout Nevada City, especially on Zion Street and Searls Avenue



## NEVADA COUNTY PEDESTRIAN IMPROVEMENT PLAN

### **Grass Valley**

- Sidewalks and curb ramps were recommended in several locations throughout downtown Grass Valley, especially on Walsh Street and on East Main Street
- Improvements were recommended at the “triangle” at the intersection of Neal Street, Auburn Street, and SR 174; improvements were also recommended on Auburn Street south of SR 49
- Sidewalks were recommended in several locations throughout the Glenbrook Basin

Photographs of the map comments are included in the Appendix to this Plan.

### **WALKING AUDITS**

Walking audits of critical areas of pedestrian activity were conducted at two points during the project: in June 2010, following the project kick-off meeting, and in September 2010, following the public workshops. Fehr & Peers conducted walking audits with staff from the NCTC, City of Grass Valley, City of Nevada City, Town of Truckee, and members of the public. Sites visited during the walking audits included:

- Grass Valley
  - Downtown Grass Valley (Main Street, Church Street, Mill Street, Neal Street, and Tinloy Street)
  - Colfax Avenue
  - SR 49 / McKnight Way interchange
  - SR 49 / Brunswick Road interchange
- Nevada City
  - Downtown Nevada City (Commercial Street, Broad Street, South Pine Street, and Sacramento Street)
  - Zion Street, Argall Way, Searls Avenue, and Valley Street in south Nevada City
- Truckee
  - Donner Pass Road between SR 89 and Northwoods Boulevard
  - Downtown Truckee (Donner Pass Road between McIver Crossing and Bridge Street)

The walking audits included conducting visual surveys to observe physical characteristics, examining the connectivity and continuity of the area’s surrounding pedestrian network, and debriefing with City/Town staff to discuss observations and recommendations.



# NEVADA COUNTY PEDESTRIAN IMPROVEMENT PLAN



Observing curb ramp navigation in Nevada City



Discussing crosswalk safety in Truckee





### 3. GOALS AND POLICIES

The Goals and Policies of the Plan were determined by the Project Advisory Committee (PAC) at the August 4, 2010, PAC meeting.

**Goal 1:** Provide a connected network of pedestrian routes in the County and its jurisdictions that are, as much as possible, accessible to a variety of users

**Policy 1A:** Implement the Pedestrian Improvement Plan

**Policy 1B:** Protect the character and context of the County and its jurisdictions

**Policy 1C:** Prioritize safe routes to schools within the County and each of the County's jurisdictions

**Policy 1D:** Promote ADA-accessible trail development for utilitarian purposes

**Goal 2:** Encourage a multimodal transportation system

**Policy 2A:** Adhere to applicable design standards when designing new or retrofitted streets

**Policy 2B:** Investigate the implementation of innovative treatments and policies such as pedestrian overlay zones, street typologies, form-based code, and multi-modal level of service within the County and its jurisdictions

**Goal 3:** Obtain funding for pedestrian projects

**Policy 3A:** Continue to allocate Capital Improvement Plan (CIP) funding to pedestrian projects

**Policy 3B:** Pursue grant funding related to pedestrian projects

**Policy 3C:** Require the construction of pedestrian facilities with new developments

**Goal 4:** Provide a viable alternative to driving

**Policy 4A:** Coordinate with local transit agencies to provide pedestrian connections to transit where feasible

**Policy 4B:** Integrate land use and transportation planning

**Policy 4C:** Prioritize projects that will increase the walk mode share

**Goal 5:** Encourage and educate residents about walking

**Policy 5A:** Increase public awareness of pedestrian facilities, amenities, and safety

**Policy 5B:** Pursue recognition such as Walk-Friendly Community status

**Goal 6:** Develop a safe, accessible transportation system for all users

**Policy 6A:** Work to reduce the rate of pedestrian collisions

**Policy 6B:** Review collision data annually



## NEVADA COUNTY PEDESTRIAN IMPROVEMENT PLAN

**Policy 6C:** Proactively focus on improving pedestrian safety

**Policy 6D:** Develop and implement a crosswalk policy

**Policy 6E:** Collaborate with advocates for disabled pedestrians to meet ADA best practices for new and retrofitted facilities

**Goal 7:** Improve monitoring and maintenance

**Policy 7A:** Collaborate with advocacy groups to collect and monitor pedestrian volumes

**Policy 7B:** Develop an outreach campaign for maintenance on private property

**Policy 7C:** Accommodate pedestrians during all construction projects



## 4. PROPOSED PEDESTRIAN PROJECTS

### PRIORITIZED PROJECTS

Two project categories were selected for this Plan: sidewalk completion projects and infrastructure enhancement projects.

The maps in Figures 3A-3I show the proposed sidewalk networks in Grass Valley, Nevada City, and Truckee. The maps illustrate existing sidewalks and recommended sidewalks to fill gaps in the network. The extent of the network was determined in collaboration with PAC members.

Non-sidewalk network projects, such as bulbouts, advanced stop bars, and crosswalk enhancements, were also proposed based on the existing conditions analysis, walking audits, and feedback from the public and PAC members.

#### ***Prioritization Criteria***

Each proposed project was scored according to prioritization criteria determined by the PAC. The prioritization criteria for proposed projects were determined by the PAC at the August 4, 2010, PAC meeting. The criteria include:

- Improves safety
- Improves access to key destinations (transit, parks, schools, open space) on collector and arterial streets
- Improves accessibility for the disabled
- Supports adopted plans
- Fundable

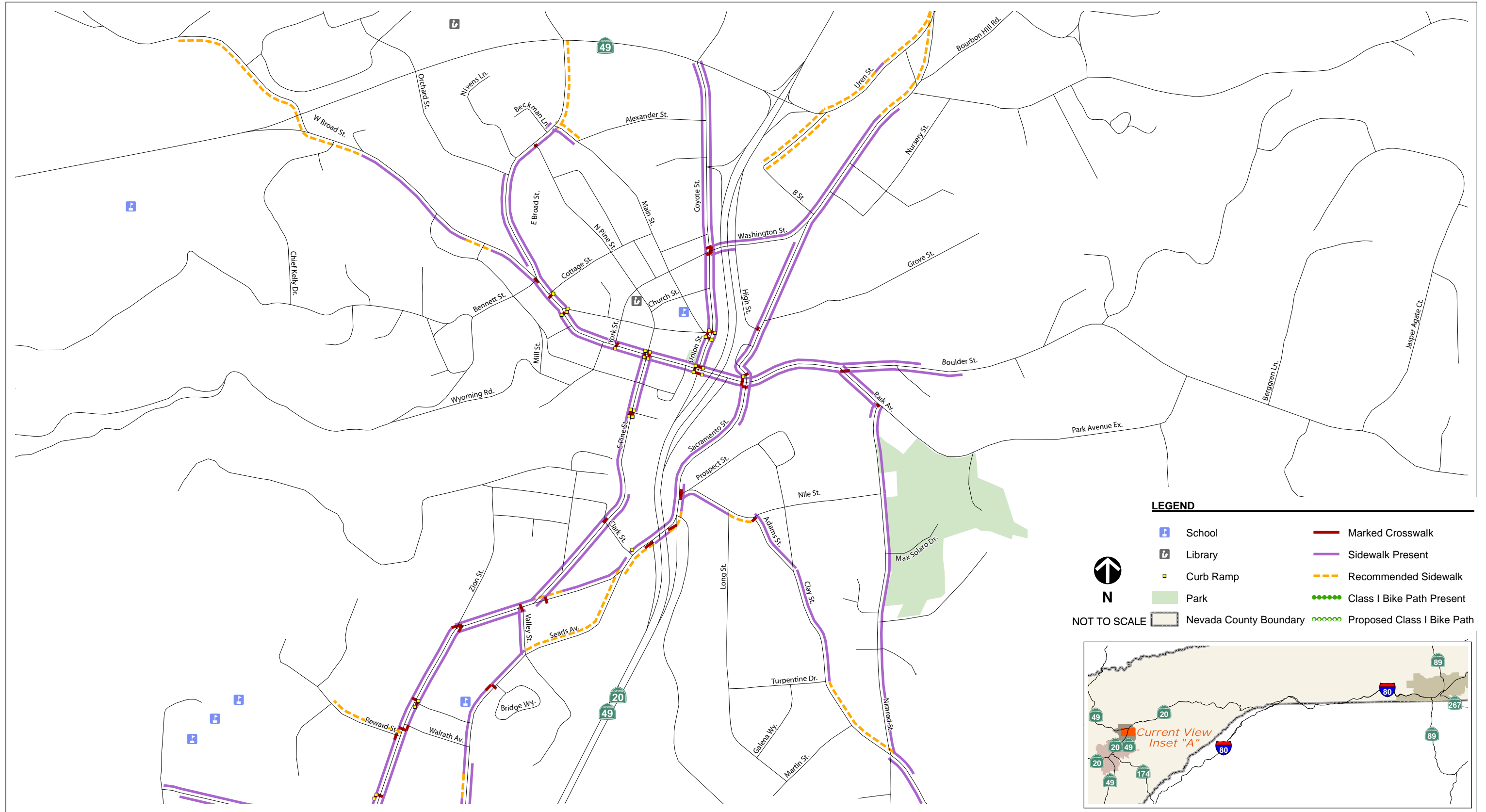
Each prioritization criteria was given an equal weight of 20 percent.

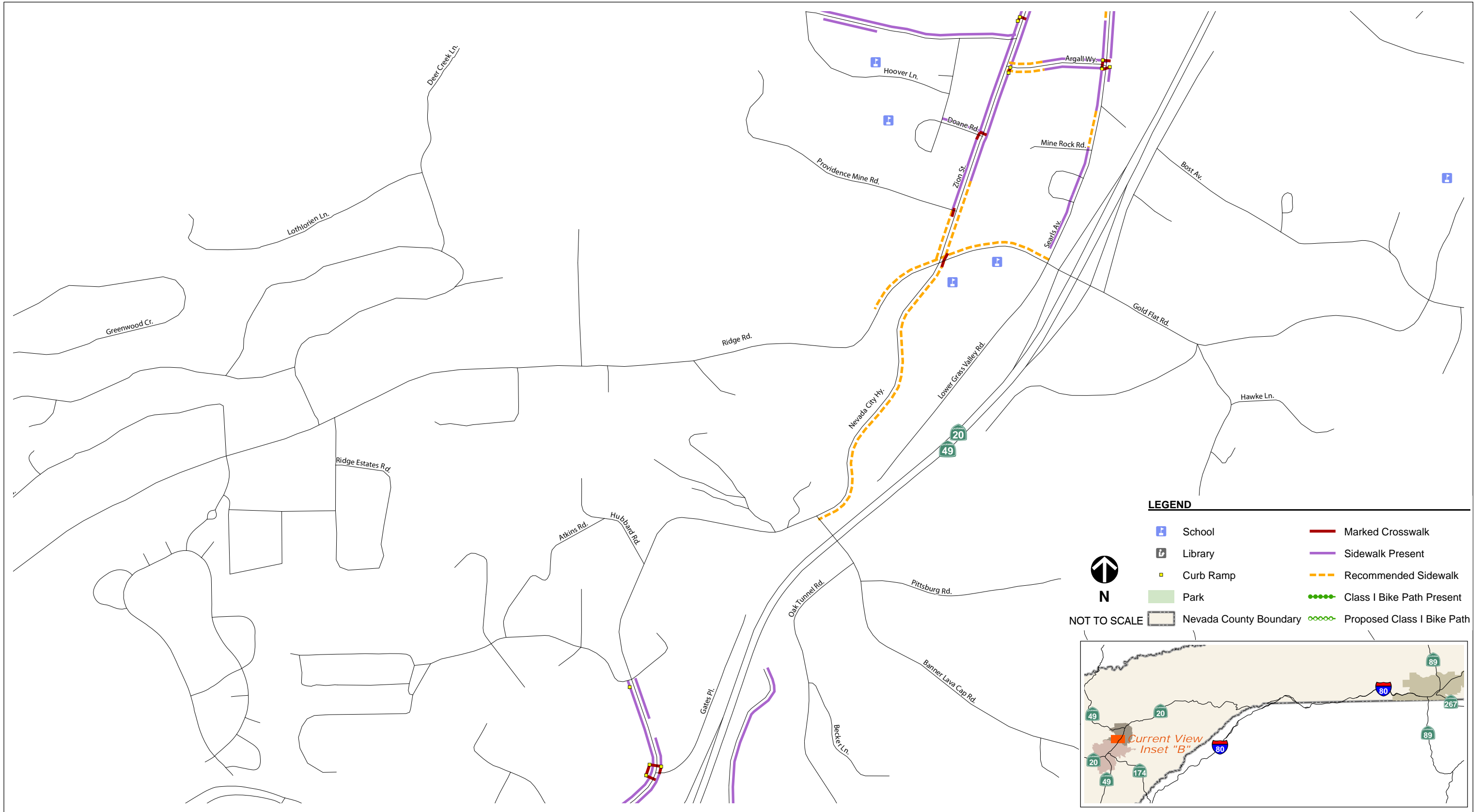
Projects were ranked into three tiers of priority – low, medium, and high – based on this criteria. Tables 5-8 show the project prioritization for each of Nevada County's jurisdictions.

Each jurisdiction may develop independent prioritization methodology that would result in differing order of priority. This prioritization should be considered preliminary and subject to change based upon the issues and needs of each jurisdiction.










The City of Grass Valley maintains a separate sidewalk priority list that is weighted towards cost and constructability; in some cases this may result in a different priority order in this Plan versus that list.





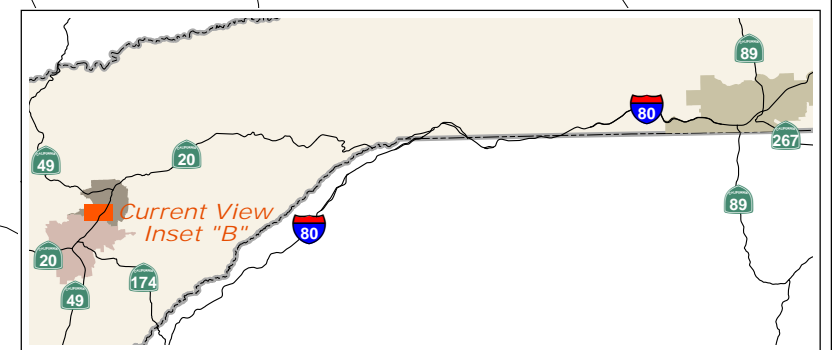


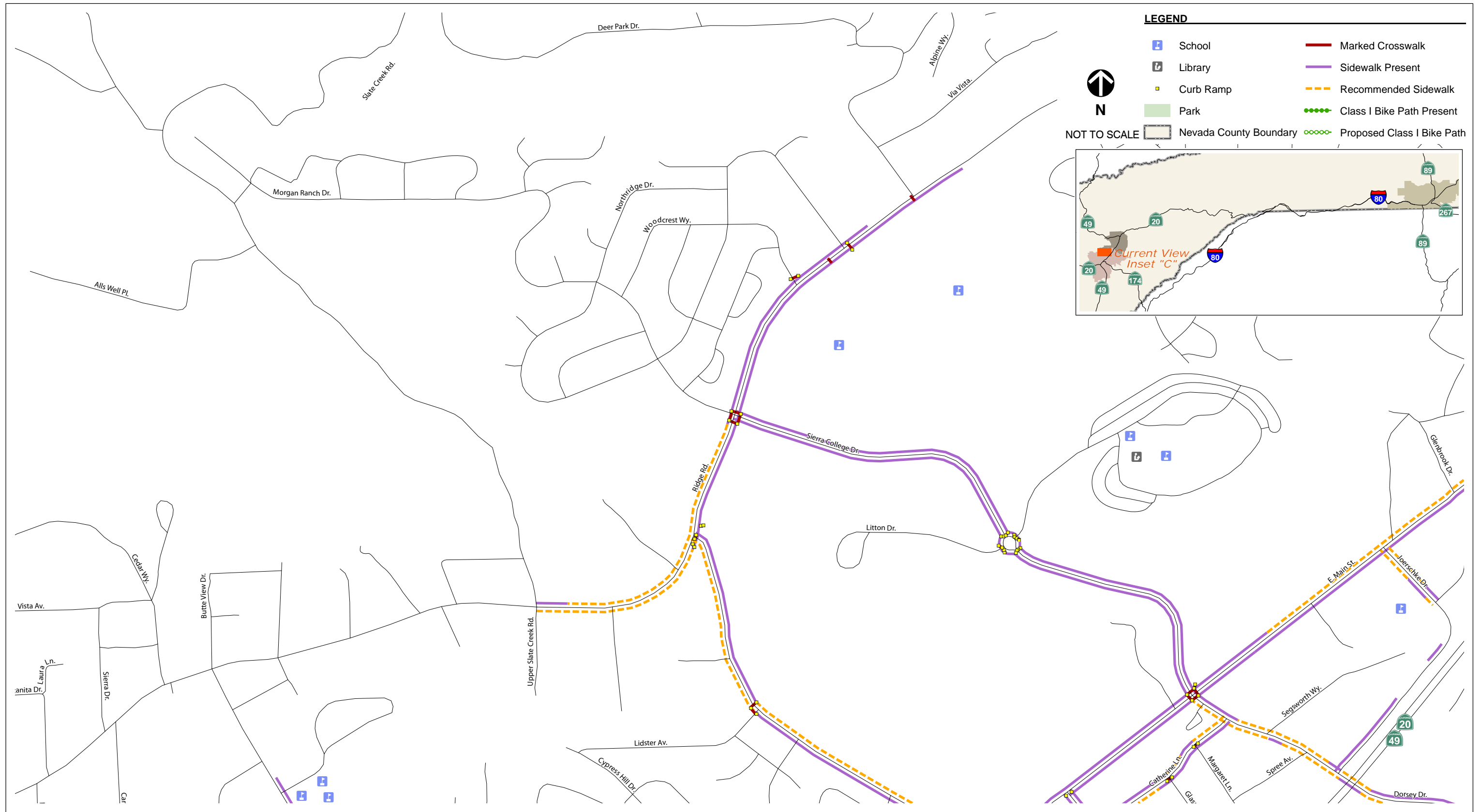
**LEGEND**

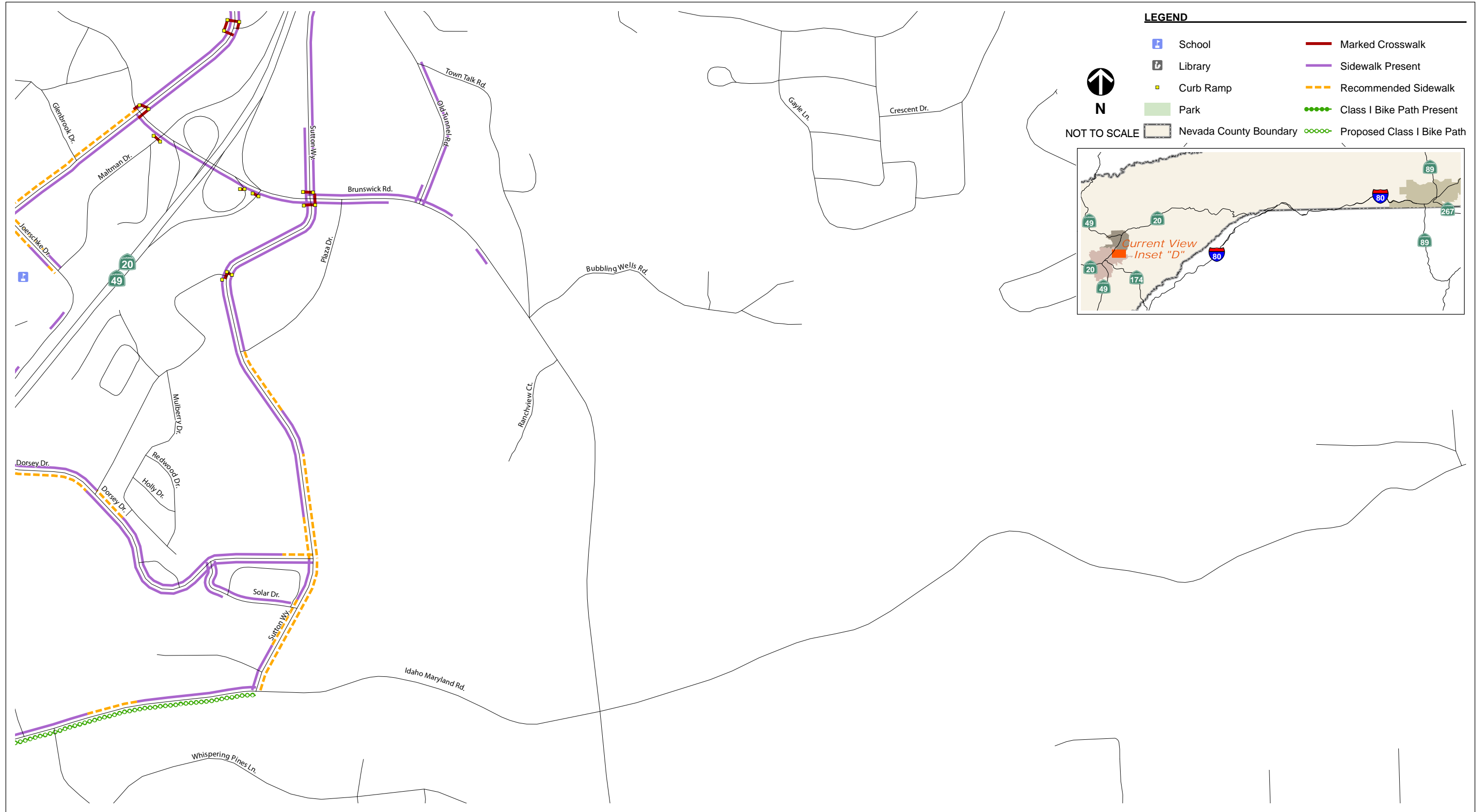
-  School
-  Library
-  Curb Ramp
-  Park
-  Nevada County Boundary
-  Marked Crosswalk
-  Sidewalk Present
-  Recommended Sidewalk
-  Class I Bike Path Present
-  Proposed Class I Bike Path

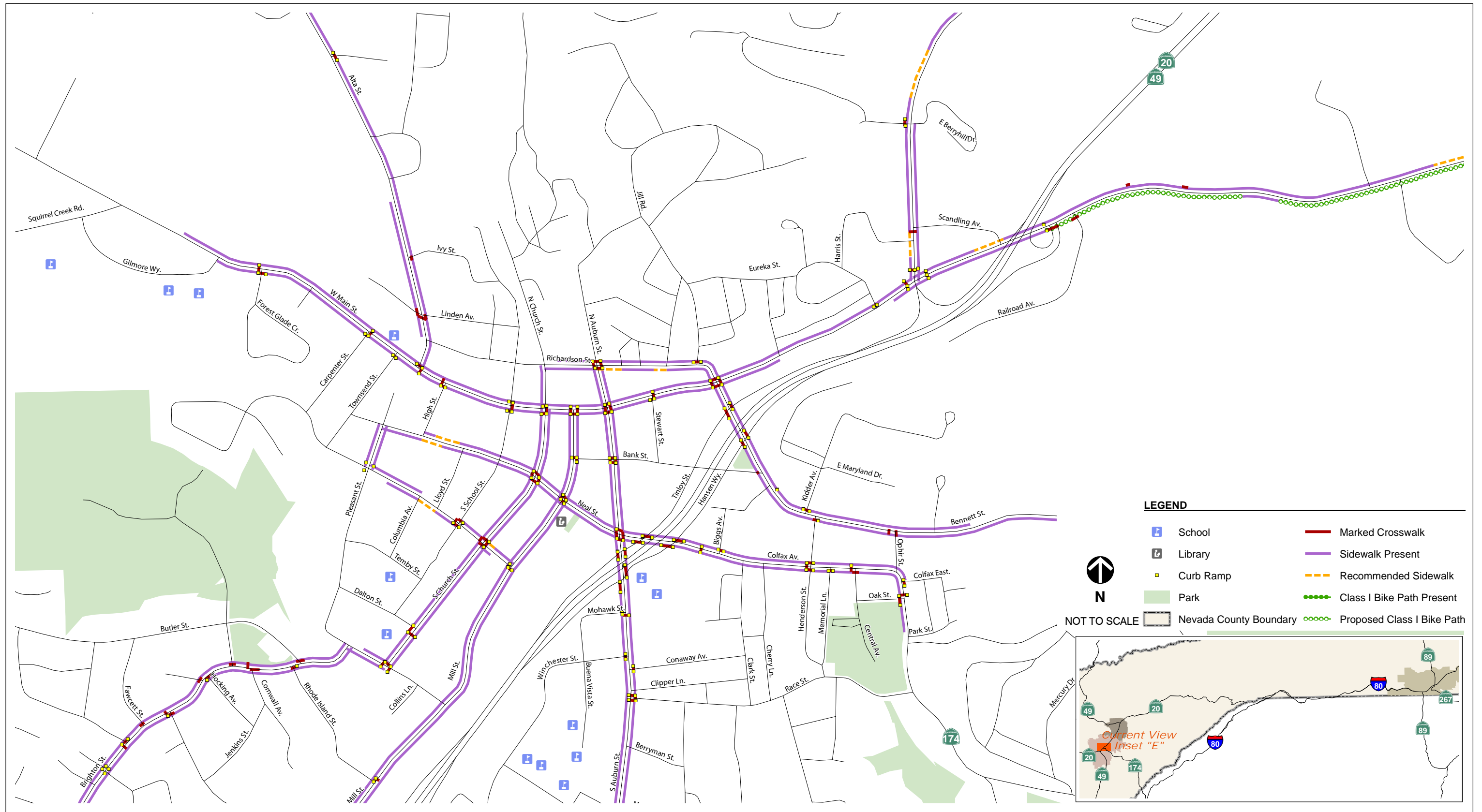


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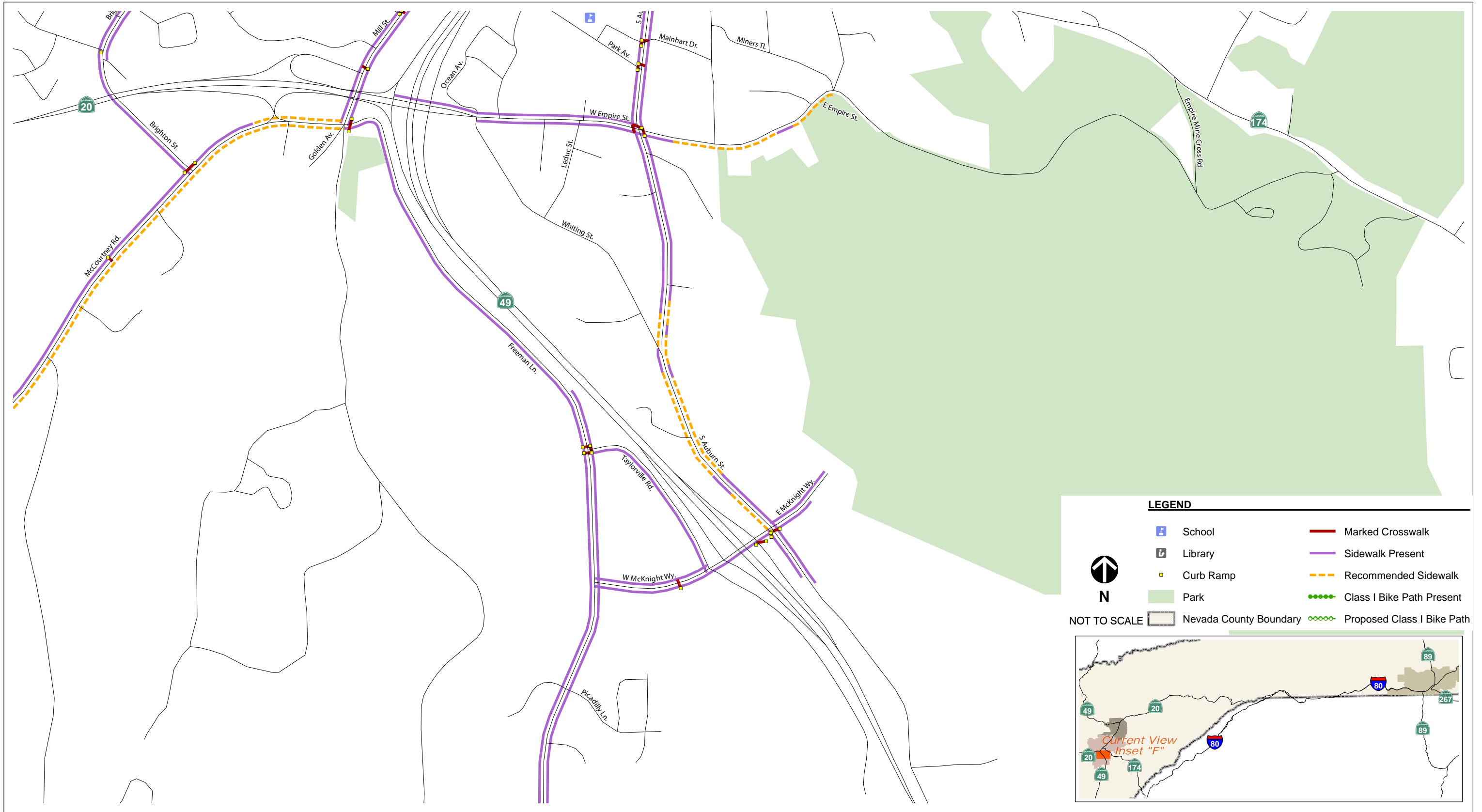




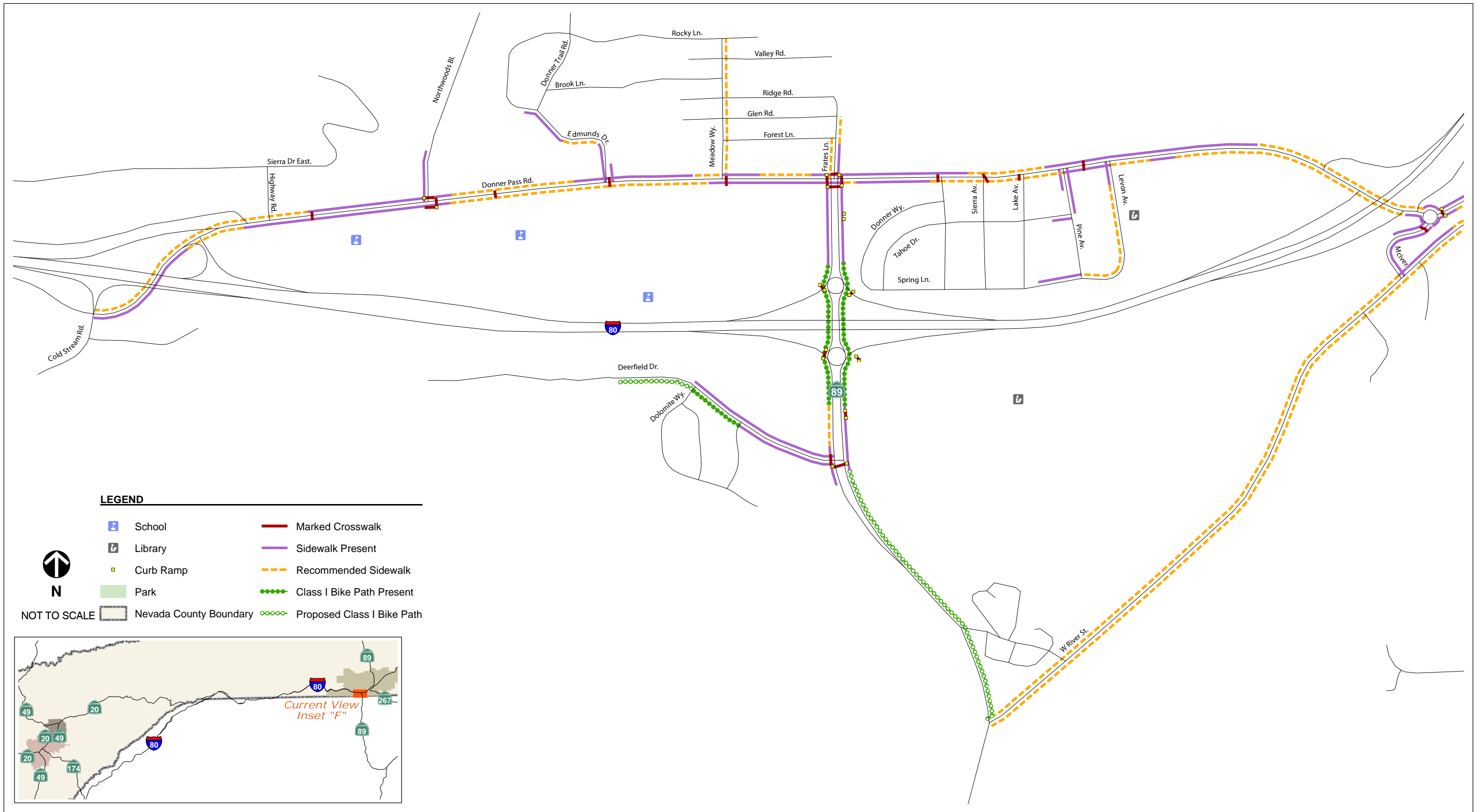


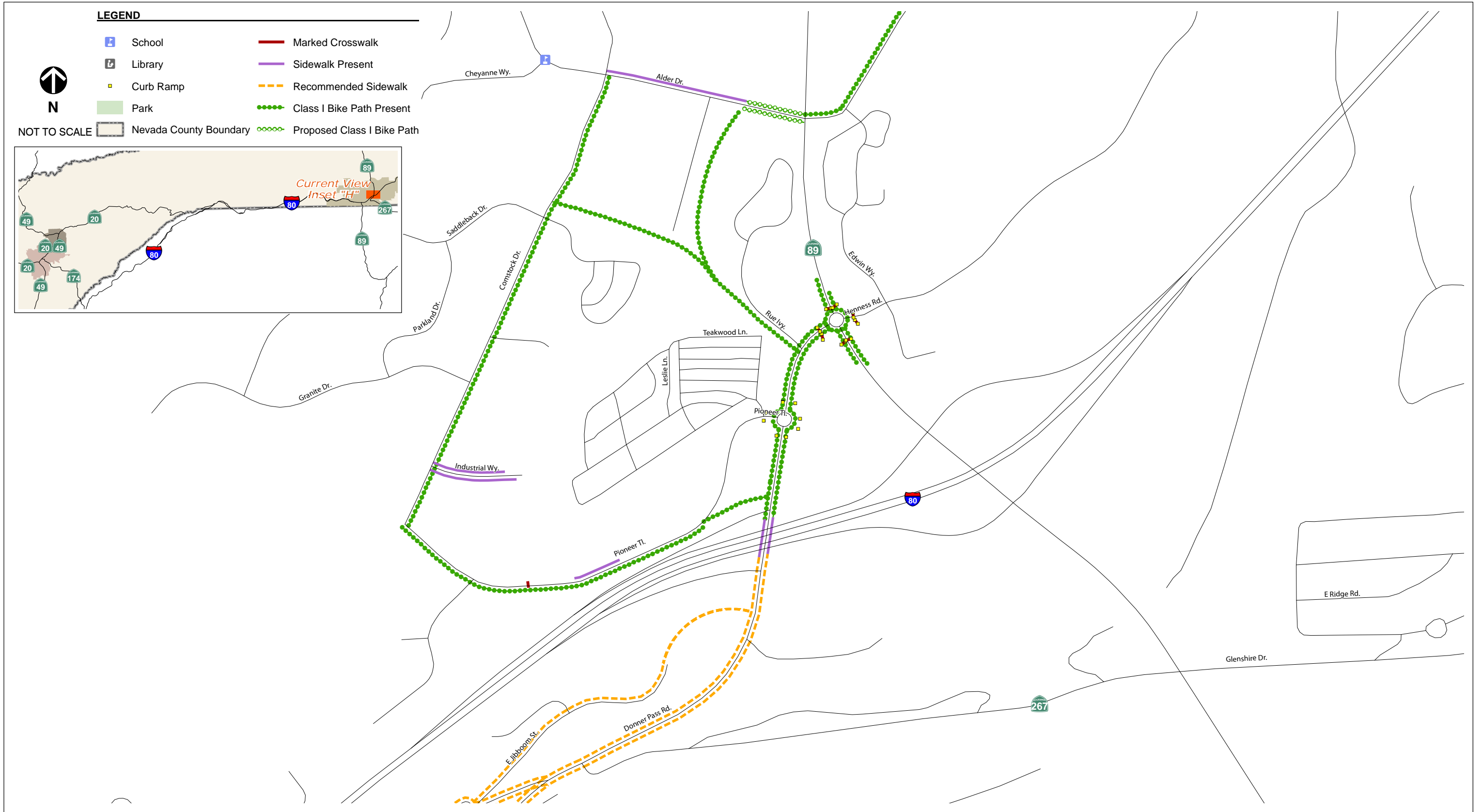


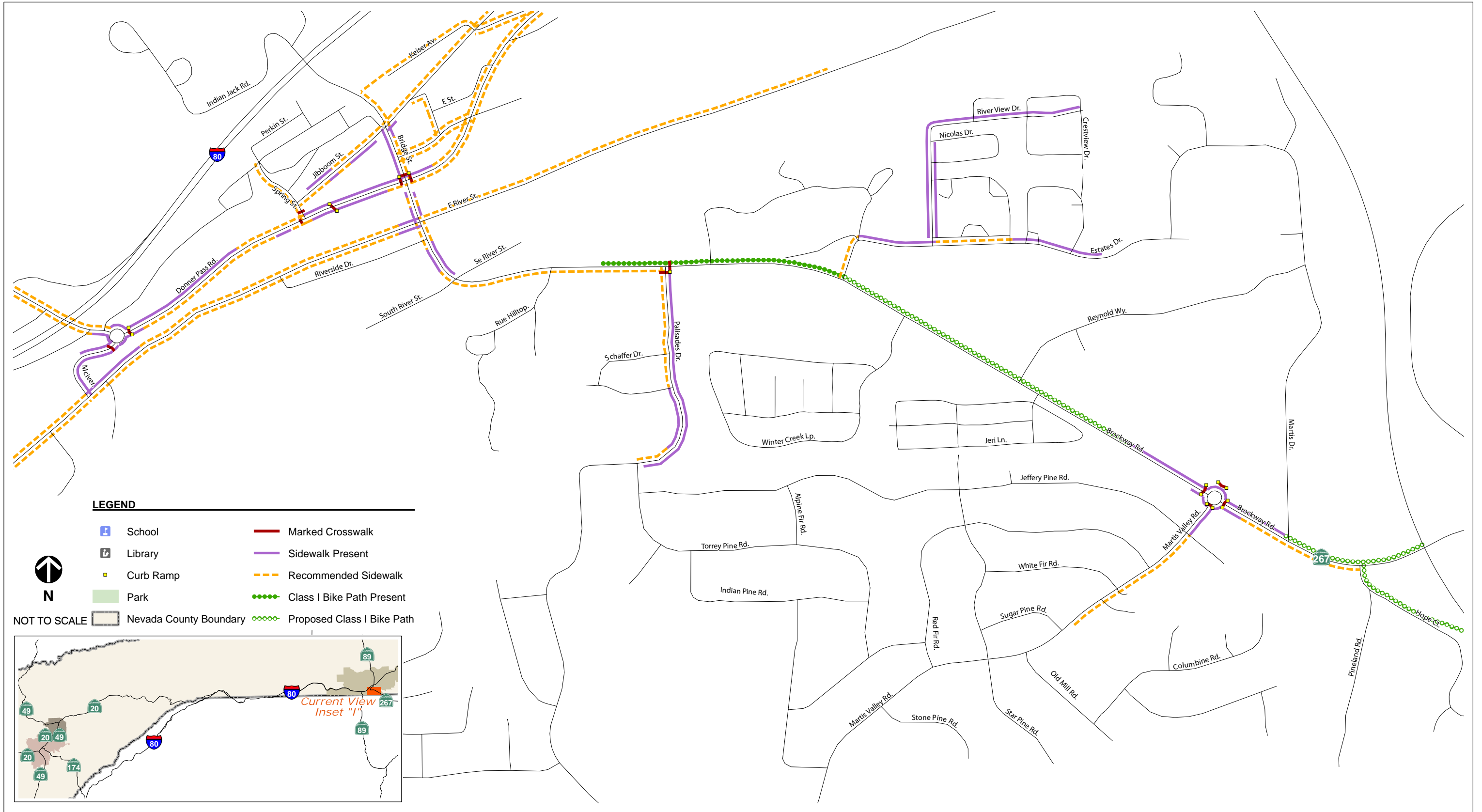














NEVADA COUNTY  
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**TABLE 5:  
NEVADA COUNTY (UNINCORPORATED AREAS) PRIORITIZED PROJECTS**

<b>Tier 1</b>
Provide sidewalk improvements and pedestrian refuge islands on Ridge Road in front of Nevada Union High School (shares County right-of-way)
<b>Tier 2</b>
Provide sidewalks on McCourtney Road between Brighton Street and west side of Nevada County Fairgrounds, including widening of existing sidewalk and crosswalk improvements (coordinate with City of Grass Valley)
<b>Tier 3</b>
Provide pedestrian path on Combie Road between SR 49 and Magnolia Road – north side only
Source: Fehr & Peers, 2010



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**TABLE 6:  
GRASS VALLEY PRIORITIZED PROJECTS**

Tier 1
Colfax Avenue between Hansen Way and Central Avenue: install crosswalk improvements, including pedestrian refuge islands and bulbouts (Caltrans right-of-way)
West Main Street downtown traffic calming: install bulbouts at Main Street / School Street intersection, bulbouts / in-street (“knockdown” paddle) pedestrian warning sign at Church Street / Main Street intersection, advanced stop bars at intersections
Hansen Way / Colfax Avenue intersection: reduce radius of right turns to shorten crosswalks (Caltrans right-of-way)
E. Main Street elevated sidewalk: widen retaining wall / railing improvements; add curb ramps
Provide sidewalk improvements and pedestrian refuge islands on Ridge Road in front of Nevada Union High School (shares County right-of-way)
Tier 2
Provide sidewalks on Joerschke Drive between East Main Street and Maltman Drive
Provide sidewalks on E. Main Street between Idaho Maryland Road and Hughest Road – west side only
Redesign the Auburn Street / Neal Street / Tinloy Street triangle to improve pedestrian access, including sidewalks improvements and curb ramp improvements (Caltrans right-of-way)
SR 49 Northbound Off-ramp / Auburn Street intersection: reduce corner radius for right turns to shorten crosswalks (shares Caltrans right-of-way)
Colfax Avenue / Ophir Street intersection: create an orthogonal intersection alignment (“square-up the intersection”); improve crosswalk at Oak Street (shares Caltrans right-of-way)
Provide sidewalks on McCourtney Road between Mill Street and Brighton Street, including widening of existing sidewalk and crosswalk improvements
Mill Street / McCourtney Road intersection: reduce corner radius; provide sidewalks, crosswalks, and curb ramps
Provide sidewalks on Ridge Road between Sierra College Drive and Upper Slate Creek Road
Provide sidewalks on Neal Street between High Street and Lloyd Street
Nevada City Highway / Brunswick Road intersection: add marked crosswalk and curb ramps to western approach
Provide sidewalks on Sutton Way between Idaho Maryland Road and Plaza Drive
Provide sidewalks on Empire Street between Auburn Street and parking for Empire Mine State Park – south side only
Provide sidewalks on Dorsey Drive between East Main Street and Sutton Way



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Tier 3
Provide sidewalks on Catherine Lane between Presley Way and Dorsey Drive
SR 49 / Brunswick Road interchange: reduce corner radius of on-ramps (Caltrans right-of-way)
Provide sidewalks on Maltman Drive between Joerschke Drive and Brunswick Road
Provide sidewalks on Idaho Maryland Road between E. Main Street and Sutton Way
SR 49 Northbound / Idaho Maryland Road intersection: install crosswalk improvements (shares Caltrans right-of-way)
Provide pedestrian path through parking lot between Church Street and Mill Street
Provide sidewalks on Walsh Street between Mill Street and Columbia Avenue
Improve pedestrian access to parking lot beneath SR 49, between Auburn Street and Colfax Avenue (Caltrans right-of-way)
Provide sidewalks on Auburn Street between Empire Street and McKnight Way
Main Street / Auburn Street intersection: add automatic pedestrian recall to signal phasing
Ridge Road / Hughes Road intersection: add advance yield limit lines ("sharks teeth"), high visibility crosswalk striping, and pedestrian signage (R1-5) to channelized right turns
Brunswick Road / Sutton Way intersection: provide marked crosswalk on western approach, realign crosswalk on southern approach
Empire Street / Auburn Street intersection: reduce corner radius and provide curb ramps
SR 49 / McKnight Way interchange: support interchange improvements that improve pedestrian access/safety (Caltrans right-of-way)
McKnight Way at K-Mart driveway: provide median refuge island at midblock crosswalk
Provide sidewalks on Hughes Road between Ridge Road and East Main Street
Provide sidewalks on East Main Street between Dorsey Drive and Brunswick Road – north side only
Source: Fehr & Peers, 2010





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**TABLE 7:  
NEVADA CITY PRIORITIZED PROJECTS**

<b>Tier 1</b>
Crosswalk in front of City Hall: provide high visibility crosswalk, bulbouts, red curb, curb ramps
Provide sidewalks on Searls Avenue between Sacramento Street and Valley Street – north side only
Provide sidewalks on Searls Avenue between Walrath Avenue and Argall Way – west side only
<b>Tier 2</b>
Provide sidewalks on Sacramento Street east of Pine Street
Zion Street / Sacramento Street intersection: realign Zion Street and relocate crosswalk across Sacramento Street
Searls Avenue / Bridge Way: improve crosswalk across Searls Avenue with high visibility striping
Provide sidewalks on Argall Way between Zion Street and Searls Avenue
Provide sidewalks on Clay Street between Turpentine Drive and Gold Flat Road – east side only
Lower sidewalk on north side of Sacramento Street between Zion Street and Valley Street to be at grade with roadway
Improve midblock crosswalk on Argall Way with high visibility striping and add curb ramps
<b>Tier 3</b>
Provide sidewalks on East Broad Street between Main Street and SR 49 – east side only
Provide sidewalks on West Broad Street between SR 49 and East Broad Street – south side only
Provide sidewalks on Cement Hill Road between Wet Hill Road and SR 49 – west side only
Provide sidewalks on Uren Street between B Street and Nevada Street Extension
Provide sidewalks on Nevada Street Extension between Nihell Street and Uren Street
Provide sidewalks on Adams Street between Long Street and Nile Street
Sacramento Street / Railroad Avenue / Prospect Street intersections: improve alignment, add marked crosswalks, improve crosswalk across Sacramento Street at Prospect Street with high visibility striping and signage
Provide sidewalks on Searls Avenue between Argall Way and Ridge Road – west side only
Provide sidewalks on Zion Street between Doane Road and Ridge Road
Provide sidewalks on Ridge Road between Zion Street and western City Limit – north side only



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Provide sidewalks on Nevada City Highway between Zion Street and western City Limit – east side only
Provide sidewalks on Ridge Road between Zion Street and Searls Avenue
Provide sidewalks on Sacramento Street at SR 49 interchange
Argall Way / Searls Avenue intersection: improve uncontrolled marked crosswalks with high visibility striping
Searls Avenue / Ridge Road: reduce corner radii, add crosswalks
Provide sidewalks on Main Street between East Broad Street and Alexander Street
Source: Fehr & Peers, 2010



**TABLE 8:  
TRUCKEE PRIORITIZED PROJECTS**

Tier 1
Provide sidewalks on Donner Pass Road between I-80 and SR 89 (west side of town) with median refuge islands at midblock crosswalks
Construct Class I multi-use path tunnel underneath UPRR railroad tracks at the "Mousehole"
Provide class I multi-use path on SR 89 between Deerfield Drive and River Street – east side only
Provide sidewalks on Donner Pass Road between McIver Crossing and Bridge Street with Bulbouts at crosswalks, clean up parking; support Brickelltown Streetscape project
Extend class I multi-use path along Alder Drive east of Comstock Drive to SR 89
Provide sidewalks on Donner Pass Road between SR 89 and McIver Crossing (east side of town) – north side only
Provide sidewalks on Donner Pass Road between SR 89 and McIver Crossing (east side of town) – south side only
Provide sidewalks on Levon Avenue / Spring Lane between Donner Pass Road and Pine Avenue
Provide sidewalks on Bridge Street between Donner Pass Road and Jibboom Street
Tier 2
Provide class I multi-use path and high visibility, marked crosswalks with median refuge islands and sidewalks on Brockway Road between Estates Drive and SR 267
Provide sidewalks on SR 89 between I-80 and Deerfield Rive – west side only
Provide sidewalks on West River Street between McIver Crossing and Bridge Street
Provide sidewalks on Bridge Street/Brockway Road between Donner Pass Road and Palisades Drive
Provide sidewalks on Jibboom Street between Spring Street and Keiser Avenue
Provide sidewalks on Church Street between Bridge Street and Donner Pass Road
Provide sidewalks on School Street between Church Street and Jibboom Street – west side only
Provide sidewalks on Spring Street between Donner Pass Road and High Street – west side only
Provide sidewalks on Bridge Street between Jibboom Street and Keiser Avenue – east side only
Provide sidewalks on Donner Pass Road between Bridge Street and Keiser Avenue
Provide sidewalks on Jibboom Street between Keiser Avenue and Donner Pass Road – north side only



NEVADA COUNTY  
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Tier 3
Provide sidewalks on Donner Trail Road between Donner Pass Road and Edmunds Drive – south side only
Provide sidewalks on Palisades Drive between Brockway Road and Torrey Pine Road – west side only
Provide sidewalks on Estates Drive – north side only
Provide sidewalks on Frates Lane between Donner Pass Road and Glen Road
Provide sidewalks on Meadow Way between Donner Pass Road and Rocky Lane – east side only
Provide sidewalks on West River Street between SR 89 and McIver Crossing
Provide sidewalks on Keiser Avenue between Jibboom Street and Bridge Street – north side only
Provide sidewalks on East River Street east of Bridge Street – north side only
Provide class I multi-use path on Hope Court
Provide class I multi-use path on Deerfield Drive west of Dolomite Way – south side only
Provide sidewalks on Donner Pass Road between Keiser Avenue and I-80
Provide sidewalks on Martis Valley Road between Brockway Road and Sugar Pine Road
Add advanced yield limit lines to crosswalks at roundabouts at I-80 / SR 89 interchange
Source: Fehr & Peers, 2010



## **EDUCATIONAL, ENCOURAGEMENT, AND ENFORCEMENT PROGRAMS**

In addition to implementing pedestrian facilities, programs aimed at education, encouragement, and enforcement can increase the number of pedestrian trips in Nevada County. The following is a summary of educational, enforcement, and encouragement strategies that Nevada County could employ to promote pedestrian travel.

### ***Educational Programs***

Pedestrian education programs seek to reduce collisions and help people feel safe and comfortable while walking. These programs include elements that help motorists understand the rights of pedestrians. Simultaneously, education campaigns should target the general public and specific groups that have unique education needs or play a greater role in perpetuating collisions and other dangerous situations. Key target audiences include students, children and families, senior citizens, and drivers.

The following is a list of pedestrian safety practices for educating pedestrians and motorists:

- Web site – a county Web site can contain informational materials relating to pedestrian safety
- Videos – such as public service announcements can be posted to the county's Web site
- Community outreach events – summer markets provide opportunities for pedestrian education
- Pamphlets – informational materials available through the County
- Student group involvement – promote pedestrian safety by involving and educating student groups
- Street/Bus Stop/School Banners – advertisements that can be placed in high activity pedestrian areas
- Yard Signs – communicate roadway conditions to motorists and pedestrians
- Strategic partnerships – partner with groups such as American Association of Retired Persons (AARP) or Live Healthy Nevada County to promote pedestrian safety
- Local media campaigns – involve local media in pedestrian safety campaigns
- Classroom curricula – work with local school districts to develop pedestrian safety curricula for schools
- Structured skills practice – develop a program that trains pedestrians in safe behavior
- Games, coloring books, etc. – fun and educational materials for children



## NEVADA COUNTY PEDESTRIAN IMPROVEMENT PLAN

### ***Encouragement Programs***

Encouragement programs aim to improve the perception of walking among all age groups. The following is a list of pedestrian practices oriented towards encouraging walking:

- Wayfinding – signage directing pedestrians to designated routes and destinations
- Walking school buses/Walking Wednesdays – activities organized by schools or parents that have students walk to school in groups on selected days
- Community walking audits – community members walk around an area noting positive practices and areas for improvement
- Silver sneaker awards – awards encouraging physical activity among seniors
- Incentives/contests – can be used to reward those who walk or demonstrate safe walking habits
- Peer-to-peer education – educating pedestrians through interaction with peers trained in pedestrian safety

### ***Enforcement Programs***

Enforcement tools are effective in improving safety for road users. However, some programs can require a significant investment from local agencies. The following is a list of practices for enforcing pedestrian and vehicular right-of-way laws:

- Officer training courses – provide law enforcement with full understanding of pedestrian laws and safety practices
- Traffic complaint hotline – provides a method for citizens to alert the County when a public facility is of concern, such as inoperable traffic signal
- Community enforcement – provides a mechanism for community members to help enforce traffic laws, such as a radar gun checkout program
- Adult school crossing guards – provides a trained adult to help pedestrians cross the street
- Pedestrian decoys – enforcement activities with a staged pedestrian or motorist, targeting motorists or pedestrians who do not comply with traffic laws
- Partnership with media, stakeholders, and County departments – involve various stakeholders in pedestrian education campaigns and efforts
- Increased minimum fines for violations against pedestrians – for example, in Salt Lake City, Utah, fines were increased from \$34 to \$70 for driver violations against pedestrians in crosswalks
- Focusing efforts on school zones – for example, police in Miami improved traffic safety near schools by focusing enforcement efforts near school zones. Their efforts focused primarily on reducing speeding and careless or reckless driving.





## 5. IMPLEMENTATION

### FUNDING SOURCES

Pedestrian facilities have been funded through dozens of different federal, state, regional, and local programs. The majority of public funds for pedestrian projects are derived through a core group of federal and state programs. Federal funds from the Surface Transportation Program (STP), Transportation Enhancements (TE), and Congestion Mitigation Air Quality (CMAQ) programs are allocated to NCTC and distributed regionally.

State and federal Safe Routes to School programs are potential funding sources for both pedestrian planning and infrastructure projects that improve access to schools. Caltrans administers two Safe Routes to School programs: the state-legislated program (SR2S) and the federal program (SRTS). Each program has unique differences that affect project selection. For more information, visit [www.dot.ca.gov/hq/LocalPrograms/saferoutes/saferoutes.htm](http://www.dot.ca.gov/hq/LocalPrograms/saferoutes/saferoutes.htm).

Class I multi-use paths, which are proposed in some Nevada County locations in lieu of sidewalks, could be funded through the California Bicycle Transportation Account (BTA). Annually, \$7.2 million is available for projects through the BTA. Applicants for BTA funding must have an adopted Bicycle Transportation Plan to qualify.

In 2010, the California Strategic Growth Council (SGC) awarded \$20 million through the Proposition 84 Sustainable Communities Planning Grant and Incentives Program. The SGC will award \$20 million more in grants in both 2011 and 2012 (totaling \$40 million). Eligible projects include plans that support greenhouse gas emission reduction and sustainable communities. Twenty percent of the grant funds are set aside for Economically Disadvantaged Communities (EDC); some of Nevada County's rural communities may qualify specifically for these funds.

Caltrans Transportation Planning Grants are available to jurisdictions and can be used for planning or feasibility studies. That maximum funding available per project is \$300,000.

The California Office of Traffic Safety (OTS) administers the General OTS Grant opportunities. Pedestrian safety is a priority area for grant funding. Funding can be used for certain police equipment, for signage (vehicle speed feedback signs), and for outreach materials and campaigns.

The Highway Safety Improvement Program (HSIP) is a core federal-aid program that aims to reduce traffic fatalities and serious injuries on public roads. Caltrans administers the program in California and expects to receive \$70 million for the 2010/11 Federal Fiscal Year. HSIP funds can be used for projects such as pedestrian-related improvements on local roadways, improvements to Class I multi-use paths, or for traffic calming measures. Applications that identify a history of incidents and demonstrate their project's improvement to safety are most competitive for funding.

Private/local funding for pedestrian projects comes primarily from development projects, either in the form of improvements constructed directly by developers or through impact fee programs.

New policies at the federal level have resulted in a series of programs that promise to provide increased funding in the coming years for pedestrian projects. The HUD-DOT-EPA Interagency Partnership for Sustainable Communities has generated a series of new grant programs to date, including Urban Circulator grants, TIGER grants, and Sustainable Communities Planning grants. DOT Secretary Ray LaHood recently announced a new DOT policy initiative indicating "well-connected walking and bicycling networks is an important component for livable communities."



## NEVADA COUNTY PEDESTRIAN IMPROVEMENT PLAN

The following elements are important factors in successfully obtaining grant funding for projects:

- Develop a community vision
- Involve multiple stakeholders in the process
- Identify projects that:
  - Connect communities
  - Address safety issues
  - Support economic development
  - Improve access to schools
- Prioritize projects
- Identify projects that are most likely to compete for grants
- Identify project champions
- Identify multiple partners to be co-applicants
- Identify local match opportunities

### **FACT SHEETS AND COST ESTIMATES**

Grant-ready fact sheets, inclusive of cost estimates and suggested funding sources, were developed for Tier 1 projects that are likely to be competitive for grant funding.



### ***Colfax Avenue Safe Routes to School – Grass Valley***

#### Project Need

Colfax Avenue connects downtown Grass Valley to Memorial Park near the eastern City limits. Colfax Avenue also provides access to Hennessy Elementary School from nearby residences. Colfax Avenue carries 13,300 vehicles per day, has two vehicle lanes, a speed limit of 25 miles per hour, and is approximately 36 feet wide.

Colfax Avenue has existing sidewalks on both sides; however, frequent driveways pose a challenge to wheelchair users. Several uncontrolled marked crosswalks connect land uses to the north and south but have no enhancements beyond standard striping. In general, Colfax Avenue has a wide street cross-section that likely contributes to low driver yielding rates at the uncontrolled crosswalks. This cross-section also encourages speeding.

#### Project Description

The uncontrolled marked crosswalks on Colfax Avenue should be upgraded to include bulbouts, curb ramps, improved signage, and high-visibility striping. By narrowing the perceived roadway width, bulbouts should decrease the likelihood of vehicles driving over the speed limit. Additionally, they will improve visibility for both pedestrians and motorists. Improved curb ramps will enhance accessibility for the disabled. This project would enhance safety, support City plans to improve the corridor, and improve access to key destinations in Grass Valley. Figure 4 shows the Colfax Avenue Safe Routes to School project improvements.



The uncontrolled marked crosswalk in front of Hennessy Elementary School requires a crossing guard for safe passage by school children



Bulbouts would provide room for enhanced curb ramps

#### Estimated Construction Cost

\$160,000

#### Candidate Funding Sources

Safe Routes to School Programs: California (SR2S) or Federal (SRTS)









## NEVADA COUNTY PEDESTRIAN IMPROVEMENT PLAN

### ***West Main Street Traffic Calming – Grass Valley***

#### Project Need

West Main Street is a busy roadway that serves as the gateway to downtown Grass Valley and connects the City's residential areas to the downtown commercial center. West Main Street carries 12,100 vehicles per day, has two vehicle lanes, a speed limit of 25 miles per hour, and is approximately 50 feet wide. Three pedestrian-vehicle collisions occurred on West Main Street between 2004 and 2009.

Entering downtown, West Main Street has a steep downhill section that can create high vehicle speeds. Several uncontrolled marked crosswalks connect land uses to the north and south; these crosswalks have decorative brick pavers. In general, West Main Street has a wide street cross-section that likely contributes to low motorist yielding rates at the uncontrolled marked crosswalks. Limited sight distance due to minimal commercial building setbacks contribute to motorists' stopping in the crosswalk at stop-controlled intersection approaches, encroaching into pedestrian space.

#### Project Description

The uncontrolled marked crosswalks on West Main Street should be upgraded to include bulbouts, curb ramps, and improved signage. The existing brick crosswalks should be maintained; the crosswalks contribute to the pedestrian realm and provide a positive traffic-calming effect. By narrowing the perceived roadway width, bulbouts should provide further traffic calming benefits. Additionally, they will improve visibility for both pedestrians and motorists. Improved curb ramps will improve accessibility for the disabled. Advanced stop bars at stop-controlled intersection approaches will encourage motorists to stop before the crosswalk, and then proceed once they are sure that no pedestrians are present. This project would enhance safety, improve access to key destinations in Grass Valley, and improve accessibility for the disabled. Figure 5 shows the West Main Street Traffic Calming project improvements.



The uncontrolled marked crosswalk at School Street



Bulbouts would further enhance the existing brick crosswalk

#### Estimated Construction Cost

\$125,000

#### Candidate Funding Sources

Transportation Enhancement (TE) Program









## NEVADA COUNTY PEDESTRIAN IMPROVEMENT PLAN

### ***Ridge Road Safe Routes to School – Grass Valley and Nevada County Unincorporated***

#### Project Need

Ridge Road serves residents of both Grass Valley and unincorporated Nevada County and provides access to the region's primary high school: Nevada Union High School. Ridge Road carries 10,100 vehicles per day, has three vehicle lanes (one in each direction and a two-way left-turn lane), a speed limit of 35 miles per hour (with a 25 mile per hour school zone), and is approximately 50 feet wide. One pedestrian-vehicle collision occurred on Ridge Road between 2004 and 2009.

Sidewalks exist along much of Ridge Road; however, some are constructed of asphalt, are narrow, and have suffered root damage from nearby trees. Uncontrolled marked crosswalks connect residential land uses to the high school but have no enhancements beyond standard striping. Motorist yielding rates are low at these crosswalks.

#### Project Description

The uncontrolled crosswalks on Ridge Road should be upgraded to include pedestrian refuge islands, curb ramps, improved signage, and high-visibility striping. By narrowing the roadway width for vehicles, pedestrian refuge islands should decrease speeding. Additionally, they will improve visibility for both pedestrians and motorists. Improved curb ramps will improve accessibility for the disabled. This project would enhance safety and improve access to key destinations in Grass Valley. Figure 6 shows the Ridge Road Safe Routes to School project improvements.

#### Estimated Construction Cost

\$170,000

#### Candidate Funding Sources

California Safe Routes to School Programs (SR2S)









## NEVADA COUNTY PEDESTRIAN IMPROVEMENT PLAN

### ***City Hall Crosswalk – Nevada City***

#### Project Need

Broad Street is a two-lane street in the heart of Nevada City's historic downtown and serves many local businesses. Broad Street has two vehicle lanes, a speed limit of 25 miles per hour, and is approximately 34 feet wide.

Uncontrolled marked crosswalks connect land uses on either side of Broad Street but have no enhancements beyond standard striping. On-street parking contributes to the vibrant downtown; however, it also limits pedestrian visibility when entering a crosswalk. The uncontrolled marked crosswalk in front of City Hall is commonly used by both visitors and City residents.

#### Project Description

At a minimum, the uncontrolled marked crosswalk in front of City Hall should be upgraded to include high-visibility striping. High-visibility striping will make the crosswalk more visible to motorists and will increase pedestrian awareness of the uncontrolled crossing. Small bulbouts would further enhance the crosswalk by improving visibility for both pedestrians and motorists. Additionally, bulbouts would provide more sidewalk area for the construction of curb ramps. This project would enhance safety, improve access to key destinations in Nevada City, and improve accessibility for the disabled. Figure 7 shows the City Hall Crosswalk project improvements.



The uncontrolled marked crosswalk in front of City Hall has standard striping



Bulbouts would provide room for enhanced curb ramps

#### Estimated Construction Cost

\$60,000

#### Candidate Funding Sources

Transportation Enhancement (TE) Program









### ***South Nevada City Safe Routes to School – Nevada City***

#### Project Need

Sacramento Street and Searls Avenue connect downtown Nevada City to the southern City limits. Sacramento Street and Searls Avenue each have two vehicle lanes, a speed limit of 25 miles per hour, and are approximately 24 feet wide. Two pedestrian-vehicle collisions occurred on Sacramento Street between 2004 and 2009.

Gaps exist intermittently throughout the sidewalk network on both streets. The lack of sidewalks presents a challenge for both adult pedestrians destined for downtown Nevada City and children walking to Gold Run Elementary School. Several uncontrolled marked crosswalks connect residences to the school but have no enhancements beyond standard striping. The skew of the Sacramento Street / Zion Street intersection causes a long crosswalk length and limited sight distance.

#### Project Description

Sidewalks should be constructed on the north sides of Sacramento Street and Searls Avenue to eliminate gaps in the existing sidewalk network. On Sacramento Street east of Zion Street, the existing elevated sidewalk should be reconstructed/graded to be placed at street level. Uncontrolled marked crosswalks should be upgraded to include high-visibility striping. High-visibility striping will make the crosswalks more visible to motorists and will increase pedestrian awareness of the uncontrolled crossing. The Sacramento Street / Zion Street intersection should be realigned to an orthogonal intersection (“squared up”) to improve the existing side-street stop control; this would shorten the crosswalk across the intersection’s north leg and would improve visibility for the uncontrolled marked crosswalk across Sacramento Street. This project would enhance safety, improve access to key destinations in Nevada City, and improve accessibility for the disabled. Figure 8 shows the South Nevada City Safe Routes to School project improvements.



The uncontrolled (school-yellow) marked crosswalk at Bridge Way would be enhanced with high-visibility striping



Lowering the sidewalk to street level on Sacramento Street would improve accessibility

#### Construction Cost

\$985,000

#### Candidate Funding Sources

Safe Routes to School Programs: California (SR2S) or Federal (SRTS)









### ***Donner Pass Road Safe Routes to School Improvements – Truckee***

#### Project Need

Donner Pass Road is a wide, busy roadway through the heart of Truckee that provides access to many of Truckee's major destinations: schools, businesses, ski resorts, and residences. Donner Pass Road carries 12,600 vehicles per day, has three vehicle lanes (one in each direction and a two-way left-turn lane), a speed limit of 35 miles per hour (with a 25 mile per hour school zone), and is approximately 50 feet wide. Two pedestrian-vehicle collisions occurred on Donner Pass Road between 2004 and 2009.

Gaps exist intermittently throughout the sidewalk network. The lack of sidewalks presents a challenge for both adult pedestrians and children walking to Truckee Elementary School and Truckee High School. Several uncontrolled marked crosswalks connect land uses to the north and south but have no enhancements beyond striping. Vehicles speed through this corridor and often fail to yield the right-of-way to pedestrians in crosswalks.

#### Project Description

Sidewalks should be constructed on the north and south sides of Donner Pass Road to eliminate gaps in the existing sidewalk network. The uncontrolled marked crosswalks on Donner Pass Road should be upgraded to include pedestrian refuge islands, curb ramps, improved signage, and high-visibility striping. By narrowing the perceived roadway width, pedestrian refuge islands should improve yield compliance and decrease the likelihood of vehicles driving over the speed limit. This project would enhance safety, improve access to key destinations in Truckee, and improve accessibility for the disabled. Figure 9 shows the Donner Pass Road Safe Routes to School project improvements.



Sidewalks are missing on key segments of Donner Pass Road



Pedestrian refuge islands would improve crosswalks across Donner Pass Road

#### Estimated Construction Cost

\$760,000

#### Candidate Funding Sources

Safe Routes to School Programs: California (SR2S) or Federal (SRTS)









### ***Donner Pass Road Connectivity – Truckee***

#### Project Need

Donner Pass Road is a wide, busy roadway through the heart of Truckee that provides access to many of Truckee's major destinations: schools, businesses, ski resorts, and residences. Donner Pass Road carries 15,000 vehicles per day, has three vehicle lanes (one in each direction and a two-way left-turn lane), a speed limit of 25 miles per hour, and is approximately 50 feet wide.

Gaps exist intermittently throughout the sidewalk network. The lack of sidewalks presents a challenge for all pedestrians. I-80 separates downtown Truckee from the western part of town along Donner Pass Road; no sidewalks are available under I-80 to offer a pedestrian connection from downtown Truckee to western Truckee. Several uncontrolled marked crosswalks connect land uses to the north and south but have no enhancements beyond striping. Vehicles speed through this corridor and often fail to yield the right-of-way to pedestrians in crosswalks.

#### Project Description

Sidewalks should be constructed on the north and south sides of Donner Pass Road to eliminate gaps in the existing sidewalk network. Retaining walls will be necessary to accommodate sidewalks under the I-80 overpass. The uncontrolled marked crosswalks on Donner Pass Road should be upgraded to include pedestrian refuge islands, curb ramps, improved signage, and high-visibility striping. By narrowing the perceived roadway width, pedestrian refuge islands should decrease the likelihood of vehicles driving over the speed limit. This project would enhance safety, improve access to key destinations in Truckee, and improve accessibility for the disabled. Figure 10 shows the Donner Pass Road Connectivity project improvements.



Sidewalks are missing on key segments of Donner Pass Road, including under the I-80 interchange



Pedestrian refuge islands would improve crosswalks across Donner Pass Road

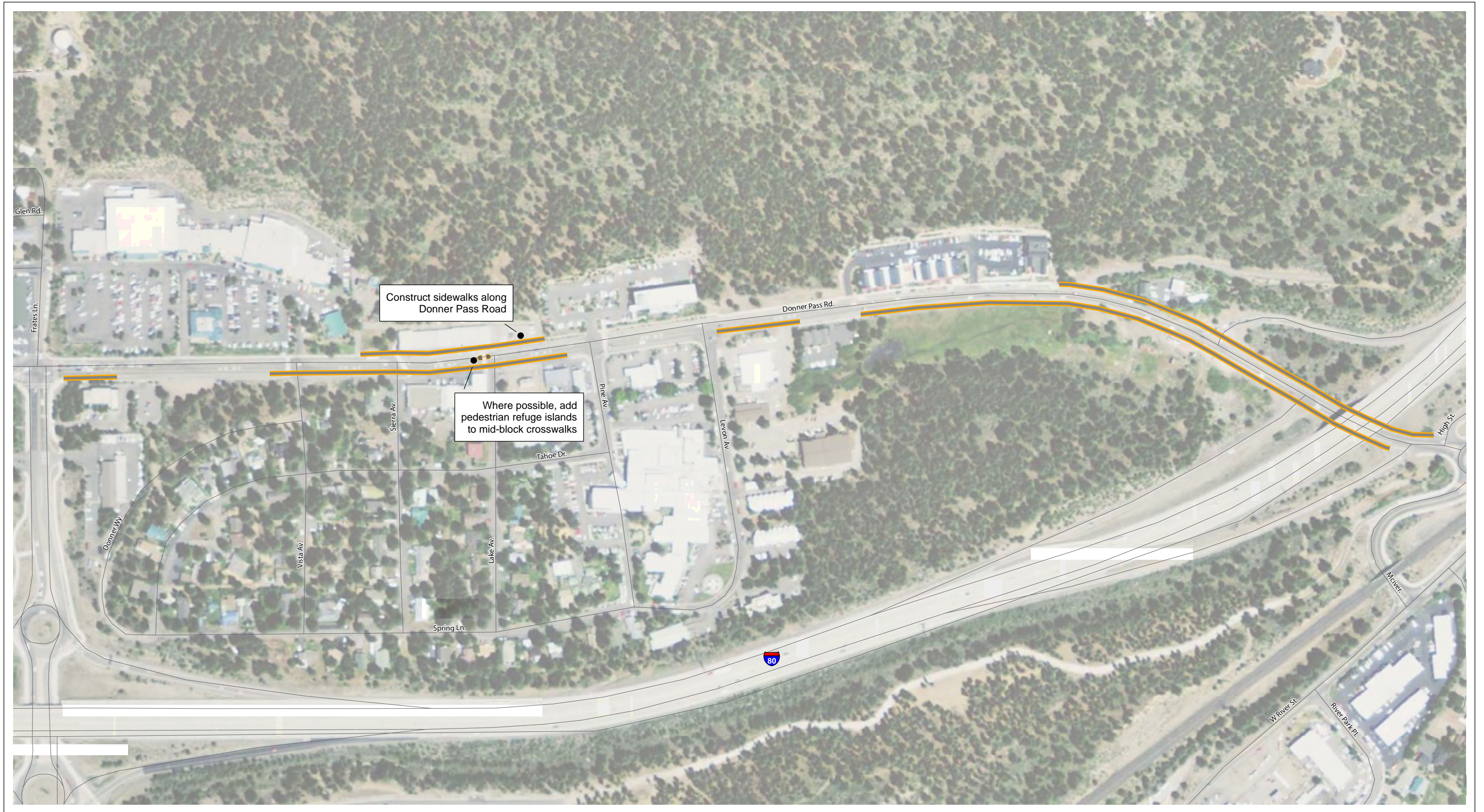
#### Estimated Construction Cost

\$1,275,000

#### Candidate Funding Sources

Transportation Enhancement (TE) Program









## 6. DESIGN GUIDANCE

### MARKED CROSSWALKS

A uniform crosswalk policy that specifies different treatments for crosswalks at controlled (either signalized or stop-controlled) and uncontrolled marked crosswalks is beneficial for pedestrians. While standard crosswalk striping is typically sufficient at controlled locations, high-visibility striping (such as “ladder” striping) is preferable at uncontrolled locations where motorist yielding is required, as ladder striping improves visibility for motorists. Consistent crosswalk striping policies passively alert pedestrians and motorists to uncontrolled crosswalks.



A standard marked crosswalk with two parallel stripes – standard crosswalks are appropriate at stop or signal-controlled locations



A ladder crosswalk in Truckee – ladder crosswalks should be prioritized for use at uncontrolled locations

The first step in identifying candidate marked crosswalk locations at an uncontrolled crossing (without a stop sign or signal) is to identify the places people would like to walk (“pedestrian desire lines”). These places are affected by local land uses (homes, schools, parks, commercial establishments, etc.) and the location of transit stops. This information forms a basis for identifying pedestrian crossing improvement areas and prioritizing such improvements, thereby creating a convenient, connected, and continuous walking environment.

The second step is identifying the locations safest for people to cross. Of all road users, pedestrians have the highest risk because they are the least protected. National statistics indicate that pedestrians represent 14 percent of all traffic incident fatalities, yet walking accounts for only three percent of total trips. Pedestrian collisions occur most often when a pedestrian is attempting to cross the street at an intersection or mid-block location.<sup>1</sup>

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1. *Pedestrian Crash Types, A 1990's Information Guide*, FHWA. This paper analyzed 5,076 pedestrian crashes that occurred during the early 1990s. Crashes were evenly selected from small, medium, and large communities within six states: California, Florida, Maryland, Minnesota, North Carolina, and Utah.



## NEVADA COUNTY PEDESTRIAN IMPROVEMENT PLAN

Several major studies of pedestrian collision rates at marked and unmarked crosswalks have been conducted. In 2002, the Federal Highway Administration (FHWA) published a comprehensive report on the relative safety of marked and unmarked crossings.<sup>2</sup> In 2006, another study was completed that further assists engineers and planners in selecting the right treatment for marked crosswalks based on studies of treatment effectiveness.<sup>3</sup>

These studies represent best practice guidance on when to mark an uncontrolled crosswalk and how to enhance the crosswalk where needed (on higher volume, higher speed, wider roadways).

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2. Zegeer, C.V., J.R. Stewart, H.H. Huang and RA. Lagerwey. "Safety Effects of Marked vs. Unmarked Crosswalks at Uncontrolled Locations: Executive Summary and Recommended Guidelines." Report No. FHWA-RD-01-075. Washington, DC, USA: Federal Highway Administration, March 2002. [http://www.walkinginfo.org/pdf/r&d/crosswalk\\_021302.pdf](http://www.walkinginfo.org/pdf/r&d/crosswalk_021302.pdf).
  3. Fitzpatrick, Kay, *et al.*... *Improving Pedestrian Safety at Uncontrolled Crossings*. TCRP Report 112/NCHRP Report 562. 2006. [http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp\\_rpt\\_562.pdf](http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_562.pdf).





## OTHER DESIGN GUIDANCE

### ***Sidewalk Width***

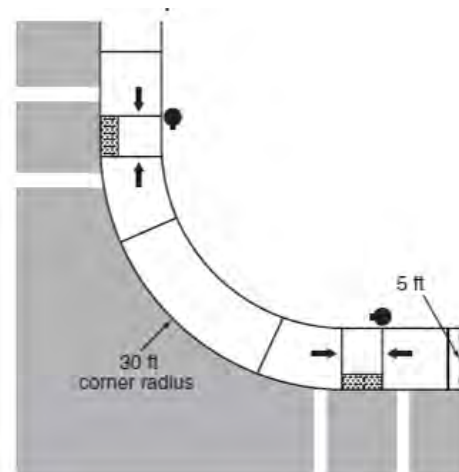
Current minimum standards for sidewalk width in Nevada County and its jurisdictions vary between four and five feet. Wider sidewalks can accommodate more pedestrians and further buffer pedestrians from vehicles. Where possible, strive to install new sidewalks at a minimum width of five feet. In busy areas such as downtowns and school areas, sidewalks should be wider.

### ***Marked Crosswalks on all Signalized Intersection Legs***

Signalized intersections that are missing marked crosswalks on certain legs require pedestrians to cross multiple roadways and encourage jaywalking. Where possible, strive to mark crosswalks on all legs of an intersection when constructing or retrofitting traffic signals.

### ***Directional Curb Ramps***

Providing two curb ramps per corner, each that points directly into the crosswalk, improves access for blind pedestrians. When installing new curb ramps, strive to install two ramps per corner where possible. The City of Sacramento's curb ramp design standards are a best practice.



Source: *Manual on Uniform Traffic Control Devices*

### ***Advanced Stop Bar***

Advanced stop bars are placed in crosswalks; they keep vehicles from encroaching into the crosswalk when stopped at a red light. Advanced stop bars are placed five feet before marked crosswalks.





### ***Countdown Pedestrian Signal***

Countdown pedestrian signals give pedestrians “Walk” and “Don’t Walk” signals and inform them how long they have to cross the street. The 2009 *Federal MUTCD* requires reductions of the pedestrian walking speed from 4.0 feet per second to 3.5 feet per second to reflect average pedestrian walking speeds. The walking speed could be further reduced to accommodate vulnerable populations such as children and the elderly.



### ***Peak Hour Pedestrian Recall***

Peak Hour Pedestrian Recall provides a guaranteed walk phase for each crossing at the signal during peak hours, regardless of whether the pedestrian push button has been activated. This ensures ample time is provided for pedestrian crossings when pedestrians are typically present (even if a pedestrian fails to push the button).



### ***Far-Side Bus Stop***

Bus stops on the far side of a crosswalk or intersection allow pedestrians to cross behind the bus, improving pedestrian visibility. Far side bus stops also enhance transit operations by providing a guaranteed merging opportunity for buses. Where possible, bus stops should be located near existing crosswalks so pedestrians can cross the street in a designated place.



### ***Leading Pedestrian Interval (LPI)***

The Leading Pedestrian Interval provides pedestrians with a walk indicator while all vehicle indicators are red. This allows pedestrians to get a head start crossing the street before vehicles receive the green indication.



### ***Pedestrian Refuge Island***

Raised islands are placed in the center of the roadway, separating opposing lanes of traffic with cutouts or ramps for accessibility along the pedestrian path.



### ***Bulbout***

Bulbouts are meant to slow traffic and increase driver awareness of pedestrians. It consists of an extension of the curb into the street, which decreases crossing distance and improves visibility.







**APPENDIX**